

# Evaluation of the NSW Clontarf Academies Program

Centre for Education Statistics and Evaluation



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**The authors would like to acknowledge the contribution of staff in the Centre for Education Statistics and Evaluation (CESE) and the members of the Project Reference Group (PRG) who contributed to the design and execution of this research. Our appreciation is also extended to the many school principals, teachers, Clontarf Academy staff, members of the community and students who participated in interviews or completed surveys for this report.**

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# Abbreviations

|                |                                                              |
|----------------|--------------------------------------------------------------|
| ABS            | Australian Bureau of Statistics                              |
| ACER           | Australian Council for Educational Research                  |
| AECG           | Aboriginal Educational Consultative Group                    |
| AEO            | Aboriginal Educational Officer                               |
| AIC            | Australian Institute of Criminology                          |
| AITSL          | Australian Institute for Teaching and School Leadership      |
| ARIA           | Accessibility Remoteness Index of Australia                  |
| ARR            | Apparent Retention Rate                                      |
| ASLO           | Aboriginal Student Liaison Officer                           |
| BCR            | Benefit-Cost Ratio                                           |
| BOCSAR         | Bureau of Crime Statistics and Research                      |
| CASEL          | Collaborative for Academic, Social and Emotional Learning    |
| CESE           | Centre for Education Statistics and Evaluation               |
| COAG           | Council of Australian Governments                            |
| CPI            | Consumer Price Index                                         |
| DID            | Difference-in-Differences                                    |
| DoE            | NSW Department of Education                                  |
| FTE            | Full Time Equivalent                                         |
| EFTSL          | Equivalent Full Time Student Load                            |
| NAPLAN         | National Assessment Program — Literacy and Numeracy          |
| NATSISS        | National Aboriginal and Torres Strait Islander Social Survey |
| NPV            | Net Present Value                                            |
| P&C            | Parents and Citizens                                         |
| PRG            | Project Reference Group                                      |
| PSD            | Post-school Destinations                                     |
| RAM            | Resource Allocation Model                                    |
| ROD            | Reoffending Database                                         |
| SEIFA          | Socioeconomic Index of Area                                  |
| SEL            | Social and Emotional Learning                                |
| SES            | Socioeconomic Status                                         |
| SLSO           | Student Learning Support Officer                             |
| The Department | NSW Department of Education                                  |
| The Foundation | The Clontarf Foundation                                      |
| VET            | Vocational Education and Training                            |

# Executive summary

---

This report presents the findings of CESE's evaluation of the Clontarf Academies program, which currently operates in 25 schools across New South Wales (NSW). The scope covers the 12 Academies established before 2016, with a focus on the seven established in 2012.

This evaluation draws on administrative data on school attendance, retention, suspensions, NAPLAN participation, post-school outcomes and contact with the criminal justice system, as well as stakeholder interviews, site visits and a survey of Clontarf participants.

The evaluation has three components: a process evaluation, an outcome evaluation and an economic evaluation.

## Process evaluation

Participating principals have been pleased overall with the running of the program and expressed broad confidence in the model.

The process evaluation identified several factors that are critical to the effective functioning of the Academies in NSW schools. These included:

- Careful recruitment of staff (Aboriginal and non-Aboriginal) who are passionate, dedicated, respected in their local community and able to build strong and trusting relationships with the boys.
- Clear communication channels between Clontarf and the school in order to minimise potential misunderstandings and misgivings, particularly around the rationale for time spent out of the classroom during school hours and the program being only for Aboriginal boys.
- Ensuring that the Academy and its staff are involved in the school and not just a 'tack-on'.
- Provision of resources and a sufficiently large physical space for the Academy to operate.
- A holistic approach by the Academy in terms of the variety and intensity of activities offered and a broad-based approach to wellbeing.

In most cases, these factors were identified by stakeholders as having been successfully delivered, negotiated or resolved as part of the implementation.

Less often, there were issues along these lines that Academies and schools were actively working on or had identified the need to address. Examples here include ongoing efforts to ensure that academies are inclusive of all Aboriginal boys (not just those who are 'sporty' or naturally fit in with the other boys), managing instances of anti-social behaviour and finding effective ways of engaging parents and families and keeping them informed.

## Outcome evaluation

The overall sentiment among the school principals, teaching staff, community members, students and parents we interviewed is that the Clontarf Academies have been beneficial for many of the Aboriginal male students in the participating schools. This includes observations

of improved wellbeing and conduct among groups of students who have been influenced by the program, as well as evidence of more positive attitudes towards school and Clontarf boys stepping up into positions of student leadership.

The reliance on qualitative self-report data for some of these outcomes, particularly around student wellbeing and attitudes towards schooling, is an unavoidable limitation of this evaluation. Wherever possible, the evaluation sought to test subjective impressions by assessing the underlying administrative data and conducting statistical analysis on a range of outcomes.

In reading the quantitative analysis, note that trend data is based on only three years. Some analysis is also limited by small sample sizes, which reduces the chance of detecting a statistically significant Clontarf effect in the data.

### **Attendance**

School attendance patterns among Aboriginal boys vary substantially from one participating school to the next, both in their baseline (pre-Clontarf) state and trends since then (i.e. 2012-2015).

Regression modelling found a statistically significant 'Clontarf effect' on school-level attendance among Aboriginal boys in Years 7, 8 and 9, but not in Years 10, 11 or 12. This effect equates to an increase of 4.0 days schooling per student per year for Aboriginal boys in Year 7, 10.6 days in Year 8 and 9.8 days in Year 9.

Only time will tell if the influence of the Clontarf Academies on senior students' attendance increases in future years, as these Year 7-9 students move into Years 10-12.

Participation in Clontarf activities during school hours is counted by school as attendance. This amounts to an estimated 2-4 days per term for students in Years 7-10, and half that amount for students in Years 11 and 12.

### **NAPLAN participation**

Regression modelling found no evidence of a positive impact on Year 7 or Year 9 NAPLAN participation rates in Reading or Numeracy, either for Aboriginal males or for all male students. (The analysis for all male students was run to look for a possible 'spill-over' effect in the broader student population.)

### **Retention**

Statistical modelling found no significant difference between Clontarf schools and non-Clontarf schools in terms of overall student retention from Year 10 through to Year 12.

Within Clontarf schools, students who were heavily involved in the Academy had a greater likelihood of completing Year 12 (70%) than non-participants at the same school (51%). There is no way of testing for causality here, namely whether heavy involvement in the Academy leads to higher retention rates, or simply whether students who are naturally more inclined to finish school also show a greater interest in Clontarf activities.

### *Long suspensions*

A cohort analysis found no evidence of a positive impact on long suspension rates for Aboriginal boys at the Clontarf schools. The analysis also found no positive spill-over effects on long suspensions in the broader student population at these schools.

It may be that this stable suspension rate masks movement within the student population, where some students start to behave better while others who are more disruptive re-engage with school but are more likely to be suspended. However, the individual-level data available to this evaluation do not allow the analysis required to test for this.

### *Crime*

Drawing on data provided by the NSW Bureau of Crime Statistics and Research, statistical modelling found no significant impact of the Clontarf Academies program on students' risk of re-offending after a first offence. This analysis is limited by a small sample size. Observing additional years of data would allow clearer conclusions to be drawn.

### *Post-school destinations*

Within two years of leaving school, Clontarf graduates were more likely to be working or studying (and less likely to be 'looking for work') than the general trend for Aboriginal males in non-metropolitan areas across NSW. Despite necessary caution due to sample size limitations, this provides an encouraging indication of Clontarf Academies having some success in their endeavour to improve the future prospects of its graduates.

## **Economic evaluation**

The economic evaluation assessed costs and benefits from a national, economy-wide perspective, taking into account flows accruing to individuals (Clontarf participants), governments (both State and Commonwealth) and broader society (corporate sponsors and donors). The analysis was confined to the monetisation of benefits relating to education, earnings, tax payments and participation in public welfare programs. In other words, the analysis incorporates benefits stemming from the measurable aspects of the program's effectiveness, as found in the statistical modelling in the outcome evaluation.

The analysis excluded a range of potential benefits that are difficult to estimate and/or monetise, such as improvements in wellbeing, health effects, indirect crime effects and flow-on effects for other members of society (non-participants). This is likely to lead to an understatement of program benefits. This conservatism in the analysis is offset by applying estimated benefits from a higher rate of school retention that is only statistically found among students that are heavily involved in the program (approximately three in five Aboriginal males in Clontarf schools), for which causality cannot be confirmed.

Based on these assumptions, and a real discount rate of 7%, the program's benefit-to-cost ratio (BCR) is estimated to be 1.01. That is, based on the costs and benefits included in the analysis, the program returns a 'social profit' of \$0.01 per \$1 invested. The BCR is sensitive to the discount rate assumption, lifting to 1.54 with a 4% real discount rate but falling below break-even point (0.74) when a 10% discount rate is applied.

This BCR of 1.01 is based on the total annual program cost of \$7,500 per participant. Assessing the benefits against only the cost to the NSW Government (\$2,500 per participant), the BCR lifts to 1.78.

## Conclusions

Consultation with schools, students and local community members revealed a consistent and strongly held view that the Clontarf Academies are a valuable school engagement program for male Aboriginal students. Notwithstanding some limitations, the overriding view among the stakeholders we consulted was that the Clontarf Academies in NSW have been well implemented and that the program generates visible benefits for many of the participants — particularly in terms of attracting boys to school, providing good role models, improving their sense of self-esteem and confidence, and providing a welcoming and encouraging environment at school. This consultation covered all academies established prior to 2015, but was not exhaustive.

Statistical analyses for a range of educational and criminal justice outcomes indicated a much more modest impact. The modelling found a positive attendance effect for Years 7-9, but no significant effect for retention, NAPLAN, long suspensions or re-offending.

Comparing these modest impacts to the costs of delivering the program, the cost benefit analysis found the program to be essentially at break-even point — delivering benefits in line with its costs.

**Overall, this evaluation finds that the Clontarf Academies are generating at least some positive outcomes for many of the participating young Aboriginal males in NSW schools. However, the overall magnitude of the impact to date has been less dramatic than the feedback from stakeholders and participants would otherwise suggest.**

One explanation for this may be stakeholder perceptions of the program being dominated by only a subset of Clontarf participants, for whom the impact has been more apparent. For Phase 2 Academies, it may also be the case that school stakeholders hold a more positive view of the program's impact due to an expectation of success following an investment of funds into the program.

The inclusion of additional years of data would allow clearer conclusions to be drawn about the effectiveness of the Academies in achieving their stated objectives, particularly as some benefits may only become apparent as the Academies mature.

# 1 Introduction

## 1.1 Background

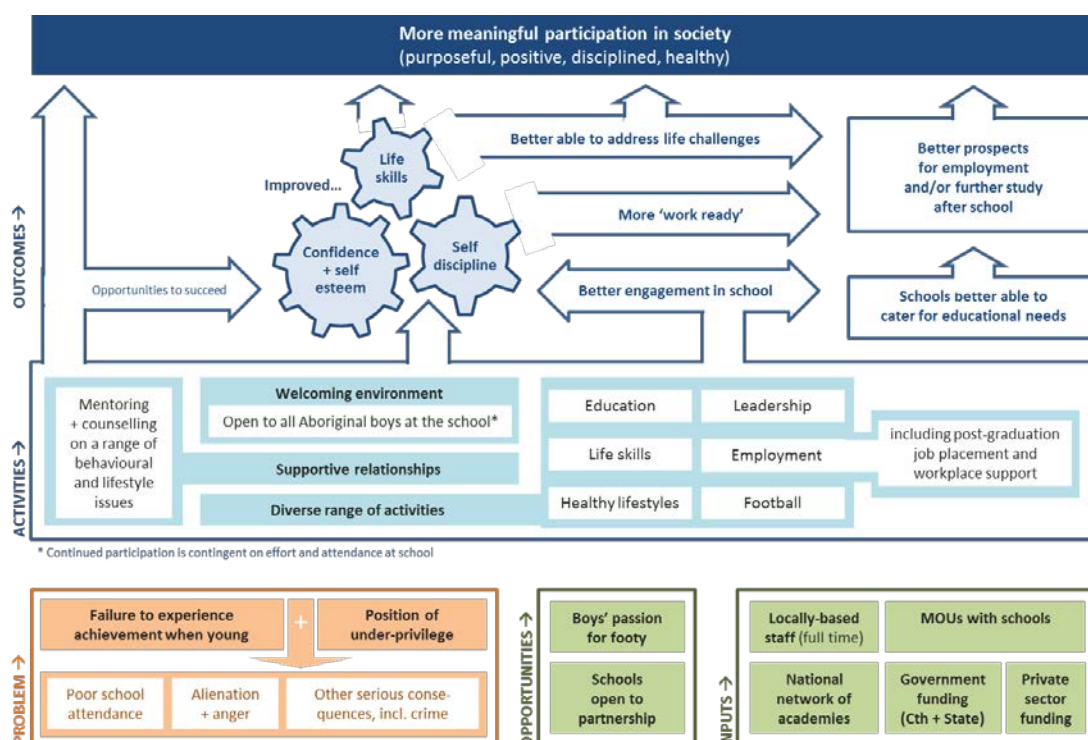
### *The Clontarf Academies*

The first Clontarf Academy was established in 2000 at Clontarf Secondary College in Perth, Western Australia, in an effort to improve the education, health and employment outcomes of Aboriginal and Torres Strait Islander boys at the school. The program subsequently expanded to other schools in Western Australia, then into the Northern Territory and Victoria.

Seven Academies were established in NSW in 2012, with another two rounds of expansion in 2014 and 2016-17. There are now 74 Academies across Australia, catering for over 4,600 boys in 84 schools.

Across Australia, the program operates through a network of football academies established in partnership with local schools. Any boy who identifies as Aboriginal or Torres Strait Islander and is enrolled at a participating school is eligible to enrol in the Clontarf Academy at the school. The Academies use sports like Rugby League and AFL as a mechanism to engage and retain boys in school. The Academies also offer a range of other activities, such as camps, excursions, leadership and team-building exercises, tutoring and homework assistance, health and hygiene checks, and workplace visits. Upon leaving school, graduates are also helped to find employment and are supported through this process for at least a year. The logic model used to guide this evaluation is presented in Figure 1.

**Figure 1:** Logic model of the Clontarf Academies program



Source: CESE, based on analysis of Clontarf Foundation materials.

## Previous evaluations

Nationwide, the Clontarf Foundation reports an 80% school attendance rate among its Academy members, and a school/work retention rate of 90% (Clontarf Foundation, 2015).<sup>1</sup> The Foundation (2012) also reports evidence of reduced crime rates in the community in areas where Clontarf Academies have been established.

A study commissioned by the Clontarf Foundation and conducted by Curtin University in 2013 found that graduates of the Clontarf program in Western Australia were less likely to have had any contact with the criminal justice system than a matched control group (Ferrante and Hendrie, 2013). Criminal records were only available in this study for people who provided active consent; this represents a significant limitation of the study.

An unpublished cost-benefit analysis by ACIL Allen Consulting in 2014, also commissioned by the Clontarf Foundation, monetised this impact of Clontarf Academies on participants' offending rates, as well as educational outcomes, workforce participation and long-term health outcomes. This analysis concluded that Clontarf Academies return a benefit of \$2.17 for every \$1 invested (in present value terms).

An Australian Council for Educational Research (ACER) evaluation of the Clontarf Academies program (and a number of similar sporting Academies) also reported that sporting academies were having a positive impact on students in terms of attendance, engagement, achievement, retention and parental/community involvement (Lonsdale et al., 2011). This evaluation was qualitative in nature.

## 1.2 This evaluation

### Purpose

A need was identified in 2014 to undertake a rigorous evaluation that would build a stronger evidence-base for the effectiveness of the program in NSW.

The primary aim of CESE's evaluation was to determine whether the Academies have had an impact on educational participation in NSW schools (e.g. school attendance, retention and NAPLAN participation) and social outcomes in the community (e.g. contact with the criminal justice system).<sup>2</sup>

Moreover, operating on a budget of \$7,500 per participant per year (one-third of which comes from State government funding), the program is relatively resource-intensive. Understanding how much it costs to achieve improvements in retention, attendance and other outcomes for Aboriginal students is critical as public schools move into a devolved funding model under the *Local Schools, Local Decisions* policy.

Specifically, the aims of the evaluation were to:

- i. Identify strengths and weaknesses in the implementation of the program, including aspects that have been going well and where there is room for improvement in structure or delivery (process evaluation).

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<sup>1</sup> The school/work retention rate reflects the number of Academy members at the end of the year who are either still at the school, at another school or educational institution or who are in employment or undertaking training, expressed as a percentage of the total number of boys enrolled in the Academy at the start of the year (Clontarf Foundation, 2015).

<sup>2</sup> While CESE also recognises the importance of assessing how the Clontarf Academies program connects with local Aboriginal languages and cultures, this lies beyond the scope of inquiry for the current evaluation.

- ii. Determine whether students enrolled in the Clontarf Academies are more engaged in school and achieve more positive criminal justice outcomes compared to students who did not participate in the program (outcome evaluation at individual level).
- iii. Determine whether there has been diffusion of benefits in schools following the introduction of Clontarf Academies (outcome evaluation at school level).
- iv. Assess the program's value for money through a cost-benefit analysis, considering outcomes for Clontarf Academy students against the cost of the program (economic evaluation).<sup>3</sup>

## Governance

The evaluation was conducted by CESE. A Project Reference Group (PRG) was established to ensure collaboration and a shared understanding of the context and implementation of the evaluation. PRG membership is detailed in Appendix A, and included the NSW Aboriginal Education Consultative Group (AECG), the Clontarf Foundation, and representatives from across the Department of Education (including a principal from a Clontarf school).

## 1.3 Coverage

### 1.3.1 Clontarf Academies

While there are currently 24 Clontarf Academies (operating in 25 schools) across NSW, this evaluation focussed solely on the 12 Academies established prior to 2016. These Academies fall into three Phases (Box 1).

**Box 1:** Academies in scope for this evaluation

Phase 1: Seven Academies established in Northern NSW in the second half of 2012:

- Armidale High School
- Bourke High School
- Brewarrina Central School
- Coonamble High School
- Inverell High School
- Moree Secondary College (Academy operates across two campuses)
- Oxley High School, Tamworth

Phase 2: Three Academies established in 2014, with a fourth in early 2015:

- Mt Austin High School, Wagga Wagga
- Dubbo College: South (Y7-10)
- Dubbo College: Delroy (Y7-10)
- Dubbo College: Senior Campus (Y11-12) (established 2015)

Phase 3: The Academy at Endeavour Sports High School, Caringbah (established 2015).

The process evaluation analyses the implementation of Clontarf Academies across all 12 of these Academies. However, the outcome and economic evaluations focus only on the Phase 1 Academies, for which a longer post-program impact may be observed.

### 1.3.2 Comparison schools

Throughout the evaluation, quantitative outcomes for individuals in the Clontarf program are compared with those among an appropriate control group (i.e. a similar group of students enrolled in similar schools who did not have access to the program at the time).

<sup>3</sup> The cost benefit analysis was conducted by CESE, with guidance from Dr George Argyrous from the Australia and New Zealand School of Government (ANZSOG).

The control (or ‘comparison’) group used in this evaluation consists of Aboriginal male students attending a school that either: (a) has opened up a Clontarf Academy in 2016; or (b) had been identified at the time of the analysis by the Department and the Clontarf Foundation as a potential expansion site in the future.

Listed in Appendix B, these schools are deemed to be sufficiently similar to those with Academies already included within the scope of the evaluation and thus provide a suitable counterfactual for how student outcomes may have progressed in the absence of Clontarf.

## 1.4 Data sources

### 1.4.1 Interviews and site visits

In Terms 3 and 4 of 2015, CESE’s evaluators interviewed all of the Academy Directors (n=12) and school principals (n=14) at participating schools in NSW (referred to in this report as ‘Clontarf schools’). The inclusion of all school principals and Academy Directors in the selection of interviewees was considered necessary as these individuals hold intimate knowledge of the program in situ and are able to provide valuable insights into the operation of the Academies.

These semi-structured interviews typically lasted between 45 minutes to one hour. Discussion was guided by a series of high level questions provided in advance (see Appendix C1). Participants were also encouraged to steer the conversation onto any other matters they considered to be relevant to the evaluation.

CESE’s principal evaluator for this project also conducted field visits to selected Academies during Term 4 2015, conducting interviews with the two Clontarf Academy Regional Directors and other senior staff at the Clontarf Foundation, attending a small number of Academy-run events (in Dubbo, Sydney and Moree) and running group discussions with operational staff during their Professional Development days.

Drawing on recommendations and feedback from the Academy Directors, school principals and other stakeholders and members of the PRG, CESE conducted a follow-up round of interviews in Term 2 of 2016. A total of 26 individuals were interviewed during this second round of consultation, including a diverse range of local community members, long-serving members of the teaching staff (including Aboriginal staff), Presidents of P&C Associations and local Aboriginal Educational Consultative Group (AECG) Presidents. A complete list of individuals participating in the stakeholder interviews is provided in Appendix C2.

### 1.4.2 Student survey

All members of Clontarf Academies were invited to complete a pen-and-paper survey as part of the evaluation.

Students at Phase 2 and 3 schools were surveyed in Term 1 2016 by *Synergistiq*, an evaluation consulting firm contracted by the Australian Government to evaluate the Clontarf expansion measure (2014-15) in NSW, Queensland and Western Australia.<sup>4</sup> The survey instrument and protocol was approved through the relevant ethical clearance processes.

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<sup>4</sup> The program receives funding from Commonwealth and State Governments, as well as private sector donors/sponsors. See Section 2.4 for details.

*Synergistiq* collected a total of 131 survey responses across the Phase 2 and 3 Academies, a response rate of approximately 30%.

Students at Phase 1 schools were surveyed by CESE in Terms 2 and 3 of 2016, using a very similar survey instrument (Appendix D) and under the supervision of an independent school staff member.<sup>5,6</sup> This fieldwork collected a total of 238 survey responses across the Phase 1 Academies, gaining a response rate of approximately 60%.

### 1.4.3 Administrative data sources

The evaluation draws on a number of key administrative data sets, listed in Table 1.

**Table 1:** Administrative data sources used in the evaluation

| Data                                                              | Source                                                                                                          | Notes                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| School enrolments                                                 | National Schools Statistics Collection (NSSC) data cube, populated with NSW data, held by Statistics Unit, CESE | Enrolments are based on a midyear census undertaken annually in August by the Statistics Unit, CESE                                                                                                                                        |
| School attendance                                                 | Return of absences census conducted in Term 4, 2015 by the Statistics Unit, CESE                                | Distance education and Schools for Special Purpose do not participate in the absences collection                                                                                                                                           |
| NAPLAN participation                                              | National Assessment Program – Literacy and Numeracy (NAPLAN) data cube, Statistics Unit, CESE                   | More information on the NAPLAN assessment is available at: <a href="http://www.nap.edu.au/naplan">http://www.nap.edu.au/naplan</a>                                                                                                         |
| Long suspensions                                                  | Suspensions and Expulsions data collections conducted annually by Statistics Unit, CESE                         | Data prior to 2012 is sourced from historical suspensions and expulsions datasets provided to the Statistics Unit by the former Student Welfare Directorate. No additional data validation has been performed on pre-2012 suspensions data |
| Post-schools destinations (non-Clontarf)                          | NSW Survey of Secondary Students' Post-School Destinations and Expectations                                     | This annual survey is conducted by the Social Research Centre on behalf of the NSW Department of Education                                                                                                                                 |
| Post-schools destinations (Clontarf)                              | Clontarf Foundation data (unpublished)                                                                          | Post-schools outcomes for all Clontarf boys are as at July, 2015                                                                                                                                                                           |
| Unit record level criminal data for Clontarf Academy participants | NSW Reoffending Database (ROD), Bureau of Crime Statistics and Research (BOCSAR)                                | The ROD contains information on each person who has been convicted of a criminal offence in NSW since 1994. This data was provided to CESE de-identified, following ethical approval and the submission of a Deed of Access                |

Administrative data were analysed using Stata version 14 or WinBUGS version 1.4. Detailed descriptions of statistical analyses can be found in Appendices E to K.

## 1.5 Limitations

The scope of this evaluation excludes:

- The governance and management of the Clontarf Foundation as a whole, or matters relating to contract negotiation and contract management between the Clontarf Foundation and the NSW Government (including the Department of Education).

<sup>5</sup> For clarity purposes, some minor amendments were made to the original questions contained in the *Synergistiq* survey.

<sup>6</sup> While the impact of who supervises student completion is one of the inherent limitations of any survey, CESE opted for the use of school staff rather than Clontarf Academy staff in order to mitigate some of this impact. It should also be noted that the survey was completed by current Clontarf participants only. The exclusion of boys who chose not to join the Clontarf program may represent a further limitation to the survey.

- Consideration of whether or not the model ought to have an explicit focus on engagement with Aboriginal culture and language.
- Comparative assessment of the Clontarf Academies program against other programs that share similar objectives around student engagement and wellbeing.

There are five main limitations that need to be borne in mind while reading this report:

- *General limitations of qualitative data* – The interviews and surveys reported in this evaluation allowed participants and stakeholders to tell their story in their own words. Qualitative data is well suited to describing lived experiences and helpful for exploring emerging issues and providing description and context. At the same time, qualitative data is inherently subjective and reliant on memory. Self-report data also run the risk of social desirability bias, i.e. the innate human desire not to appear foolish or ‘say the wrong thing’. Wherever possible and practical, views expressed in interviews were substantiated during the interview by asking for examples and further details and exploring other possible explanations.
- *General limitations of quantitative data* – Although every effort has been made to extract maximum value from the existing administrative data sets, we can only analyse that which has been recorded by schools and reported through to the Department. Some of these data (e.g. attendance) are only available for Aboriginal boys at a school level, and not for individual students.
- *Comparison schools* – While the rationale for assembling the comparison school set is sound, each school is its own educational ecosystem and there are numerous contextual factors that make any school unique. This means there is no way of establishing a perfectly matched control group for Clontarf schools to provide a point of comparison for trends in Clontarf schools since 2012.
- *Sample size and statistical significance* – There were 907 Aboriginal boys in total enrolled in Years 7-12 at Phase 1 schools during 2012-15, and 2,230 at the comparison schools. As with any quantitative analysis, we needed to run statistical tests in order to estimate whether an apparent difference between groups is large enough to be considered statistically significant. Where sample sizes are smaller (e.g. when looking at attendance by Year group, school-wide rates in long suspensions, criminal re-offending or Year 10-12 retention), differences need to be bigger to meet this threshold for statistical significance.
- *Timeframes* – It is possible that some stakeholders’ views about certain issues have changed since the qualitative consultation was undertaken. Also, at the time when the quantitative data for this evaluation were collected and collated, the oldest Clontarf academies in NSW had been running for approximately three years (established in the second half of 2012). Longer timeframes for analysis may be required to establish the full effect of the program. That is to say, the absence of a significant impact by 2015 or 2016 does not necessarily mean that the program *does not* have an effect, or that it *cannot* or *will not* in the future – it simply means that it *has not* had that effect so far.

Other specific limitations of particular data sets or methodological approaches (e.g. the limitations of the economic analysis) are explained in the appropriate part of the report.

## 2 Program implementation

### 2.1 Student participation in Clontarf Academies

#### Eligibility

Under the current model, any Aboriginal male enrolled at a participating school is eligible to participate in the Clontarf Academy. This inclusion of all Aboriginal boys is intended to help build community and teamwork, including positive peer pressure, and to prevent the isolation of boys who are struggling. Students self-select into the program and have discretion regarding the degree of involvement they wish to have in the Academy and its activities.

#### Involvement

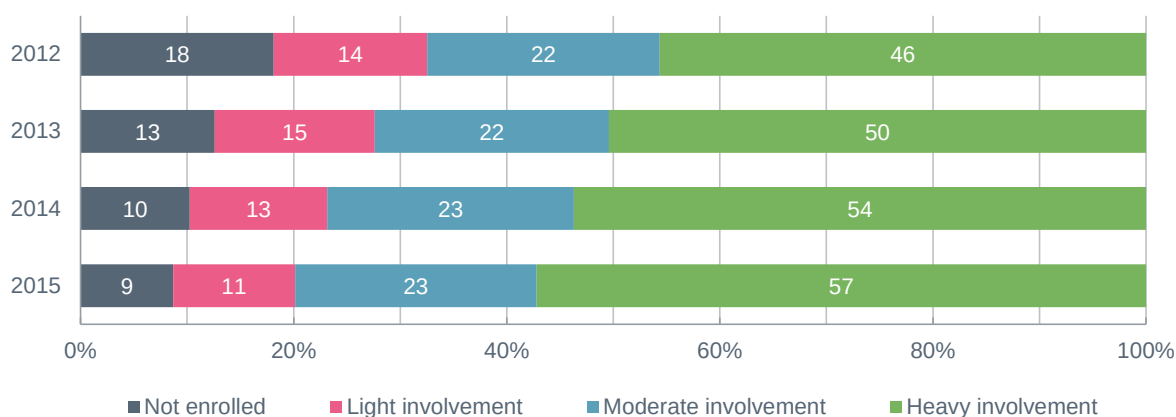
For each student attending a Clontarf school, their level of involvement in the Clontarf Academy involvement was graded as one of four categories:

- (0) Did not enrol in the Clontarf Academy
- (1) Light involvement – enrolled but only participated at a superficial level (e.g. roll-call)
- (2) Moderate involvement – participated actively in some activities or for part of the time (i.e. 'half-in half-out')
- (3) Heavy involvement – participated actively and consistently in a broad range of activities.

This 'Clontarf involvement' measure was assigned by Clontarf staff for each boy as an average involvement level across all years (i.e. 2012 to 2015), and was collected for Phase 1 schools only.

As seen in Figure 2, over 80% of Aboriginal boys at Phase 1 schools enrolled in the Clontarf Academy in its first year of operation (2012). This grew to over 90% enrolment in 2015, with over half (57%) rated by staff as being 'heavily involved'. This shows that the Academies were well received by students in the first instance, and have been increasingly successful at attracting Aboriginal boys into the program as they have matured.

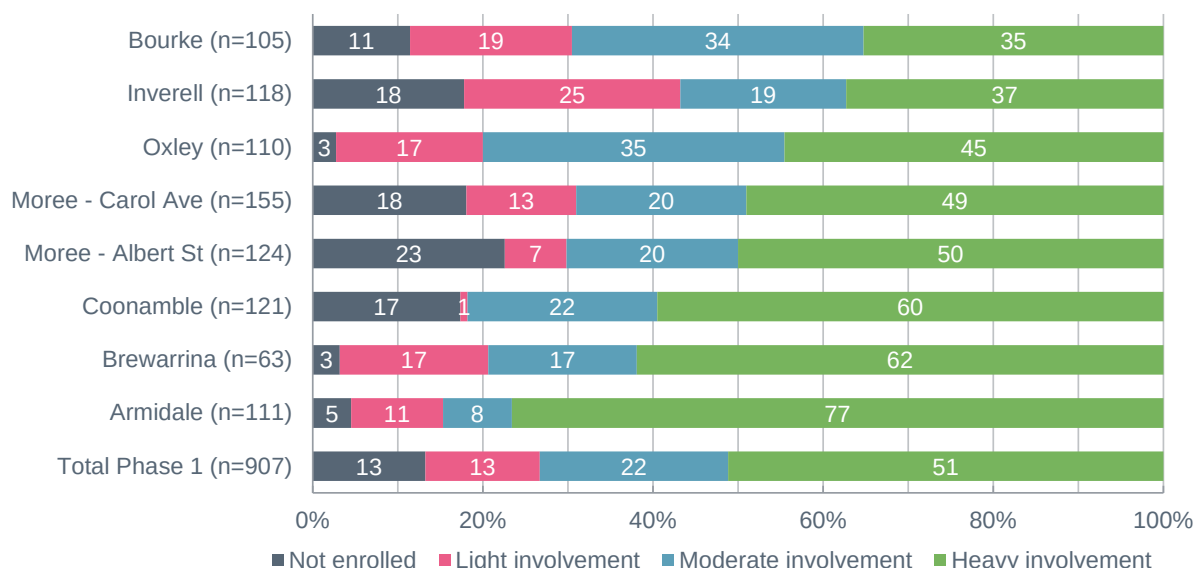
**Figure 2:** Student involvement in Clontarf Academies, all Phase 1 Academies, by year



Source: Clontarf Foundation data (unpublished).

These figures also show that some Aboriginal boys (albeit a minority) remain uninterested in the Academy at their school, or only participate superficially (see Section 2.3.5). Involvement levels vary across Academies, ranging from 56% to 85% of Aboriginal male students being moderately or heavily involved (category 2 or 3) depending on the Academy (2012-15 combined) (Figure 3).

**Figure 3:** Student involvement in Clontarf Academies, by Academy (2012-15 combined)



Source: Clontarf Foundation data (unpublished).

### Time commitment

Participation in a Clontarf academy involves activities before and after school (e.g. for training sessions) as well as on some weekends and public holidays (e.g. supporting community events such as Clean Up Australia Day or ANZAC Day).

Some Academy activities also take place during school hours. This includes camps, as well as workplace visits, employment forums and other excursions. Academy Directors aim to run three camps a Term, and all Academy members have an opportunity to go on a camp each Term (although not all boys will take up this opportunity). Activities during school time only take place with the approval of the principal, and dates are negotiated with the school executive with the aim of minimising disruption to learning and other key dates in the school calendar.

On average, the Clontarf Foundation estimates that Academy activities take boys out of class for roughly 2-4 days a Term in Year 7-10, scaling back to 1-2 days a term in Years 11 and 12.<sup>7</sup>

## 2.2 Overall stakeholder impressions of the program and its implementation

The remainder of the process evaluation (i.e. Section 2 of this report) draws primarily on stakeholder consultation and the student survey (see Section 1.4).

<sup>7</sup> The 2-4 day estimate recognises that the figure may range from 0-5 days for a given student, depending on the student and the circumstances that Term. The average camp is estimated at 2.5 days (2 nights).

The overwhelming sentiment about the Clontarf Academies from these consultations was positive, with consistent support from a range of different vantage points. While the program is not without some perceived limitations and criticisms (See discussion in Section 2.3), the clear majority of community members, students, parents and school staff alike expressed broad confidence in the model and have generally been pleased by its implementation.

The following selection of quotes from the interviews provides a snapshot of these sentiments:

*"[Clontarf] needs to continue. We often see programs that are one off visits, really expensive, only involve certain cohorts etc. Honestly, if the government stopped funding that stuff and really concentrated on what works for the kids in their daily lives, we'd be happy."*

President, P&C Association

*"Right now, it's the best program ever. It's a big claim but I can make it easily. I've been teaching for 23 years and it's the best program the Department has ever supported and I'd be happy to see it in every school. It's so far in front of any other program that's been put forward or suggested by the government."*

Careers advisor and long-serving teacher

*"As far as the community goes, closing Clontarf would almost be career suicide for me."*

School principal

*"The Academy is very good, they are really helpful and ever since I joined I like to come to school."*

Year 8 Clontarf student

*"Whatever the dollars you're spending, the return in 5, 10, 15 years would be millions return to the community. We've seen all these bloody services coming to town and as far as spend on Aboriginal services, this program is a success, the rest is a waste of money."*

Deputy Mayor, local council

## 2.3 Key factors that support a well-functioning academy

A number of factors were identified through our consultations as being particularly important for the smooth running of a well-functioning academy. Detailed below, these include:

- Careful recruitment of staff
- Strong relationships with the community
- Strong relationships between Academy staff and the school
- Strong and supportive relationships with the boys
- Effective use of on-site and off-site activities, including sport
- Suitable resourcing and infrastructure in the school.

Much of Section 2.3 describes what has in fact taken place over the last 3-4 years. However, the discussion also covers aspects of the implementation that have been identified as areas for improvement, attention or consolidation.

This section is written particularly with a view to assisting the Academies and school leaders in identifying factors to prioritise in the current establishment of new Academies in NSW.

### 2.3.1 Staff recruitment

One of the most salient findings from the qualitative consultation is the critical role that Clontarf staff play in ensuring the program's success.

*"You can have the best program model in the world, but so much of it comes down to the calibre of the people."*

School principal

Without exception, school principals nominated careful recruitment of high calibre staff as a key strength of the program. Principals were highly complementary of the character and work ethic of the staff in their school's Clontarf Academy at the time of interviews. These sentiments were echoed across the board, with the Clontarf staff drawing unsolicited praise from school teachers, members of the community and representatives of P&C Associations alike.

*"These are some of the best guys you could hope to meet. If I could find and keep guys like that for [other student wellbeing-related roles in the school], I'd be laughing".*

School principal

Interviews during site visits did reveal a few isolated examples of Clontarf staff who had underperformed or 'not worked out' for one reason or another. However, principals reported that such situations had been handled quickly and well by the Clontarf Regional Directors, and that the work of the Academy in their school had benefited from careful appointment of their replacements.

Academy positions — both Directors and Operations staff — are not publically advertised, with all staff essentially 'hand-picked' by the Foundation, based on recommendations and referrals. They come from a variety of professional backgrounds, including teaching, community services, juvenile justice and youth work. Forty-two of the 71 staff currently employed in NSW identify as Aboriginal or Torres Strait Islander, ranging in age from early 20s upwards. All have an interest in football; some have played competitive grades but others just socially.

These men (and it is always men) bear a considerable amount of responsibility, and their role makes them quite visible in the school and the community. They are expected to embody the core values of the Clontarf Foundation in their personal life as well as their professional role in the Academy, and describe the job as one where they need to be *"always on"*. Indeed, while Academy Directors felt that the NSW Academies were running very smoothly in general, the demanding nature of their role was consistently identified as a challenge. Despite finding the role extremely rewarding, Academy staff typically described their job as *"very full on"*, *"24/7"* and *"never finished"*. This challenge is exacerbated by limited mechanisms to cover staffing gaps, including when Clontarf staff are away on trips or on personal leave. Senior Clontarf staff are well aware of the risk of staff burnout, and have

established systems to encourage staff to support each other in addition to formal supervision. Nonetheless, the role can still be quite personally demanding and draining.

### 2.3.2 Community relationships

Individual Clontarf staff play a significant role in building the reputation of the program within their local community. The Foundation is at pains to stress that Academies are not 'imposed' on a school, but are only established in schools where they are wanted. Staff were often praised by stakeholders for the consultative approach they had taken.

At the time of our consultations, each Academy to have effectively built a supportive network of local advocates and partners, both in the local Aboriginal community and in the broader network of elected representatives, government agencies, service organisations and in the business community. This community involvement is critical to the program's success, particularly as some stakeholders can reportedly be suspicious about a new organisation coming to town or take issue with the fact that Clontarf is not an Aboriginal Community Controlled organisation. As described by the Regional Directors, the response from the Foundation is simply to *"explain the model and why we do what we do, and then knuckle down and run a great Academy and let the results speak for themselves"*.

*"One of the strengths of Clontarf is that they're really good at engaging with the community – lots of welcome events, dances, charity stuff. The Academy now has a good reputation and the kids will definitely get in and have a go."*

Local AECG President

Interviews with community members indicate that the Academies and their staff are held in high regard, and 93% of surveyed students said that the Clontarf staff are *"always respected and welcomed"* in their community. The visible presence of boys in Clontarf uniforms at community events (e.g. ANZAC Day ceremonies, Clean Up Australia Day and White Ribbon Day) is also said to help challenge negative perceptions about young Aboriginal males in the town and establish a positive Clontarf 'brand' in the local community.

### 2.3.3 Relationships between Academy staff and the school

Each new Academy is established through a locally-signed service agreement between the Department and the Foundation. This agreement detail consistent processes and procedures in relation to department policy and guidelines.

Beyond this written document, much of an Academy's success rests on the ability of the staff and the school to forge a successful partnership, based on clear and open communication.

#### *Embedding the Academy into the fabric of the school*

The sentiment that Clontarf Academies should feel *"built in and not bolted on"* was a consistent message emerging from stakeholder interviews.

*“Clontarf can’t be just a tack-on, an add-on, it’s got to be built into the fabric of the school and it has to look like it belongs as part of the big picture. These guys are part of the educational team. [Clontarf Director] comes to executive meetings, he goes to welfare team meetings. He’s putting his hand up to take boys to medical appointments. It’s holistic.”*

School principal

Strategies for achieving this integration include having Clontarf staff attend executive staff meetings and welfare team meetings, encouraging them into classrooms to assist the teachers, or even publishing Clontarf newsletters to update school staff on Academy activities. In return, stakeholders advised that school teaching staff should also be encouraged to visit the Academy on a regular basis and to be involved in Clontarf celebrations.

### ***Clontarf staff in the classroom***

During their interviews, school principals and teachers frequently raised the importance of the Academies going beyond ‘just getting the kids to enjoy school’ from a social aspect, and to emphasise the learning aspects as well. Schools have an expectation that Clontarf staff should work with the teachers to be actively involved in the educational side and have an understanding of what the school is trying to do and achieve, the role of the teacher and what teachers’ expectations of their students are. This is particularly important for Clontarf staff who do not come from an educational background.

The interviews indicated that Clontarf staff do frequently drop into classrooms to provide support for teachers. Some Clontarf staff are also involved in running homework clubs in conjunction with the school. Although homework clubs are not an explicit part of the Clontarf model, staff will generally work with the school to agree on the most appropriate arrangement according to need. Some schools reported reluctance by Aboriginal students to attend an existing homework club as they feel some level of shame and do not want to be seen as inadequate or struggling. For these boys, involving Clontarf in homework clubs reportedly makes attendance ‘a bit less threatening’.

*“The homework centre is run by the school, and there are various teachers there. The main afternoon with Clontarf is Thursday afternoon. It’s a good afternoon when the Clontarf boys are there, because of the numbers they bring in. You see good participation at the homework centre, which comes back to personality, and the quality of people they hire.”*

School principal

One suggestion by teachers to promote the education side even further was to run the Clontarf program such that the boys are doing some of their learning within the Clontarf room itself. This would be in addition to the help the boys already currently receive inside the Clontarf room. Responses from the student survey indicate that Clontarf staff often offer the boys assistance on school assessments inside the Clontarf room, and that this assistance appears to be uniform across all the Academies — at least one student from every Academy reported that they appreciated the help that Clontarf staff gave them on their schoolwork. In addition, 87% of boys surveyed felt that Clontarf staff “*always understands how my school runs*” and 79% felt that they are “*always interested in what subjects I take*”.

## Student discipline

Academy Directors spoke of the need to be vigilant in addressing misunderstandings among school teachers and support staff about the role of Clontarf staff in disciplining Clontarf boys. Academy Directors felt strongly that Clontarf should not be ‘used as a disciplinary tool’. While Clontarf staff can act as an extra set of hands or as a “circuit breaker” (and indeed, several respondents reported that a misbehaving student may be more inclined to listen to a Clontarf staff member than a teacher), this cannot replace the school’s own discipline protocols.

*“From our point of view we ... are a behaviour change program. We need to be able to do that in our own way, away from the classroom. If we become part of the school disciplinary process, the risk is the loss of attraction of Clontarf.”*

Academy Director

Some respondents perceived the fact that Clontarf staff are *not* teachers as one of the program’s strengths as students tend to view teachers as disciplinary figures. Rather, the incentive of Clontarf activities and excursions itself can act as a disciplinary tool, with boys not wanting to miss out on these opportunities.

*“I’ve had kids that tend to fall off the rails a bit – their behaviours and attitudes are less than acceptable. The Clontarf staff are really good at having a chat with them and it really does help the classroom teacher. Being able to go to the Clontarf guys and go ‘student X is causing a bit of trouble, what do you think?’. It’s a good little backup to have.”*

School teacher

## 2.3.4 Relationships with students and their families

### Relationships with students

Stakeholder interviews yielded numerous examples of Clontarf staff successfully developing strong and supportive relationships with boys who do not otherwise have positive male role model in their lives. These relationships are described by the staff as being warm, open, welcoming, caring and non-judgemental, such that the staff earn the credibility, trust and respect of the boys (and their families) which then enables them to be effective mentors and guides.

Clontarf staff are also known for going ‘above and beyond’ in their efforts to engage the boys and develop these relationships, in a way that is not expected of school staff. This includes very early starts and late finishes for training and other activities, developing a deep understanding of the boys and their home lives, and being personally accessible by phone outside of business hours for a broad range of support needs.

*“They go the extra mile. They see a situation that might have nothing to do with Clontarf, but they think they can help so they offer. They don’t fall back on ‘it’s not in my job description’.”*

School principal

These positive sentiments are corroborated by responses gathered in the Clontarf student survey, which reveal ample evidence of a strong, mutually-trusting relationship between the boys and the Clontarf staff. In NSW Academies, 89% of boys said that they could “*always trust the staff*” and 79% felt that the staff “*always trusts me*”. Moreover, students frequently cited the helpful and caring nature of the Clontarf staff as one of the three best things about the program. Comments included: “*they look after you*”, “*they are always there to help when I need it*”, “*they treat me like family*”, “*they are really good friends*”, “*they help you like you are their brothers*” and they’re “*kind*”, “*caring*” and “*not uptight*”.

*“The Director when I was in Clontarf made a very positive relationship from the start. He guided me in the right direction and got me my current job at the school. In Year 11, he sat down with me and talked about opportunities I could have in life and I said, I want to do this.”*

Former student

### **Relationships with families**

Interviews with school principals and teachers further revealed instances in which, by earning the trust and respect of the boys’ parents and carers, Clontarf staff had helped to improve the school’s relationship with Aboriginal families. Clontarf staff have shown the ability to build a solid rapport with families through acts such as sharing their mobile phone numbers and picking the boys up from home for early morning training.

*“The school has a good relationship with the family, but the relationship with Clontarf is outstanding. Between the school, Clontarf and the family we’re rescuing this boy all the time.”*

School principal

While some parents are reportedly used to being in contact with the school because of disciplinary issues and may even be suspicious of the way the school treats their children, school personnel report that Academy staff tend to appear less confrontational and have good skills in dealing with parental contact in a non-confrontational manner. In several schools, this has reportedly helped develop positive school-community relationships.

*“[After Clontarf], we didn’t have as many parents coming in and accusing me and everyone else of being racist and asking why we’re picking on their kids. All of that went, and parents would say thank you, student X hasn’t handed in their assignment and we appreciate the reminders and prodding. This is particularly amongst the parents of senior students. This relationship with parents is something that’s changed completely. They understood that we were doing our best.”*

School principal

*“Look at how many people were here last night [for the Clontarf awards night] – elders and the community. There were so many people who we would never otherwise see on the school grounds. Most of our parent meetings we have with the Clontarf staff present, sometimes even in the Clontarf room where the parents feel more comfortable.”*

School principal

While parents are generally in support of the program, there seems to be little evidence of involvement on their part. In particular, one P&C Association president felt that communication with the parents could be improved, especially in light of the out-of-school activities involved and the potential financial and logistical implications for families. Findings from the student survey also supported the notion that parental involvement could be further encouraged: 42% of boys surveyed did not feel that their family could join in some of the programs and activities and only 55% said that their family *“always felt comfortable to drop into the Clontarf room”*. Fostering parental involvement in the program, and in the wider school community, may be one avenue to improve student’s connectedness to the school and strengthen the impact of the program.

### 2.3.5 On-site and off-site activities, including sport

#### *More than footy*

A common misconception amongst those unfamiliar with Clontarf Academies is that the program is *“just about football”*. However, Academy Directors stressed in their interviews that Clontarf is not simply a network of *“school-based footy clubs”*, but a broad-based wellbeing program. As they explain it, football and other sports are merely the ‘carrot’ to attract and retain Aboriginal boys in school, before being able to focus on education, employment, and non-cognitive outcomes such as wellbeing, health and leadership.

While many students are reportedly more excited by the sporting aspects of the program than anything else at first, the staff we interviewed were at pains to emphasise their expectation that their school attendance and behaviour are at an acceptable level as well.

*“Be clear that it’s not about giving Aboriginal kids footies and telling them to go off and become Laurie Daley. It has to be about school comes first, cool stuff comes second.”*

School principal

Stakeholder interviews revealed that this clarity of purpose was not equally well understood across all schools, students and community members. While most respondents recognised that Clontarf was a holistic program that was more than just about sports and footy, there was also evidence that some Aboriginal boys do not engage with the program because they are not sporty and perhaps saw the Academy room as *“just another place where they do not belong”*. There were mixed reviews on the extent to which Clontarf are effective in reaching out to ‘non-sporty’ boys and take into account a diversity of interests. An overemphasis on sports can also lead to the perception that the program rewards only ‘sporty’ boys, and not academic ones. Thus, a number of principals and school teaching staff highlighted the importance of maintaining a healthy balance between sports and learning, pushing the boys to achieve not just sporting, but academic success as well.

*“The ones that aren’t Clontarf are not sporty, and don’t get it that Clontarf isn’t all about sport. Most of the non-Clontarf boys have anxiety issues and are withdrawn, so they’re not interested in lively group activities.”*

School principal

Nevertheless, Clontarf's holistic approach was often cited as a key contributor to the program's success, in particular the comprehensiveness, variety and intensity of the program. It is not a program that runs just once or twice a week, for example, but is one that offers everyday contact and support for the boys. Creative programming and variety in activities in particular were identified by Academy Directors as critical for ensuring the ongoing relevance and appeal of the Academy. Examples of activities offered to the boys included ping pong, cooking competitions, movie nights and lip sync battles.

Findings from the student survey also support the notion of sports and activities being an effective 'carrot' to attract Aboriginal boys to school, with 81% of respondents stating that the activities offered by Clontarf "*encourage me to attend school*". Unsurprisingly, the boys most frequently rated "*footy*", "*training*" or "*sporting activities*" as one of the three best things about Clontarf (66% of survey respondents – open ended question), with the trips away as the second most cited benefit (63%). When asked to identify three worst things about Clontarf, two thirds responded "*nothing*". However, 22% of those that did comment nominated the early morning training sessions (especially in the cold) as an aspect that they did not like about the program.

### ***Time spent away from the classroom***

One of the key concerns raised by school principals and teaching staff was the amount of time that Clontarf boys spend away from the classroom. For some, the notion of running excursions during school time appears counterintuitive to addressing problems of low attendance. A related issue is the need to differentiate between 'incentive' trips, for students whose attendance has met a high standard, and 'engagement' activities. Some teachers object to the latter, as it appears to be "*rewarding kids for bad behaviour*".

While such reservations about the program are not uncommon when an Academy is first established, principals and Academy staff consistently reported that with regular information and reinforcement about what Clontarf does and why, most school staff come to understand the rationale behind the Clontarf model.

An important strategy for facilitating the communication of these messages is a presentation and/or Q&A session for all school staff, families, and community members prior to the opening of the Academy. Getting approval from teachers before boys go on a trip, ensuring that teachers know why the boys are being taken out of class, and foreseeing potential timetable clashes to avoid taking the boys out at critical times during the term (e.g. exam period) can also help ease school concerns.

Questions remain in the minds of some school personnel about whether there is a diminishing marginal utility for excursions, what mechanisms (if any) are in place to cover staffing gaps when Clontarf staff are away on trips, and why some trips cannot be taken during school holiday periods rather than during term. However, the dominant sentiment from both principals and school staff was that the positives of the Academy outweighed its negatives and teachers were willing to accept partial missed lessons for an overall net gain.

### **2.3.6 Resourcing and infrastructure**

In order for a Clontarf Academy to operate, the school needs to provide a dedicated and permanent space that is sufficiently large to operate Clontarf activities. This may lead to some initial reservations from school staff (who give up use of the space), and schools

should not underestimate the importance of committing resources when an Academy is introduced. This includes not only a classroom but also access to facilities such as a kitchenette, computers and phones. Schools may also need to plan for the Academy to grow over time and have plans to ensure that there is adequate space for an increasing number of boys, should this occur.

The physical location of the Clontarf room also deserves careful consideration in the implementation process. Overall, interview respondents felt that the room is best situated where it is visible and accessible to all, such that it does not feel “*tacked-on*” to the rest of the school and encourages school staff to drop by and engage with both the boys and the Clontarf staff. With this in mind, care should also be taken to ensure that the room is not situated where high volumes of students entering and leaving the room might become disruptive to the rest of the school.

Overall, responses to the student survey indicated highly positive sentiments about the Clontarf room. The majority of students felt that the room always had “*everything needed to participate in the Clontarf program*” (72%) and was “*friendly and welcoming*” (88%). Importantly, the Clontarf room also provides food for the boys, most notably a daily breakfast but also lunch if the students have nothing to eat.

Interviews with principals and school teaching staff also revealed that the availability of the Clontarf bus was an invaluable extra resource that the school could draw upon for a range of activities. This pooling of resources means that schools are less likely to need to draw on other funds to transport students to off-site activities, which may mean the difference between a student participating or missing out. These spill-over effects highlight the potential benefits that Clontarf can generate for students who are not involved in the program.

*“Clontarf is an enabler – they have a bus, so they can take the boys on the bus to an English program in [another town]... They can do all sorts of things that aren’t in the book.”*

School principal

## 2.4 The funding model and perceptions of value for money

### *Summary of funding arrangements*

Clontarf Academies operate on a budget of \$7,500 per participant per year, with student numbers based on current and anticipated enrolments of Aboriginal boys at the school. The program is funded by a three-part income stream:

- One third Commonwealth Government, through the Sporting Chance program administered by the Department of Prime Minister and Cabinet.
- One-third State Government, through the Department of Education in NSW.
- One-third donations from corporate partners of the Clontarf Foundation.

With current contracts for Phase 1 Academies expiring at the end of 2016, these schools will now be required to fund one-sixth of the Clontarf cost out of their Resource Allocation Model (RAM) funding, matching the one-sixth contribution from the Department’s central office. This arrangement is already in place for Phase 2 and 3 Academies.

### ***Perceived impacts of the new funding arrangements***

Interviews with principals in Phase 2 and 3 schools revealed some advantages to being financially involved, in terms of the relationship between the school and Clontarf. Having a financial stake provides schools with extra leverage at the decision making table — one school described this as *“an extra bargaining chip in the back pocket”*. This is in line with the views of principals of the Phase 1 Academies, who consistently indicated an expectation that they would have a greater say in decision making and local adaptation if they were to become financially involved in the future. In particular, Phase 1 principals saw benefit in having a stronger voice in issues such as:

- The recruitment of Clontarf staff (i.e. a more structured role than at present).
- The setting of Academy benchmarks (e.g. is 85% attendance a high enough standard?).
- The level of Clontarf staff involvement in the school (e.g. attendance by Clontarf staff at school staff meetings, level of involvement in classrooms and in school work).

On the other hand, a number of Phase 2 Academy staff were concerned that funding coming out of the school budget made conversations about program focus more difficult, as the schools *“feel that they own [the program], even though they only pay for one sixth of it”*. This reportedly places Clontarf staff under more pressure to justify their existence and ‘pay their way’ on a weekly basis, having to answer to questions such as *“the school is paying for you, why are you taking kids out of class?”* and *“why can’t you take the kids here on the bus, isn’t that what we’re funding you for?”*. Academy staff stressed that Phase 2 and 3 schools need to understand that they only pay for a sixth of the program, and not 100%. One P&C Association President echoed these views, expressing concern that the school having greater say in how Clontarf operate may *“water down”* its effectiveness.

*“If the school is paying for Clontarf, they could give extra duties to the Clontarf staff, they might ask them to add new activities. The formula that Clontarf have now works really well. Clontarf can say no to demands at the moment, and they’d lose that capacity once schools are spending their own money.”*

President of P&C Association

Academy staff have also flagged potential concerns about continuity, arguing that the timeframe for building momentum with the school and in the community does not necessarily fit within the three year school planning cycle.

### ***Perceived value for money from the school investment***

In the context of expected changes to Clontarf’s funding arrangements, school principals were asked for their view on the program’s value for money and willingness to pay for it in the future.

A strong consensus emerged that Clontarf Academies provide very good ‘bang for buck’, particularly as schools receive \$6 worth of program activity for every \$1 they contribute (under the new model). This compares favourably to alternate uses of funding which require the school to contribute every dollar (see example in Box 1).

## Box 2: Worked example of the Clontarf 'multiplier effect'

The employment of a Student Learning Support Officer (SLSO) currently requires a contribution of \$57,586 per annum. The same amount could provide the school with almost \$350,000 worth of Clontarf activity (for 46 boys). This would encompass two full-time male staff members who work outside of hours as well as during school hours, a mini-bus, food and resources in the Clontarf room, significant extra-curricular opportunities, and follow-up for at least one year after school completion.

### *Willingness to pay versus capacity to pay*

Principals of Phase 1 schools all expressed a desire to extend the operation of their Academy into the future. However, at the time of our consultations, not all of these schools felt confident that they would be able to pay for the program within their forecast RAM funding allocations.

To explore this matter further, we modelled a number of scenarios on the basis of 2016 RAM funding allocations for the Phase 1 Clontarf Academies. This modelling assumed that the cost of the Clontarf program would draw particularly on flexible funding apportioned to Aboriginal male students, as well as alternative scenarios whereby schools redirect a share of the flexible funding nominally apportioned for students other than Aboriginal males (i.e. for Aboriginal girls or non-Aboriginal Low SES students).<sup>8</sup>

The results of the analysis showed that, based on 2016 RAM allocations, some Phase 1 Clontarf schools would indeed find it difficult to fund their share of the program cost. It suggested that the schools fall into three broad categories:

- Three schools could have afforded the cost of a Clontarf Academy within the flexible RAM allocation for male Aboriginal students.
- Three schools could have afforded Clontarf by drawing more broadly on flexible RAM allocation, i.e. beyond the flexible RAM allocation for male Aboriginal students.
- One school appeared unable to fund their Clontarf Academy from the flexible component of their RAM allocation, even if all flexible Aboriginal and flexible Low SES funding were devoted to the program.

The analysis reveals that the decision of whether or not a school chooses to invest in a Clontarf Academy goes beyond a simple consideration of the program's value for money and a willingness to pay for its benefits. It shows that financial resources required to operate Clontarf may be so high that a Phase 1 school could be simply 'priced out of the market' and unable to realistically afford an Academy from their RAM allocation.

In such cases, the decision by a school to not invest in a Clontarf Academy should not be interpreted as a negative assessment of the program's effectiveness or value for money, but rather a reality where the financial requirements for Clontarf are simply beyond the school's reach. For such a school in this position, it is highly unlikely that an Academy would have been established in the first instance had the new funding arrangement been in place at the time.

Schools that were uncertain about their capacity to fund the Academy into the future all said they would be disappointed to see Clontarf go, if this is what it came to.

<sup>8</sup> A portion of a school's total Aboriginal RAM equity loading is quarantined for equity staff, such as Aboriginal Education Officers (AEOs) and under current arrangements cannot be redirected to fund the Clontarf Academies program.

*“Clontarf gives me the equivalent of three Aboriginal aides for the price of 1.5, plus the buses, trips and so on. This isn’t bad value for money at all; I just don’t have that kind of money.”*

School principal

## Equity

While redirecting funds set aside for students other than Aboriginal males is, in theory, an option open to principals under the flexibility afforded by *Local Schools, Local Decisions*, interviews with principals revealed that they are reluctant to do this, for reasons of equity.

This issue of equity was frequently raised in the stakeholder interviews. Respondents, both within the school and in the wider community, expressed concern about the message that it sends about gender equality (in sports and in broader society) if schools provide better opportunities for boys than girls.

Several Clontarf schools have responded by implementing programs directed specifically towards girls, such as Girl Fit and Girri Girri Sports Academy. However, these programs are not on the same scale as Clontarf in terms of resources, comprehensiveness and intensity, and most respondents felt that a program similar to Clontarf should be offered to Aboriginal girls.

Several interviewees also reported that, while the focus on boys had seen a reduction in some of the issues among Aboriginal boys, school engagement and behavioural management for Aboriginal girls were increasingly in need of attention.

*“In recent times we’ve had more problems with the Aboriginal girls. We have Girl Fit but it’s nothing compared to the level of Clontarf. I’ve found that the issues with the girls are increasing while with the boys they are decreasing.”*

Senior Sergeant, NSW Police

*“I think it really showcases the lack of support there is for girls. Before there was just a lack, but now it’s a bit like a bird that’s got one strong wing. The girls have become a lot harder to engage since Clontarf, years ago it was the boys that were really at risk and now it’s the girls that’s picked up. What’s happened is a lot of money has been poured into Clontarf and now the stuff for girls don’t have funding anymore.”*

Youth Development Officer

Nevertheless, the overriding sentiment from the interviews was that having a Clontarf Academy for boys only was still a preferred option to having no Clontarf at all at the school. Among the surveyed Clontarf boys, one in three (31%) said that *“letting Aboriginal girls join Clontarf would make the Academy better”*. Responses to this question tended to reflect the age distribution of survey respondents, with 42% of older boys (Years 10-12) reporting that including girls in Clontarf would improve the program, compared to 26% of younger boys.

*“There’s always going to be some resistance – what about the girls, what about the other 500 students? That’s understandable. But at the same time if you ask teachers ‘would you want to get rid of Clontarf’, the answer would be ‘no way’. Of course we want it for every kid in the school, but realise it can’t be.”*

Careers Advisor

# 3 Participant outcomes

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## 3.1 Introduction

### Inclusions

Part 3 of this report presents findings of the outcome evaluation and examines the impact of the Clontarf Academies program in a number of key areas:

- student wellbeing, including social and emotional learning and self-esteem
- student attitudes towards school and learning
- school attendance and participation in NAPLAN
- school retention from Year 10 to Year 12
- student conduct in the school environment, including disruptive behaviour leading to long suspensions
- offending behaviour that brings students into contact with the justice system
- post-school outcomes.

The selection of these outcome areas is shaped by the objectives of the program, as well as the availability of suitable administrative data. Although it is necessary in this report to address these outcomes one by one, each is inherently interconnected to the others. For example, a positive attitude towards school is generally regarded as both a prerequisite and a consequence of functional engagement and cognitive engagement in learning.<sup>9</sup>

### Exclusions

Cognitive engagement, which refers to a student's psychological investment in their own learning and exertion of effort to understand and master knowledge, was not a focus of this evaluation.<sup>10</sup> In large part, this is because of the Clontarf program's focus towards the motivational and behavioural aspects of learning engagement, rather than cognitive engagement *per se*.<sup>11</sup>

The survey found that four in five boys (79%) had reported "*putting more effort into my school work*" (in class, for assignments and studying for exams), while 61% claimed that they had "*started doing better in [their] studies*" since joining the Academy. However, student achievement is not something that the evaluation has assessed, e.g. through an analysis of student work samples, internal assessment data or NAPLAN test scores. This exclusion was discussed and agreed by the Project Reference Group during the early stages of the project.

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<sup>9</sup> Fredericks, Blumenfeld & Paris, 2004. Behavioural or functional engagement is particularly important for this evaluation, and is typically defined along three dimensions: (a) positive conduct, such as following school rules and the absence of disruptive behaviour; (b) involvement in learning and academic tasks, such as effort in schoolwork, being prepared for class, completing homework and contributing to class discussion; and (c) participation in extra-curricular activities, including school governance.

<sup>10</sup> This 'effort' differs to effort in the behavioural sense, where it is more a matter of 'doing the work'. Cognitive effort refers more to mental effort – a focus on learning, a drive to master the material and a motivation to accomplish challenging tasks (Fredericks et al., 2004).

<sup>11</sup> The literature also highlights a lack of sound cognitive measures of engagement due to the inherent difficulty of observing not the outward behaviours of students but "something [that] happening inside their heads" (AITSL, 2013). While academic achievement and attainment are often used to measure cognitive engagement, AITSL (2013) points out that even an academically high achieving student may still be disengaged "if they are coasting and not motivated to exert themselves more than is necessary to get by".

Health outcomes for participating students were also not assessed quantitatively, due to data limitations and the preference of the Project Reference Group to focus on educational outcomes. This has implications for the economic evaluation, which excludes any estimation of health-related benefits accruing to participants (see Section 4).

## 3.2 Student wellbeing

Student wellbeing is important for two reasons: because students who have higher levels of wellbeing tend to have better learning outcomes at school; and because schooling ought not simply be about academic outcomes, but also about the development of the ‘whole child’. Research evidence also shows that students with high levels of wellbeing are more likely to have better mental health and a more pro-social, responsible and lawful lifestyle.<sup>12</sup>

This section explores the impact of the Clontarf Academies program on two key aspects of wellbeing: social and emotional learning (SEL) and the school environment. In the absence of reliable quantitative measures, the analysis is reliant on self-report from students and the professional judgement of teachers, school leaders and other independent observers, as well as Academy staff. It is not possible to distinguish the effect of the Academies from the influence of other factors, such as broader personal development, leadership development and wellbeing initiatives in the school and community, as well as boys simply becoming more mature as they grow older.

### 3.2.1 Social and emotional learning (SEL)

One of the core elements of student wellbeing is having well-developed social and emotional skills. The process to acquire these skills is known as social and emotional learning (SEL), conceptualised for this evaluation as “the process through which children and adults acquire and apply the knowledge, attitudes and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions” (CASEL, 2013).

We found ample qualitative evidence to indicate that participation in the Clontarf Academies program can help promote several aspects of SEL.

#### *Self-esteem and confidence*

The effect of Clontarf on participants’ confidence and self-esteem was a prominent feature of the interviews, with numerous observers reporting that the support and mentorship of Clontarf staff had encouraged many boys to “*come out of their shell*” and develop into “*confident young men*”. This seemed to be particularly evident in the way that boys interacted and communicated with school staff, as well as their confidence in speaking in front of large groups and/or delivering speeches in front of an audience.

*“The kids are a bit more confident. They’ve always been fairly confident sportsmen, but now there’s growth in confidence and how they communicate. They have a certain maturity in the way they approach teachers and handle our decisions.”*

School teacher

<sup>12</sup> Australian Catholic University and Erebus International (2008) Scoping study into approaches to student wellbeing: Literature review. Report to the Department of Education, Employment and Workplace Relations: Canberra

This finding is consistent with the results of the student survey. When asked whether they felt more confident when talking with teachers and other adults since joining the Academy, half said they ‘always’ (51%) feel confident, and 45% ‘sometimes’. In addition, when asked whether they felt proud of themselves, 60% said they ‘always’ felt proud and 39% ‘sometimes’ felt proud.<sup>13</sup>

*“For the first two months of Clontarf, I was a bit shy. After that everything changed. I wanted to stay in school, I wanted to be here all the time, I saw that I had real opportunities.”*

Year 7 Clontarf Student

*“When we were at the OzTag carnival, they chose me to get up in front of everyone to choose the spirit award, it improved my public speaking.”*

Year 8 Clontarf Student

### **Leadership skills**

Leadership is one of the five ‘pillars’ of the Clontarf Academies program and is specifically targeted as a key area of development for all Clontarf participants.<sup>14</sup> These skills are targeted not only through the development of self-confidence, but also through attendance at leadership camps, where the boys are given opportunities to act as role models through leadership activities.

The qualitative evidence points to the success of such initiatives, with a number of interview respondents noting the development of leadership qualities in Clontarf boys as they have advanced through school. A number of Clontarf boys have assumed leadership roles in their senior years (including school captain), while some respondents also noted that the older boys had started to become better role models for the younger students.

*“My vision is that we build on our culture and then set higher expectations for students to achieve academically, and then have those leaders that we hold up as examples. It’s not just sporting success – I want our students to be leaders in the school.”*

Academy Director

These findings corroborate with responses in the student survey, in which 34% of Clontarf boys said that they “*always felt like a role model for their peers and young people in the community*”, while 57% “*sometimes*” felt like a role model.<sup>15</sup> These results improved with scholastic year, with boys increasingly feeling like a role model as they advanced through school (Figure 4).

*“I started off at school with no idea what to do after school and going down the wrong path. Now I am finishing Year 12 and I’m looking at going to the army and I am a leader for the younger kids.”*

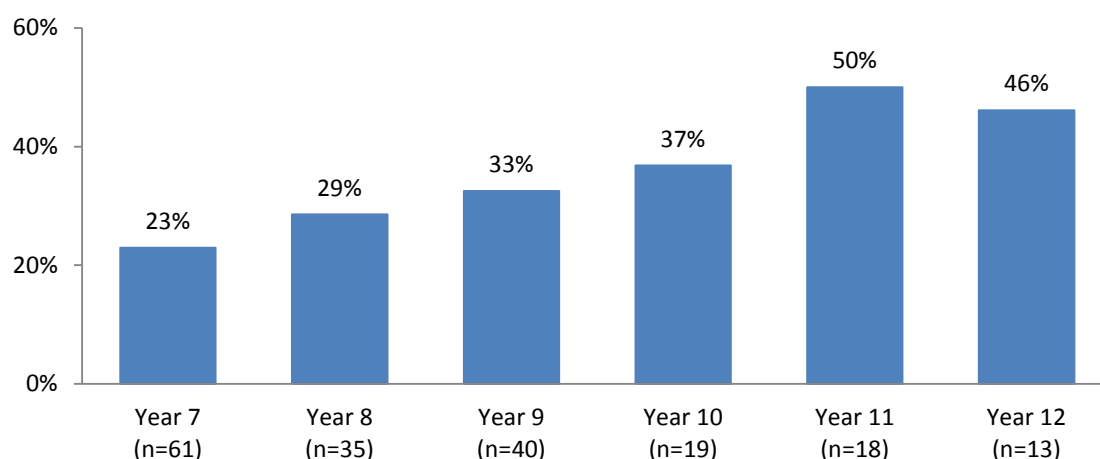
Year 12 Clontarf Student

<sup>13</sup> The Synergistic version of the questionnaire, used for the Phase 2 and 3 Academies prior to 2016, had slightly different wording here. Our scale of “never”, “sometimes” and “always” corresponds to their scale of “not at all”, “a bit” and “a lot”.

<sup>14</sup> The other four are Life Skills, Education, Employment and Football,

<sup>15</sup> Synergistic survey respondents are excluded due to change in wording (“feel like a role model for my family and community”).

**Figure 4:** Percentage of Clontarf boys who said they “always” feel like a role model to their peers and young people in the community, by scholastic year



Source: Clontarf student survey.

One in four Clontarf participants (26%) also reported taking on more leadership roles in their school since attending the Academy. There was little variation observed between the younger and older students.

### **Greater sense of purpose**

Another aspect of social and emotional wellbeing is the development of self-management skills, such as the setting and monitoring of progress towards personal and academic goals.

Clontarf’s role in giving the boys a greater sense of purpose, and in creating a believable success for them to see and strive towards, was identified as a key strength of the program by a number of interview respondents. Comments included “*Clontarf helps boys to develop a stronger sense of who they are*”, “*improve their self-efficacy*”, and “*develop a clearer understanding of having a brighter future*”. Giving the boys a clear structure and sense of routine — early morning training, having a daily breakfast, washing up after themselves, being clean and showered for school — was also noted as a strength of the program, helping to instil a sense of purpose and responsibility in their everyday lives that is reportedly often missing at home.

*“They can see that they can do something with their lives. It seems to be breaking that cycle about that sort of attitude of ‘this is the way it’s been before so this is what’s going to happen now’. It’s a completely different approach now.”*

Deputy Mayor, local council

### **3.2.2 School environment**

The concept of a ‘safe school’ is multidimensional and encapsulates a school where “the physical environment is safe and does not lead to harm or injury for students; the emotional environment is one of positivity and free from negative behaviours such as bullying which can affect mental health; and where a healthy lifestyle is promoted through initiatives such as increased participation in sport and/or healthy food at the canteen” (CESE, 2015). For Aboriginal students in particular, the notion of a ‘safe school’ also includes cultural safety as an important element. As noted in Section 1.5, this evaluation does not assess the impact of

the Academies on cultural safety or consider whether or not the model ought to have an explicit focus on engagement with Aboriginal culture and language.

While the fostering of a safe school environment is the primary responsibility of school leadership teams and teaching staff, qualitative evidence suggests that Clontarf Academies have also made a contribution to promoting a safe environment for students.

### **Physical health**

Health is an important aspect of wellbeing, and promoting healthy behaviours during adolescence is critical for developing healthy habits that serve young people well into adulthood.

The Clontarf model offers multiple avenues to foster the development of healthy behaviours including: promoting participation in physical activity, encouraging healthy eating habits through the provision of a nutritious daily breakfast, delivering educational health sessions on issues such as mental and sexual health, and facilitating annual health checks in conjunction with local health providers.

In 2015, a total 631 Clontarf participants across NSW Academies were given health checks, covering a range of medical conditions including (but not limited to): dental problems, skin conditions, obesity, mental health conditions, asthma, eye and ear problems, and heart conditions. The most commonly detected conditions were dental (22% of boys tested) and ear infections (10%).<sup>16</sup>

The student survey also indicated that attending the Academy had promoted a healthier lifestyle for many Clontarf participants, with two-thirds of boys reporting that they were now doing more sport and almost half (48%) reporting that they were eating better food. In their free text responses, numerous boys also highlighted the benefit of being able to access food in the Clontarf room if they did not have any of their own.

### **Social and emotional wellbeing**

Clontarf Academies also aim to promote a welcoming environment where boys feel safe and supported on an emotional level. Through the development of strong and trusting relationships, they do appear to be making a contribution to many of the boys' wellbeing in this respect.

However, evidence suggests that there is still room for improvement here, with the student survey revealing some incidences of bullying and/or fighting amongst Clontarf boys. A handful of survey respondents listed items such as *“boys fighting and making fun of each other”, “bullying” and “the staff having favourites”* amongst the three worst things about Clontarf.

*“I don't go over [to the Academy room] because it's crowded and the boys are bullies who try to stand over me because I'm small.”*

Year 7 Clontarf student

<sup>16</sup> These figures are drawn from the Clontarf Foundation's 2015 annual report. Health-check related Key Performance Indicators no longer feature in contract for Phase 3 Academies.

### 3.3 Student attitudes towards their schooling

Affective engagement refers to a student's emotional reactions in the classroom, at school, and towards teachers and their peers. Such emotions may include interest, boredom, happiness, sadness and anxiety (Fredericks et al., 2004). Some researchers (e.g. Finn, 1989) also conceptualise affective engagement as identification with school, both in terms of a sense of school belonging as well as recognition of the value of learning and schooling outcomes. The most common way of measuring affective engagement is through self-report, such as student surveys.

Together with stakeholder interviews, the survey of current Clontarf participants revealed a number of findings that suggest an overall positive effect on participants' affective engagement in schooling.

#### *Enjoyment of school*

Survey results suggest that the Academies have helped support greater levels of enjoyment and positive emotions associated with going to school, for at least some of the Clontarf boys. Almost half of the surveyed boys (47%) reported that since attending the Academy, they *“always felt good about school”*, 49% ‘sometimes’ and 4% ‘never’. This is, at least to some degree, likely to be associated with the positive sentiment to the Clontarf program, which virtually all boys (97%) describe as *“fun”*. Several boys commented that *“Clontarf makes me feel happy”* and *“it is a happy program”*, and only 6% suggested that the program could be improved if they *“don’t make me go to school”*.

*“The Academy is very good, they are really helpful and ever since I joined I like to come to school.”*

Clontarf student

*“All the activities are fun, even homework club, and they let me feel good.”*

Year 7 Clontarf student

#### *Connectedness with school*

School connectedness is manifested in, and developed through, the student's relationship with the school overall, the quality of student-teacher relationships, students' relationships with peers, as well as community (including parental) involvement in the school.<sup>17</sup>

Several school principals and teaching staff indicated that the Clontarf Academies had improved participants' feelings of school belonging, as the Academy had provided the boys with a welcoming environment and a place in the school where they feel comfortable. These sentiments are supported by the results of the student survey, with comments such as *“Clontarf make you feel like we are all family”* and *“you feel like you’re a part of something”*.

<sup>17</sup> School connectedness is important for a number of reasons, with research linking greater school connectedness to increased engagement, higher levels of academic achievement, school completion, reductions in anti-social behaviour and lower rates of health-risk behaviour (Australian Catholic University and Erebus International, 2008).

*"Before, Aboriginal kids didn't feel part of the school, it was just somewhere you had to go. There was no school spirit, no pride, that's changed now – that's a belonging thing, they now feel comfortable. Clontarf make a big thing out of being part of the school."*

School principal

However, giving Clontarf boys a place to call their own also led to some isolated comments that the program had helped foster an exclusive *"boys club"* environment that may exacerbate existing isolation and segregation problems. Schools and Academies should be mindful to ensure that Clontarf boys are not too removed from the rest of school (and other students), and avoid entrenching an 'us' versus 'them' mentality that can breed resentment. Such concerns of divisiveness tended to arise during the initial stages of implementation and appeared to dissipate over time as Academies matured.

### ***Relationships between students and school staff***

As noted in Chapter 2, 89% of Clontarf boys felt that they could *"always trust"* the Clontarf staff. In contrast, one Australian longitudinal study of adolescents showed that 40% of the students reported did not believe they had anyone in or outside school who they perceived knew them well or who they could trust.<sup>18</sup>

There was also some evidence that the program has a positive effect on boys' relationships with school staff. Several of the school staff interviewed for this evaluation noted increased levels of respect and politeness, which had translated positively in their interactions with teachers. Also, half of the Clontarf boys surveyed (48%) reported that their relationship with school staff had improved since attending the Academy.<sup>19</sup>

*"We have three Aboriginal faces working with the boys, and the boys respect them. The boys see the Clontarf staff dealing well with us as school staff, and this rubs off onto the students – they start to treat us better too."*

Teacher

Student wellbeing and school connectedness can also be developed by enhancing the quality of peer relationships. The results of the student survey suggest that peer relationships for Clontarf boys can be positively influenced by the program, with the Academy helping to promote a sense of community and camaraderie amongst the boys. Items such as *"making new friends"*, *"meeting new people"* and *"hanging out with the boys"* were frequently cited as one of the three best things about the program.

*"I like coming to school now. Clontarf make you feel like we are all family."*

Year 8 Clontarf student

<sup>18</sup> Cited in Australian Catholic University and Erebus International (2008) Scoping study into approaches to student wellbeing: Literature review. Report to the Department of Education, Employment and Workplace Relations: Canberra

<sup>19</sup> This question was not asked in the original SynergistiQ Clontarf student survey.

*"My fondest moment with Clontarf was the Ross Kelly cup. The drive down was good and the energy with the boys was something I had been missing since I left Dubbo, my original home. The games and the other teams were great and I even had a conversation with the head of the Foundation."*

Year 11 Clontarf student

### **Interest in learning**

Survey results also indicate some success in sparking greater interest in school and learning amongst participants, with 44% of boys indicating that they had become *"more interested in learning about new subjects and issues"* and 42% *"talking more to my friends and family about school and work"*. When asked whether they had become *"more motivated to finish Year 12"*, *"less motivated"* or *"felt no difference"*, 83% of respondents indicated that they had become more motivated since attending the Academy.

## **3.4 School attendance**

Lifting school attendance for Aboriginal males is one of the key objectives of Clontarf Academies. In interviews conducted with principals from participating schools, low attendance by Aboriginal students was consistently raised as a top concern at the school prior to the introduction of the Academy. This is consistent with numerous studies that have highlighted the importance of regular school attendance for the development of core skills, with poor attendance often cited as the largest contributing factor to the disparity in literacy and numeracy outcomes between Aboriginal students and other students (Purdie & Buckley, 2010).

Clontarf Academies explicitly target attendance through attendance-based incentives, a structured monitoring of each student's attendance and mechanisms to engage with parents (or other family members) in cases of absenteeism. Improvements in attendance are therefore an important yardstick by which to measure their success.

### **3.4.1 Qualitative data**

Qualitative evidence from both the student survey and stakeholder interviews suggests that Clontarf Academies have had a positive effect on students' attitudes to attending school.

Two thirds of survey respondents indicated that they were attending school more often since attending the Academy, with comments including *"I wouldn't come to school if Clontarf wasn't here"*, and *"the Academy is good and it's making me go to school more often and keeping me out of trouble"*.

These positive sentiments are consistent with CESE's conversations with school principals, teachers and Academy Directors. Improvements in school attendance were frequently cited as the most apparent change in the Clontarf boys after the implementation of the program.

*"The biggest change in the Aboriginal boys is that they're here. Before, when it was coming to the end of the week and especially around the end of term, attendance would start to get very poor. Attendance now seems to be a lot better."*

School teacher

*“Attendance has improved overall, it’s been sitting around 85% since after the first year or so. Engagement wise, there’s still issues obviously, but they’re engaging a lot more in classwork, and other extra-curricular activities. In the past, they wouldn’t go near them, but now they’re having a bit of a go at them.”*

Academy Director

### 3.4.2 Quantitative data

#### *Trends in school-level attendance rates, 2009-15*

Table 2 presents Aboriginal male attendance rates for each Clontarf school from 2009 to 2015. It also reports the average attendance rate for the list of comparison schools (see Appendix B). While figures are reported in this Table for Phase 1, 2 and 3 Academies, subsequent analysis in this section focuses solely on Phase 1 schools.

On aggregate, Aboriginal male attendance has been relatively stable across Phase 1 Academies since 2009, with no obvious trend apparent (Table 2). However, the data does suggest substantial variation in attendance trends between schools. Attendance rates at comparison schools have also remained broadly flat over the past six years.

**Table 2:** Aboriginal male attendance rates, by individual school, 2009-2015

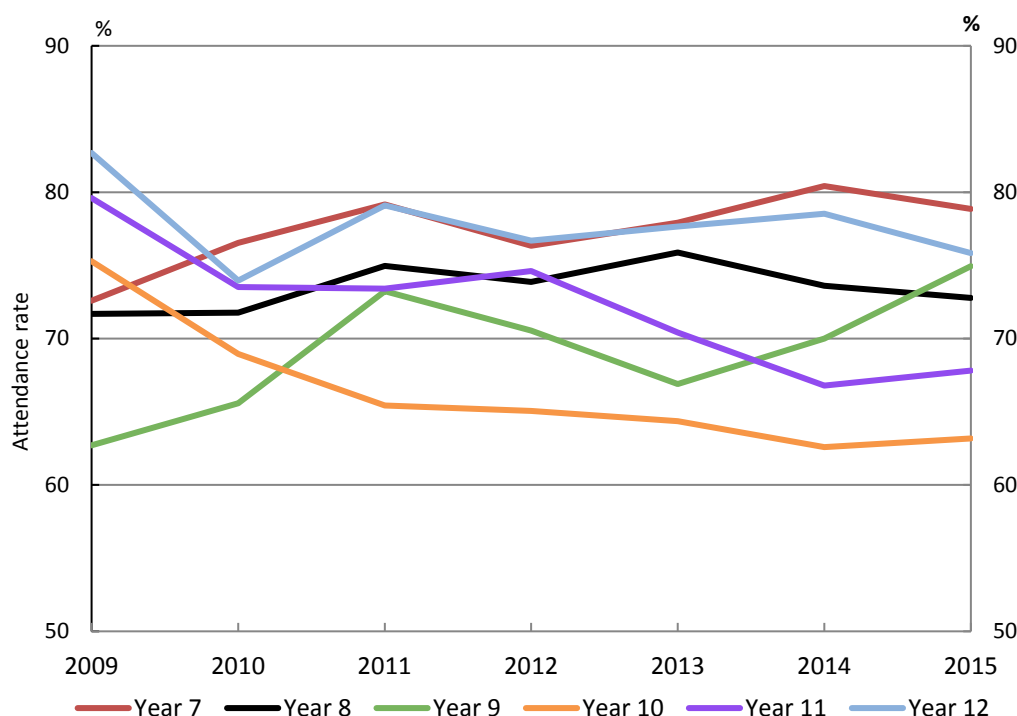
|                               | 2009        | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Clontarf schools (all)</b> | <b>74.9</b> | <b>74.4</b> | <b>75.5</b> | <b>74.8</b> | <b>75.5</b> | <b>75.7</b> | <b>76.5</b> |
| <b>Phase 1 (all)</b>          | <b>71.0</b> | <b>70.9</b> | <b>73.2</b> | <b>72.1</b> | <b>71.3</b> | <b>70.8</b> | <b>70.9</b> |
| Armidale High School          | 63.7        | 70.3        | 82.5        | 75.9        | 75.8        | 70.7        | 73.5        |
| Bourke High School            | 66.5        | 70.0        | 67.9        | 63.6        | 64.4        | 66.1        | 67.0        |
| Brewarrina Central School     | 69.0        | 64.9        | 70.3        | 73.4        | 80.4        | 80.7        | 83.6        |
| Coonamble High School         | 78.6        | 78.9        | 73.3        | 74.9        | 73.8        | 69.9        | 67.1        |
| Inverell High School          | 72.4        | 76.0        | 79.7        | 74.5        | 76.5        | 82.6        | 77.7        |
| Moree Secondary College       | 65.1        | 65.7        | 68.7        | 67.2        | 60.3        | 58.4        | 59.9        |
| (both campuses)               | 84.8        | 76.0        | 77.2        | 81.1        | 83.1        | 81.4        | 81.4        |
| Oxley High School             | 78.7        | 78.0        | 77.8        | 77.6        | 79.8        | 80.5        | 81.8        |
| <b>Phase 2/3 (all)</b>        | <b>77.5</b> | <b>79.7</b> | <b>79.3</b> | <b>73.6</b> | <b>81.1</b> | <b>84.6</b> | <b>79.2</b> |
| Dubbo College- Delroy         | 85.1        | 83.2        | 81.5        | 81.0        | 75.1        | 77.7        | 85.4        |
| Dubbo College- Senior         | 81.5        | 80.7        | 80.0        | 80.6        | 83.8        | 82.4        | 82.6        |
| Dubbo College- South          | 79.2        | 75.1        | 75.7        | 81.3        | 86.3        | 84.3        | 88.7        |
| Endeavour Sports High         | 68.3        | 67.5        | 70.1        | 75.6        | 74.5        | 74.3        | 77.6        |
| Mount Austin High School      | 76.4        | 74.9        | 74.8        | 75.7        | 76.2        | 76.0        | 75.8        |
| <b>Comparison Schools</b>     | <b>74.9</b> | <b>74.4</b> | <b>75.5</b> | <b>74.8</b> | <b>75.5</b> | <b>75.7</b> | <b>76.5</b> |

Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE). Attendance rates sourced from the return of absences census conducted in Term 4, 2015 by the Statistics Unit, CESE.

Figure 5 shows the attendance rates for Aboriginal males in Phase 1 schools by scholastic year. The data builds on the between-school variation shown in Table 2, demonstrating considerable variation between Year levels. Since 2009 there has been a clear decline in the attendance of Year 10 and 11 Aboriginal male students. Year 11 and 12 attendance rates should be treated with some caution as these students can exhibit unique study patterns and can follow a variety of educational pathways. This makes constructing a meaningful indicator that is reflective of ‘true’ attendance extremely difficult. Overall, however, the data does suggest that Clontarf Academies have faced challenges engaging the senior cohort of

Aboriginal boys at these schools. Conversely, attendance rates for Year 7 and 9 students, while somewhat volatile, have been on an upward trend since 2009.

**Figure 5:** Aboriginal male attendance rates by scholastic year, Phase 1 schools, 2009-2015



Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

Note: Attendance rates are for Years 7-12 and are sourced from the return of absences census conducted in Term 4, 2015 by the Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

### *Modelling the impact of Clontarf on school-level attendance*

Simply looking at trends in attendance rates at Clontarf schools does not necessarily indicate the true impact of Clontarf Academies, as there may be a range of other factors affecting attendance that need to be taken into account. In order to better determine whether schools that have participated in the Clontarf program have higher attendance rates for Aboriginal boys than those who have not participated, a 'fixed effects' panel analysis was undertaken (for further technical details of the method refer to Appendix E).

Data for this analysis were drawn from the Department's attendance database, covering a period from 2006 to 2015. Analysis was restricted to Phase 1 schools, due to insufficient data to estimate the effect for the newer Academies. Data were used to estimate a model for aggregate school attendance (Years 7-12)<sup>20</sup> as well as a model for each individual scholastic year. This was done to eliminate the possibility that the aggregation of the attendance rate across Years 7-12 might mask the Clontarf effect for particular Year groups.

In addition to whether or not the school has participated in the Clontarf Academies program, the model also included variables to account for:

- whether or not the school was a Connected Communities school
- the effect of the new minimum school leaving age, introduced in 2010
- the number of students enrolled at the school, as an indicator of school size

<sup>20</sup> For simplicity, the student sample for Brewarrina Central School is also contained to Years 7 to 12, even though Clontarf is also offered to students in Years 5 and 6.

- the proportion of Aboriginal male students amongst total male students at the school.

The results of the modelling are summarised in Table 3, with further details provided in Appendix E. These results show that:

- Attendance improved after the introduction of Clontarf Academies for Aboriginal males in Year 7 (a 2.0% increase), Year 8 (5.3% increase) and Year 9 (4.9% increase). Taking 200 days as the normal number of enrolled days for a student in one year, the increase in the school attendance rate is equivalent to an increase of 4.0 days of schooling for male Aboriginal students in Year 7, 10.6 days in Year 8 and 9.8 days in Year 9.
- However, Clontarf Academies had no significant impact on school attendance rates for Years 10, 11 or 12.<sup>21</sup>

Note here that, for the purposes of attendance statistics, participation in Clontarf activities during school hours is counted as school attendance, not absence.

**Table 3:** Summary of results of fixed effects panel data model for attendance

|                                                                     | Year 7 | Year 8  | Year 9  | Year 10 | Year 11 | Year 12 |
|---------------------------------------------------------------------|--------|---------|---------|---------|---------|---------|
| <b>Difference between Clontarf Academies and comparison schools</b> | 0.126* | 0.306*  | 0.266*  | -0.013  | 0.050   | 0.135   |
| <b>Attendance rate increase</b>                                     | 2.0%   | 5.3%    | 4.9%    | -0.2%   | 0.9%    | 2.1%    |
| <b>Extra days per year</b>                                          | 4.0    | 10.6    | 9.8     |         |         |         |
| <b>Significance (p-value)</b>                                       | 0.016* | 0.001** | 0.007** | 0.915   | 0.606   | 0.355   |

Note: \* indicates that the parameter estimate is statistically significant at the 5% significance level. The parameter estimates have been converted to changes in attendance rate using the calculation provided in Appendix E.

The Clontarf experience in other states (particularly Western Australia, where the first Academies were established in the early 2000s) may be instructive here in explaining the model results, or at least part of them. The Foundation reports that older Aboriginal boys with poor attendance have typically spent a longer period being disengaged in the school education system prior to the arrival of the Clontarf Academy at their school. Such entrenched negative attitudes towards schooling may significantly hinder any efforts for re-engagement.

However, as Academies become more established and boys become involved in Clontarf from a younger age, the Foundation reports that senior attendance rates tend to improve as cohorts of Clontarf boys advance through the system. There are tentative indications of this already occurring in NSW, with 2015 data showing a slight upturn in Year 10 and 11 attendance rates across Phase 1 Academies, following several years of decline (Figure 5 above). These cohorts of students would have been in Years 7 and 8 when the Clontarf Academies were first established in mid-2012, so have had over three years of Clontarf exposure. Nevertheless, the 2015 result represents only one year of data and it is too early to tell whether this is the start of a new trend or merely an anomalous outcome.

### 3.5 NAPLAN participation

While data limitations preclude a reliable analysis of the impact of the Clontarf Academies on NAPLAN test scores, analysis was undertaken to assess whether the program has an effect

<sup>21</sup> This finding was supported by the results of the Clontarf student survey, with 71% of Year 7 to 9 boys at Phase 1 schools reporting that they were going to school more often since attending the Academy. The corresponding figure for boys in Years 10 to 12 was only 60%.

on student *participation* in Year 7 and Year 9 NAPLAN tests (both Reading and Numeracy). Students who are withdrawn or absent on the dates of testing are counted as having not participated in the NAPLAN test.

Set out in detail in Appendix F, none of the analytical techniques tests found any significant lift in NAPLAN participation in Clontarf schools following introduction of the program.

Due to the small sample sizes, the analysis would only have been able to detect significant effects of a relatively large magnitude. The inclusion of additional years of data would increase the chances of detecting small to moderate effects and would allow clearer conclusions to be drawn.

### 3.6 School retention

School retention remains a key part of the 'education gap' between Aboriginal and Torres Strait Islander students and other students, and school completion to Year 12 is an explicit goal of the Clontarf Academies.

The aim of the retention analysis was to investigate whether Aboriginal male students who have participated in the Clontarf Academies are more likely to remain in school from Year 10 to Year 12 compared to similar students who have not participated in the program.

#### Method

The analysis tracked individual student movements using data from the Department's enrolment database, for students in Phase 1 schools as well as the 24 comparison schools. The sample included 1,065 Aboriginal male students who had been enrolled in Year 10 at one of the selected schools in 2012, 2013 or 2014.

'Survival analysis' modelling was undertaken, based on the number of days each student remain enrolled, until either finishing Year 12 or leaving school early. Details of the model are provided in Appendix G.

This approach allows greater precision than calculating Apparent Retention Rates (see Appendix G), which are based on overall student numbers rather than individual student movement. This approach also minimises the effect of potential 'ghost enrolments', in which inaccuracies in data collection may mean that a student is simultaneously enrolled at more than one school.

One key limitation that cannot be addressed is that data are only available for enrolments at government schools in NSW, so any movement to a non-government school or interstate is counted as non-attendance. For this analysis, the number of such occurrences is assumed to be low, and equally likely (or unlikely) for Clontarf and non-Clontarf schools.

Within Clontarf schools, the analysis also tested the impact of students' level of involvement in the Academy.<sup>22</sup> While this 'Clontarf involvement' measure allows analysis to be conducted on a finer-grained level, it needs to be treated cautiously as there is no way to identify students in comparison schools who might have been involved in an Academy if it were offered in that school. This problem is known as 'selection bias' and can lead to misattribution of impact.

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<sup>22</sup> For classification details, see Section 2.2. This analysis could not be undertaken for attendance, as time series attendance data were available only at the school level rather than for individual students.

One way to account for this selection bias is to add as much information into the statistical model as possible to account for differences between Clontarf and non-Clontarf students. The variables included in this model are:

- the student's age (in months)
- whether the student has ever been enrolled at a Connected Communities school
- whether the student has ever enrolled in a Clontarf school
- the number of times the student has moved schools
- whether or not the student has had any prior enrolment gaps
- whether or not the student is repeating the year
- the student's participation status in Year 7 and Year 9 NAPLAN Reading and Numeracy tests.

## Results

Detailed results for the modelling are provided in Appendix G. The key results were as follows:

- The overall risk of early school exit for Aboriginal male students at Clontarf schools was equivalent to the risk at non-Clontarf schools. This means that, at a whole-school level, there was no significant difference in Year 10-12 retention between Clontarf and non-Clontarf schools.
- Within Clontarf schools, however, the risk of early school exit tended to decrease as a student's level of involvement with the Clontarf Academy increased. This effect was only large enough to be statistically significant for those who were heavily involved in the program. The risk of a student leaving their school before completing Year 12 was found to be approximately 60% lower for a fully-involved Clontarf student (involvement category 3) than a non-participant (involvement category 0).
- Translating this result into a Year 12 completion rate, it is estimated that a Year 10 Aboriginal male student who is heavily involved in Clontarf has a 67-79% chance of completing Year 12, compared to a 47-61% chance for non-participants.<sup>23</sup> Taking into account the risk of early exit for students who have previously moved schools, a reasonable prediction of the Year 12 completion rate for a Year 10 Aboriginal male is 70% if they are heavily involved in the Clontarf Academy, compared with 51% if they are not enrolled.

The statistical analyses do include a range of variables to take into account other factors that may affect a student's probability of finishing school. While there is likely to be an 'unobserved' and immeasurable component as well, such as the student's innate motivation level, this does go some way to control for these factors within the limitations of the data.

Overall, this modelling shows that the students who are heavily involved in the Clontarf Academies program also have a greater likelihood of completing Year 12 than those students who choose not to enrol. However, it is not possible to confidently assign causality to this relationship between Clontarf involvement and retention in Clontarf schools. While it is conceivable that greater involvement in Clontarf may lead to a student staying in school for longer, it may also be the case that those students who are more likely to finish school are also the ones who are more likely to become heavily involved in Clontarf.

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<sup>23</sup> The lower bound of the intervals assumes that all students who move schools do not complete Year 12, while the upper bound assumes that all students who move do complete Year 12.

## 3.7 Student behaviour at school

### 3.7.1 Qualitative data

Interviews with school staff, Academy Directors and community members revealed a generally positive assessment of the program's effect on student conduct, notwithstanding areas in which some respondents felt there was room for improvement.

The most frequently cited positive behavioural change was an improvement in the Clontarf boys' manners, politeness and respect for others. School staff and members of the community noted significant changes in the boys' behaviour following their involvement in the Academies, including *"looking people in the eyes"*, *"not spitting on the ground"*, *"knowing to shake hands"* and *"changes in their language"*. The improvement in the boys' demeanour was considered a considerable success by many respondents, helping the boys to mature into *"nicer people and better citizens even if they leave school early"*.

*"One boy who is currently the best behaved and most polite in the Academy used to be very withdrawn before. You would go to talk to him in the playground and he'd literally turn his back on you. Now you can have a conversation with him, he's smiling."*

School principal

*"There have certainly been changes in behaviour. There's been a significant improvement especially when they're together and when you meet them, they come shake your hand and introduce themselves, before you had to work real hard to get to know who they are. They are welcoming now when I get involved in the activities."*

Youth Development Officer

*"There's been a massive improvement seen around town, in terms of kids attending school, the respect the kids have for each other and the way they conduct themselves – it's an unbelievable program. The changes are really, really obvious."*

Mayor, local council

Several stakeholders noted that the boys' behaviour towards women — both students and members of the school staff — had also improved. However, there were also isolated cases where it was felt that more work could be done around the boys' respect for women, especially in addressing the inappropriate manner in which some of the boys talked to women. One interviewee suggested that this issue may, at least in part, be due to the fact that the program is restricted to boys and had helped foster "a bit of a boys club" in the Academy.

While the Academies do appear to nurture politeness, stakeholder feedback on the program's effect on curbing disruptive behaviour is more mixed. In their interviews, a number of schools reported a drop in suspensions following the implementation of the Academy. However, several school principals and Academy Directors also indicated that behaviour and conduct issues remain a key concern. While generally pleased with the improvements in school attendance, many felt that this had yet to fully translate into greater discipline in the classroom and this was highlighted as an area in which more progress could be made. Indeed, one school principal noted that, in their second year of running Clontarf, there was

an increase in discipline problems *because* there were now more students attending school regularly. Moreover, a number of stakeholders voiced frustrations at the difficulties of engaging the most recalcitrant boys and the “*tough nuts*”.

*“Some particular kids have massive psychological problems, they just want to create mayhem and disruption and hurt others. Trying to manage them with the majority of Clontarf kids, it’s very, very difficult to do it. I’ve never seen them turning kids away but I can assure you that there are a couple of kids there they’ve tried to work with, and it’s just been fraught with difficulties, and it impacts on the other kids and what you can do with your program.”*

School principal

*“They’re still young people and some of these kids – they’re a tough basket. You’re not going to change the world in a few short years. I wouldn’t say there’s been an improvement in anti-social behaviour since Clontarf started. But there may be some past offenders who are part of the program who aren’t as active now.”*

Youth Development Officer

### 3.7.2 Long suspensions and serious misconduct

To complement evidence from the qualitative consultation, this section presents an analysis of school suspensions data, with the aim of assessing whether the Clontarf Academies program has had a positive effect on student discipline.

The analysis focuses solely on long suspensions (5-20 days), as a change in short suspension rates could just as easily reflect a change in school discipline responses, rather than changes in student behaviour.<sup>24</sup>

#### *Trends in school-level long suspension rates, 2009-2015*

Table 4 presents Aboriginal male long suspension rates for Clontarf schools from 2009 to 2015, averaged across all scholastic years. Long suspension rates are calculated by dividing the number of long suspensions by the number of enrolments, with the result expressed as a percentage. To provide a point of contrast, the long suspension rate is also shown for comparison schools (listed in Appendix B).

On aggregate, the Aboriginal male long suspension rate for Phase 1 Clontarf schools has been on an upward trend since 2012, following a period of decline before the Academies were established. Moreover, while there has been substantial variation between schools, a sustained drop in long suspensions has not been apparent at *any* of the individual Phase 1 Academies since their establishment. In contrast, the Aboriginal male suspension rate at comparison schools dipped in 2013 before rising again in 2014 and 2015. In 2015 the suspension rate at Phase 1 Clontarf schools rose to be above that of comparison schools for the first time since 2009.

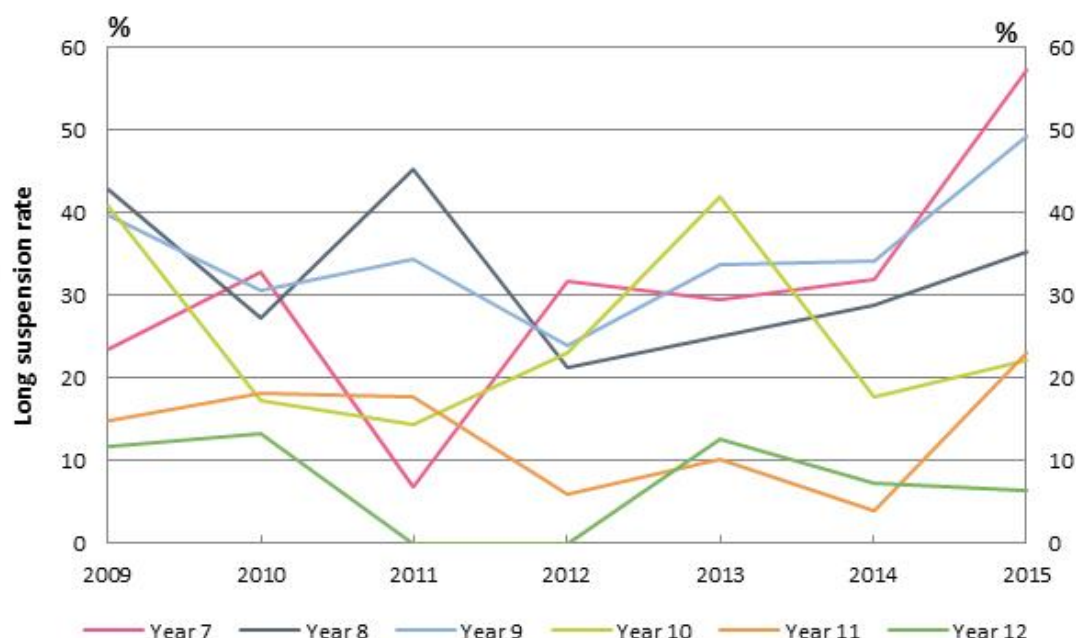
<sup>24</sup> A short suspension of up to 4 days may be imposed on students showing continued disobedience (e.g. disrupting other students, failing to obey staff instructions) or aggressive behaviour (e.g. bullying and verbal abuse). Long suspensions (5 to 20 days) are used in circumstances when short suspensions have not resolved the issue or the misbehaviour is deemed very serious, such as physical violence, possessing a weapon, supplying drugs or malicious property damage. A new school principal who has a tougher stance on disobedience than his or her predecessor may choose to impose short suspensions more frequently for misbehaviour. Long suspensions, on the other hand, are automatically triggered by very serious misbehaviours and are therefore a more useful proxy for serious misconduct by students.

**Table 4:** Long suspension rates for Aboriginal male students, 2009-2015

|                               | 2009        | 2010        | 2011        | 2012        | 2013        | 2014        | 2015        |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Clontarf schools (all)</b> | <b>28.4</b> | <b>28.8</b> | <b>25.0</b> | <b>27.4</b> | <b>31.8</b> | <b>25.1</b> | <b>29.6</b> |
| Phase 1 (combined)            | 33.1        | 25.7        | 21.4        | 20.6        | 27.8        | 23.1        | 34.9        |
| Phase 2/3 (combined)          | 24.3        | 31.8        | 28.1        | 34.2        | 35.5        | 27.2        | 25.2        |
| <b>Comparison Schools</b>     | <b>26.2</b> | <b>30.7</b> | <b>33.4</b> | <b>35.2</b> | <b>30.0</b> | <b>30.8</b> | <b>33.4</b> |

Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

Disaggregating suspension rates for Phase 1 Clontarf schools by scholastic year (Figure 6) also reveals little positive change following the implementation of the program. While suspension rates have been trending up for Years 7, 8 and 9 (with the steepest rise observed for Year 7s), Years 10, 11 and 12 have recorded mixed results. Overall, these figures show no evidence of the Clontarf Academies leading to lower suspension rates for Aboriginal boys.

**Figure 6:** Long suspension rates for Aboriginal male students by scholastic year, Phase 1 Academies, 2009-2015

Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

There are several limitations of this analysis that need to be taken into account. Firstly, trends in average suspension rates over time do not take into account any changes that may have occurred in the student body over time. Attributing change in suspensions to the Clontarf program inherently assumes that Aboriginal male students attending Clontarf schools after its implementation are similar to those who attended prior to its implementation. Secondly, this analysis does not reveal changes in behaviour within the same group of students over time.

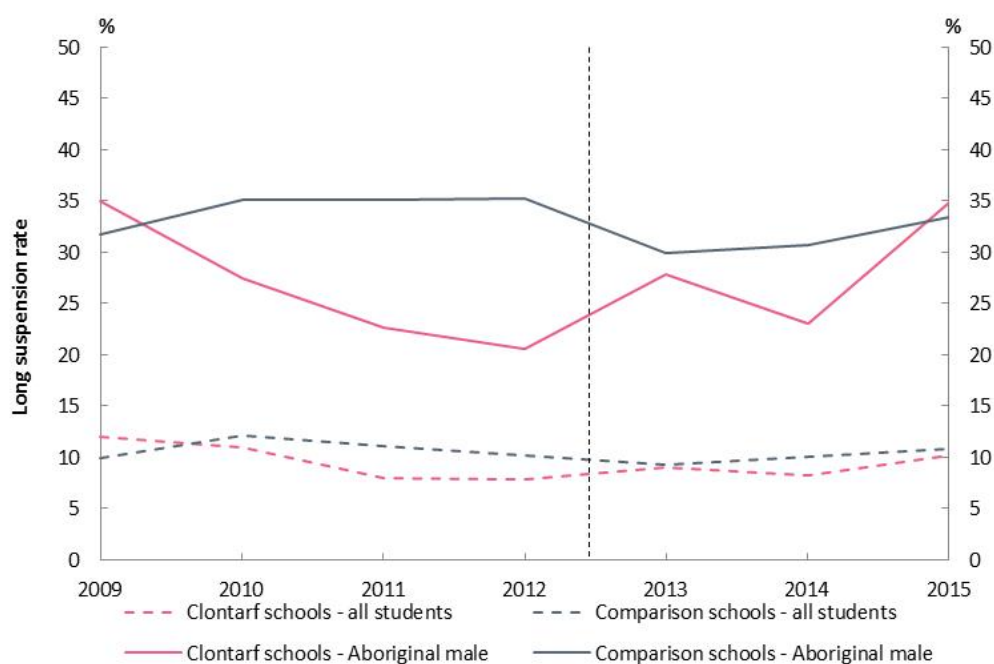
### *Cohort analysis of long suspensions data*

Tracking behavioural changes in the same group of students can be achieved using cohort analysis, where a cohort is a single group of students as they move through the school grades, i.e Year 7 in 2012, Year 8 in 2013 and Year 9 in 2014 are the same cohort.

This analysis was undertaken for nine cohorts of students that have been exposed to the Clontarf Academies program since its implementation in 2012, ranging from the oldest cohort (who were in Year 12 when the Academies established in 2012), to the youngest (who entered Year 7 in 2015 and would have had only one year of exposure to the program).

Figure 7 shows the overall long suspension rate for all nine cohorts at Clontarf and comparison schools between 2009 and 2015, for both Aboriginal males and all students.

**Figure 7:** Long suspension rates for Clontarf and comparison schools for all cohorts, 2009-2015



Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

These results show no evidence of a positive Clontarf effect on long suspension rates for either Aboriginal males or the overall student body.

- While suspension rates at Clontarf schools tended to be below that of comparison schools during 2013 and 2014, this was already the case prior the implementation of Clontarf Academies in 2012.
- Moreover, suspension rates for Aboriginal boys at Clontarf schools have picked up since 2012, despite a fall in 2014. This upward trend follows a period of steady decline in suspension rates prior to the establishment of Clontarf. In the three years since Clontarf was established, the suspension rate has climbed back up to its 2009 level, erasing the gains of the three years prior to the program's establishment.
- In contrast to the upward trend at Clontarf schools, long suspension rates for Aboriginal males at comparison schools have been largely flat.

Overall, these results provide no evidence to indicate that the program has reduced serious misconduct and indeed, appear to indicate a *rise* in Aboriginal male suspension rates rather than a decline following establishment of the Academies.

Narrowing the analysis just to the four cohorts that have had greater exposure to Clontarf (see Appendix H) makes no difference to the conclusions here. To take into account any

potential 'spill-over' effects, analysis was also undertaken for the whole student population, and similar results were found.

This apparent rise in suspension rates is not necessarily at odds with the attendance improvements found previously in Section 3.4. Firstly, attendance improvements were only statistically significant for Years 7,8 and 9 and not Years 10, 11 and 12, while suspensions cover all scholastic years. Moreover, a rise in suspension rates and a concomitant improvement in attendance are not necessarily contradictory events.<sup>25</sup> It may be possible that the Clontarf Academies program re-engages students who are more 'at-risk' and therefore more likely to be suspended once they are attending school again. However, the individual-level data required to test this theory are not currently available.

### 3.8 Criminal offending

*"\_\_\_\_\_ is a really interesting place in terms of the large number of recalcitrant kids. Particularly teenage boys, it's quite extraordinary. Kids that are tied up with criminal activities. I've been blown away by the number of these kids. There are 43 or 44 police in a town of \_\_\_\_\_ people."*

School principal

Aboriginal and Torres Strait Islander people are heavily overrepresented in Australia's criminal justice system, accounting for over a quarter (27%) of the total Australian prison population while comprising only 2% of the Australian population (ABS, 2015). Indigenous Australians are also six times more likely to be arrested per head of population for any offence than non-Indigenous Australians (Weatherburn, 2014). Therefore, reducing Aboriginal youth contact with the criminal justice system is a significant opportunity for Clontarf Academies to generate a positive impact.

The potential for a 'Clontarf effect' on crime may operate through a number of channels. Firstly, students who are attending school are likely to have less time and opportunity to commit an offence (incapacitation effect). Secondly, the likelihood of higher educational attainment and of securing stable income through employment could reduce the motivation to be involved in criminal activity. Thirdly, sustained mentoring by Clontarf staff can directly dissuade boys from committing an offence.

#### 3.8.1 Qualitative data

There is some qualitative evidence suggesting that the program has played a positive role in promoting pro-social behaviour. One local police officer noted clear differences on an individual level, where particular Aboriginal boys who previously had daily or weekly police contact no longer had any.

*"The Attorney-General's department and non-government agencies had tried to put things in place with troubled kids, none of which worked. We had night patrols, extended hours at the youth centre, but not the same level of one-on-one interaction as Clontarf. So far, it's been very, very positive, and it's probably a long time coming. The benefits are certainly there."*

Senior Sergeant, NSW Police

<sup>25</sup> For example, the suspension of an additional student from one year to the next would see a rise in the suspension rate, given the same number of enrolments. However, if all other students lifted their attendance, overall attendance rates may still increase.

Not only was Clontarf credited with “*putting these kids back on the straight and narrow*”, the program also reportedly gives police another avenue to direct young people to when they needed help “*to steer [them] away from going down a bad path*”. This strength was attributed to the positive role modelling of not only the Clontarf staff but also Clontarf alumni.

*“The police are quite often at our doorstep with positive messages about the difference in crime rate – they’re asking us what we’re putting in the water. The boys wave to the police, and even play sport with the police and ambulance officers now.”*

Academy Director

### 3.8.2 Quantitative data

Discrete time survival models were estimated in order to investigate whether Aboriginal male students who attended a Clontarf school had a lower risk of committing a criminal offence compared to Aboriginal males who did not attend a Clontarf school. The modelling analysed the risk of an individual re-offending (i.e. recidivism), rather than the risk of committing a first offence. This is a common approach in crime analysis, as analysis of the risk of committing a first offence is problematic. One key reason is because there may exist a subset of students that will never commit a criminal offence over their lifetime, regardless of their participation in the program. Therefore, any apparent trends in ‘first contact’ with the criminal justice system cannot necessarily be attributable any given intervention.

A sample of 3,137 students was drawn from the Department’s enrolment database for the seven Phase 1 Clontarf Academy schools and 24 comparison schools. The students were enrolled in Years 7-12 at one of the above schools from 2012 to 2015. Through the linking of names and dates of birth, the students’ offence data were extracted from the NSW reoffending database by the NSW Bureau of Crime Statistics and Research (BOCSAR).

Anonymised data were then analysed by CESE, comparing Clontarf with non-Clontarf schools. The offence data included the student’s offending dates, offence type and the case finalisation date. If there had been a court presentation, the type of penalty and length of paroles were also recorded.

Some 821 first-time offences were recorded, 66 of which were committed by students from Clontarf schools. There were also 521 first re-offences, 50 of which were committed by Clontarf school students. A summary of the offence data is given in Appendix J.

In order to account for other factors that may affect an individual’s risk of offending, the model also included variables to account for:

- the student’s age (in months)
- whether the student was above Year 10 in the current month<sup>26</sup>
- the number of prior enrolment gaps<sup>27</sup>
- the number of prior matters finalised by way of caution, conference or court appearance
- whether the student has ever been enrolled in a Connected Communities school
- the student’s participation status in Year 7 NAPLAN Reading and Numeracy tests
- the remoteness and socioeconomic status of the student’s residential address.

<sup>26</sup> As it is compulsory for NSW secondary students to complete Year 10, students may have a different offending pattern after Year 10.

<sup>27</sup> An enrolment gap is defined as a student being not enrolled in a government school for more than one school term (10 weeks).

For a detailed list of all variables included in the model, see Appendix J.

While full detail of model results are provided in Appendix J, highlights are as follows:

- There was no significant difference in the risk of re-offending between students that were involved in the Clontarf Academies program and non-participants.<sup>28</sup>
- There was no significant difference in the risk of re-offending between students who attended a Clontarf school, but did not participate in the Clontarf Academies program, and students who did not attend a Clontarf school.
- Students who had never enrolled in a Clontarf school had about the same risk of re-offending as students who had enrolled in a Clontarf school.
- Restricting analysis just to violent offences and property offences found similar results, with students who had participated in the Clontarf Academies program having no significantly different re-offending risk compared to non-participants.
- Analysing the risk of re-offending as a recurrent event (i.e. the risk of committing a second offence, third offence etc.) also found no significant differences for students who participated in the Clontarf Academies program and those who did not.

Overall, these results found no significant impact from the Clontarf Academies on students' re-offending risk. However, it is important to note that the sample size was small, with only 50 re-offences committed by Clontarf school students during the observed time period. As with the NAPLAN participation analysis, this means that the modelling cannot estimate true effects with great precision and would only be able to detect significant effects of a large magnitude.

The observation of additional years of data would allow firmer conclusions to be drawn. For example, Ferrante and Hendrie's (2004) study in WA followed Clontarf participants and a matched control group until the age of 24 and found that Clontarf boys had a 25% rate of re-offending compared with a rate of 60% for the matched group. However, a significant limitation of this WA study is that only 202 of the 612 eligible Clontarf students could be contacted and gave consent for inclusion in the analysis, and this may well have introduced significant selection bias into the results.<sup>29</sup>

### 3.9 Post-school destinations

Employment is one of the key learning areas (or 'pillars') of the Clontarf Academies, and the Foundation endeavours to have least 80% of graduates continue their education or find work within 12 months of their leaving at the end of Year 12 (Clontarf Foundation, 2015). In order to achieve this, the Academies seek to improve the employment prospects of each boy by:

- Increasing knowledge and exposure to available job opportunities through worksite visits, Employment Forums and visits from past Clontarf graduates.
- Providing information, resources and assistance in gaining work experience (including practical help in writing job applications and resumes, and setting up bank accounts and tax file numbers).
- Developing a range of 'work-ready' and life skills such as leadership, presentation skills, self-confidence, good manners, and a sense of responsibility and daily routine.
- Reinforcing an expectation that they will work or study after completing Year 12.

<sup>28</sup> In the retention analysis, the involvement level variable contained four levels. However, due to the sample size limitations of the data used in crime analysis it was necessary to collapse the three levels of involvement into a single indicator.

<sup>29</sup> Eligible students in this instance were those who had completed the program and were aged 18 years or over.

### 3.9.1 Qualitative consultations

Interview participants commonly cited Clontarf's continued post-school support of the boys as one of the key strengths of the program. Clontarf staff seek to maintain personal contact with each boy after they leave school, following them up for at least one year after graduation. This continued relationship with Clontarf alumni is reported to be a benefit that goes beyond what the school itself is able to provide.

*"The thing that I really enjoy about this program is that Clontarf don't just say when the boys finish Year 12 'see ya later, have fun, hope you do well in life'. They look after the boys in employment, have a rapport with the alumni, and want to make sure they're going well."*

Academy Director

A number of stakeholders also related stories of particular boys whose prospects after they leave school had been positively impacted by the Academy. These results were often attributed to Clontarf's ability to open students' eyes to the range of available opportunities and life possibilities, while instilling a drive to perform well at school and develop a strong work ethic in order to have access to such opportunities. This was supported by responses in the student survey, in which 52% of Clontarf boys said they were *"thinking more about different training and job opportunities"* since attending the Academy.

*"We've seen increases in the boys getting part-time jobs, full-time jobs, going to uni – that's all part of attending and improved self-confidence."*

Careers Advisor

*"For some kids whose parents haven't been educated, getting things like resumes done and not having someone to guide you can be difficult. You won't break the cycle, but Clontarf is focused on careers and goes beyond school so that kids can see how important a particular subject might be for a particular career."*

Aboriginal Education Officer

### 3.9.2 Survey data

Table 5 shows post-school outcomes for four cohorts of Year 12 Clontarf graduates in NSW, from 2012 to 2015. These records are maintained by the Clontarf Foundation as part of their follow-up activities with participants. Outcomes for all cohorts are current for 2016, rather than all being one year after graduation. Key points to note include the following:

- Taking all cohorts together, the most common post-school destination for Clontarf graduates is full-time employment (32%), followed by some form of vocational education (25%). The remainder of graduates are evenly spread between university studies (15%), part-time or casual employment (14%) and job-seeking (14%).
- The 2015 cohort report the highest percentage of students still looking for work (18%, 9 months after graduation), suggesting that it does take some time for graduates to find employment (or enrol in further study) after leaving school.

**Table 5:** Post-school outcomes for Year 12 Clontarf graduates in NSW

| Outcome                           | 2012      |            | 2013      |            | 2014      |            | 2015      |            | Total      |            |
|-----------------------------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|------------|------------|
|                                   | n         | %          | n         | %          | n         | %          | n         | %          | n          | %          |
| Employed                          | 9         | 47         | 17        | 55         | 12        | 55         | 12        | 33         | 50         | 46         |
| <i>Full-time</i>                  | 5         | 26         | 15        | 48         | 8         | 36         | 7         | 19         | 35         | 32         |
| <i>Part-time/casual</i>           | 4         | 21         | 2         | 6          | 4         | 18         | 5         | 14         | 15         | 14         |
| University                        | 3         | 16         | 3         | 10         | 6         | 27         | 4         | 11         | 16         | 15         |
| Vocational education              | 5         | 26         | 7         | 23         | 2         | 9          | 13        | 36         | 27         | 25         |
| <i>Apprenticeship/traineeship</i> | 4         | 21         | 3         | 10         | 1         | 5          | 5         | 14         | 13         | 12         |
| <i>TAFE</i>                       | 1         | 5          | 4         | 13         | 1         | 5          | 8         | 22         | 14         | 13         |
| Looking for work                  | 2         | 11         | 4         | 13         | 2         | 9          | 7         | 19         | 15         | 14         |
| <b>Total able to be contacted</b> | <b>19</b> | <b>100</b> | <b>31</b> | <b>100</b> | <b>22</b> | <b>100</b> | <b>36</b> | <b>100</b> | <b>108</b> | <b>100</b> |
| Unable to contact                 | 0         | -          | 2         | -          | 0         | -          | 2         | -          | 4          | -          |

Source: Clontarf Foundation data (unpublished).

Figures 8 and 9 display outcomes for Clontarf graduates against broader trends from the Survey of Secondary Students' Post-School Destinations (PSD), focusing just on responses from Year 12 completers who were Aboriginal males from non-metropolitan areas.<sup>30</sup> Only selected Clontarf cohorts are used for this comparison, ensuring that that the same length of time has elapsed since graduation.<sup>31</sup>

Overall, the results show that:

- Clontarf graduates were more likely to be engaged in work or study (81% after one year, 91% after two years) than the average for Aboriginal boys from non-metropolitan areas (75% after 1 year, 83% after two years).
- Among those pursuing further education straight out of school (Figure 8), Clontarf graduates appeared more likely to enrol in a Vocational pathway than at University.
- Two years after leaving school, Clontarf graduates were much more likely to be working (55%, compared with 27% for the comparison group) and less likely to be in further education and training (36% vs 56%).

Despite obvious sample size limitations, the lower incidence of 'looking for work' among Clontarf graduates does provide an encouraging indication of the Academies having some success in their endeavour to improve the future prospects of their members.

<sup>30</sup> These figures refer to Aboriginal and Connected Communities school Year 12 completers.

<sup>31</sup> The 2015 Post-School Destination (PSD) survey included students who completed Year 12 in 2014, as well as longitudinal data for students who had completed Year 12 in 2013 and who were surveyed previously in 2014.

**Figure 8:** One year post-graduation outcomes – 2015 Clontarf cohort vs 2014 and 2013 non-metropolitan Aboriginal male PSD cohorts

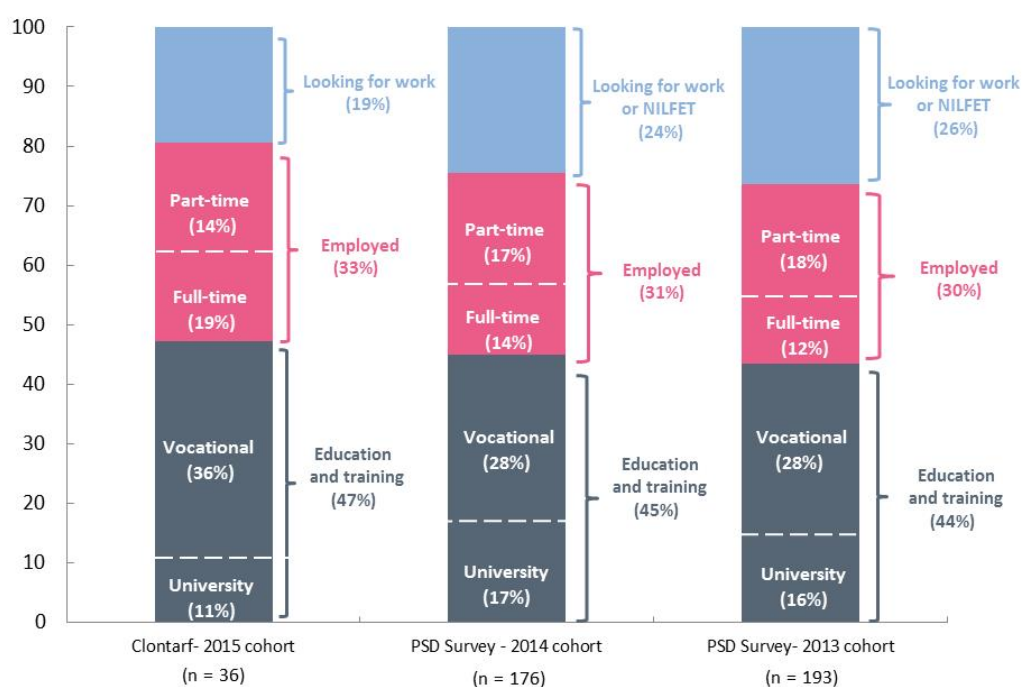
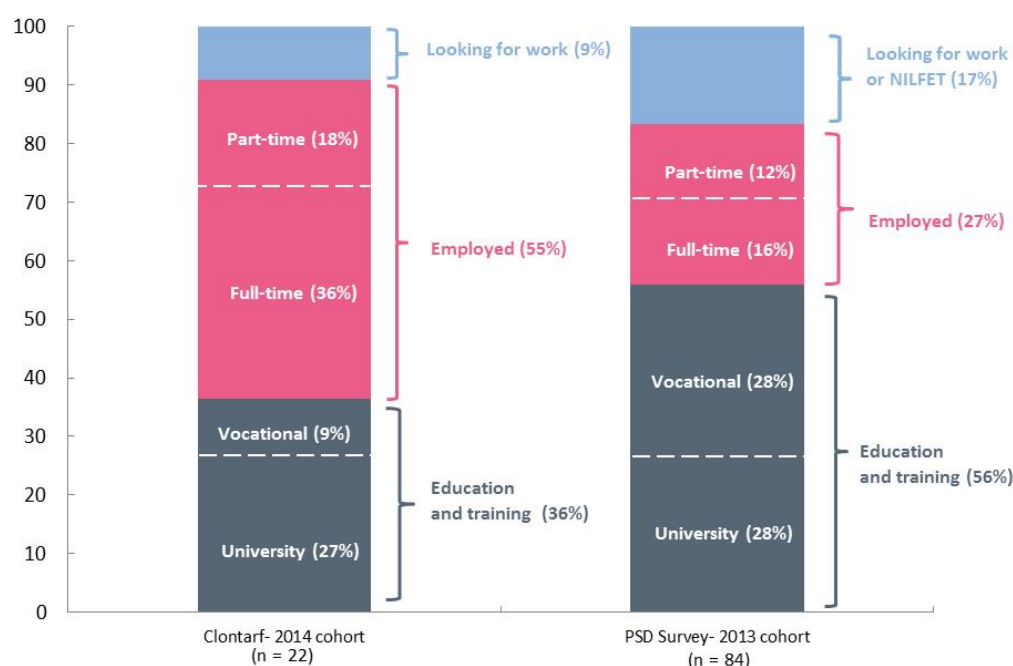


**Figure 9:** Two year post-graduation outcomes – 2014 Clontarf cohort vs 2013 non-metropolitan Aboriginal male PSD cohort



Source: Clontarf Foundation and 2015 Post-Schools Destinations and Expectations Survey.

Note: Clontarf do not include a NILFET (Not In Labour Force, Education or Training) category in their classification of post-school outcomes. Vocational education refers to Certificate I-IV, apprenticeships and traineeships.

## 4 Cost-benefit analysis

This cost-benefit analysis draws on several of the results presented in earlier Sections of this report. By assigning a monetary value to the expected benefits of the program and comparing it to the costs of delivering it, we have estimated the net present value of the program and then used this to assess the program's value for money. A sensitivity analysis is also conducted to test the impact of changing key assumptions in the modelling.

### 4.1 Scope

Costs and benefits have been examined from a national, economy-wide perspective, taking into account flows accruing to individuals, governments (both State and Commonwealth) and broader society. Key assumptions (e.g. discount rates) are set out in Appendix K.

#### Inclusions

The analysis is confined to the monetisation of costs and benefits relating to education, earnings, tax payments and participation in public welfare programs. The costs and benefits included in the analysis are summarised in Table 6 below.

**Table 6: Costs and benefits included in the economic evaluation**

|                                                 | Cost                                                                                                                                                               | Benefit                                                                                                                                                                                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Private</b> (program participant)            | <ul style="list-style-type: none"><li>• Direct cost of additional education</li><li>• Opportunity cost of foregone earnings</li></ul>                              | <ul style="list-style-type: none"><li>• Increase in lifetime earnings</li></ul>                                                                                                                                                                        |
| <b>Public/taxpayer</b> (State and Commonwealth) | <ul style="list-style-type: none"><li>• Program costs (State and Commonwealth)</li><li>• Cost of providing additional education (State and Commonwealth)</li></ul> | <ul style="list-style-type: none"><li>• Avoided cost of addressing non-attendance (Commonwealth)</li><li>• Higher income tax revenue (Commonwealth)</li><li>• Reduction in admin costs associated with lower welfare payments (Commonwealth)</li></ul> |
| <b>Other/social</b>                             | <ul style="list-style-type: none"><li>• Program cost – corporate and private donor (one third share)</li></ul>                                                     |                                                                                                                                                                                                                                                        |

#### Exclusions

Coverage of costs and benefits is by no means comprehensive, as many of the potential benefits are not amenable to assignment of a monetary value or have a relationship with the program that is too complex and/or indirect. These may include the following:

- Crime effects – while Clontarf Academies may have the potential to yield significant benefits in terms of the avoided costs of crime (both criminal justice system costs and victim costs), modelling in this evaluation revealed no statistically significant effect on boys' criminal behaviour in NSW to date (see Section 3.8). However, there may be an indirect effect on crime stemming from higher educational attainment and greater likelihood of employment.
- Direct health effects – mental and physical health improvements as a result of positive mentorship, general health checks and greater participation in physical activity. These were included in ACIL Allen's 2014 analysis but were excluded from ours due to inability to accurately estimate or test the assumptions.

- Indirect health effects – there is some evidence indicating that a more educated population tends to be healthier (Silles, 2009; Fonseca and Zheng, 2011). This may lead to benefits in the form of avoided costs from smoking or illicit substance abuse.
- Wellbeing – qualitative consultation (see Section 3) indicates that Clontarf Academies may have a positive impact on some student's level of self-confidence and general emotional health.
- Family effects – improved school engagement may have a positive effect on siblings' attendance and engagement.
- Intergenerational effects – a more educated population may have a positive impact on the earnings and quality of life of future generations.
- Improved equity – the benefits of contributing to the government's objective of equity in education and 'closing the gap' between Aboriginal and non-Aboriginal educational outcomes.
- Greater social capital and civic participation due to increased education and community engagement.
- Reduction in domestic violence in Aboriginal communities as a result of behavioural changes.
- Positive externalities (spill-over effects) from human capital growth.

While they are not quantified in this evaluation, a discussion of some of these potential benefits is included in Appendix K

## 4.2 Summary of costs and benefits

Table 7 summarises the overall costs and benefits of the Clontarf Academies program for individual participants (private), government (public), and broader society (social). All figures are in real present values per participant, using a real discount rate of 7%. For details of all calculations, refer to Appendix K

In 2016 dollar terms, the program overall yields a Net Present Value of \$601 per participant. This comprises:

- a \$21,780 net benefit accruing to the Clontarf participant
- a \$11,618 net cost accruing to governments
- a \$9,561 net cost accruing to broader society, through corporate sponsorship.

In this regard, Clontarf participants stand to reap the majority of benefits, in the form of an increase in their lifetime earnings, whilst incurring few (if any) costs from participating in the program. For every \$1 dollar that *participants* invest, the program is expected to return almost \$4 worth of benefits (\$3.94). Conversely, for every \$1 invested by *government*, the return on investment is 58c.

The overall benefit-cost ratio (BCR) of the program works out at 1.01. In other words, after monetising the above costs and benefits accruing to the economy as a whole, the Clontarf Academies program is essentially operating at break-even point, yielding a small net positive benefit of 1 cent for every \$1 invested. This is based on the total annual program cost of \$7,500 per participant, not just the NSW Government contribution of \$2,500 per participant.<sup>32</sup>

<sup>32</sup> According to the Clontarf Foundation, the program cost is expected to remain at \$7,500 per enrolled boy per year, at least over the next few years, due to improved efficiencies and the ability to leverage off economies of scale as the program expands.

**Table 7: Summary of lifetime costs and benefits**

| <b>Cost/benefit<sup>1</sup></b>                    | <b>Private<sup>2</sup></b> | <b>Public<sup>3</sup></b> | <b>Social<sup>4</sup></b> | <b>Total</b> |
|----------------------------------------------------|----------------------------|---------------------------|---------------------------|--------------|
| <b>Benefits</b>                                    |                            |                           |                           |              |
| Lifetime earnings                                  | 29,179                     | 0                         | 0                         | 29,179       |
| Income tax contributions                           | 0                          | 5,571                     | 0                         | 5,571        |
| Avoided cost of non-attendance                     | 0                          | 10,193                    | 0                         | 10,193       |
| Reduction in welfare administration cost           | 0                          | 177                       | 0                         | 177          |
| Total benefits                                     | 29,179                     | 15,940                    | 0                         | 45,120       |
| <b>Costs</b>                                       |                            |                           |                           |              |
| Program costs                                      | 0                          | 19,122                    | 9,561                     | 28,684       |
| Private costs of additional education <sup>5</sup> | 7,400                      | 0                         | 0                         | 7,400        |
| Public costs of additional education               | 0                          | 8,436                     | 0                         | 8,436        |
| Total costs                                        | 7,400                      | 27,558                    | 9,561                     | 44,519       |
| Net Present Value (NPV)                            | 21,780                     | -11,618                   | -9,561                    | 601          |
| <b>Benefit-Cost Ratio (BCR)</b>                    | <b>3.94</b>                | <b>0.58</b>               | <b>0.00</b>               | <b>1.01</b>  |

Notes: <sup>1</sup> All values are expressed in 2016 dollars. <sup>2</sup> Private refers to program participants only. <sup>3</sup> Includes both State and Commonwealth governments. <sup>4</sup> This includes only the costs accruing to the corporate sector and private donors who contribute funding to Clontarf. <sup>5</sup> Includes tuition fees, other direct costs of education, and the opportunity cost of foregone earnings.

This base-case BCR is calculated using estimates of Year 12 completion for heavily involved Clontarf participants only, derived from the retention modelling. While this may overstate benefits as not all Clontarf participants are heavily involved (57% in 2015), data does reveal that the level of involvement has been increasing over time (Figure 2, Chapter 2).

On the other hand, the estimated program benefits are also likely to be understated as the analysis excludes a range of potential benefits that are difficult to monetise. These include potential improvements in wellbeing and health, indirect crime effects and various pro-social flow-on effects for participants and society more broadly. The inclusion of any of these benefits would increase the program's BCR. A discussion of some of these non-quantifiable benefits is provided in Appendix K4.

The modelling also assumes that the current funding arrangements remain, such that State and Commonwealth governments continue to contribute two-thirds of the total program cost.

### **Sensitivity analysis**

To test the robustness of the modelling results to variation in a number of key assumptions, a sensitivity analysis was performed. Assumptions were selected for either their potential to meaningfully affect the results, or the degree of uncertainty surrounding the assumption. The impact on the BCR of varying each assumption, while holding all else, is presented in Table 21 (Appendix K).

Table 21 shows that the program's positive benefits are particularly sensitive to the magnitude of the effect of Clontarf on Year 10-12 retention rates. Assuming the smallest Clontarf effect, the program yields a BCR of only 0.62. Further, these effects are derived from the retention modelling which yielded a significant effect only for those fully-involved in Clontarf. This may overstate any benefits in terms of lifetime earnings increases for program participants. On the other hand, it is possible that observing additional years of data may reveal a larger retention effect (or a significant effect for less involved students) due to a longer exposure to Clontarf. Retention modelling results in this evaluation are based on, at most, three years of Clontarf exposure.

In general, there is considerable uncertainty surrounding how many years of Clontarf participation (and in which grades) is needed to generate benefits from increased levels of educational attainment. Table 21 shows that if six years of program participation is needed, the program would no longer yield a positive NPV. However, if only participation from Years 7 to 9 is required, the program would yield a much larger BCR of 1.28. It is also possible that, as the Academies mature and students have been involved in Clontarf for longer, there may be an attendance effect for Year 10 students as well. This would generate additional benefits and an increase in the program's BCR (Table 21).

In terms of program costs, analysis shows that if the cost of funding a Clontarf Academy were equal only to the NSW Government (one third) share, the program would generate a NPV of almost \$20,000 and a BCR of 1.78.

Finally, sensitivity tests on the use of a 4% and 10% real discount rate were conducted, as per Treasury program evaluation guidelines. As Table 21 shows, the program's value for money is sensitive to the discount rate assumption, with its net benefit turning negative (0.74) for a 10% discount rate and sitting at 1.54 for a 4% real discount rate. The internal rate of return (i.e the discount rate that yields a NPV of 0) is calculated to be approximately 7.1%.

### ***Comparative cost effectiveness***

While it is conceivable that more cost effective initiatives may be available, this can only be determined by further economic evaluations of other programs. This lies beyond the scope of this report.

# Appendices

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## Appendix A: Project Reference Group

The Project Reference Group (PRG) for this evaluation was established to collaborate with and advise the team at CESE. Chaired by CESE's Director of Evaluation and Major Projects, membership comprised the following representatives for at least part of the project, if not the duration. Members at the conclusion of the evaluation are marked with an asterisk.

### NSW Aboriginal Education Consultation Group (AECG)

- Tom Flanders, Member of the Aboriginal Management Committee\*

### Department of Education, Aboriginal Education and Community Engagement

- Michele Hall, Executive Director\*
- Mary Senj, Director\*
- Brian Smyth-King, Executive Director (Learning and Engagement)
- Louise Bye, Director
- Robyn Bale, A/Director

### Department of Education, Leadership and High Performance

- Geoff Pellizzer, Executive Director\*
- Eric Jamieson, Director

### Department of Education, school representative

- Penny Colley, Principal, Inverell High School\*
- Rob Bourke, Executive Principal, Bourke High School

### Clontarf Foundation

- Craig Brierty, Chief Operations Officer\*
- Brendan Maher, Community Partnerships Manager\*
- Jeff Hardy, Development Officer

## Appendix B: Comparison schools

The following schools were used as comparison schools for quantitative analyses in the evaluation. These were schools that have either opened a Clontarf Academy in 2016 or had been identified in 2015 by the Department and the Clontarf Foundation as a potential expansion sites in the future.

1. Ballina High School
2. Brisbane Water Secondary College (Woy Woy Campus)
3. Broken Hill High School
4. Canobolas Rural Technology High School, Orange
5. Chatham High School, Taree
6. Chifley College x 5 Campuses (Bidwill, Dunheved, Mount Druitt, Senior and Shalvey)
7. Gilgandra High School
8. Gunnedah High School
9. Hastings Secondary College x 2 Campuses (Port Macquarie and Westport)
10. Kempsey High School
11. Lake Macquarie High School
12. Lismore High School
13. Maclean High School
14. Melville High School, Kempsey
15. Narrabri High School
16. Narromine High School
17. Peel High School, Tamworth
18. Singleton High School
19. South Grafton High School
20. Wellington High School
21. Willyama High School, Broken Hill

While the rationale for assembling the comparison school is sound, there are numerous local contextual factors that make any school unique. This means there is no way of establishing a perfectly matched control group for Clontarf schools in a quasi-experimental design.

## Appendix C: Stakeholder interviews

### C1 Discussion guide

The following list of questions was used to guide the discussion for each interview conducted in the qualitative consultation.

1. The situation before Clontarf
  - What did you hope the Academy would address/achieve?
2. Current situation
  - What is different now? (for the school, boys, girls, school staff, the community)
  - What made the difference?
3. Strengths / advantages of the Clontarf model as implemented in your school?
4. Limitations / downsides of the Clontarf model as implemented in your school?
5. If you had your time again, what would you do differently/the same in how the Academy was established and now operates?
6. How does your school think about the 'value for money' dimension of running a Clontarf Academy?
7. Advice for other schools/Academies about
  - What circumstances lend themselves towards a Clontarf Academy vs something else
  - How to optimise the return on investment from a Clontarf Academy

### C2 Interview participants

The following individuals participated in either telephone or face-to-face interviews with CESE evaluators during late 2015 or early 2016:

- Principals of each school with a Clontarf Academy in NSW (n=14)
- Academy Directors of each NSW Clontarf Academy (n=12)
- Two NSW Regional Directors of the Clontarf Foundation
- Three local AECG Presidents
- Four Presidents of P&C Associations
- Six Deputy Principals
- Six long-serving members of the teaching staff at Clontarf schools, including an Aboriginal Educational Officer (AEO) and a school careers advisor
- One (acting) Mayor of a local council
- One General Manager of a local council
- One Senior Sergeant of the NSW Police Force
- One Clontarf alumni
- One local Youth Development Officer
- One Youth Off the Streets representative
- One principal of a behavioural high school

## Appendix D: Student survey



Education  
Centre for Education  
Statistics & Evaluation

# Clontarf Academies: Student Survey

Hi,

I work for the NSW Department of Education, based in Sydney.

We are evaluating the Clontarf Academy at your school. As part of the evaluation, we want to hear feedback from you - the Clontarf students. There are 14 questions in this survey and all your answers will be confidential. If you are unsure about how to answer any of the questions, please let one of the staff know.

Thanks very much,

Katrina Yu

1. What year are you in at school?

- ☐ Year 5      ☐ Year 6      ☐ Year 7      ☐ Year 8  
☐ Year 9      ☐ Year 10      ☐ Year 11      ☐ Year 12

2. Which school do you attend?

- ☐ Armidale High School      ☐ Bourke High School      ☐ Brewarrina Central School  
☐ Coonamble High School      ☐ Inverell High School      ☐ Moree Secondary College (Carol Ave)  
☐ Oxley High School      ☐ Moree Secondary College (Albert St)

3. List the three best things about Clontarf

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

4. List the three worst things about Clontarf

1. \_\_\_\_\_  
2. \_\_\_\_\_  
3. \_\_\_\_\_

5. Since attending the Academy, I .... (please select as many that apply)

- ☐ Am going to school more often
- ☐ Am playing more sport
- ☐ Am arguing more with my family and friends
- ☐ Am more interested in learning about new subjects and issues
- ☐ Have a better relationship with school staff
- ☐ Am participating more in other school activities (e.g music and drama clubs, dance groups)
- ☐ Other (please add a comment) \_\_\_\_\_
- ☐ Am eating better food
- ☐ Am thinking more about different training and job opportunities
- ☐ Have started working part time
- ☐ Am talking more to friends and my family about school and work
- ☐ Have started taking on leadership roles in my school

6. Since attending the Academy, I ... (please tick what feels right to you)

|                                                                          | Never                 | Sometimes             | Always                |
|--------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
| Feel proud of myself                                                     | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feel more confident when talking with teachers and other adults          | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feel good about school                                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feel positive about getting a job after school                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Am confused about what I want to do after school                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Feel like a role model for my peers and the young people in my community | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other (please add a comment)                                             |                       |                       |                       |

7. Since I got involved in the Clontarf Academy, I ...

- ☐ Have become more motivated to finish Year 12
- ☐ Have become less motivated to finish Year 12
- ☐ Have felt no difference

8. Since I got involved in the Clontarf Academy, I ...

- ☐ Have started putting in more effort into my school work (in class, assignments, studying for exams)
- ☐ Have started putting in less effort into my school work (in class, assignments, studying for exams)
- ☐ Put in about the same amount of effort into my school work (in class, assignments, studying for exams)

9. Since attending the Academy, I ...

- ☐ Have started doing better in my studies
- ☐ Have started doing worse in my studies
- ☐ Have done about the same in my studies

10. Tell us about the Clontarf staff

|                                                                         | Never                 | Sometimes             | Always                |
|-------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
| They are fun                                                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They are available                                                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They help me solve problems                                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They are understanding                                                  | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They ask me how I'm going                                               | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They trust me                                                           | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I trust them                                                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They accept me for who I am                                             | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They are interested in what subjects I take and how I'm going at school | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They understand how my school runs                                      | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They get to know me and my family                                       | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| They are respected and welcomed in my community                         | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other (please add a comment)                                            |                       |                       |                       |

11. Tell us about the Clontarf Academy room

|                                                                   | Never                 | Sometimes             | Always                |
|-------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|
| It's got everything I need to participate in the Clontarf program | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It's open and available when I need it                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It feels friendly and welcoming                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It has things I'm interested in                                   | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| My family feels comfortable to drop in                            | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other (please add a comment)                                      |                       |                       |                       |

12. Tell us about the Clontarf programs and activities (please select as many that apply)

- ☐ They are fun
 ☐ They encourage me to attend school  
☐ You get to try different things
 ☐ It's not all about winning  
☐ My family can join some of the programs and activities  
☐ Other (please add a comment) \_\_\_\_\_

13. What could make the Academy better? (please select as many that apply)

- ☐ Let Aboriginal girls join Clontarf
 ☐ Don't make me go to school  
☐ Let other girls and boys (who aren't Aboriginal) join the program
 ☐ Don't make me go to early morning training  
☐ Have more programs and activities outside school  
☐ Don't talk to my family about me and what's happening at school  
☐ Other (please add a comment) \_\_\_\_\_

14. Tell us a story about any of your experiences at the Academy

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## Appendix E: Attendance

### E1 Fixed effects model for attendance data

#### Data

School attendance records are collected daily by schools and reported to the Department in aggregate form each semester. School attendance data at an individual level is also kept by Clontarf Academies, typically displayed in a chart on the wall that reinforces the importance of regular attendance by members.

Data for the analysis in this evaluation were drawn from the attendance cube, managed by CESE's Statistics Unit. The panel data in this cube contains cross-sectional time series of yearly observations for each school, and allows comparison of Clontarf schools with non-Clontarf schools (see Appendix B).

Data were analysed for the period 2006 to 2015. The variables measured included:

- the attendance rate of Aboriginal male students
- whether the school has participated in the Clontarf Academies
- the proportion of Aboriginal male student amongst male students
- the number of students enrolled, as an indicator of school size
- whether the school has also participated in the Connected Communities program
- whether the new minimum school leaving age has taken effect – included in the Year 10, 11 and 12 models only.

#### Method

A fixed effects model of the following form was estimated:

$$\ln\left(\frac{p_{it}}{1 - p_{it}}\right) = b_0 + b_1x_{1it} + b_2x_{2it} + b_3x_{3it} + b_4x_{4it} + b_5x_{5it} + u_i + e_{it}$$

Where:

- $p_{it}$  is the attendance rate of Aboriginal boys for school  $i$  in year  $t$
- $x_{1it}$  represents whether school  $i$  has participated in the Clontarf Academies program in year  $t$
- $x_{2it}$  represents the proportion of Aboriginal male student amongst male students at school  $i$  in year  $t$
- $x_{3it}$  represents the number of students enrolled at school  $i$  in year  $t$
- $x_{4it}$  represents whether school  $i$  has participated in the Connected Communities program in year  $t$
- $x_{5it}$  represents whether the new minimum school leaving age has taken effect in year  $t$
- $u_i$  represents the fixed school effect which is constant over years
- $e_{it}$  represents the school-specific residual error term and  $e_{it} \sim N(0, \sigma^2)$ .

Attendance rate is a percentage that is bounded by 0 and 100, so it needs to be logit transformed to map the original value to the real line before fitting the fixed effect panel data model. The dependent variable in the model is the logit of the school attendance rate for Aboriginal boys between 2006 and 2015. The time-varying independent variables included

dummy variables for each of the factors listed above under 'Data'. In addition, the model contained:

- a fixed effect, which accounts for any unobserved school effect that is time-invariant and is correlated with the independent variables
- a residual error term, which is assumed to be normally distributed with constant variance.

A robust estimator was used in calculating the standard errors for the parameter estimates, to account for any within-school serial correlation or heteroscedasticity in the residual errors.

The school attendance rate aggregated from Year 7 to Year 12 was first fitted using the fixed effect panel data model. However the insignificant p-value from the F test confirmed that no independent variable was significant to predict school attendance. To eliminate the possibility that the aggregation of the attendance rate across scholastic years had masked the effect of the Clontarf Academies, we broke down the school attendance rate into six sets of panel data, one for each scholastic year from Year 7 to Year 12. Separate fixed effect panel data model was applied to each set of panel data, resulting in six fixed effects models.

In the model fitting, a full model was initially fitted using all independent variables. Some insignificant variables (except the two dummy variables Clontarf Academies and Connected Communities) were then dropped until the final model satisfied the following criteria:

- having a significant p-value from the F test, which tests whether all the coefficients are significantly different from zero
- having the smallest Akaike's Information Criterion (AIC) amongst other competitive models using different combinations of independent variables
- having an insignificant p-value in the test for cross-sectional independence across schools (Pesaran, 2004).

### Interpretation

For model interpretation, the change in school attendance rate after the introduction of Clontarf Academies can be computed using the following formula:

$$\frac{b_1}{N} \sum_i \left[ \frac{\sum_t p_{it}(1-p_{it})}{T_i} \right] \quad (1)$$

Where

- $N$  represents the total number of Clontarf and control schools in the analysis
- $T_i$  represents the number of time periods with observed attendance rate for school  $i$ .

The derivation of the change in school attendance rate can be found below (Appendix E2).

The change in school attendance rate after the introduction of a Clontarf Academy is obtained by calculating the change in probability for each school and averaging across all schools. The average change in schools' attendance rate is necessarily smaller than the change in the attendance rate predicted for a school with mean characteristics.

Consequently, if we had predicted the effect of the Clontarf Academies on group behaviour by evaluating logit coefficients at sample, this would have systematically overstated the expected impact. Therefore the average change in schools' attendance rate was reported here. A regression coefficient significantly greater than zero implies that the introduction of Clontarf Academies has a positive effect on school attendance rate.

## Estimation

The fixed effects panel data model is estimated using the ordinary least square (OLS) method. The Huber/White/sandwich variance-covariance matrix estimator is calculated for the coefficients estimated in the model. Stata 14 was used to perform the analysis. The estimates together with the standard errors and 95% confidence interval are reported below (Table 8).

## Results

**Table 8:** Detailed results of fixed effects panel data model for attendance

|                                          | Year 7 | Year 8  | Year 9 | Year 10 | Year 11 | Year 12 | Total  |
|------------------------------------------|--------|---------|--------|---------|---------|---------|--------|
| <b>Clontarf Academies</b>                | 0.126* | 0.306*  | 0.266* | -0.013  | 0.050   | 0.135   | 0.028  |
| <b>Standard error</b>                    | 0.049  | 0.078   | 0.090  | 0.116   | 0.096   | 0.143   | 0.014  |
| <b>Lower limit 95% CI</b>                | 0.025  | 0.146   | 0.080  | -0.251  | -0.147  | -0.160  | -0.001 |
| <b>Upper limit 95% CI</b>                | 0.227  | 0.466   | 0.452  | 0.226   | 0.247   | 0.430   | 0.056  |
| <b>p-values</b>                          | 0.016  | 0.001   | 0.007  | 0.915   | 0.606   | 0.355   | 0.056  |
| <b>Connected communities</b>             | 0.174  | -0.070* | -0.090 | -0.223  | -0.340  | 0.275   | -0.053 |
| <b>Number of enrolments</b>              |        |         |        |         | -0.001  | -0.003* |        |
| <b>% of Aboriginal male students</b>     |        |         |        |         |         |         | -0.250 |
| <b>Raising school leaving age</b>        |        |         |        | -0.192* | -0.266* |         |        |
| <b>Attendance Rate increase</b>          | 2.0%   | 5.3%    | 4.9%   | -0.2%   | 0.9%    | 2.1%    | 0.0%   |
| <b>Diagnostic checking (p-values)</b>    |        |         |        |         |         |         |        |
| <b>F-test</b>                            | 0.016  | 0.002   | 0.011  | 0.020   | 0.001   | 0.017   | 0.068  |
| <b>Cross-sectional independence test</b> | 0.183  | 0.476   | 0.506  |         | 0.558   | 0.630   | 0.953  |

Note: \* indicates that the parameter estimate is statistically significant at the 5% significance level. The parameter estimates have been converted to changes in attendance rate using the calculation provided in Appendix E.2.

In terms of diagnostic checking, no cross-sectional dependence was detected for the aggregate, Year 7, Year 8, Year 9, Year 11 or Year 12 models. The test for cross-sectional independence could not be performed for the Year 10 model because there were insufficient common observations across schools.

## E2 Derivation of the change in school attendance rate

Based on the fixed effects panel data model specification, the change in the logit of school attendance rate after the introduction of Clontarf Academies is given by:

$$\frac{d \ln \left( \frac{p}{1-p} \right)}{dx_1} = b_1. \quad (A1)$$

Since:

$$d \ln \left( \frac{p}{1-p} \right) = dp \left[ \frac{1-p}{p} \times \frac{(1-p) + p}{(1-p)^2} \right] = \frac{dp}{p(1-p)},$$

And substituting this into the equation (A1) results in:

$$\frac{d \ln \left( \frac{p}{1-p} \right)}{dx_1} = \frac{dp}{dx_1} \times \frac{1}{p(1-p)} = b_1.$$

Hence, the change in school attendance rate after the introduction of Clontarf Academies is given by:

$$\frac{dp}{dx_1} = b_1 p(1-p).$$

Using the above formula, the change in school attendance after the introduction of Clontarf Academies is obtained by calculating the change for each school over time and averaging across all schools:

$$\frac{b_1}{N} \sum_i \left[ \frac{\sum_t p_{it}(1-p_{it})}{T_i} \right]$$

Where  $T_i$  is the number of observations for school  $i$  and  $N$  is the total number of schools.

## Appendix F: NAPLAN participation

### F1 NAPLAN participation trend data

The charts provided in Figure 10 show a straight comparison Year 7 and 9 NAPLAN participation rates for all Aboriginal males at Phase 1 Clontarf and comparison schools, from 2009 to 2015.

As NAPLAN assessments are taken in May each year, any Clontarf effect on Year 7 participation would reflect, at most, only three months of Clontarf exposure. For Year 7 students at Clontarf schools (Figures 10a and 10b), there was little indication of a positive Clontarf effect on either Reading or Numeracy tests. In Clontarf schools, Year 7 NAPLAN participation rates appear lower in the post-intervention period (2013-2015) than they had been before the introduction of the Academies (2009-2012). In contrast, Year 7 NAPLAN participation rates at comparison schools remained relatively stable over the six year period.

The data for Year 9 NAPLAN participation appear slightly more positive for Clontarf, showing a steady rise since 2012 for both Reading and Numeracy tests (Figures 10c and 10d). However, the data exhibits considerable volatility due to small sample sizes, and the post-Clontarf rises may merely reflect a recovery of participation rates following a dip in 2012 before the academies were established.<sup>33</sup> The equivalent Year 9 NAPLAN participation rates for comparison schools remained relatively stable from 2012-15.

This simple comparison of average participation rates before and after the implementation of Clontarf (i.e pre- and post-intervention)<sup>34</sup> does not adequately isolate the effect of Clontarf Academies. This is because several external factors may have also influenced the observed differences, including:

- changes in student body characteristics
- other policy initiatives
- random sampling error.

This evaluation therefore used a matched difference-in-differences (DID) estimator and calculates bootstrapped standard errors to account for these external factors. This is set out in Appendix F2.

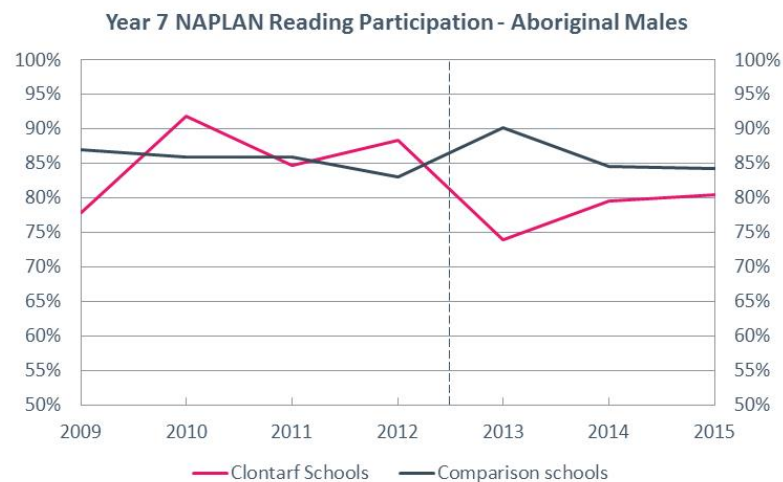
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<sup>33</sup> For example, there were only 69 Aboriginal male students who were in Year 9 at Phase 1 Clontarf schools in 2015, and 278 at the comparison schools.

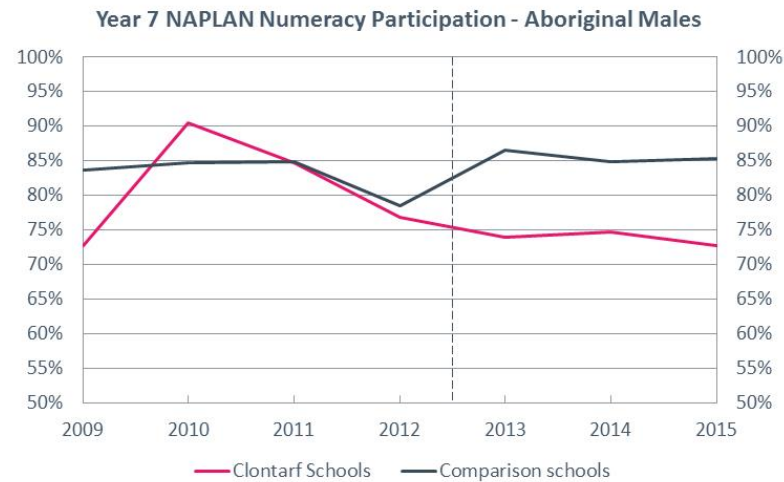
<sup>34</sup> As the sample size for Phase 1 Clontarf schools was fairly small (e.g. there were only 69 Aboriginal male students who attended the Phase 1 schools in 2015), it was also necessary to combine multiple pre-intervention and post-intervention student cohorts in analyses. Specifically, the students who attended Phase 1 Clontarf schools in 2011 and 2012 constituted the pre-intervention cohort whereas the students who attended Phase 1 Clontarf schools in 2014 and 2015 constituted the post-intervention cohort.

**Figure 10:** NAPLAN participation rates for Aboriginal males at Clontarf and comparison schools, 2009-2015

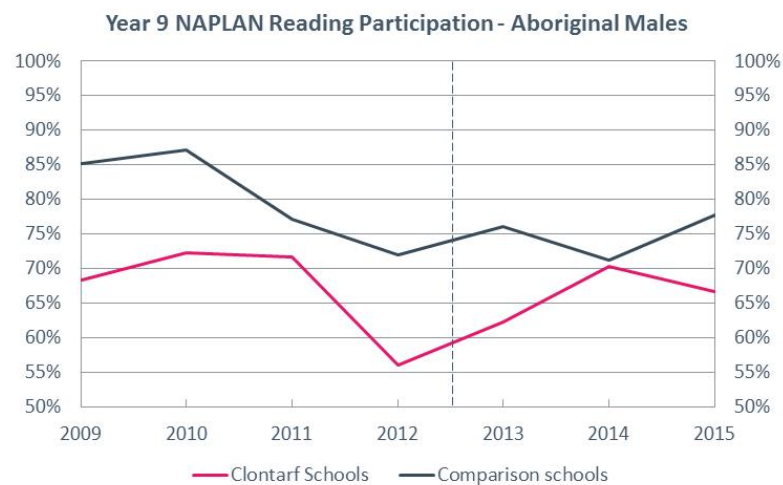
a)



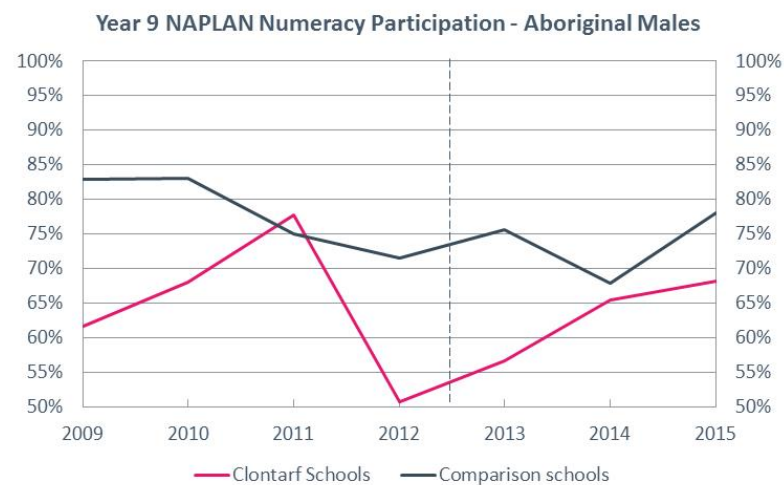
b)



c)



d)



Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

## F2 Statistical modelling

### *Matching Methods*

When estimating the effect of an intervention using observational data, such as NAPLAN participation, it is desirable to obtain pre-intervention and post-intervention groups that have similar characteristics (e.g. similar levels of Socio-Economic Status, or SES). This goal can often be achieved by matching the two groups with regard to measured covariates (Abadie and Imbens, 2006). In brief, for each observation in the treated group (i.e. NAPLAN participation or non-participation by an Aboriginal male at a participating Clontarf school), an observation with similar levels of the measured covariates is selected from the comparison group.<sup>35</sup> Provided each set of matched observations is sufficiently similar, the matching process ensures that the average levels of the measured covariates are balanced across the treated and comparison groups. This means that observable differences cannot be caused by differences in measured covariates.

In the current analyses, 'nearest neighbour' matching was used to create the comparison groups. For each Aboriginal male enrolled in a Clontarf school in 2014 or 2015, a student with similar levels of SES and language background who attended the same school as the treated student in 2011 or 2012 was selected for inclusion in the comparison group.<sup>36,37,38</sup> For the analyses that focused on all male students, treated and comparison students were also matched on Aboriginal status.<sup>39</sup> When exact matches could not be found within the same school, the matching algorithm looked for matches in other schools that were in the same region. Balance tests showed that, while the pre- and post-intervention cohorts were somewhat unbalanced before matching, the cohorts were more balanced with respect to the measured covariates after matching.<sup>40</sup>

Matching methods assume that all important confounding covariates have been included in the analysis. The reported effect estimates may still include the influence of unmeasured confounding covariates.

### *Difference-in-Differences Methods*

While matching improved the balance of the measured covariates across the pre-intervention and post-intervention groups, the observed differences across the matched groups may still have been influenced by external factors unrelated to Clontarf Academies, such as other policy initiatives. In order to account for external factors, the matching procedure was also applied to the set of comparison schools.<sup>41</sup>

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<sup>35</sup> This applies when estimating the average treatment effect for the treated (ATET). When estimating the average treatment effect (ATE), matching occurs in both directions (i.e. treated observations are also matched to comparison observations). As the focus here is on the ATET, the difference between the two methods is not discussed any further.

<sup>36</sup> To create the SES measure, data describing parent school education, parent non-school education and parent occupation group were coded from 1 to 4 (or 5 for the occupation group variable), with 1 representing the lowest category and 4 (or 5) representing the highest category. Where two sets of parent variables were available, each set was summed separately and then the two resultant scores averaged.

<sup>37</sup> The language background variable was coded 1 if the student had a language background other than English and 0 otherwise.

<sup>38</sup> In the event of ties, nearest neighbour matching may select more than one observation for inclusion in the comparison group. When this occurred, the selected observations were weighted by the inverse of the number of matches.

<sup>39</sup> Aboriginal status was coded 1 if the student had identified as Aboriginal or a Torres Strait Islander and 0 otherwise.

<sup>40</sup> Before matching, the greatest standardised difference between the two cohorts was 0.29. After matching, however, all standardised differences were less than 0.1.

<sup>41</sup> Before matching, the greatest standardized difference between the two cohorts was 0.18. After matching, however, all standardized differences were less than 0.1.

The comparison schools did not have Clontarf Academies, thus the difference in average NAPLAN participation rates across the matched comparison groups captures the influence of external factors (i.e. changes not due to Clontarf Academies). To better isolate the specific effect of Clontarf Academies, the difference across the matched comparison groups may be subtracted from the difference across the matched treated groups. This method is known as difference-in-differences (DID; Abadie, 2005).

DID methods assume that, in the absence of an intervention, the average outcomes for the treated and comparison groups would have followed parallel paths over time. While this assumption cannot be directly assessed, DID methods can be applied to pre-intervention time points to assess how the average outcomes change in the absence of a specific intervention effect, i.e. Clontarf Academies in this instance.

### Quantifying uncertainty

While the matching and differencing methods are intended to better isolate the effect of the Clontarf Academies, a certain amount of random variation in the results is expected due to the small sample properties of the data. To quantify the probability of observing the given result (or more extreme results) under the null hypothesis (i.e. no change to the underlying probability of NAPLAN participation), bootstrapped standard errors were calculated.

In brief, this procedure involves resampling from the observed data, applying the same methods as those used in the primary analysis to the resampled data (i.e. matching and differencing), recording the effect of interest and then repeating the process many times (Efron & Tibshirani, 1993). The distribution of the effect estimates can then be centred at zero and the standard deviation used to determine the cumulative area under the standard curve that is associated with the result observed in the primary analysis.

### Results

Data were drawn from the Department's NAPLAN database, covering a period from 2011 to 2015 and analysed for two student cohorts: Aboriginal male students; and all male students.<sup>42</sup> For each student cohort of interest, the impact of Clontarf Academies was examined on four levels, for participation in Reading and Numeracy, in Years 7 and 9.

Overall, the results found little evidence of positive effect by Clontarf Academies on Aboriginal male NAPLAN participation rates, for Year 7 or Year 9 students, in either Reading or Numeracy tests. Participation rates increased over time in Clontarf schools, but no greater than the extent to which they increased in comparison schools.

**Table 9:** Summary of results for NAPLAN participation model

| Cohort                   | NAPLAN Reading participation |       | NAPLAN Numeracy participation |       |
|--------------------------|------------------------------|-------|-------------------------------|-------|
|                          | DID estimate                 | SE    | DID estimate                  | SE    |
| <b>Aboriginal males:</b> |                              |       |                               |       |
| Year 7                   | -5.08%                       | 7.64% | -14.19%                       | 7.13% |
| Year 9                   | -0.11%                       | 8.08% | -0.37%                        | 7.03% |
| <b>All males:</b>        |                              |       |                               |       |
| Year 7                   | -3.06%                       | 2.54% | -5.39%                        | 2.93% |
| Year 9                   | -0.38%                       | 2.68% | +2.18%                        | 2.82% |

<sup>42</sup> The effect of Clontarf Academies may extend beyond the students who actually participated in the intervention. In other words, the probability of one student participating in NAPLAN may also influence the probability of other students participating in NAPLAN.

Taking just the Year 9 results, for example:

- The average rate of NAPLAN participation by Aboriginal male students in Clontarf schools was 6.19% higher for Reading and 4.14% higher for Numeracy in the post-intervention group than in the pre-intervention group.
- Similar increases were observed in the control schools, with the average participation in the post-intervention control group 6.20% higher for the Reading and 3.77% higher for Numeracy than the average participation rate for the matched pre-intervention control group.
- The corresponding DID estimates therefore suggest that Clontarf Academies were associated with a 0.11% drop in NAPLAN participation for Reading but a 0.37% increase in Numeracy participation.
- If the null hypothesis was true, the observed results (or more extreme results) would be expected to occur, on average, around 97.41% and 95.89% of the time, respectively.

When the sample was broadened to include all male Year 9 students (i.e. including non-Aboriginal students), the trends were very similar.

- Average post-intervention NAPLAN participation rate in Clontarf schools was 1.89% higher for Reading and 2.37% higher for Numeracy than the average participation rate for the matched pre-intervention group at Clontarf schools.
- Slightly smaller differences were observed in the control schools, with the average post-intervention participation 1.51% higher for Reading and 0.19% higher for Numeracy than the average pre-intervention participation rate.
- The corresponding DID estimates therefore suggest that Clontarf Academies were associated with a 0.38% drop in NAPLAN participation for Reading but a 2.18% increase in Numeracy participation. If the null hypothesis was true, the observed results (or more extreme results) would be expected to occur, on average, around 89.16% and 45.86% of the time, respectively.

While the point estimates are mostly negative (indicating a negative effect of Clontarf on NAPLAN participation rates), the bootstrapped standard errors revealed there is a large amount of uncertainty associated with these estimates. This means that none of the effects were statistically significant at the 0.05 level.

It is important to note that due to the small sample sizes, the analysis would only be able to detect significant effects of a relatively large magnitude. The inclusion of additional years of data would increase the chances of detecting small to moderate effects and would allow clearer conclusions to be drawn.

## Appendix G: Retention

### G1 Introductory notes

Research suggests a link between school attendance and school retention, with high rates of non-attendance associated with an increased likelihood of leaving school early (Wheatley & Spillane, 2001).

#### *Apparent Retention*

The simplest and most common measure of school retention is the Apparent Retention Rate (ARR). The ARR is calculated by taking the full-time equivalent (FTE) number of students in a designated year (e.g. Year 12 in 2015) and dividing it by the total FTE number of students in that cohort from a previous year (e.g. Year 10 in 2013).

#### *The education gap in Apparent Retention for Aboriginal students*

Nationwide, school retention among Aboriginal students has gradually increased over time, but still falls well below the rates for non-Aboriginal students (ABS, 2015). In 2014, the national ARR for Aboriginal and Torres Strait Islander students from Year 7 and Year 8 to Year 12 was 59.4%. Although this was a marked improvement from 2004 (39.8%), it was still well below the rate for non-Aboriginal students (84.8%, up from 76.9% in 2004).

School retention for Aboriginal boys in NSW remains particularly concerning, with the Year 7 to Year 12 ARR (46.4% in 2014) falling below the national average for Aboriginal boys, second lowest out of all states and territories behind the Northern Territory.

#### *Setting the scope of retention analysis in this evaluation*

The analysis did not focus on school retention to lower scholastic years, e.g. to Year 10. Due to state legislation of minimum school leaving ages, retention to Year 10 is very close to 100% for all students, including Aboriginal students. The inclusion of Year 10 retention in the analysis would thus shed little light on an individual's decision to stay or leave school and more importantly, the impact that Clontarf involvement has on this decision.

This evaluation takes a more sophisticated and precise approach to measuring retention than ARRs. Rather than basing the analysis on aggregate student numbers, we have followed the progress of individual students from Year 10 to Year 12.

A simple approach to analysing retention data would be to take a group of students who had enrolled in a Clontarf school in a given year (e.g. students in Year 10 in 2013), and then report how many of them commenced or completed Year 12. A more sensitive approach (and the approach taken in this evaluation) is to take that same student cohort and calculate the number of days they remain enrolled until they left the school. These retention times can then be compared to similar students in non-Clontarf schools. If the Clontarf Academies have an impact on school retention, then we would expect students who engage in Clontarf Academies to remain enrolled in school for longer, on average, than similar students in non-Clontarf schools.

There are a number of complexities that need to be addressed to accurately estimate these 'survival rates'. One is that students can start in a Clontarf school and then move to another school. Although they have left the school of interest, this is not necessarily a negative

outcome if the student then enrolls in another school; the Clontarf Academy may even have contributed to their continued participation in education. Another complexity is that a student can leave a school for a few terms and then return to the same school. These movements can occur more than once (i.e. recurrent events) and need to be accounted for in any calculations. Failure to control for these characteristics will yield unreliable estimates of the impact of Clontarf on school retention. The method adopted to address these data complexities is known as a 'multilevel multistate competing risks discrete time survival model'.

The student sample included all 1,065 Aboriginal male students who were enrolled in Year 10 at one of the selected Clontarf or comparison schools in 2012, 2013 or 2014. These cohorts were selected to ensure that each student could be followed up for at least two years (Year 10 in 2012 to Year 12 in 2014, for example). The sample also included students who were not enrolled in a Clontarf or comparison school in Year 10 but who participated in an Academy in Year 11 or 12. A data summary is provided in Table 11.

## G2 Multilevel multistate competing risks model

Steel et al. (2004) proposes the multilevel multistate competing risks model to analyse discrete-time event history data.<sup>43</sup> In event history data, an episode  $i$  is defined as the period of being in a particular state until an event occurs. In our application:

- There were two states for each student ( $s=1,2$ ): enrolled in school (state 1) or not enrolled in school (state 2). All students in our sample started at state 1.
- In state 1, there are two competing events ( $r_1=1,2$ ): moving to another school (remain in state 1) or leaving school (transition to state 2).
- For state 2, there is only one event ( $r_2=1$ ): returning to school (transition to state 1).

For each school term  $t$  in state  $s$ , we defined a categorical response  $y_{stij}$  that indicated whether an event had occurred for student  $j$  and the type of event. We coded the response so that  $y_{stij} = r_s$  if an event of type  $r_s$  had occurred in term  $t$  and  $y_{stij} = 0$  if no event had occurred. We then specified, separately for each state, a multinomial logit model for the conditional probability  $p_{stij}^{(r_s)} = \Pr(y_{stij} = r_s)$  that an event occurs in term  $t$  of episode  $i$  of student  $j$  given that the event has not yet occurred in that episode, taking 'no event' as the reference category. The model specification is given as follows:

$$\log\left(\frac{p_{stij}^{(r_s)}}{p_{stij}^{(0)}}\right) = b_{s0}^{(r_s)} + b_{s1}^{(r_s)} x_{1stij} + b_{s2}^{(r_s)} x_{2stij} + \dots + c_{s1} z_{2stij} + c_{s2} z_{3stij} + c_{s3} z_{4stij} + \dots + u_{sj}^{(r_s)} + e_{sij}, \quad s = 1,2; \quad r_1 = 1,2; \quad r_2 = 1; \quad (1)$$

Where:

- $s$  represents the state
- $t$  represents the school term within an episode
- $i$  represents the episode within student
- $j$  represents the student

<sup>43</sup> The exact date of a student moving or dropping out of school cannot be determined with precision in the enrolment data. Using discrete time (rather than continuous) modelling, retention can be analysed by grouping enrolment periods at a higher level (e.g. school term or semester).

So when  $s=1$ :

$$\log\left(\frac{p_{1tij}^{(r_1)}}{p_{1tij}^{(0)}}\right) = b_{10}^{(r_1)} + b_{11}^{(r_1)}x_{11tij} + b_{12}^{(r_1)}x_{21tij} + b_{13}^{(r_1)}x_{3\_11tij} + b_{14}^{(r_1)}x_{3\_21tij} + b_{15}^{(r_1)}x_{3\_31tij} + \dots \\ + b_{121}^{(r_1)}x_{11\_3j} + c_{11}z_{21tij} + c_{12}z_{31tij} + c_{13}z_{4tij} + \dots + u_{1j}^{(r_1)} + e_{1ij}, \quad r_1 = 1, 2;$$

and when  $s=2$ :

$$\log\left(\frac{p_{2tij}^{(1)}}{p_{2tij}^{(0)}}\right) = b_{20}^{(1)} + b_{21}^{(1)}x_{22tij} + b_{22}^{(1)}x_{3\_12tij} + b_{23}^{(1)}x_{3\_22tij} + b_{24}^{(1)}x_{3\_32tij} + \dots \\ + b_{220}^{(1)}x_{11\_3j} + c_{21}z_{22tij} + c_{22}z_{32tij} + c_{23}z_{4tij} + \dots + u_{2j}^{(1)} + e_{2ij}, \quad r_2 = 1.$$

The random effects from each state are assumed to have a multivariate normally distribution:

$$\begin{bmatrix} u_{1j}^{(1)} \\ u_{1j}^{(2)} \\ u_{2j}^{(1)} \end{bmatrix} \sim MN\left(\begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}, \begin{bmatrix} \sigma_{11} & \sigma_{12} & \sigma_{13} \\ \sigma_{12} & \sigma_{22} & \sigma_{23} \\ \sigma_{13} & \sigma_{23} & \sigma_{33} \end{bmatrix}\right);$$

Where:

$x_{11tij}$  represents whether Aboriginal male student  $j$  enrolled in a Clontarf school in term  $t$  of episode  $i$  in state 1 (0=No, 1=Yes)

$x_{2stij}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Clontarf school in term  $t$  of episode  $i$  in state  $s$  (0=No, 1=Yes)

$x_{3\_1stij}$  represents whether Aboriginal male student  $j$  had intermittent involvement in Clontarf Academies program in month  $t$  of episode  $i$  in state  $s$  (0=No, 1=Yes)

$x_{3\_2stij}$  represents whether Aboriginal male student  $j$  was half-in, half-out in Clontarf Academies program in month  $t$  of episode  $i$  in state  $s$  (0=No, 1=Yes)

$x_{3\_3stij}$  represents whether Aboriginal male student  $j$  has fully involved in Clontarf Academies program in month  $t$  of episode  $i$  in state  $s$  (0=No, 1=Yes)

$x_{4stij}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Connected Communities school in term  $t$  of episode  $i$  in state  $s$  (0=No, 1=Yes)

$x_{5stij}$  represents the number of prior school movements for Aboriginal male student  $j$  in term  $t$  of episode  $i$  in state  $s$

$x_{6stij}$  represents whether Aboriginal male student  $j$  has had any prior engagement gaps in term  $t$  of episode  $i$  in state  $s$ ;

$x_{7j}$  represents the age of student  $j$  (in months)

$x_{8\_1j}$  represents whether student  $j$  was present in Year 7 NAPLAN reading test (0=No, 1=Yes)

$x_{8\_2j}$  represents whether student  $j$  was exempted from Year 7 NAPLAN reading test  
(0=No, 1=Yes)

$x_{8\_3j}$  represents whether student  $j$  was withdrawn from Year 7 NAPLAN reading test  
(0=No, 1=Yes)

$x_{9\_1j}$  represents whether student  $j$  was present in Year 7 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{9\_2j}$  represents whether student  $j$  was exempted from Year 7 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{9\_3j}$  represents whether student  $j$  was withdrawn from Year 7 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{10\_1j}$  represents whether student  $j$  was present in Year 9 NAPLAN reading test (0=No, 1=Yes)

$x_{10\_2j}$  represents whether student  $j$  was exempted from Year 9 NAPLAN reading test  
(0=No, 1=Yes)

$x_{10\_3j}$  represents whether student  $j$  was withdrawn from Year 9 NAPLAN reading test  
(0=No, 1=Yes)

$x_{11\_1j}$  represents whether student  $j$  was present in Year 9 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{11\_2j}$  represents whether student  $j$  was exempted from Year 9 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{11\_3j}$  represents whether student  $j$  was withdrawn from Year 9 NAPLAN numeracy test  
(0=No, 1=Yes)

$x_{12stij}$  represents whether student  $j$  was repeating the year in term  $t$  of episode  $i$  in state  $s$

$z_{kstij}$  represents the dummy variables for term  $t$  of episode  $i$  in state  $s$  where  $z_{kstij} = 1$  for term  $k$  and 0 otherwise

$u_{sj}^{(r_s)}$  represents the random effect for student  $j$  in state  $s$

$e_{sij}$  represents the random effect associated with the  $i$ -th episode for student  $j$  in state  $s$

$b_{10}^{(1)}, b_{11}^{(1)}, \dots, c_{s1}, c_{s2}, \dots$  are the coefficients to be estimated.

The data for each sample student is collected from the enrolment database and is restructured to a person-period format. A period is defined as a school term in this analysis. The enrolment data was expanded so that there is one record for each school term in each episode where an episode is defined as the period of being in a school until an event of moving school or dropping out of school occurs. A data sample is given in Table 10.

**Table 10:** Sample of person-period format data (retention analysis)

| ID   | Episode | State | Term | Event         | .... |
|------|---------|-------|------|---------------|------|
| 1    | 1       | 1     | 1    | 0             | .... |
| 1    | 1       | 1     | 2    | 0             | .... |
| 1    | 1       | 1     | 3    | 0             | .... |
| 1    | 1       | 1     | 4    | Dropping out  | .... |
| 1    | 2       | 2     | 1    | 0             | .... |
| 1    | 2       | 2     | 2    | Re-enrol      | .... |
| 1    | 3       | 1     | 1    | 0             | .... |
| 1    | 3       | 1     | 2    | 0             | .... |
| 1    | 3       | 1     | 3    | Moving school | .... |
| 1    | 4       | 1     | 1    | 0             | .... |
| 1    | 4       | 1     | 2    | 0             | .... |
| 1    | 4       | 1     | 3    | 0             | .... |
| .... | ....    | ....  | .... | ....          | .... |

The multilevel multistate competing risks model was estimated using the Bayesian approach via the Markov Chain Monte Carlo (MCMC) method. This method was the most flexible and could be used for estimating extremely complex multilevel models for hierarchical structures. To simulate the parameters, the algorithm required the specification of a likelihood function and prior distributions for all unknown parameters. The parameter estimates were obtained by simulating a large sample of estimates based on the posterior distributions until the estimates converged.

### Data summary

**Table 11:** Summary of data for retention model

|                                           |     | Clontarf schools  |            | Comparison schools |            |
|-------------------------------------------|-----|-------------------|------------|--------------------|------------|
|                                           |     | No. Male students | % of total | No. Male students  | % of total |
| Involvement level                         |     |                   |            |                    |            |
| Not involved                              |     | 43                | 17.1%      | 812                | 99.9%      |
| Level 1                                   |     | 40                | 15.9%      | 0                  | 0.0%       |
| Level 2                                   |     | 57                | 22.6%      | 0                  | 0.0%       |
| Level 3                                   |     | 112               | 44.4%      | 1                  | 0.1%       |
| Participated NAPLAN y7 reading            |     | 20                | 7.9%       | 674                | 82.9%      |
| Participated NAPLAN y7 numeracy           |     | 194               | 77.0%      | 659                | 81.1%      |
| Participated NAPLAN y9 reading            |     | 162               | 64.3%      | 614                | 75.5%      |
| Participated NAPLAN y9 numeracy           |     | 154               | 61.1%      | 610                | 75.0%      |
| Enrolled in Connected Communities school: | Yes | 97                | 38.5%      | 1                  | 0.1%       |
|                                           | No  | 155               | 61.5%      | 812                | 99.9%      |
| Total                                     |     | 252               |            | 813                |            |

## Results

The model yielded two sets of coefficients for state 1 (i.e. enrolled in school), with the first set representing the effects on the risk of a student ceasing attendance at their *current* school, and the second set representing the effects on the risk of the student moving school (Table 12). The remaining-at-the-same-school 'rate' can then be determined accordingly, e.g. if the risk of leaving school decreases and risk of moving school stays the same, then the rate of remaining at the same school increases. Note that the remaining rate is the rate of staying in the *same* school, not the retention rate until Year 12 in *any* school, which requires further calculation. Details of this calculation are given in Appendix G3 below.

The results show that the risk of leaving school for an Aboriginal male who attended a Clontarf school (regardless of their level of engagement in the program), was about the same as the risk for an Aboriginal male who did not attend a Clontarf school, i.e. there is no significant effect of Clontarf Academies on school retention (OR=1.0, 95% CI [0.6, 1.7]).<sup>44</sup> There was also no significant difference found for the risk of a student moving school (OR=0.9, 95% CI [0.4, 1.8]). It is important to point out, however, that the 95% credible intervals are fairly wide, indicating that there is a fair amount of uncertainty associated with these estimates.

With regard to the level of engagement in the Clontarf program, the results show that as the level of engagement increases, the risk of leaving school early tends to decrease (level 1: OR=0.8, 95% CI [0.4, 1.5]; level 2: OR=0.6, 95% CI [0.3, 1.24]; level 3: OR=0.4, 95% CI [0.2, 0.8]). Once again, however, the 95% credible intervals are fairly wide such that only the coefficient for the highest level of engagement surpasses the conventional threshold for statistical significance. This indicates that the statistical risk of school non-completion (at the same school) decreases by about 60% when a student shifts from the non-participant group to the heavily involved group. With regards to the risk of a student moving school, there is no discernible pattern, with all of the coefficients subject to a high degree of uncertainty (level 1: OR=1.3, 95% CI [0.5, 3.0]; level 2: OR=0.5, 95% CI [0.2, 1.3]; level 3: OR=1.5, 95% CI [0.8, 2.8]).

Finally, Table 13 presents the results from the binary logistic regression model for state 2 (i.e. not enrolled in school). This model estimates the effect of Clontarf on the risk of returning to school after an extended period of absence, i.e. transition into state 1 (enrolled in school) by a student in state 2 (not enrolled in school). The sample size for this model is quite small, thus there is a very high degree of uncertainty associated with the estimated coefficients. This means that even tentative conclusion cannot be drawn from the results.

The model coefficients estimating the risk of a student leaving the *same* school early (not out of the government school system altogether) were used to estimate the Year 12 completion rate. The interval estimation of the Year 12 completion rate was (0.67, 0.79) for students heavily involved in the Clontarf Academy and (0.47, 0.61) for non-participants. In other words, a Year 10 Aboriginal male student who is heavily involved in Clontarf is estimated to have a 67% to 79% chance of completing Year 12, compared to a 47% to 61% chance for a student who is not involved in Clontarf at all. The upper limit assumes that all students that move schools complete Year 12; the lower limit assumes that all students that move schools do not complete Year 12.

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<sup>44</sup> CI stands for 'Credible interval', an interval estimation of parameters in Bayesian statistics. This is analogous to confidence intervals in frequentist statistics, although they differ on a philosophical basis.

**Table 12:** Retention modelling results for state 1 (enrolled in school)

|                       | Moving school |        |                   |        | Dropping out of school |       |                   |        |
|-----------------------|---------------|--------|-------------------|--------|------------------------|-------|-------------------|--------|
|                       | Coefficient   | SE     | Credible interval |        | Coefficient            | SE    | Credible interval |        |
| Intercept             | -5.022        | 0.322  | -5.735            | -4.449 | -3.923                 | 0.243 | -4.469            | -3.491 |
| Clontarf              | -0.110        | 0.394  | -0.873            | 0.585  | -0.002                 | 0.320 | -0.560            | 0.557  |
| Involved lv 1         | 0.247         | 0.449  | -0.648            | 1.102  | -0.266                 | 0.355 | -1.016            | 0.418  |
| Involved lv 2         | -0.698        | 0.518  | -1.778            | 0.279  | -0.435                 | 0.363 | -1.203            | 0.218  |
| Involved lv 3         | 0.425         | 0.308  | -0.165            | 1.033  | -0.875                 | 0.325 | -1.560            | -0.275 |
| No. of move           | -0.111        | 0.231  | -0.611            | 0.270  | 0.313                  | 0.167 | 0.016             | 0.601  |
| Enrolment gap         | -82.350       | 59.440 | -221.300          | -5.542 | -1.294                 | 0.666 | -2.665            | -0.124 |
| Connected communities | -0.430        | 0.389  | -1.202            | 0.323  | 0.506                  | 0.256 | 0.008             | 1.002  |
| Repeat                | -0.485        | 0.395  | -1.233            | 0.260  | 0.602                  | 0.323 | 0.061             | 1.189  |
| Adjusted age month    | -0.059        | 0.019  | -0.086            | -0.014 | 0.134                  | 0.027 | 0.101             | 0.207  |
| Not present NAPLAN    |               |        |                   |        |                        |       |                   |        |
| y7 reading            | 0.411         | 0.356  | -0.269            | 1.045  | 0.064                  | 0.310 | -0.501            | 0.617  |
| y7 numeracy           | -0.127        | 0.284  | -0.665            | 0.457  | 0.507                  | 0.235 | 0.094             | 1.047  |
| y9 reading            | 0.553         | 0.274  | -0.015            | 1.065  | 0.310                  | 0.215 | -0.092            | 0.747  |
| y9 numeracy           | 0.823         | 0.596  | -0.356            | 1.961  | 0.989                  | 0.273 | 0.513             | 1.519  |
| Term 2                | -0.160        | 0.280  | -0.722            | 0.359  | 0.346                  | 0.212 | -0.078            | 0.749  |
| Term 3                | 2.048         | 0.250  | 1.574             | 2.522  | 1.796                  | 0.198 | 1.411             | 2.202  |
| Term 4                | -0.046        | 0.315  | -0.653            | 0.565  | 0.875                  | 0.205 | 0.464             | 1.275  |
| Term 5                | -0.239        | 0.426  | -1.095            | 0.541  | 0.816                  | 0.222 | 0.371             | 1.255  |
| Term 6                | -0.193        | 0.508  | -1.263            | 0.736  | 1.221                  | 0.223 | 0.778             | 1.658  |
| Term 7                | 0.849         | 0.423  | -0.010            | 1.637  | 2.713                  | 0.240 | 2.258             | 3.214  |
| Term 8                | -0.463        | 0.420  | -1.330            | 0.309  | -0.111                 | 0.320 | -0.759            | 0.497  |
| Term 9                | -82.420       | 60.320 | -223.800          | -4.102 | -0.126                 | 0.339 | -0.797            | 0.516  |
| Term 10               | -1.466        | 1.375  | -4.690            | 0.677  | 0.059                  | 0.340 | -0.614            | 0.713  |
| Term 11               | -0.140        | 0.961  | -2.276            | 1.508  | -2.545                 | 0.713 | -4.034            | -1.272 |
| Term 12               | -0.999        | 0.729  | -2.580            | 0.291  | -0.386                 | 0.884 | -2.379            | 1.061  |

Note: A variable is insignificant if the credible interval contains "0". Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

Taking into account the risk of not completing school for students who have previously moved school, a reasonable estimate of the Year 12 completion rate is 70% for students who are heavily involved in the Clontarf Academy and 51% for non-participants (see below).

Overall, while the limited sample size meant that no strong conclusions about moving school risk could be drawn from the results,<sup>45</sup> heavily involved Clontarf participants showed a significantly lower risk of leaving school early (60%) and therefore a higher chance of remaining at school (and completing Year 12) than non-participants.

This is an association only, and causal direction cannot be assumed. That is to say, when A (retention) and B (Clontarf involvement) correlate, further analysis is required to establish whether:

- A leads to B
- B leads to A
- A and B are linked in some other way, e.g. as a shared consequence of other factors.

**Table 13:** Retention modelling results for state 2 (not enrolled in school)

|                                    | Moving back to school |       |                   |        |
|------------------------------------|-----------------------|-------|-------------------|--------|
|                                    | Coefficient           | SE    | Credible interval |        |
| Intercept                          | 0.783                 | 1.358 | -1.925            | 3.879  |
| Involved Clontarf                  | -0.646                | 2.856 | -7.639            | 4.755  |
| Not present NAPLAN                 |                       |       |                   |        |
| y7 reading                         | 0.405                 | 1.301 | -2.583            | 3.216  |
| y7 numeracy                        | 0.910                 | 2.198 | -3.105            | 6.463  |
| y9 reading                         | -2.582                | 2.655 | -9.442            | 1.042  |
| y9 numeracy                        | -1.676                | 1.167 | -4.676            | 0.242  |
| Ever enrolled in a Clontarf school | 0.766                 | 2.314 | -3.276            | 6.403  |
| Connected Communities school       | -3.046                | 2.218 | -8.402            | -0.110 |
| Age                                | -0.040                | 0.008 | -0.245            | 0.084  |
| Time                               | 2.232                 | 1.729 | 0.493             | 6.301  |

### G3 Retention rate calculation

The notes below show how to apply the multilevel multistate competing risks model to compute the probabilities of moving school, leaving school early and remaining at school in a term  $t$  for a given student  $j$ . In addition, using the estimated probabilities, we were able to give an interval estimate of the Year 12 completion rate for both fully involved students and non-participants.

The Year 12 completion rate is defined as the probability of a student is retained in any school until the end of Year 12. Direct calculation of this rate was not achievable in our model, because our model only provides the rate of remaining in one school rather than any schools and does not provide the retention rate for the moving school students. To adjust for this, we can calculate an interval that covered the Year 12 completion rate where the lower limit is the rate of Year 12 completion in the same school, and the upper limit assumes that every student who moves school during Year 10, 11 or 12 goes on to complete Year 12 at their new school.

<sup>45</sup> Most of the 95% credible intervals ranged from medium sized negative effects (decreased risk) to medium sized positive effects (increased risk).

To keep things simple, we calculated the probabilities of moving, leaving school early and remaining at school for a student  $j$  who has presented both Reading and Numeracy tests in both Year 7 and 9 NAPLAN, had no experience of moving school, no repeated classes, and was not enrolled in a Connected Community School.

For a school term  $t$ , let  $a_{1t1j}^{(r_1)}$  denote the log-odds ratio in for term  $t$ , at state 1, where:

$$a_{1t1j}^{(r_1)} = \log \left( \frac{p_{1t1j}^{(r_1)}}{p_{1t1j}^{(0)}} \right), \quad r_1 = 1, 2.$$

Then probability of dropping out of school can then be calculated by:

$$p_{1t1j}^{(2)} = \frac{e^{a_{1t1j}^{(1)}}}{1 + e^{a_{1t1j}^{(1)}} + e^{a_{1t1j}^{(2)}}}.$$

Meanwhile, the probability of moving school is:

$$p_{1t1j}^{(1)} = \frac{e^{a_{1t1j}^{(2)}}}{1 + e^{a_{1t1j}^{(1)}} + e^{a_{1t1j}^{(2)}}},$$

And probability of retaining school is:

$$p_{1t1j}^{(0)} = \frac{1}{1 + e^{a_{1t1j}^{(1)}} + e^{a_{1t1j}^{(2)}}}.$$

Using the probabilities for all the 12 terms, the cumulative probability of retain in the same school can be calculated by:

$$\sum_{t=1}^{12} p_{1t1j}^{(0)}.$$

This probability is also the lower limit of the year 12 completion rate. Then the cumulative dropping out rate in the same school is:

$$p_{111j}^{(2)} + \sum_{t=2}^{12} (p_{1t1j}^{(2)} \prod_{k=1}^{t-1} p_{1k1j}^{(0)}) ,$$

And the upper limit for the year 12 completion rate is:

$$1 - p_{111j}^{(2)} - \sum_{t=2}^{12} (p_{1t1j}^{(2)} \prod_{k=1}^{t-1} p_{1k1j}^{(0)}) .$$

Using the above formula, we were able to calculate interval estimates of Year 12 completion rate for both heavily involved Clontarf students and non-participants. The estimated interval for heavily involved student was (0.67, 0.79), and for non-participants was (0.47, 0.61). In other words, a Year 10 student who is heavily involved in Clontarf is estimated to have a 67%-79% chance of completing Year 12, compared to a 47%-61% chance for a student who is not involved in Clontarf at all.

The retention modelling also indicates that the risk of leaving school early for students who have previously moved school is about three times the risk for students who have never moved school. Therefore, a reasonable prediction of the Year 12 completion rate for heavily involved Clontarf students is 0.70 and 0.51 for non-participants.

## Appendix H: Long Suspensions

### E1 Data considerations

Long suspension data (2012-2015) was sourced from the suspensions and expulsions data collections conducted annually by CESE. Long suspension data prior to 2012 is sourced from historical suspensions and expulsions datasets provided by the former Student Welfare Directorate. No additional data validation was performed on the pre-2012 suspensions data.

### E2 Cohort analysis

#### *Background*

Following individual cohorts can reveal the extent to which the introduction of Clontarf has affected suspension rates on the same group of students, relative to similar students in comparison schools.<sup>46</sup> If the Clontarf Academies program were to have had a positive effect on school discipline, this effect would be evident in positive changes to long suspension rates at Clontarf schools relative to the comparison schools between 2012 and 2015.

#### *Results*

The charts in Figure 11 overleaf present long suspension rates for four individual cohorts of Aboriginal boys who have had at least two years of Clontarf exposure, and who were also enrolled at a Clontarf school prior to the implementation of the program.

While there have been positive results for some cohorts in some years (for example, the Year 11s in 2014), overall there does not appear to be a declining trend in suspension rates for Clontarf boys relative to the comparison cohorts.

For Clontarf boys who entered Year 7 in 2009 (Figure 11a), exposure to the program from Year 10 onwards appears to have little impact, with suspension rates for both Clontarf and comparison groups behaving similarly following the establishment of the Academies in 2012.

Suspension rates for Clontarf boys who started Year 7 in 2010 (Figure 11b) have been relatively volatile, with unfavourable rises in both 2013 and 2015 suggesting that the program has not had a positive effect on student discipline (particularly taking into account the consistent declines recorded at comparison schools). These results were mirrored for those starting Year 7 in 2011 (Figure 11c).

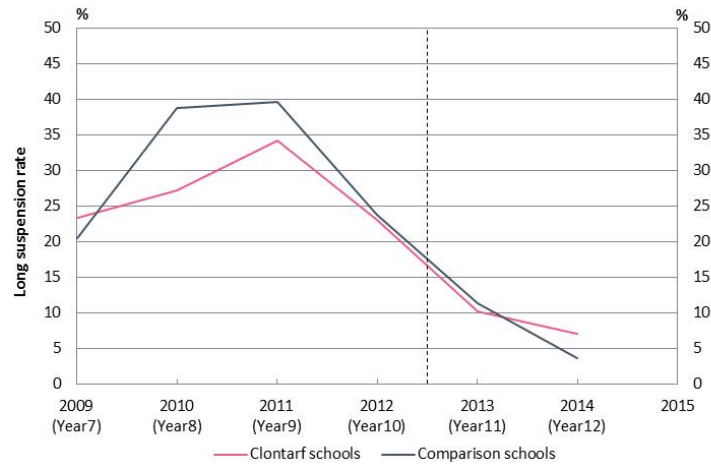
There also appears to be no evidence of a positive effect for those who have been exposed to Clontarf since Year 7 (Figure 11d). While the suspension rate for the Clontarf cohort was 18.9% below that of the comparison group in 2012, the gap narrowed in each subsequent year to be only 7.8% by 2015.

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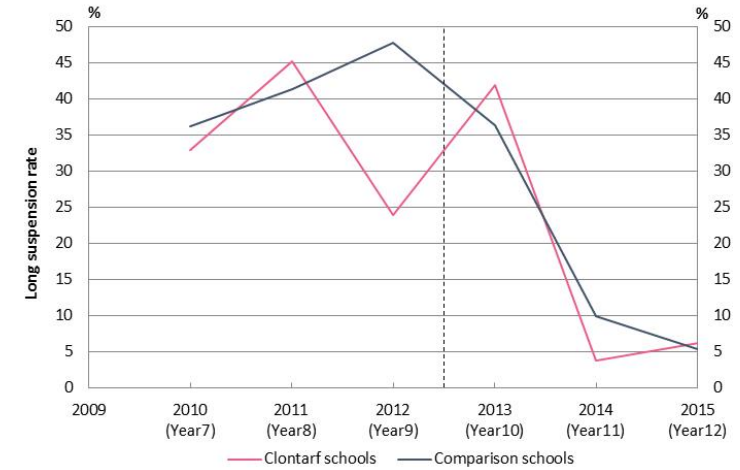
<sup>46</sup> There will be slight changes to the student cohort, as some students enter and leave different schools throughout each year. However, the student body would remain largely the same from year to year.

**Figure 11:** Long suspension rates for Aboriginal male students, by individual cohort

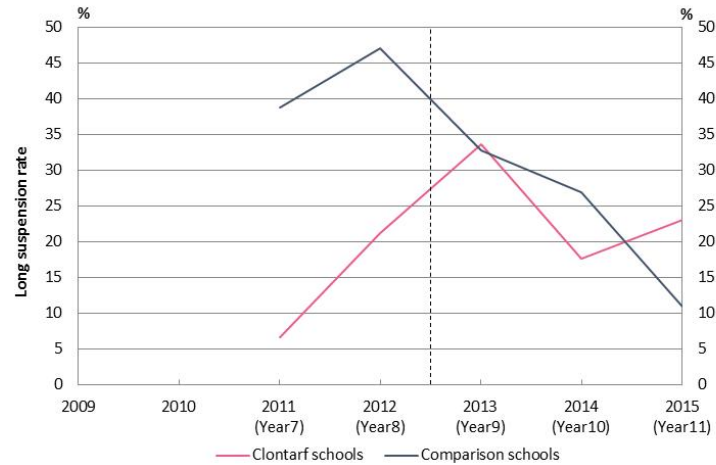
**a) Year 10 in 2012**



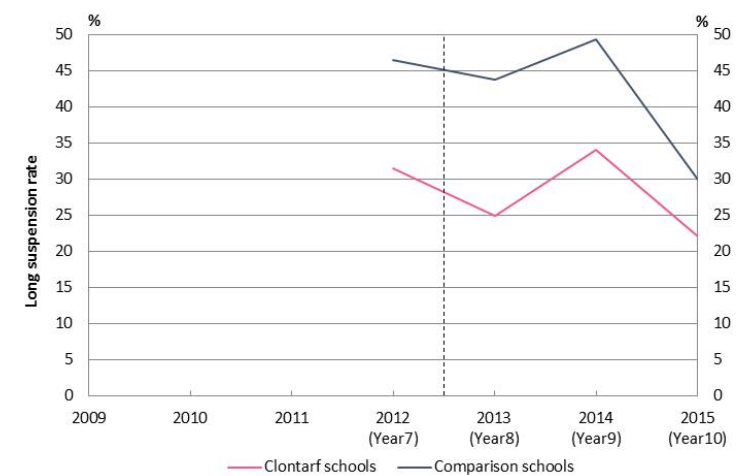
**b) Year 9 in 2012**



**c) Year 8 in 2012**



**d) Year 7 in 2012**



Source: Statistics Unit, Centre for Education Statistics and Evaluation (CESE).

## Appendix J: Crime

### J1 Introduction

Discrete time survival models (Kalbeisch and Prentice, 2002) were used to investigate whether Aboriginal male students who attended a Clontarf school had a lower risk of committing a criminal offense compared to Aboriginal males who did not attend any Clontarf schools.

There were two possible approaches to model the re-offending time: (i) the standard survival model on the time to the first re-offence or (ii) the multi-level survival model on all re-offences including the first re-offence, second re-offence and so on. The first approach treats the first re-offence as a terminal event, while the second approach treats the re-offending as a recurrent event. While the second approach generally provides a better fit for an event that occurs repeatedly, this study primarily adopted the first approach due to data inaccuracies regarding an offender's incarceration start and end dates.<sup>47</sup> While they are likely to contain bias due to these data inaccuracies, results of the second approach are also reported in the analysis.

Given the limitations of the data, three survival models were fit: (i) the time from the first offence to any type of first re-offence, (ii) the time to the first violent re-offence<sup>48</sup> and (iii) the time to the first property re-offence.<sup>49</sup> For all models, the discrete-time approach (rather than continuous) was selected because the enrolment data, which indicates whether a student is enrolled at a Clontarf or a comparison school, is better measured in intervals of time.<sup>50</sup> In this model, the interval time chosen was month. The censoring date in the survival analyses was 31 December 2015. Lastly, all of the survival models included a random intercept for each student to control for the unobserved heterogeneity in the risk of re-offending amongst students which cannot be captured by the observed covariates. Details of the survival models used are provided below.

### J2 Discrete survival model

For each month  $t$ , we defined a binary response  $y_{tj}$  that indicates whether student  $j$  has a new proven offence ( $y_{tj}=1$  if student  $j$  has a new proven offence and 0 otherwise). The conditional probability  $p_{tj} = \Pr(y_{tj} = 1)$  that student  $j$  has a new proven offence in month  $t$  given that offending has not yet occurred in that episode can be analysed by the binary logit model specified as follows:

$$\log\left(\frac{p_{tj}}{1 - p_{tj}}\right) = b_0 + b_1x_{1tj} + \dots + b_{20}x_{12j} + c_1t + c_2t^2 + u_j,$$
$$u_j \sim N(0, \sigma_u^2),$$

Where the subscript  $t$  represents month  $t$  from the first offence and  $j$  represents the student. In this model, the conditional probability of offending is explained by two parts: fixed part and

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<sup>47</sup> When a student was incarcerated, he was generally not considered to be free to re-offend during their incarceration, thus incarceration time should be removed from the analysis. However, ROD only provided the length of incarceration and did not provide the exact start and end date of incarceration. The incarceration in current study was estimated according to the court finalisation date, and is not accurate and brings bias in model estimation. This bias had slightly impact on the first re-offending (2 cases were affected), but larger impact on the following re-offending (46 cases were affected).

<sup>48</sup> Violent offences included: murder, attempted murder, manslaughter, assault, robbery, sexual assault and other sexual offences (see BOCSAR 2015).

<sup>49</sup> Property offences included: break and enter, and theft or theft from a motor vehicle/dwelling/person/other places.

<sup>50</sup> The exact date of a student moving or dropping out of school cannot be determined with precision in the enrolment data.

random part. The fixed part includes the time-invariant and time-varying covariate effects and the polynomial function for the duration intervals. They are explained below:

$x_{1\_1tj}$  represents whether Aboriginal male student  $j$  has enrolled in a comparison school in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{1\_2tj}$  represents whether Aboriginal male student  $j$  has enrolled in a Clontarf school in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{1\_3tj}$  represents whether Aboriginal male student  $j$  has enrolled in any other government schools other than Clontarf and Comparison schools in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{1\_4tj}$  represents whether Aboriginal male student  $j$  has enrolled in a government school in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{2tj}$  represents whether Aboriginal male student  $j$  has been involved in Clontarf Academies program in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{3tj}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Clontarf school ( $0=No$ ,  $1=Yes$ )

$x_{4tj}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Connected Communities school ( $0=No$ ,  $1=Yes$ )

$x_{5tj}$  represents whether student  $j$  is in Year 10 or above in month  $t$  ( $0=No$ ,  $1=Yes$ )

$x_{6tj}$  represents the number of prior enrolment gaps for Aboriginal male student  $j$  in month  $t$

$x_{7j}$  represents whether student  $j$  was present in Year 7 NAPLAN reading test ( $0=No$ ,  $1=Yes$ )

$x_{8j}$  represents whether student  $j$  was present in Year 7 NAPLAN numeracy test ( $0=No$ ,  $1=Yes$ )

$x_{9tj}$  represents the number of prior matters finalised by way of caution, conference or court appearance for student  $j$  in month  $t$

$x_{10tj}$  represents student  $j$ 's age measured by month in month  $t$

$x_{11tj}$  represents the ABS' Socioeconomic Index for Area (SEIFA) of student  $j$ 's postcode of residential address in month  $t$

$x_{12tj}$  represents the ABS' Accessibility Remoteness Index of Australia (ARIA) of student  $j$ 's postcode of residential address in month  $t$

The reason for including so many covariates was to ensure that the model could best identify the effect of Clontarf participation, rather than other factors. The random part includes the student-specific random effects  $u_j$  which captures any unobserved student-specific factors affecting the hazard. The random effect is assumed to be normally distributed with constant variance.

In the survival model,  $b_0$ , ...,  $b_{15}$ ,  $c_1$ ,  $c_2$  are the coefficients to be estimated. The model is executed by the function `glmer` in package of `lme4` in R.

## Interpretation

*Time-invariant factors:* The exponentiated coefficients of any time-invariant covariate can be interpreted as the 'hazard odds ratio' of offending, for two students with a unit difference in the value of the covariate. This assumes that the two students have the same random effect and other covariate effect at any given month. For example, the exponentiated coefficient of the time-invariant variable representing whether Aboriginal male student  $j$  has been involved in the Clontarf Academies program can be interpreted as the hazard odds ratio of offending for students who were involved in the program compared to those who were not involved.

*Time-varying factors:* The exponentiated coefficients of the time-varying covariate can be interpreted as the 'hazard odds ratio' of offending for a given student at any given month. For example, the exponentiated coefficient for the Clontarf school variable represents the hazard odds ratio of offending for a given student at any given month  $t$  when the student was enrolled in a Clontarf school, relative to when that student was enrolled in a non-Clontarf government school. Any hazard odds ratio significantly greater than 1 reveals a higher risk of offending.

### J3 Multi-level discrete survival model

The time to all the offences was analysed using a multilevel discrete-time survival model. This is because offending can be recurrent, and recurrent events data can be viewed as a type of two-level hierarchical structure with episodes of being at risk of offending nested within students. The durations of episodes from the same student are also likely to be correlated, invalidating the assumption made in standard methods that all durations are independently distributed.<sup>51</sup> The incorporation of student-specific random effect in the multilevel model can control for the unobserved heterogeneity in the risk of offending amongst students which cannot be captured by the observed covariates.

Similar to the discrete survival model above, a discrete-time approach was used, with month as the time interval. For each month  $t$ , we defined a binary response  $y_{tij}$  that indicates whether student  $j$  has a new proven offence of episode  $i$  ( $y_{tij}=1$  if student  $j$  has a new proven offence and 0 otherwise). The conditional probability  $p_{tij} = \Pr(y_{tij} = 1)$  that student  $j$  has a new proven offence in month  $t$  of episode  $i$  (given that offending has not yet occurred in that episode) is analysed by the multilevel binary logit model specified as follows:

$$\log\left(\frac{p_{tij}}{1 - p_{tij}}\right) = b_0 + b_1x_{1tij} + \dots + b_{27}x_{16-3j} + c_1t + c_2t^2 + \dots + u_j + v_{ij},$$
$$u_j \sim N(0, \sigma_u^2) \text{ and } v_{ij} \sim N(0, \sigma_v^2)$$

Where the subscript  $t$  represents month  $t$  within an episode,  $i$  represents the episode within student, and  $j$  represents the student. Covariates  $x$  have the same definition as in the above model.

$x_{1\_1ij}$  represents whether Aboriginal male student  $j$  has enrolled in a comparison school in month  $t$  of episode  $i$  (0=No, 1=Yes)

$x_{1\_2ij}$  represents whether Aboriginal male student  $j$  has enrolled in a Clontarf school in month  $t$  of episode  $i$  (0=No, 1=Yes)

<sup>51</sup> Non-independence is a consequence of omitted individual characteristics, fixed across time, that affect the probability of an event throughout the study period.

$x_{1\_3tj}$  represents whether Aboriginal male student  $j$  has enrolled in any other government schools other than Clontarf and Comparison schools in month  $t$  of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{1\_4tj}$  represents whether Aboriginal male student  $j$  has enrolled in a government school in month  $t$  of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{2tj}$  represents whether Aboriginal male student  $j$  has been involved in Clontarf Academies program in month  $t$  of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{3tj}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Clontarf school ( $0=No$ ,  $1=Yes$ )

$x_{4tj}$  represents whether Aboriginal male student  $j$  has ever enrolled in a Connected Communities school of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{5tj}$  represents whether student  $j$  was in Year 10 or above in month  $t$  of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{6tj}$  represents the number of prior enrolment gaps for Aboriginal male student  $j$  in month  $t$  of episode  $i$

$x_{7j}$  represents whether student  $j$  was present in Year 7 NAPLAN reading test of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{8j}$  represents whether student  $j$  was present in Year 7 NAPLAN numeracy test of episode  $i$  ( $0=No$ ,  $1=Yes$ )

$x_{9tj}$  represents the number of prior matters finalised by way of caution, conference or court appearance for student  $j$  in month  $t$  of episode  $i$

$x_{10tj}$  represents the standardised age of student  $j$  in month  $t$  of episode  $i$

$x_{11tj}$  represents the SEIFA of student  $j$  in month  $t$  of episode  $i$

$x_{12tj}$  represents the ARIA of student  $j$  in month of episode  $i$

$u_j$  represents the random effect for student  $j$

$v_{ij}$  represents the random effect for each episode, and  $b_0, \dots, b_{20}, c_1, c_2$  are the coefficients to be estimated

In the model specified above, the random part includes the student-specific random effects ( $u_j$ ) and the episode-specific within-student random effect ( $v_{ij}$ ). The student-specific random effects capture any unobserved student-specific factors that affect the hazard. The episode-specific effect helps account for any within-student between-episode random variation in the data. Both random effects are assumed to be normally distributed with constant variance. The model interpretation is the same as above for the discrete survival model.

## J4 Data summary and results

### Data summary

**Table 14:** Summary of data for risk of re-offence

|                               | First offence                |            | First re-offence             |            |
|-------------------------------|------------------------------|------------|------------------------------|------------|
|                               | No. Aboriginal male students | % of total | No. Aboriginal male students | % of total |
| Clontarf school students      | 66                           | 8.04       | 50                           | 9.60       |
| Comparison school students    | 581                          | 70.77      | 360                          | 69.10      |
| Other schools                 | 174                          | 21.19      | 108                          | 20.73      |
| Not enrolled in public school | 0                            | 0          | 3                            | 0.58       |
| Involved in Clontarf          | 47                           | 5.72       | 34                           | 6.53       |
| Present NAPLAN y7 reading     | 556                          | 67.72      | 341                          | 65.45      |
| Present NAPLAN y7 numeracy    | 541                          | 65.90      | 324                          | 62.19      |
| Year 10 or above              | 149                          | 18.15      | 97                           | 18.62      |
| No prior court matter         | 771                          | 93.91      | 474                          | 90.98      |
| Prior court matter            | 50                           | 6.09       | 47                           | 9.02       |
| Violent offence               | 132                          | 16.08      | 77                           | 14.78      |
| Property offence              | 316                          | 38.49      | 222                          | 42.61      |
| Other types                   | 373                          | 45.43      | 222                          | 42.61      |
| Total                         | 821                          |            | 521                          |            |

### Results

Table 15 presents the results from the standard survival model that examined time to the first re-offence (including all offence types) to investigate whether there were differences between Clontarf school students and non-Clontarf school students. The results showed that there was no significant difference in the risk of re-offending between students who attended a Clontarf school but did not participate in the Clontarf Academies program, and students who did not attend a Clontarf school (OR=0.836, 95% CI [0.356, 1.962]).

With regards to involvement in the Clontarf program, there was no significant difference in the risk of re-offending between the students involved in Clontarf and the non-participants (OR=0.971, 95% CI [0.425, 2.221]). Moreover, students who had never enrolled in a Clontarf school had about the same risk of re-offending as the students who had enrolled in a Clontarf school (OR=0.944, 95% CI [0.520, 1.713]).

Overall, these results find that the Clontarf Academies program has had no significant impact on students' re-offending risk to date.

**Table 15:** Results of survival model on the time to first re-offence (all types)

| Variables                          | Coefficient | SE    | p-value |
|------------------------------------|-------------|-------|---------|
| <b>Fixed effect</b>                |             |       |         |
| Intercept                          | -3.539      | 0.246 | 0.00    |
| Comparison schools                 |             |       |         |
| Clontarf schools                   | -0.179      | 0.435 | 0.680   |
| Other schools                      | -0.372      | 0.177 | 0.035   |
| Not enrolled in public school      | 0.244       | 0.734 | 0.739   |
| Not involved in Clontarf           |             |       |         |
| Involved in Clontarf               | -0.029      | 0.422 | 0.946   |
| Ever enrolled in a Clontarf school | -0.058      | 0.304 | 0.849   |
| Connected Communities school       | -0.043      | 0.241 | 0.858   |
| Year 10 above                      | -0.216      | 0.171 | 0.208   |
| Enrolment gap                      | 0.044       | 0.253 | 0.862   |
| Not present NAPLAN                 |             |       |         |
| Present y7 reading                 | -0.100      | 0.244 | 0.683   |
| Present y7 numeracy                | 0.320       | 0.242 | 0.185   |
| Number of prior court matters      | 1.969       | 0.261 | 0.000   |
| Age                                | -0.184      | 0.088 | 0.037   |
| SEIFA                              | -0.050      | 0.070 | 0.473   |
| ARIA                               | 0.053       | 0.079 | 0.504   |
| Time                               | 0.018       | 0.015 | 0.242   |
| Time square                        | -0.019      | 0.147 | 0.899   |
| <b>Random effect variance</b>      |             |       |         |
| Student Reference Number (SRN)     | 1.533       | 1.238 |         |

The following Tables show the model results on the time to the first violent re-offence (Table 16) and time to the first property re-offence (Table 17). The results were similar to those reported above: students who had participated in the Clontarf Academies program had no significantly different re-offending risk compared to non-participants.

**Table 16:** Results of survival model on the time to first violent re-offence

| Variables                                     | Coefficient | SE    | p-value |
|-----------------------------------------------|-------------|-------|---------|
| <b>Fixed effect</b>                           |             |       |         |
| Intercept                                     | -6.933      | 0.697 | 0.00    |
| Comparison schools                            |             |       |         |
| Clontarf schools                              | 0.455       | 0.404 | 0.260   |
| Other schools                                 | -0.200      | 0.294 | 0.496   |
| Not involved in Clontarf                      |             |       |         |
| Involved in Clontarf                          | -0.314      | 0.498 | 0.529   |
| Ever enrolled in a Clontarf school            | -0.058      | 0.304 | 0.849   |
| Ever enrolled in Connected Communities school | 0.260       | 0.367 | 0.480   |
| Year 10 above                                 | 0.087       | 0.244 | 0.721   |
| Enrolment gap                                 | 0.199       | 0.307 | 0.516   |
| Not present NAPLAN                            |             |       |         |
| Present y7 reading                            | 0.305       | 0.420 | 0.468   |
| Present y7 numeracy                           | 0.216       | 0.419 | 0.605   |
| Number of prior court matters                 | 0.639       | 0.135 | 0.000   |
| Age                                           | 0.158       | 0.158 | 0.317   |
| SEIFA                                         |             |       |         |
| ARIA                                          | -0.082      | 1.08  | 0.473   |
| Time                                          |             |       |         |
| Time square                                   | 0.023       | 0.023 | 0.242   |
|                                               | -0.409      | 0.341 | 0.230   |
| <b>Random effect variance</b>                 |             |       |         |
| Student Reference Number (SRN)                | 4.786       | 2.188 |         |

**Table 17:** Results of survival model on the time to first property re-offence

|                                               | Coefficient | SE    | p-value |
|-----------------------------------------------|-------------|-------|---------|
| <b>Fixed effect</b>                           |             |       |         |
| Intercept                                     | -3.821      | 0.249 | 0.00    |
| Comparison schools                            |             |       |         |
| Clontarf schools                              | -0.018      | 0.406 | 0.964   |
| Other schools                                 | -0.226      | 0.176 | 0.200   |
| Not enrolled in public school                 | 0.364       | 0.730 | 0.618   |
| Not involved in Clontarf                      |             |       |         |
| Involved in Clontarf                          | -0.292      | 0.396 | 0.461   |
| Ever enrolled in a Clontarf school            | 0.175       | 0.296 | 0.554   |
| Ever enrolled in Connected Communities school | 0.077       | 0.239 | 0.748   |
| Year 10 above                                 | -0.190      | 0.169 | 0.262   |
| Not present NAPLAN                            |             |       |         |
| Present y7 reading                            | -0.123      | 0.247 | 0.619   |
| Present y7 numeracy                           | 0.436       | 0.245 | 0.075   |
| Number of prior court matters                 | 1.182       | 0.159 | 0.000   |
| Age                                           | -0.132      | 0.088 | 0.134   |
| SEIFA                                         | 0.022       | 0.070 | 0.760   |
| ARIA                                          | -0.043      | 0.080 | 0.587   |
| Time                                          | 0.013       | 0.014 | 0.368   |
| Time square                                   | -0.032      | 0.150 | 0.830   |
| <b>Random effect variances</b>                |             |       |         |
| Student Reference Number (SRN)                | 1.516       | 1.231 |         |

Table 18 presents the results from the multi-level survival analysis. Once again, no significant differences were found between students who had participated in the Clontarf Academies program and those who had not.

**Table 18:** Results of multi-level survival model on recurrent re-offending times

|                                               | Coefficient | SE    | p-value |
|-----------------------------------------------|-------------|-------|---------|
| <b>Fixed effects</b>                          |             |       |         |
| Intercept                                     | -3.190      | 0.153 | 0.00    |
| Comparison schools                            |             |       |         |
| Clontarf schools                              | 0.287       | 0.183 | 0.116   |
| Other schools                                 | -0.140      | 0.099 | 0.157   |
| Not enrolled in public school                 | -0.385      | 0.485 | 0.427   |
| Not involved in Clontarf                      |             |       |         |
| Involved in Clontarf                          | -0.181      | 0.179 | 0.311   |
| Ever enrolled in a Clontarf school            | -0.106      | 0.142 | 0.456   |
| Ever enrolled in Connected Communities school | -0.014      | 0.119 | 0.905   |
| Year 10 above                                 | -0.108      | 0.089 | 0.227   |
| Not present NAPLAN                            |             |       |         |
| Present y7 reading                            | -0.0005     | 0.130 | 0.997   |
| Present y7 numeracy                           | 0.178       | 0.129 | 0.166   |
| Number of prior court matters                 | 0.269       | 0.034 | 0.000   |
| Age                                           | -0.295      | 0.051 | 0.000   |
| SEIFA                                         | 0.019       | 0.039 | 0.631   |
| ARIA                                          | 0.012       | 0.041 | 0.779   |
| t                                             | 0.005       | 0.010 | 0.602   |
| t-squared                                     | 0.073       | 0.109 | 0.501   |
| <b>Random effect variance</b>                 |             |       |         |
| Student Reference Number (SRN)                | 0.136       | 0.369 |         |
| Episode                                       | 0.886       | 0.941 |         |

## Appendix K: Cost-benefit analysis

This appendix provides details of all cost and benefit calculations included in the economic evaluation.

The following key assumptions have been made throughout the analysis:

- *Discount rate* – In order to account for the time value of money, all costs and benefits accruing in the future are discounted back to present value (where  $t=0$  is 2016) by applying a discount rate. As per the NSW Treasury Guidelines for Economic Appraisal, our base assumption is for a 7% discount rate, with sensitivity testing for 4% and 10%.
- *Inflation* – All costs and benefits are expressed in real terms (in 2016 dollars), in line with the NSW Government Guidelines for Economic Appraisal.<sup>52</sup> The ABS Consumer Price Index (CPI) is applied to historical values while real values in forecast periods are calculated using an expected inflation rate of 2.5% (in line with Commonwealth Treasury medium-term projections).
- *Time period* – The time period for this analysis is assumed to be the time of entry to the program to the end of a typical working life. Workers are assumed to retire at age 65 and Clontarf participants are assumed to remain involved in the program until they leave school. Calculations of costs and benefits are weighted according to Clontarf enrolment numbers in 2012, excluding Year 12 (i.e. those students in Years 7-11 in 2012 are included in the analysis).

### K1 Costs included the model

The costs associated with the implementation of the Clontarf Academies program include direct program costs as well as those borne by the individual and government through undertaking additional education.

#### *Direct program costs*

Clontarf Academies currently operate on a budget of \$7,500 per enrolled boy per year. Future program costs may be expected to increase in line with inflation, or possibly even faster than the rate of inflation.<sup>53</sup> According to the Clontarf Foundation, however, the program fee is expected to remain at \$7,500 per enrolled boy per year, at least over the next few years, due to improved efficiencies and the ability to leverage off economies of scale as the program expands. The cost per enrolled boy per year therefore is assumed to remain constant across all periods (on a nominal basis) for this modelling exercise.

Real program costs have been calculated by applying the ABS Consumer Price Index (CPI) for 'Secondary Education' (Australia) to historical values and an expected inflation rate of 2.5% for 2016 onwards. After applying a real discount rate of 7% to account for the time-value of money, **the total present value of program costs is estimated to be \$28,184 for each participant** over the life of their enrolment in the program (in 2016 dollars). As mentioned previously, these calculations take into account Clontarf enrolment numbers in 2012, and thus the weighted average length of program participation.

<sup>52</sup> According to the guidelines, "there are strong merits in adopting a uniform basis of analysis and it is considered that the use of real cash flows and discount rates may simplify the forecasting and calculation processes. Hence, analysis should use costs and benefits valued in real terms and discounted by a real discount rate."

<sup>53</sup> In Australia, and indeed in most advanced economies, growth in the real cost of education services has been persistently higher than growth in the "average" basket of goods and services, i.e. the inflation rate. This is argued to be attributable to a phenomenon known as "Baumol's cost disease", where the cost of labour-intensive industries with low productivity gains (such as health, education or the arts) will typically rise faster than inflation as wages increase over time (Baumol & Bowen, 1966; Baumol, 1996).

Given that the NSW Government contributes one third of the cost, the total present value of program costs accruing to the Department is estimated to be \$9,395 per participant.<sup>54</sup>

### **Costs of additional education**

As the results of the retention modelling showed in Chapter 8, heavily involved Clontarf boys have a higher rate of Year 12 completion than those who do not participate.<sup>55</sup> For this economic analysis, we have made the generous assumption of ascribing the elevated retention rate as a benefit of Clontarf participation.

However, there are costs associated with students remaining in education longer than they otherwise would have, whether it is an additional year of secondary education, vocational education or university. These costs can either be private costs (tuition fees, other direct costs such as textbooks, and the opportunity cost of foregone earnings during study) or public costs (government expenditure on education services).

In calculating these additional costs of education, a number of underlying assumptions have been made:

- A vocational education and training (VET) course is assumed to take two years (full-time) to complete.
- A university (Bachelor's) degree is assumed to take four years (full-time) to complete.
- The probability of further education pathways for a Year 12 graduate is calculated using 2011 Census of Population and Housing data. Given Year 12 attainment, it is estimated that 16% of Aboriginal males hold a Bachelor's degree and 35% hold a VET qualification, while 49% hold no further educational qualification.

### **Private cost of additional education – Tuition fees and other direct costs of education**

In this analysis, the private cost of tuition for both secondary and VET students is assumed to be zero. With the government's recent reform of the NSW VET system and the implementation of *Smart and Skilled* on January 1 2015, tuition fee exemptions are available to Aboriginal and Torres Strait Islanders for government-subsidised VET courses.<sup>56</sup> For those undertaking university (Bachelor's) degrees, tuition fees are calculated using 2015 student contribution amounts, weighted according to the number of commencements by discipline for Aboriginal males.<sup>57,58</sup> For simplicity, it is assumed that students pay HECS fees upfront at the start of every year. The average student contribution for a Bachelor's degree per equivalent fulltime student load (EFTSL) is calculated to be \$8,159 per year.

Other direct costs of additional education, such as materials and textbooks, are assumed to be zero for secondary students. While information on the cost of materials and resources for VET students is scarce and varies significantly between courses and institutes, it is assumed that, on average, non-tuition costs amount to around \$650 per year.<sup>59</sup> For university students, direct non-tuition costs are assumed to be \$1100 per year.<sup>60</sup>

<sup>54</sup> While the NSW Government contribution is \$2,500 per participant per year, this figure takes into account a weighted average length of program participation i.e a student is likely to participate for more than one year. It also discounts future program costs into present value terms.

<sup>55</sup> Unless otherwise stated, all analysis is based on the most reasonable estimate for the Year 10-12 retention rate i.e 70% for Clontarf boys and 51% for non-Clontarf boys.

<sup>56</sup> This exemption covers all Smart and Skilled courses, which are government-subsidised training up to and including Certificate III and higher-level courses (Certificate IV and above) in targeted priority areas. This report assumes that all VET courses undertaken are eligible for this fee exemption.

<sup>57</sup> Table 1: Government and student contributions for a Commonwealth-supported place in 2015 (Contribution per equivalent Full-Time Student Load (EFTSL) from: [https://docs.education.gov.au/system/files/doc/other/higher\\_education\\_in\\_australia\\_-\\_a\\_review\\_of\\_reviews.pdf](https://docs.education.gov.au/system/files/doc/other/higher_education_in_australia_-_a_review_of_reviews.pdf).

<sup>58</sup> 2014 Higher Education Statistics.

<sup>59</sup> This calculation is based on Watson (2003), who estimated that non-tuition costs comprise, on average, around 40% of the costs faced by VET students.

<sup>60</sup> Based on an estimate of \$300 for student amenities fee and \$100 cost of books etc per semester-length subject (Borland et al., 2000).

### Private cost of additional education – Opportunity cost of foregone earnings

It is assumed that an individual does not earn any income while they complete their studies.<sup>61</sup> Thus, by undertaking additional years of education a student foregoes time that they could otherwise have spent earning income. This opportunity cost of foregone earnings is calculated using expected age-earning profiles for Aboriginal males, by educational attainment level (the derivation of these profiles is detailed in the following section). For example, a student that remains in school until Year 12 foregoes the income that they could otherwise have earned in employment (i.e. the expected income of an Aboriginal male with below Year 12 educational attainment level).

Taking into account the probability of completing Year 12 (from the retention modelling results) and the likelihood of each further education pathway, **the total average private cost of additional education is estimated to be \$7,567 more for a Clontarf boy than it is for a non-Clontarf boy** (in present value terms). The vast majority of this cost comes from the opportunity cost of foregone earnings while studying (89%), with the remaining 11% coming from tuition fees and other direct costs of education.

### Public cost of additional education

Undertaking additional years of study also incurs a public cost, which varies by education level. The cost incurred by the government in providing education services is set out in Table 19 below.

**Table 19:** Public cost of education per student, per year

| Type of cost                              | Estimated cost per year <sup>1</sup> (\$) |
|-------------------------------------------|-------------------------------------------|
| University degree (Bachelor) <sup>2</sup> | 10,657                                    |
| VET course <sup>3</sup>                   | 4,288                                     |
| Secondary education <sup>4</sup>          | 19,255                                    |

Note: <sup>1</sup> All costs are in 2016 dollars. <sup>2</sup> Average Commonwealth contribution per equivalent full-time student load (EFTSL), weighted according to commencements by discipline for Aboriginal males. <sup>3</sup> Average cost of Foundation course, Certificate I/II, Certificate III/IV, Diploma or Advanced Diploma qualification (government-subsidised *Smart and Skilled* courses only). This cost has been weighted according to the proportion of Aboriginal and Torres Strait Islander students enrolled in each level of VET course. <sup>4</sup> 2016 Report on Government Services (ROGS). The 2013-14 figure for total secondary (in and out) cost has been converted to 2016 prices.

### Total cost of additional education

Table 20 shows the total (private and public) cost of additional education that a student is expected to incur for each educational pathway. In order to further calculate the expected cost incurred by a Clontarf boy, compared to a non-Clontarf boy, the probability of completing Year 12 and the likelihood of each pathway must be taken into account.

**The expected total cost of additional education is estimated to be \$16,128 more for a Clontarf boy than for a non-Clontarf boy** (in present value terms).

**Table 20:** Total cost of additional education per student (2016 dollar terms)

|  | Present value (\$'000) |        |       |
|--|------------------------|--------|-------|
|  | Private                | Public | Total |

<sup>61</sup> This assumption means that estimates of income foregone while studying are conservatively high and may overestimate the true cost of additional education. According to the latest ABS Labour Force Survey, around 36% of full-time students aged 15-19 years old, and 48% of those aged 20-24 years old, are also in part-time employment (ABS, 2016).

|                              |     |    |     |
|------------------------------|-----|----|-----|
| University degree (Bachelor) | 108 | 69 | 177 |
| VET course                   | 45  | 43 | 86  |
| Secondary education          | 10  | 35 | 45  |

Note: Private and public values may not sum to total due to rounding.

## K2 Benefits included in the model

The benefits included in this model that can reasonably be expected to derive from the Clontarf Academies program included: an increase in lifetime earnings for Clontarf participants and the associated higher income tax contributions, the avoided cost of addressing school non-attendance, and the reduction in administration costs associated with lower welfare payments to Clontarf participants.

For a discussion of exclusions from the model, see Appendix K3.

### *Increase in lifetime earnings*

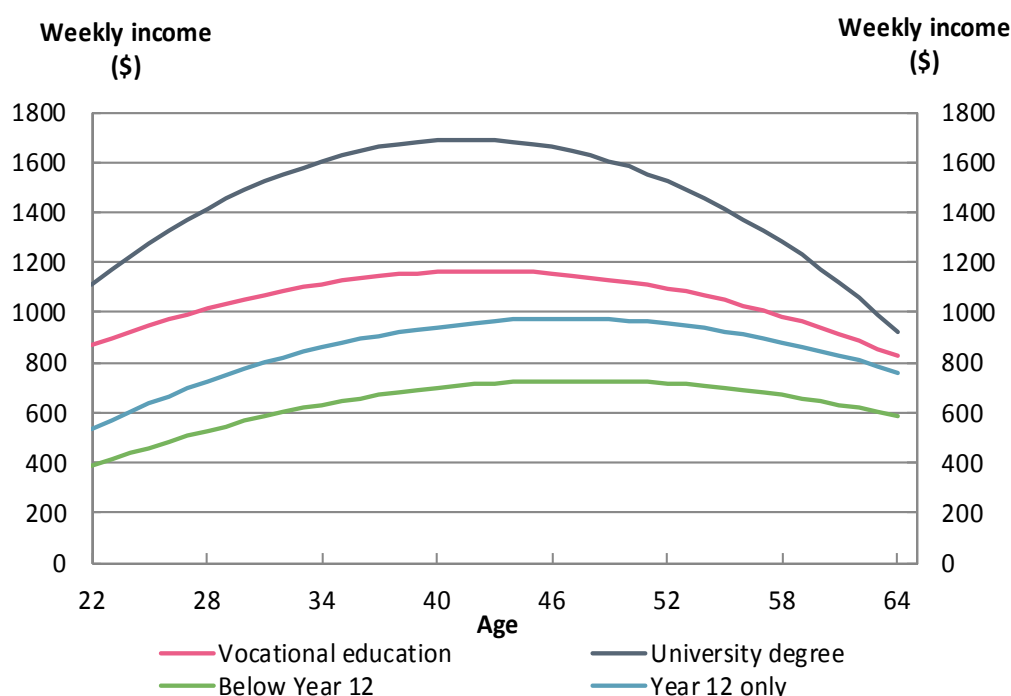
Increase in lifetime earnings as a result of increased educational attainment is the main economic benefit expected to accrue to program participants in this analysis. According to human capital theory (Mincer 1958; Schultz 1961), education can be seen as an investment in an individual's human capital, which boosts productivity and generates a stream of future benefits (both private and social). In this view, one can estimate a rate of return on investment in education, similar to a return to investment on physical capital.

Lifetime earnings have been estimated using 2011 Census data on income for Aboriginal and Torres Strait Islander males, by age category and educational attainment level. A limitation of this Census data is that it only reports an individual's gross personal income (inclusive of government payments), and not their earnings. Thus, in order to focus on labour market earnings, we restricted our reference point to Aboriginal males who are in full-time employment (i.e. work at least 35 hours a week). Moreover, as weekly income is reported in a number of ranges, the mid-point of each bracket was used to create the age-earning profiles. The highest income bracket (\$1500 or more) was multiplied by 1.33 to obtain the equivalent midpoint, an assumption consistent with previous studies (Borland *et al.*, 2001; Colgrave, 2006).

The Census also reports income in 5 yearly age groups from 25-29 years to 60-64 years. To generate a smooth income series, a simple regression relating income to age and age-squared was estimated. The estimated age-earning profiles for Aboriginal males by educational attainment are shown in Figure 12. Finally, to better reflect the economic resources available to an individual, marginal income tax rates (assumed to be held at 2015-16 levels for all future periods) were applied to obtain after-tax income measures.

Taking into account the probability of employment in each age category (KPMG, 2013), the expected age-earnings profile for an Aboriginal male who did not complete Year 12 was calculated. Drawing on findings presented by Birch (2014), the private returns to education for Aboriginal males were then applied to obtain the expected profiles students with Year 12, vocational and university education respectively.

**Figure 12:** Weekly pre-tax income by educational attainment, Aboriginal males



Source: 2011 ABS Census of Population and Housing and CESE calculations.

Assuming annual real income growth of 1.6%<sup>62</sup> and taking into account the probability of an Aboriginal male completing each educational pathway, the expected lifetime earnings have been estimated for a Clontarf boy and a non-Clontarf boy. **In present value terms, the Clontarf Academies program is expected to generate a lifetime earnings benefit of \$30,011 for participants.**

### *Avoided cost of administering welfare payments*

Assuming that Clontarf participants are more likely to complete Year 12 and have a higher probability of employment, we can also expect less welfare payments over the course of their lifetime. However, a reduction in welfare payments to program participants represents a *transfer* rather than an additional benefit itself — a redistribution of income from one part of the economy (welfare recipient) to another (taxpayer) such that there are no gains to society as a whole. The reduction in welfare payments to Clontarf participants is thus excluded from the cost-benefit analysis.

There is, however, an administrative cost to the government associated with making such transfers. According to the 2016-17 Commonwealth Budget, the general administration cost for total social security amounted to around \$3.7 billion in 2015-16.<sup>63</sup> If Clontarf Academies reduce the amount of welfare payments distributed to its participants, the avoided cost of administering these payments can be included as a benefit of the program.

Restricting analysis to the cost of administering Newstart Allowance payments only (whose recipients account for around 5.3% of total social security recipients)<sup>64</sup> and taking into

<sup>62</sup> The use of cross-sectional data assumes that there is no productivity-induced growth in real income over the lifetimes of participants. To adjust for this, real income is assumed to grow at a rate of 1.6%, in line with productivity growth.

<sup>63</sup> 2016-17 Commonwealth Budget, Budget Paper 1, Statement 5, Table 9.

<sup>64</sup> Department of Social Services, DSS Payments by Local Government Area, March 2016, available online at: <http://data.gov.au/dataset/dss-payments-by-local-government-area>

account the expected reduction in payments due to Clontarf,<sup>65</sup> the **present value of benefits accruing from a reduction in welfare administration costs is estimated to be \$177 per participant.**

### *Increase in income tax contributions*

Taxes, like welfare payments, can also be considered a transfer from the taxpayer to the rest of society. However, the increase in lifetime earnings for Clontarf participants can be expected to generate an absolute higher amount of income tax payments, and is thus included as a benefit of the program. This increase in tax contributions can be estimated by applying (current) marginal income tax rates to the expected stream of future earnings for Clontarf boys and non-Clontarf boys. **In present value terms, a Clontarf participant is expected to generate \$5,571 in additional income tax contributions over his lifetime.**

### *Avoided cost of addressing non-attendance*

There are a range of costs that may arise when a student does not attend school regularly, including the time and cost of implementing strategies to address poor attendance (such as developing attendance action plans or sending letters to parents/carers), the adverse effects on teacher morale, or the effect on attending students who receive less attention when non-attendees re-enter the classroom and require extra support. Any improvements in student attendance would therefore result in benefits in the form of avoided costs associated with dealing with unsatisfactory attendance.

As detailed in Section 3.4, regression modelling results indicate that the Clontarf Academies program has a positive effect on attendance rates for students in Years 7, 8 and 9 (2.2%, 5.9% and 4.2% respectively, or 4.4 days, 11.8 days and 8.4 days in a 200-day school year). To estimate the monetary value of these attendance improvements, the cost borne by the Department from hiring Aboriginal Student Liaison Officers (ASLOs) is used as a proxy of the cost of addressing poor attendance in Aboriginal students.<sup>66</sup> The cost of ASLOs, which includes both salary and on-costs, is a reasonable indicator of the amount that the Department is willing to pay to avoid poor attendance in Aboriginal students, or equivalently, the benefit gained from getting all NSW Aboriginal students to attend school regularly.

Taking into account current enrolment numbers, school attendance rates by scholastic year and the total cost of the 24 ASLOs currently employed by the Department across NSW, it is possible to estimate the portion of this cost dedicated to improving attendance in Year 7 to 9 Aboriginal male students. With Clontarf Academies improving Year 7, Year 8 and Year 9 attendance by 4.4 days, 11.8 days and 8.4 days respectively, **the program is estimated to produce an annual cost saving to the Department of \$3,252 for a Year 7 student, \$7,715 for a Year 8 student, and \$4,570 for a Year 9 student.** For a student entering Year 7 in 2016, the present value of these attendance benefits is estimated to be \$14,454.

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<sup>65</sup> Calculations show that Clontarf participants are expected to receive approximately \$39,000 less in Newstart payments over their working life, compared to a non-Clontarf boy.

<sup>66</sup> ASLOs work with schools to support the regular attendance of Aboriginal students by visiting schools to monitor attendance and liaising with principals on non-attendance issues. They also provide support to Aboriginal parents, including home visits.

## K3 Sensitivity analysis of the model

Table 21: Sensitivity analysis for economic evaluation

| Variable                                                      | Benefit-cost ratio (BCR) | Net Present Value (NPV) |
|---------------------------------------------------------------|--------------------------|-------------------------|
| <b>1. Year 10-12 retention</b>                                |                          |                         |
| Smallest gap between Clontarf and non-Clontarf <sup>1</sup>   | 0.62                     | -12719                  |
| Largest gap between Clontarf and non-Clontarf <sup>2</sup>    | 1.21                     | 11690                   |
| <b>2. Length of program participation</b>                     |                          |                         |
| 6 years <sup>3</sup>                                          | 0.89                     | -7010                   |
| 3 years <sup>4</sup>                                          | 1.28                     | 12015                   |
| <b>3. Attendance</b>                                          |                          |                         |
| Increase Year 10 attendance by 5 days                         | 1.06                     | 2823                    |
| Increase Year 10 attendance by 15 days                        | 1.16                     | 7269                    |
| <b>4. Part-time work while studying</b>                       |                          |                         |
| Work 10 hours per week at minimum wage                        | 1.08                     | 3295                    |
| <b>5. Real income growth</b>                                  |                          |                         |
| 0%                                                            | 1.00                     | 160                     |
| 3%                                                            | 1.02                     | 986                     |
| <b>6. Program cost</b>                                        |                          |                         |
| Assume program cost equals State Government contribution only | 1.78                     | 19723                   |
| <b>7. Discount rate</b>                                       |                          |                         |
| 4%                                                            | 1.54                     | 23892                   |
| 10%                                                           | 0.74                     | -11622                  |
| <b>Base case</b>                                              | 1.01                     | 601                     |

Notes: <sup>1</sup> Assumes Year 10-12 retention rate for Clontarf boys is 67% (i.e the lower bound) and 61% (i.e the upper bound) for non-Clontarf boys. <sup>2</sup> Assumes Year 10-12 retention rate for Clontarf boys is 0.79 (i.e the upper bound) and 0.47 (i.e the lower bound) for non-Clontarf boys. <sup>3</sup> Assumes the base case Year 10-12 retention rates apply. <sup>4</sup> Assumes Year 7 to 9 Clontarf participation only and is sufficient to yield the same retention benefits.

## K4 Impact of potential benefits that were excluded from the model

This section provides further discussion of the some of the key potential benefits that were identified earlier as non-quantifiable and excluded from the analysis. This is intended to provide some guide as to the likelihood and magnitude of these potential effects.

### Potential health outcomes

There is a well-documented, large and persistent association between education and health outcomes — an association that has been observed across many countries and time periods and for a range of health and wellbeing indicators (Ross & Wu 1995; Cutler & Lleras-Muney 2006; Osbourne *et al.* 2013). The influence of education on health can operate through a number of mechanisms including:

- The increased likelihood of employment and thus higher income and access to health care, insurance and resources
- Improved critical thinking skills and access to knowledge, which impacts on and decision-making and behaviour
- The development of social networks and greater social and emotional support.

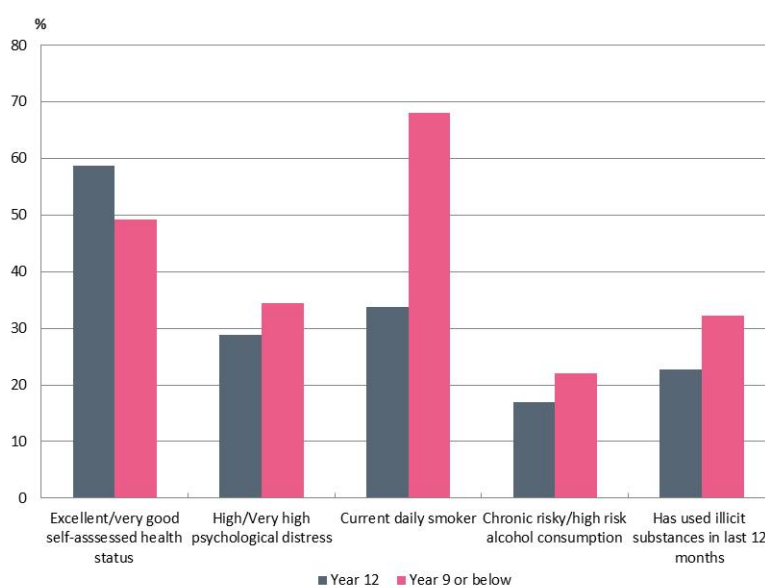
While there is some evidence in support of a causal link, there remains limited research and no consensus on the causal pathways underlying this relationship (Osbourne *et al.* 2013).<sup>67</sup>

<sup>67</sup> For example, looking at the United States, Lleras-Muney (2005) estimates that an additional year of education lowers the probability of dying in the next ten years by at least 3.6 percentage points.

Nevertheless, the correlation between education and health outcomes is evident in the Indigenous Australian population, as shown in Figure 13 below. Data from the 2008 National Aboriginal and Torres Strait Islander Social Survey (NATSISS) shows that Aboriginal persons aged 15-34 years who have completed Year 12 are more likely to rate their health as excellent/very good than those who had left school at Year 9 or below (59% compared to 49%). They were also less likely to engage in risky health behaviours — they were less likely to be a current daily smoker (34% compared with 68%) and less likely to have used an illicit substance in the last 12 months (23% compared with 32%).

Given the cost of poor health imposed on both the individual and society, the magnitude of benefits stemming from improved health and wellbeing outcomes for Clontarf boys is potentially significant. For example, Collins and Lapsley (2008) estimate that the annual social cost of alcohol and illicit drug misuse in Australia is around \$23.7 billion, while the social cost of tobacco accounts for a further \$31.5 billion. In a study of the benefits of a reduction in smoking prevalence in Victoria, they also find a social benefit of \$10,291 for each individual prevented from smoking by anti-smoking interventions (Collins & Lapsley 2006).

**Figure 13:** Selected health characteristics by educational attainment, Aboriginal and Torres Strait Islander people aged 15-34 years



Source: ABS (2010)

Notes: <sup>1</sup> Excludes persons still attending secondary school. <sup>2</sup> Chronic risky/high risk alcohol consumption is based on the amount of alcohol (mls) consumed on an average drinking day.

### Potential criminal justice outcomes

While the statistical modelling found no significant effect of Clontarf participation on the risk of a student re-offending, there may be indirect crime effects through the attainment of higher levels of education and subsequently, the greater likelihood of employment. Higher educational attainment can diminish the relative attractiveness of criminal activity through their effect on the returns to employment (Chapman et al., 2002).

This crime-labour-market-education nexus has been well researched. Longitudinal studies generally find a strong relationship between unemployment and crime, particularly when the offender is from a low socioeconomic background, and there is also a large body of evidence

showing a close relationship between poor school performance and involvement crime (Weatherburn et al., 2006). While it is still unclear whether this relationship between education and crime is causal, Weatherburn et al. (2006) show that Indigenous Australians are far more likely to be charged with, or be imprisoned for, an offence if they failed to complete Year 12 or were unemployed. Focussing on the *duration* of unemployment and one type of crime (property crime), Chapman *et al.* (2002) also find evidence of a strong positive relationship between youth male long-term unemployment and criminal activity, and a negative relationship between high school completion and criminal activity. The authors estimate that an increase in Year 12 school retention of 7,000 males in NSW would reduce break-and-enter crime by 15% over one year.

The potential benefits stemming from the avoided cost of crime (both criminal justice system costs and victim costs) are significant, with the Australian Institute of Criminology (AIC) estimating that the total cost of crime amounts to approximately \$47.6 billion per year, or around 3.4% of Australia's Gross Domestic Product (GDP) (AIC, 2015). The average cost of a burglary is estimated to be around \$2,200, which includes property loss, property damage, lost output and intangible costs.<sup>68, 69</sup>

### **Potential benefits for non-participants**

The benefits generated by Clontarf Academies may accrue not only to program participants but also to other members of society, such as family members, as well as future generations. These flow-on benefits may include:

#### **(i) Intergenerational effects**

There is a substantial body of evidence highlighting the significant role of parental educational attainment in breaking the cycle of intergenerational disadvantage. For example, numerous studies have found that lower levels of parental education are associated with a higher risk of early school leaving (Battin-Pearson *et al.* 2000, Curtis & McMillan 2008, Dale 2010, Traag & van der Velden 2011). For the Aboriginal population, Biddle (2015) notes that there is "a large and statistically significant gap in Year 12 completion or retention between Indigenous students with and without a parent who had completed Year 12", with around 73% of Aboriginal children with a parent who had completed Year 12 completing school themselves (or were still studying). The equivalent figure for those without a parent who had completed Year 12 was only around 65%.

#### **(ii) Effects on siblings**

Improved school attendance and engagement of Clontarf boys may also have a more immediate positive influence on educational outcomes for their siblings. A number of studies find that students are more likely to drop out of school if they have an older sibling who also dropped out (Rumberger & Thomas 2000, Teachman *et al.* 1996, Jacob 2001).

#### **(iii) Effects on other members of society**

To the extent that Clontarf Academies improve participants' respect and attitudes towards women, there may also be longer term benefits in terms of a reduction in domestic and family violence. These issues are particularly prevalent in Aboriginal communities, with the

<sup>68</sup> Burglary is defined as the 'unlawful entry of a structure with the intent to commit an offence where the entry is either forced or unforced'. Unlawful entry with intent offences include burglary, break and enter, and some theft, and includes break and enter offences where property was taken as well as where property was not taken (AIC, 2015).

<sup>69</sup> Intangible costs include only the "physical and emotional impact on direct victims of residential burglary" (AIC, 2015).

National Plan to Reduce Violence against Women and their Children 2010-2022 reporting that Indigenous females are up to 35 times more likely to be hospitalised due to family violence related assaults than other Australian women. The implementation of school-based programs aimed at shaping appropriate attitudes towards women in young people has been identified as one of the most important strategies in breaking this cycle of violence (Indermaur 2001, National Crime Prevention 2001). With the cost to the Australian economy at an estimated \$21.7 billion per year (PwC 2015), there are significant benefits to be drawn from investing in the prevention of violence against women.

### *Potential reduction in inequality*

In 2008, the Council of Australian Governments (COAG) set ambitious targets and agreed to address the disadvantage faced by Indigenous Australians in relation to a number of health, education and employment outcomes. Given this policy objective to 'Close the Gap' on Indigenous disadvantage, it may be argued that the Clontarf program's intrinsic benefits are larger than is implied by the above analysis as the majority of benefits flow to Aboriginal boys.

In theory, the analysis could be modified using distributional weights, such that greater value is placed on the benefits accruing to Clontarf participants than on the costs to the broader population.<sup>70</sup> However, in line with NSW Treasury evaluation guidelines, the analysis implicitly accepts the Kaldor/Hicks economic principle in which the marginal utility of money is uniform across the population, i.e an extra dollar of income is worth the same to all individuals regardless of their income, socio-economic background or other characteristic. In other words, it is irrelevant to whom the program costs and benefits are accruing and only the net social benefit determines whether or not the program is worth pursuing. In light of the Government's objective to 'Close the Gap' on Indigenous disadvantage, this may be a politically unrealistic assumption.

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<sup>70</sup> The UK Green Book suggests that distributional weights be determined by empirical estimates of the social welfare function that links personal utility to income, while the Commonwealth Handbook argues for a more subjective determination of these distributional weights based on government policy objectives (Argyrous, 2013).

## Appendix L: References

- Abadie, A. (2005) Semiparametric difference-in-differences estimators. *Review of Economic Studies*, 72(1), 1 – 19.
- Abadie, A. & Imbens, G. W. (2006) Large sample properties of matching estimators for average treatment effects. *Econometrica*, 74, 235 – 267.
- ACIL Allen Consulting (2014) Impact of the Clontarf Academies. Report to the Skilled Group and Clontarf Foundation. Unpublished.
- Argyrous, G. (2013) *A review of government Cost-benefit Analysis guidelines*. SSC/ANZSOG Occasional Paper. The Australia and New Zealand School of Government.
- Australian Bureau of Statistics (ABS) (2001) *Statistical volume 1 Australian standard geographical classification (ASGC) 2001*. cat. no. 1216.0. Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2010) *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples, 2010*, cat. no. 4704.0, May, Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2011) *Socioeconomic indexes for areas (SEIFA) 2011*. cat. no. 2033.0.55.001. Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2015a) *Schools, Australia, 2015*, cat. no. 4221.0, Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2015b) *Prisoners in Australia, 2015*, cat. no. 4571.0, Canberra: ABS.
- Australian Bureau of Statistics (ABS) (2016) *Labour Force Survey, Australia, Detailed*. cat.no.6291.0.55.001. Canberra: ABS.
- Australian Catholic University and Erebus International (2008) Scoping study into approaches to student wellbeing: Literature review. Report to the Department of Education, Employment and Workplace Relations: Canberra.
- Australian Institute for Teaching and School Leadership (AITSL) (2013) *Engagement in Australian Schools*, AITSL, Melbourne.
- Battin-Pearson, S., Newcomb, M. D., Abbott, R. D., Hill, K. G., Catalano, R. F. & Hawkins, J. D. (2000) Predictors of early high school dropout: A test of five theories. *Journal of Educational Psychology*, 92, 568-582.
- Baumol, W. J. & Bowen, W. G. (1965) On the performing arts: the anatomy of their economic problems. *American Economic Review*, 55(1/2) 495-502.
- Baumol, W. J. (1996) Children of performing arts, the economic dilemma: The climbing costs of health care and education. *Journal of Cultural Economics*, 20(3) 183-206.
- Birch, E. (2014) The determinants of earnings for indigenous Australian workers. *Australian Journal of Labour Economics*, 17(3) 211.
- Borland, J., Dawkins, P., Johnson, D. & Williams, R. (2000) *Returns to investment in higher education*. Melbourne Economics of Higher Education Research Program Report No.1, Melbourne Institute of Applied Economic and Social Research.
- Centre for Education Statistics and Evaluation (CESE) (2015). *Literature Review – Student Wellbeing*. NSW Department of Education. Accessed 14 August 2016: <https://www.cese.nsw.gov.au/publications-filter/student-wellbeing-literature-review>.

- Chapman, B., Weatherburn, D., Kapuscinski, C. A., Chilvers, M. & Roussel, S. (2002) *Unemployment duration, schooling and property crime*. ANU Discussion Paper No. 447.
- Collaborative for Academic, Social and Emotional Learning (CASEL) (2013) *What is social and emotional learning?* Accessed 14 August 2014: <http://www.casel.org/social-and-emotional-learning>
- Clontarf Foundation (2012). *Annual report 2012*. Clontarf Foundation.
- Clontarf Foundation (2015). *Annual report 2015*. Clontarf Foundation.
- Colegrave, A. (2006) *Why Study at a Mature Age?: An Analysis of the Private Returns to University Education in Australia*. University of Western Australia, Economics.
- Collins, D. J. & Lapsley, H. M. (2006) *Counting the costs of tobacco and the benefits of reducing smoking prevalence in Victoria*. Victoria: Victoria Government Department of Human Services, 36.
- Collins D. & Lapsley H. (2008) *The Cost of Tobacco, Alcohol and Illicit Drug Abuse to Australian Society in 2004/05*. Commonwealth of Australia, Department of Health and Ageing, Monograph Series No.64, p65.
- Curtis, D. D. & McMillan, J. (2008) *School non-completers: Profiles and initial destinations, Longitudinal Surveys of Australian Youth* (Research Report no. 54). Camberwell, Vic.: The Australian Council for Educational Research Ltd.
- Cutler, D. M. & Lleras-Muney, A. (2006) *Education and health: evaluating theories and evidence* (No. w12352). National Bureau of Economic Research.
- Dale, R. (2010) *Early school leaving: Message from research for policy makers. An independent expert report submitted to the European Commission*.
- Efron, B. & Tibshirani, R. J. (1993) *An Introduction to the Bootstrap*. Chapman & Hall, New York.
- Ferrante, A. & Hendrie, D. (2013) *Assessment of Offending by Participants of the Clontarf Foundation Programme*. Curtin University.
- Fredricks, J.A., Blumenfeld, P.C. & Paris, A.H. (2004) School engagement: potential of the concept, state of evidence. *Review of Educational Research*, vol.74, pp.59–109.
- Raquel, F. & Yuhui, Z. (2011) *The Effect of Education on Health: Cross-Country Evidence*. RAND Working paper No. WR-864 Aug 2011.
- Indermaur, D. (2000) Violence in Australia: Patterns and politics. *Australian and New Zealand Journal of Criminology*, 33, 287–99.
- Kalbeisch, J. D. & Prentice, R. L. (2002) *The statistical analysis of Failure Time Data*. John Wiley and Sons, New York, 2nd edition.
- KPMG (2013) *Economic evaluation of the Australian Indigenous mentoring experience program: Final report*. Retrieved from <http://www.aimementoring.com>.
- Lleras-Muney, A. (2005) The relationship between education and adult mortality in the United States. *The Review of Economic Studies*, 72(1) 189-221.
- Lonsdale, M., Wilkinson, J., Armstrong, S., McClay, D., Clerke, S., Cook, J., Wano, K., Simons, R., Milgate, G., Bramich, M. & Australian Council for Educational Research (2011). *Evaluation of the Sporting Chance Program*. Access at: [http://research.acer.edu.au/policy\\_analysis\\_misc/14](http://research.acer.edu.au/policy_analysis_misc/14)

- Mincer, J. (1958) Investment in human capital and personal income distribution. *Journal of Political Economy*. 66 (4), 281–302.
- Ministerial Council on Education, Employment, Training and Youth Affairs (2008) *Melbourne Declaration on Educational Goals for Young Australians*. Ministerial Council on Education, Employment, Training and Youth Affairs: Melbourne
- Noble, T., Wyatt, T., McGrath, H., Roffey, S. and Rowling, L. (2008) *Scoping Study into Approaches to Student Wellbeing: Final Report*. Brisbane, Qld.: Australian Catholic University and Erebus International. Accessed 14 August 2016: <https://docs.education.gov.au/documents/scoping-study-approaches-student-wellbeing-final-report>
- Osbourne, K., Baum, F. & Brown, L. (2013) *What Works?: A Review of Actions Addressing the Social and Economic Determinants of Indigenous Health*. Closing the Gap Clearinghouse.
- Purdie, N. & Buckley, S. (2010) *School Attendance and Retention of Indigenous Australian Students. Issues Paper No. 1*. Australian Institute of Health and Welfare. GPO Box 570, Canberra, ACT 2601, Australia.
- PwC (2015) *A high price to pay: The economic case for preventing violence against women*. Accessed 15 DECEMBER 2016: <http://www.pwc.com.au/publications/economic-case-preventing-violence-against-women.html>
- Ross, C. E. & Wu, C. L. (1995) The links between education and health. *American sociological review*, 719-745.
- Rumberger, R.W. & Thomas, S.L. (2000) The distribution of dropout and turnover rates among urban and suburban high schools. *Sociology of Education*, 73, 39-67.
- Schultz, T. W. (1961) Investment in human capital. *American Economic Review*, 1-17.
- Silles, M. A. (2009) The causal effect of education on health: Evidence from the United Kingdom. *Economics of Education review*, 28(1) 122-128.
- Smith, R.G, Jorna, P, Sweeney, J. & Fuller, G. (2014) *Counting the costs of crime in Australia: A 2011 estimate*. Australian Institute of Criminology.
- Taylor, L. and Parsons, J. (2011) Improving student engagement. *Current issues in education*, 14(1).
- Teachman, J.D., Paasch, K. & Carver, K. (1996) School capital and dropping out of school. *Journal of Marriage and the Family*. 58, 773-783.
- Traag T. & van der Velden, R. K. W. (2011) Early school-leaving in the Netherlands: The role of family resources, school composition and background characteristics in early school-leaving in lower secondary education. *Irish Educational Studies*, 30, 45-62.
- Watson, L. (2003) *What Do TAFE Students Pay?: A Review of Charging Policies in Australian Vocational Education and Training*. NCVER.
- Weatherburn, D., Snowball, L. & Hunter, B. H. (2006) *Economic and Social Factors Underpinning Indigenous Contact with the Justice System: Results from the 2002 NATSISS Survey*. BOCSAR NSW Crime and Justice Bulletins, 16.
- Weatherburn, D. (2014) *Arresting Incarceration: Pathways out of Indigenous Imprisonment*. Canberra: Aboriginal Studies Press.