Catch 22
University of Cambridge
Manuel Eisner

Education
Endowment
Foundation

Evaluation Summary	
Age range	Secondary (Years 9 & 10)
Number of pupils	c. 800
Number of schools	c. 40
Design	Cluster randomised control trial with school-level randomisation.
Primary Outcome	Behaviour change, communication skills & educational outcomes.

Project partners:

UNIVERSITY OF CAMBRIDGE   catch 22

Project funded by:

European Commission

With support from:

SUPPORTED BY
MAYOR OF LONDON

Evaluating an Intervention for Pupils Excluded from School: A cluster randomised controlled trial to reduce delinquency and improve educational and occupational attainments

London Education and Inclusion Project (LEIP)

BACKGROUND

Significance: In 2010/11 about 6.5% of pupils in England who were in the last two years of compulsory education (years 10 and 11) experienced one or more fixed period school exclusions for disciplinary reasons and there are between 250-300,000 fixed period exclusions every year in England and Wales (Department for Education, 2011). Excluded pupils are at a greatly increased risk of failing GCSE examinations, not being in employment, education or training (NEET) at ages 16-24, and having criminal convictions as adolescents or young adults. To date, little or no research has been conducted on programmes designed to improve outcomes for those at risk for fixed period exclusions. Similarly, there is very little research on the effects of school disciplinary procedures, such as fixed period exclusions, on outcomes for young people. To fill these gaps, the current study is a randomised control field experiment designed to evaluate the effectiveness of a new intervention for Year 9 and 10 pupils at high risk for fixed-term exclusion ('suspension') from school during the 2013/14 academic year in select schools in Greater London. The project will chart the short-, medium and long-term impacts of the intervention on the participants, as well as track the participants via administrative records over time.

Intervention: Catch22's intervention targets a number of core risk factors including poor academic skills, behaviour problems, dysfunctional family environment, with a focus on improving language and communication skills in order to ameliorate these risks. The treatment will be delivered across two terms in the 2013/14 academic year. The intervention will be delivered over 16 weeks, 12 weeks of which will be delivered via a group intervention (10 pupils per group) alongside one-to-one mentoring and language and communication therapy subcontracted to ICAN (www.ican.org.uk). The

first treatment cycle will start in October 2013 and end in February 2014; the second will start in February 2014 and end in May 2014. Baseline teacher reports will be collected in June/July 2013 prior to randomisation. Baseline youth-self reports will be collected in September 2013 and the post-treatment youth self reports and teacher reports will be collected at the end of the two treatment cycles, in May/June 2014

RESEARCH QUESTIONS

This project has several research questions relating to the different outcomes being assessed. Does the intervention affect the:

1. Behaviour of participants in terms of officially recorded truancy, temporary and/or permanent exclusions?
2. Self- or teacher-reported disruptive behaviour of participants?
3. Educational attainment of participants in terms of GCSE or other formal tests (e.g. SATs)?
4. Language skills of participants in terms of their expressive and/or receptive communication skills?
5. Self-reported and officially recorded delinquent and/or criminal behaviour of participants?
6. Likelihood of being Not in Education Employment or Training (NEET) once the children complete compulsory schooling?

DESIGN AND METHOD

Type of trial: The design is a cluster randomised control trial with randomisation at the school level. The sample will consist of 40 schools which will be randomly allocated into one of the two intervention conditions.

Allocation method: Schools will be stratified prior to being randomly allocated to treatment or control conditions. Stratification will be based on school size, % FSM, % EAL, academy status and the unauthorised absence rate.

In addition to a control group created by random allocation, we anticipate having a second control group of pupils within schools who were deemed 'suitable' for the intervention but who were not able to be included in the intervention because of space limitations.

PARTICIPANTS

School identification and recruitment: In April 2013, all secondary schools in Inner London with a free-meal rate equal to or greater than 28% will be invited to participate in the study (N = 108).[1] This list excludes specialist schools for physical, emotional or behavioural difficulties such as Pupil Referral Units or so-called 'special' schools. Schools will also be ranked according to the proportion of students with English as another language (EAL), special educational needs (SEN) and the unauthorised absence rate (truancy). Schools will be initially approached via letter to participate in the study with this followed up via email and telephone. If initial progress with recruitment is slow

---

[1] This cut-point of 28% was determined by the EEF on the basis of it representing above average levels of deprivation within London.

then to ensure that enough schools/pupils are recruited to ensure minimum statistical power (see section below), a second phase of school recruitment will take place in a small number of Outer London boroughs on the basis of (1) the number of schools in a given borough; and (2) physical proximity to schools already in the study.

Pupil identification and recruitment: Year 9 and 10 pupils at high risk for fixed-term exclusion ('suspension') from school during the 2013/14 academic year in select schools in Greater London. The planned intervention is intended for children in the top 3-5% of a school's Yr 9/10 population in terms of problematic behaviour. Within each school, 16-24 young people (based on school size) at the highest risk for fixed term exclusion in Years 9 and 10 will be selected for participation (8-12 in each year) by the schools. The planned sample size for the study is 350-400 participants in each arm of the trial with a projected total of 750-800 young people. Because the intervention needs to be well targeted, this means we need a reliable indication of problematic behaviour (i.e. good predictors) and a defendable/ reproducible approach to identification. We have pursued a number of options in this respect and the final approach is one where, according to guidelines sent by the research team (available upon request), schools identify between 10-15 pupils per year who are at greatest risk for exclusion, with a view to having groups of a maximum of 12.

Screening, baseline and post-treatment data will be collected tapping a wide range of behavioural and educational outcomes. Data will be collected from three sources – young people self-reports, teacher-reports and official school and government records.

OUTCOME MEASURES

Outcomes are designed to reflect the main domains targeted by the intervention. A multi-informant approach is adopted whereby data will be collected from official records, teachers, and the study participants. We anticipate that the planned intervention will have positive effect on **five** interrelated primary outcomes.

1. Improve social and communication skills as the main proximal mechanism targeted by the intervention

2. reduce behavioural problems, including the likelihood of school exclusions up to the end of compulsory schooling;

3. improve academic outcomes, in particular the number of GCSEs being sat and GCSE exam results;

4. reduce the risk of becoming NEET in the years after compulsory schooling;

5. reduce the risk of arrests and criminal convictions during and after compulsory schooling.

In addition, given the emphasis placed by the intervention programme on communication skills, we expect these to improve regardless of other outcomes. Appendix 1 gives a list of the outcomes and measures. Participants will be followed up for at least two years after the intervention via administrative records in various government agencies (e.g. Ministry of Justice; Department for Education; Department for Work and Pensions), but this falls outside of the remit of this trial.

Blinding: Screening data and baseline teacher reports will be collected in July 2013 prior to end of the 2012/2013 academic year to ensure that the teachers had sufficient exposure to and experience with the pupils to reliably report on their behaviour. This will occur prior to school randomization thus achieving a double blind experimental design for baseline data collection: both the research team and teachers will be blind to whether their school is in the treatment or control condition.

SAMPLE SIZE CALCULATIONS

Sample size calculations were carried out in free online software "Optimal design" to determine the number of participants necessary to detect 'small to medium' effects at a 90% power, based on a block randomized trial with individual level outcome variables and baseline controls. The calculation revealed that in order to detect 'small to medium' effects (d > .30; see Cohen, 1988) in a design with 40 clusters we would need a minimum of 20 participants in each cluster to achieve 90% power. Given an assumed ICC of 0.1 this gives a design effect of 2.9 (i.e., using a formula of 1 + (cluster size – 1 x ICC). This then gives an 'effective' sample size of 800/2.4 = 275. However, our (assumed) pre- and post-test correlation between measures of .60, re-inflates the sample size (SS) by a factor of SS/(1-rsquared), resulting in an effective sample size of 429 in each arm, which would give us about 90% power to show differences in the region of .30 (for further on power calculations in educational research see Hedges (2010)).

ANALYSIS PLAN

To reduce or minimize threats to internal validity, selection bias and post-randomisation biases (see e.g. Shadish, Cook and Campbell, 2002), the trial will be designed, conducted and reported according to CONSORT standards (see Campbell et al., 2012). These consist of a 'quality assurance' checklist for such studies.

BASELINE EQUIVALENCE

In a first step t-tests (or equivalent for proportions) will be calculated to examine differences in all baseline measures, socio-demographic measures, and mediators between the control and the treatment group. Test of equivalence at baseline will take into consideration the clustering of the data. The hypothesis is that if the randomization was successful the outcomes will not differ at baseline.

ATTRITION AND MISSING VALUES

A CONSORT diagram will document the loss of participants between Baseline and Post Assessments. We expect to keep attrition to < 15%.

CLUSTERING

To take into account the clustering of the subjects within schools we will use models that assume correlated errors within each cluster such as multilevel models, or models with cluster-robust standard errors.

MISSING VALUES

Missing values due to attrition or non-response will be imputed. The imputation strategy will depend on the extent of missingness (e.g. what proportion of our data matrix is missing) and the missingness mechanism (e.g. Missing At Random, etc.).

OUTCOME ASSESSMENT

Initial analyses of all outcomes will be conducted on an intention-to-treat basis, i.e. all participants allocated to the treatment and control conditions will be included. We are planning a covariate-controlled assessment of differences in each outcome at baseline, e.g.

$$Y = a * X + b * TG + e, \qquad\qquad (1)$$

where Y is the outcome score for a specific variable, X being the baseline score for the same variable and other relevant baseline measures, and TG being a dichotomous variable for Treatment Group (1 = treatment condition).

Analyses will be conducted on all outcomes listed above. We will conduct two-tailed hypothesis tests against the standard 5% alpha level. As noted above, clustering will be taken into account via multilevel models or cluster-robust standard errors.

SUB-GROUP ANALYSES

Subsequent to the main ITT analyses we are planning a number of subgroup analyses:

- Data will be collected on the implementation process. We will analyse whether higher implementation quality is associated with better treatment effects.
- Research suggests that higher levels of initial problem behaviour are often associated with better effects. We are therefore planning to examine intervention effects by baseline level of behaviour and communication problems.
- Baseline measures will be taken on the children's engagement with the school and the teacher. We hypothesize that children who are more engaged with the school and the teacher will show greater improvements than children who are less engaged.
- We will examine whether the intervention had different effects by year group and sex, although we don't have theory-led hypotheses about sex and age-specific differences in the effects of the intervention.

Furthermore, we plan analyses of mediating mechanisms. More specifically, we will examine whether improvements in communication and social skills mediate effects on more distal behaviour and academic outcomes.

Note: Separate consent forms will be obtained by Catch22 for the young people's participation in the intervention. Informed consents for participation in the study (i.e., evaluation component) will be obtained by the evaluation team and the procedure is described below.

TEACHERS

Baseline teacher reports will be collected from current form tutors in June/July 2013 prior to end of the 2012/2013 academic year. This is to increase the chances that the teachers being asked have sufficient knowledge of the young people participating in the study. In addition, this assessment will occur prior to school randomization thus achieving a double blind experimental design, in which both the administrator of the questionnaire and the teacher will not know whether their school is in the 'treatment intensive' or 'treatment light' condition. Teachers will complete an online assessment with respect to potential participants. This questionnaire will tap the young person's behaviour problems, including rule-breaking behaviours, as well as prosocial behaviours. Further, the questionnaire will tap disciplinary actions that had been taken with respect to the young person as well as the quality of the teacher-student relationship. Any teacher baseline data relating to young people who will not be included in the study (i.e., any reserve young people) will not be kept beyond the lifetime of the study. Form tutors (note that these may be different teachers than at baseline) will be approached to provide the same information about the young people, one to six months following the completion of treatment. Teachers will be asked to complete an informed consent form.

PARENTS

Following identification of the (average of) 20 young people per school, consent will be sought from parents and young people. After much deliberation with colleagues within the University, as well as teachers, the intervention provider (Catch22) and the Educational Endowment Foundation, we felt that a parental 'opt-out' approach would best fit the study design, the target group of young people and is in keeping with how schools routinely approach the provision of additional support. These letters will be prepared by the research team but amended/sent by the schools themselves and signed by the Headteacher or other school representative. Parents will be given one week to advise the research team by contacting the school (either by post or phone) and indicating that they wish to opt out of the study.

YOUNG PEOPLE

Baseline measurements will be carried out in groups of 10 young people, overseen by between 5-6 trained research assistants (RAs). Prior to completing any questionnaires, participants will be presented with an Information Sheet/Informed Consent Form. The RAs will read out the study information portion of the consent form to the group and make sure that each of them fully understands what is being asked of them.

As we wish to follow up the participants beyond the life of the study as well as linking their questionnaire data to school records, they will be asked to tick separate boxes to consent to linking self-reported data to official records. We will reiterate that we will not be sharing any of this information with the school, their parents, the police or anyone else, that their responses to the questionnaires are confidential, and that all of their information will be anonymised. Once this has been completed and the young people have had the opportunity (or been prompted) to ask questions, they will be asked to confirm their willingness to participate by signing the forms.

ETHICS / CODE OF CONDUCT

 − The project has been approved by the Institute of Criminology ethics review committee (approval letter available upon request).
 − All data for the project will be held in compliance with the Data Protection Act (data sharing agreements available upon request).

Between 20 – 30 research assistants will be recruited following a thorough selection and screening procedure to facilitate the data collection. Following successful Disclosure and Barring Service (DBS) checks, all the research assistants will attend rigorous training on administration of the questionnaires as well as conduct with the young people. A code of conduct will be explained to them, which will describe appropriate behaviour with young people to ensure their safety and welfare.

The code of conduct applies to all on the project team and will cover all of the following key rules:

• Adults may not be alone when having contact with a young person. Wherever the 'two adult rule' cannot be applied, a suitable alternative will be arranged.

• Language or actions which are provocative or inappropriate are not to be used with any participants.

• Not to shame, humiliate, belittle or degrade participants or engage in any form of emotional abuse.

• Disrespectful, abusive, exploitative and discriminatory behaviour is actively discouraged and measures are taken to deal with such incidents.

• Necessity to recognize situations that present risks to the participants and manage them effectively.

• Promotion of a culture of openness, where concerns can be raised and discussed.

RAISING AND REPORTING CONCERNS

Research assistants and other persons intervening on the project have to report any breach of the code of conduct to Prof. Eisner. Prof. Eisner commits to always respond to such reports in a timely, appropriate and effective manner and in a way that ensures that the safety and protection of the young people are paramount. Similarly, if situations arise where a participant's actions cause distress to a member of the research team, or are other inappropriate, they will first be reported to Prof. Eisner and then to the appropriate school representative.

Catch22 will provide regular data on the programme relating to:

- Planned interventions.
- Compliance with the intervention (e.g. attendance, dropout, disruption etc.).
- Any problems with maintaining fidelity.
- Any deviations from what was planned with documented explanations.
- Completion.

PERSONNEL

This is the research component of a collaborative project between the Greater London Authority (GLA), the Education Endowment Foundation (EEF; educationendowmentfoundation.org.uk) and the University of Cambridge. The GLA is responsible for the governance of the project and reporting to the European Commission (EC), which provided funding for the research component of this project; the EEF finances the intervention component and the research team at the University of Cambridge is responsible for the development of the research design, the data collection, the data analysis and dissemination of findings via a conference organized at the end of the second year, as well as via journal publications and presentations at conferences.

Research team roles and responsibilities

Personnel	Role	Responsibilities
Prof. Manuel Eisner	Principal Investigator	Overall responsibility for the project
Dr. Ingrid Obsuth	Co-Investigator (100% FTE)	Operational management
Dr. Alex Sutherland	Co-Investigator (30% FTE)	Operational management
Liv Nordby	Research Coordinator	Fieldwork / coordination
TBC	Research Assistant (80% FTE)	Fieldwork / coordination
Sara Valdebenito	PhD student	
x15 TBC	Research Assistant (fieldwork)	Fieldwork

REFERENCES

CAMPBELL, M., PIAGGIO, G., ELBOURNE, D. R. AND ALTMAN, D. G. (2012) 'CONSORT 2010 STATEMENT: EXTENSION TO CLUSTER RANDOMISED TRIALS', *BRITISH MEDICAL JOURNAL*, 345(E5661): 1-21.

Cohen, J. (1988) *Statistical power analysis for the social sciences* (2nd edition). New Jersey: Lawrence Erlbaum Associates.

Department for Education (2011) Permanent and fixed period exclusions from schools and exclusion appeals in England, 2009/10 (Retrieved from http://www.education.gov.uk/rsgateway/DB/SFR/s001016/index.shtml). London: Department for Education.

HEDGES, L. V. AND RHOADS, C. (2010) *Statistical Power Analysis in Education Research*. National Center for Education Research: Institute of Education Sciences. Washington, US Department of Education.

Shadish, W. R., Cook, T. D., and Campbell, D. T. (2002) *Experimental and Quasi-Experimental Designs for Generalized Causal Inference* (2nd edition). Boston: Houghton-Mifflin.

School recruitment: We anticipate that recruitment of schools will pose a significant challenge. Initial recruitment will be conducted by Catch22 in collaboration with Cambridge. We will also hold an information event for interested schools in early June and continue with recruitment after that point. More than 40 schools will be recruited with a view that some will drop out prior to randomisation.

Pupil recruitment: Once schools have returned data sharing paperwork and signalled their willingness to participate in the study Cambridge will contact them directly to request initial pupil data. According to a set of criteria relating to previous exclusions, instances of truancy and frequency of other disciplinary measures schools will submit lists of students (using UPN rather than student names) who they believe would benefit most from the intervention. To maintain pupil engagement with baseline and follow up assessment we will offer incentives to pupils.

Baseline data collection not completed prior to intervention starting: We will manage this risk by prioritising the scheduling of data collection from the 10 treatment schools and 10 control schools from the first phase of intervention (groups (1) and (2) respectively, followed by the 10 treatment schools and 10 control schools from the second phase of intervention (groups (3) and (4) respectively).

Fieldwork prioritisation

Intervention Phase 1	Intervention Phase 2
(1) 10 Treatment schools	(3) 10 Treatment schools
(2) 10 Control schools	(4) 10 Control schools

Attrition and loss to follow up of schools (school dropout): Clearly setting out the requirements of the project to ensure that schools begin participation knowing what will be involved. Prior to randomisation (late July 2013) we will maintain a reserve list of schools who have expressed interest. Should school dropout occur prior to randomisation then, subject to stratification requirements and the school being able to provide required paperwork/data another school will be substituted. If dropout occurs *after* randomisation but *before* baseline data can be collected then that school will not be replaced and we will rely on the fact that the study has enough statistical power to still detect effects with less than 40 schools (obviously if many schools pull out then these calculations will have to be re-done and an assessment of project viability undertaken). If dropout occurs *after* randomisation *and* after the baseline data have been collected (e.g. pupil consent has been given) then those pupils will be included in requests for long-term administrative data and included in Intention To Treat analyses.

Attrition and loss to follow up of participants: Attrition and loss to follow up are likely with this group of young people given their behavioural problems and risk of exclusion. It is likely that the second round of fieldwork will consist of collecting data from a more widely dispersed study population as pupils move between schools. We will mitigate the risk of attrition because of exclusion by tracking young people during the course of study. If a pupil is excluded then Catch22

will inform the research team and pass on details of the subsequent school so they can be contacted in order for follow ups to take place in situ. In the event that pupils move out of London, then we will attempt to follow up with them via telephone or other media.

Maintaining fidelity (intervention and control): As noted above, Catch22 will provide information on fidelity and compliance which we will assess as the study progresses.

Data protection statement: The University's data protection statement is publically available from: http://www.admin.cam.ac.uk/univ/information/dpa/.

STUDY DOCUMENTS AVAILABLE UPON REQUEST

- Ethics approval letter.
- Letter & information for schools.
- Informed consent: pupil.
- Informed consent: parent.
- Informed consent: teacher.
- Pupil questionnaire (draft).
- Teacher questionnaire.

	Source	Time frames
A) Academic outcomes		
Academic Attainment Test, English, Maths and comprehension	Online academic tests administered in schools	Sept/Oct 2013 (B)
		May/June 2014 (P)
Academic Achievements	School Records	KS3 results (B)
		GCSE results (P)
Attendance	School Records & teacher assessments	Aug 2012-July 2013 (B)
		Oct 2013-July 2013 (P)
B) Interpersonal Skills		
Student Communication Skills	Self-Report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Student Communication Skills	Teacher Assessment	July 2013, past year (B)
		May/June 2014, past 6 months (P)
Student Prosocial Skills	Self-Report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Student Prosocial Skills	Teacher Assessment	July 2013, past year (B)
		May/June 2014, past 6 months (P)
Student-Teacher Relationship	Self-Report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Student-Teacher Relationship	Self-Report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
C) Behaviour Problems		
School Exclusions	School Records	Aug 2012-July 2013 (B)
		Oct 2013-July 2013 (P)
Bullying Perpetration	Self-report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Delinquency	Self-report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Aggression	Self-report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Non-aggressive CD	Self-report	Aug/Sept 2013, past year (B)
		May/June 2014, past 6 months (P)
Aggression	Teacher Assessment	July 2013, past year (B)
		May/June 2014, past 6 months (P)
Non-aggressive CD	Teacher Assessment	July 2013, past year (B)
		May/June 2014, past 6 months (P)