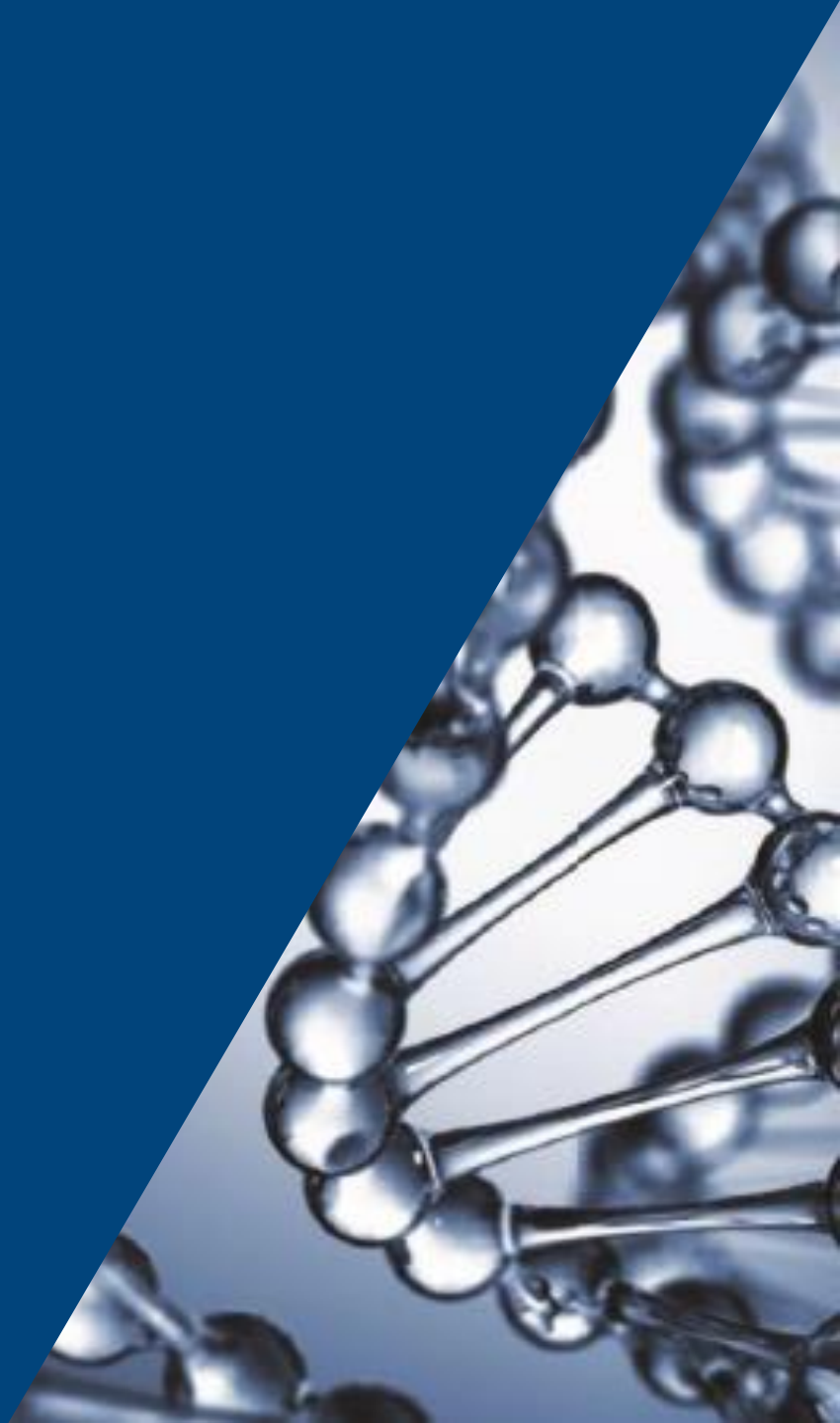


Special needs and risk adjustment: inclusivity versus accountability

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Introduction

- Despite national and international obligations, there is evidence that children with disability experience discriminatory ‘gatekeeping’ behaviour from mainstream schools:
 - 2016 Commonwealth Senate Inquiry into inclusive education
 - 520 out of 745 (70%) Australian families with children with disability reported gatekeeping behaviour (Poed, Cologon and Jackson 2017)
 - 15% of parents of children with disability report difficulties enrolling their child in mainstream schools in Victoria (Jenkin, Spivakovsky, Joseph and Smith 2018)
- Regulation is ineffective in dealing with gatekeeping because it is very difficult to police and prosecute, more effective to address the underlying incentive problem of adverse selection
 - Schools discourage enrolments with a ‘high-cost’ signal to ensure adequate resources to maximise their education outcomes (also called ‘cream skimming’ or ‘dumping’)

Introduction

- To promote inclusivity, governments make ‘risk-adjusted’ payments, or individually-targeted subsidies to cover the extra cost of special needs, based on individual assessment
- How to hold schools accountable for the funding?
 - In the United States and United Kingdom, under *No Child Left Behind* and *Every Child Matters*, students with disability are required to be involved in mainstream national testing
 - May impose an ‘accountability cost’ on school-average test scores, which can have unintended consequence for inclusion
 - Australian model: give principals discretion to exempt students from national testing on the basis of having a ‘significant’ disability, with parental consent
- No evidence to date on how principals use such discretionary powers
 - Concern is that it may be used to systematically exempt students who are funded, regardless of their ability to sit standardised tests, which may have consequences for accountability

Introduction

- We shed light on this by examining the extent to which principals 'exempt on the funding flag', irrespective of observed student capabilities
- We also estimate the impact that exempting students has on school accountability measures, school-average test scores and school rank
- Estimate models of initial (year 3) NAPLAN participation in Victoria and NAPLAN achievement on population of students with teacher-identified disability in prep (AEDC), with rhs variables:
 - Receipt of individually-targeted disability funding under the Program for Students with Disability (PSD)
 - Controls for teacher-assessed student capabilities (AEDC), school-level factors (NAPLAN) and student socio-economic variables (NAPLAN)
 - Common support is possible because not all eligible students are funded

Program for Students with Disability (PSD)

- In Victoria, individually targeted payments are available to meet the extra cost of providing for individual special needs, known as the Program of Support for Disability (PSD)
 - Seven categories: ADHD, hearing, vision, intellectual, physical, severe behavioural, severe language
 - Medium-high student needs based on a medical assessment of diagnostic criteria, rather than need, undertaking prior to school commencement
 - E.g. a criterion for funding under intellectual disability is an IQ of 70 or below
 - 6 levels of funding, based on assessed need: \$6095 p.a. (level 1) - \$46,519 p.a. (level 6)
 - Safe to say, not everyone who could meet the criteria is funded
 - Based on agreement between principal and parents
 - Costly process

Data

- Base sample is mainstream Victorian public school students in the 2012 Australian Early Childhood Development Census (AEDC)
 - Triennial teacher responses to >100 questions on each child's development in prep (May-July)
 - Answers combined to produce indices in 5 domains: physical, **emotional, social, language and cognition** and communication and general knowledge
 - Includes teacher assessments of disability, based on an observed condition that limits student's ability to do school work in a regular classroom
 - Student-level AEDC data is not made available to the school
- Linked to the AEDC 2012 at the individual level is:
 - Year 3 NAPLAN data (from 2015 and 2016), including test scores and participation status
 - PSD receipt, funding type and funding levels for 2012 and 2015 provided by Victorian Department of Education and Training

Sample

AEDC 2012 disability status	Sample for analysis		Omitted from the sample				
			Targeted PSD recipients				
	AEDC disability, PSD funding prep-year 3	AEDC disability, No funding	Level 5-6 funded	Lost funding in 2015	Gained funding in 2015	No disability 2012	Total
No disability	0	0	0	6	165	35,822	35,993
Physical	14	111	2	3	3	0	133
Visual	4	679	0	0	8	0	691
Hearing	13	156	0	0	5	0	174
Speech	7	2,210	0	4	60	0	2,281
Emotional/ behavioural	40	1,062	0	3	81	0	1,186
Learning impairment	75	181	0	10	30	0	296
Multiple impairment							
With learning impairment	383	446	10	34	137	0	1,010
Without learning impairment	57	502	0	7	52	0	618
Total	593	5,347	12	67	541	35,822	42,382

Descriptive statistics

	Has a disability, PSD continuous receipt prep-year 3	Has a disability, no PSD receipt
<i>Outcomes in Year 3 NAPLAN</i>		
Sat year 3 NAPLAN reading test	34%	89%
Attained at least national minimum standards (270)	32%	83%
Did not attain national minimum standards	2%	6%
Principal exemption	47%	1%
Withdrawn by parent	14%	6%
Absent	5%	4%
<i>AEDC Prep student capabilities and impairments</i>		
AEDC language and cognition national index		
Vulnerable (0-10th percentile)	46%	16%
At risk (11-25th percentile)	24%	22%
On track (26-50th percentile)	18%	27%
On track (50-100th percentile)	12%	35%
Count	593	5347

Descriptive statistics

	Has a disability, PSD continuous receipt prep-year 3	Has a disability, no PSD receipt
<i>AEDC Prep impairment/condition</i>		
Physical	2%	2%
Visual	1%	13%
Hearing	2%	3%
Speech	1%	41%
Emotional/behavioural	7%	20%
Learning impairment	13%	3%
Multiple, <i>with</i> learning impairment	65%	8%
Multiple, <i>without</i> learning impairment	10%	9%
Count	593	5347

Descriptive statistics

	Has a disability, PSD continuous receipt prep-year 3	Has a disability, no PSD receipt
<i>School characteristics</i>		
<i>AEDC share of school prep peer cohort with disability</i>		
0-25%	74%	70%
26-50%	24%	28%
51-75%	2%	1%
More than 75%	1%	0%
<i>AEDC share of school prep peer cohort with disability who receive PSD</i>		
0-25%	58%	92%
26-50%	35%	7%
51-75%	2%	0%
More than 75%	6%	0%
Count	593	5347

Descriptive statistics

	Has a disability, PSD continuous receipt prep-year 3	Has a disability, no PSD receipt
<i>AEDC school cohort size</i>		
Less than 30 entrants	23%	19%
31-60 entrants	33%	31%
61-80	18%	19%
81-100	11%	12%
More than 100 entrants	15%	19%
Count	593	5347

Descriptive statistics

	Has a disability, PSD continuous receipt prep-year 3	Has a disability, no PSD receipt
<i>Student socio-economic background</i>		
<i>Mother's highest education qualification (NAPLAN)</i>		
Less than Year 12	27%	24%
Year 12	12%	13%
VET qualification	24%	28%
Diploma/Advanced Diploma	13%	12%
Degree or higher qualification	24%	23%
<i>AEDC non-English speaking background</i>	20%	13%
<i>AEDC Aboriginal or Torres Strait Islander (ATSI)</i>	4%	3%
<i>AEDC female</i>	26%	35%
<i>AEDC indicator for lives in Melbourne</i>	69%	67%
Count	593	5347

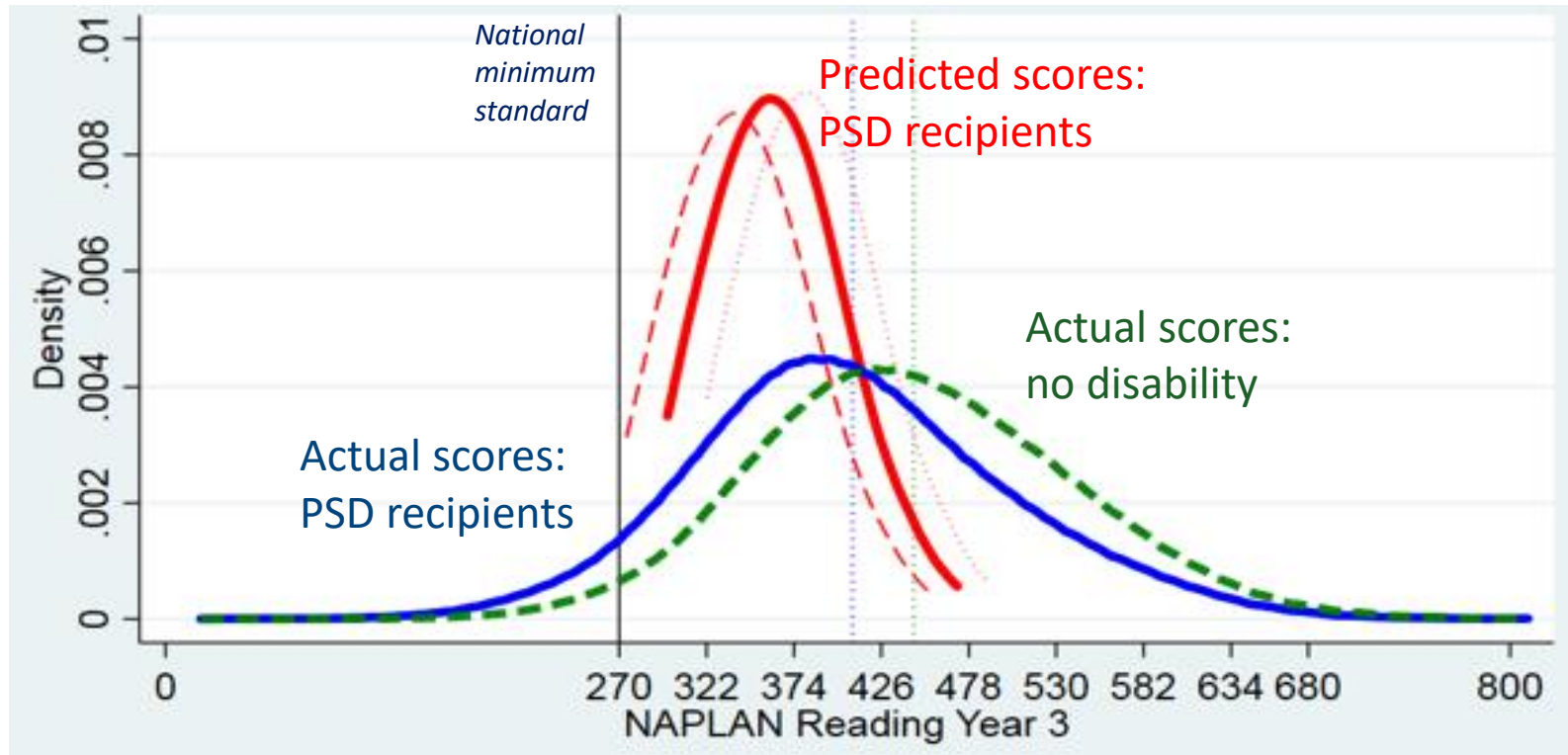
Probit marginal effects of NAPLAN participation

	Marginal effects	Standard errors
Standard		
PSD receipt prep-year 3	-0.280***	(0.029)
PSD funded condition		
Autism spectrum disorder	-0.254***	(0.037)
Hearing	-0.093*	(0.053)
Intellectual disability	-0.364***	(0.041)
Physical disability	-0.275***	(0.093)
Severe behavioural disorder	-0.256***	(0.071)
Severe language disorder	-0.182	(0.117)
Visual impairment	-0.503**	(0.236)
Level of PSD funding		
Level 1-2 prep-year 3	-0.227***	(0.034)
Level 3-4 prep-year 3	-0.338***	(0.035)

Probit marginal effects of NAPLAN participation

	With and without extra AEDC controls for student capabilities			
	Language and cognitive (standard)		Language and cognitive, social & emotional	
PSD receipt prep-year 3	-0.280***	(0.029)	-0.274***	(0.029)
Language and cognitive skills				
At risk (11-25pc)	0.124***	(0.016)	0.109***	(0.016)
On track (26-50pc)	0.176***	(0.016)	0.153***	(0.018)
On track (51-100pc)	0.234***	(0.017)	0.204***	(0.019)
Emotional development				
At risk (11-25pc)	-		0.028**	(0.014)
On track (26-50pc)	-		0.035**	(0.016)
On track (51-100pc)	-		0.042***	(0.018)
Social development				
At risk (11-25pc)	-		0.008	(0.013)
On track (26-50pc)	-		0.002	(0.017)
On track (51-100pc)	-		0.027	(0.020)

Predicted & actual year 3 NAPLAN results



Predictions are 'out of sample' fitted values using univariate OLS NAPLAN model results.

Estimated school impacts of PSD non-participation

Quintile rank of school-average year 3 NAPLAN reading participant scores	School NAPLAN reading measure	Marginal effect per PSD exemption	s.e.
Lowest quintile (N=335)	Rank within quintile	3.35***	(0.404)
	Score (mean 423)	0.526***	(0.063)
Second quintile (N=193)	Rank within quintile	12.026***	(0.936)
	Score (mean 434)	1.165***	(0.082)
Third quintile (N=214)	Rank within quintile	11.728***	(1.176)
	Score (mean 441)	1.252***	(0.105)
Fourth quintile (N=206)	Rank within quintile	14.131***	(1.063)
	Score (mean 450)	1.438***	(0.090)
Highest quintile (N=192)	Rank within quintile	7.665***	(1.232)
	Score (mean 459)	1.527***	(0.147)
Total (N=1140)	Rank	8.166***	(0.408)
	Score (mean 440)	0.979***	(0.041)

Change in school-level NAPLAN scores from including year 3 NAPLAN predicted values for non-participants with PSD regressed on number of PSD exemptions.

Conclusions

- Given discretion, principals heavily exclude students with disability from initial testing based on the flag of individually-targeted funding
 - Precautionary approach without information on student disability and capabilities
 - Strategic decision to alleviate impacts of enrolment on measures of school accountability
 - Appears to be greatest incentive for middle-achieving schools
 - On average, those excluded are capable of attaining minimum NAPLAN standards
- Implications for accountability
 - No ‘reference point’ information to hold schools accountable for the effective use of targeted disability funding, which may have implications for quality of special education
 - School-average measures of NAPLAN reported on *MySchool* can be affected in a non-trivial way

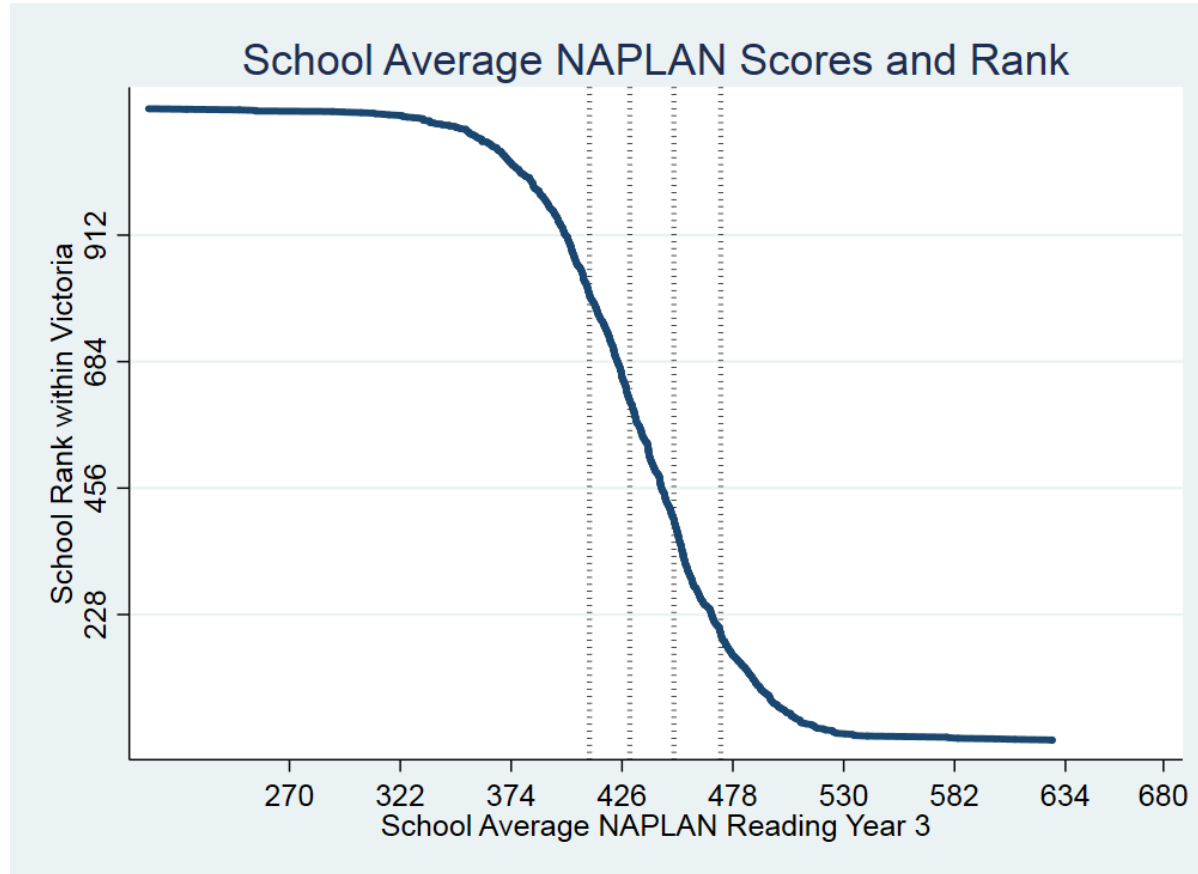
Conclusions

- Possible incremental reform:
 - 1. Remove scores of funded students from the calculation of school-average scores for *MySchool*
 - Lessens any accountability cost of enrolment
 - Incentivises schools to initiate assessments for funding
 - 2. Review principal response
 - 3. If no response, introduce extra requirement for principal exemption: use of alternative standardised and 'condition appropriate' assessment tools
 - Imposes a cost on exemption and incentivises principals to evaluate the appropriateness of NAPLAN versus other accountability measures

School exemption rates by NAPLAN year 3 rank

Quintile rank of school-average year 3 NAPLAN participant scores	Participation rate	Maximum no.
Lowest quintile	54%	5
Second quintile	32%	3
Third quintile	33%	3
Fourth quintile	33%	3
Highest quintile	18%	2
Total (N=1140)	34%	5

NAPLAN year 3 rank by school-average score



Alternative treatment of PSD receipt

	Marginal effects	Standard errors
Standard		
PSD receipt prep-year 3	-0.280***	(0.029)
Continuity of funding		
Continuous funding rep-year 3	-0.308***	(0.028)
Lost status prep-year 3	-0.135**	(0.051)
Gained status prep-year 3	-0.354***	(0.028)
Level of funding		
Level 1-2 prep-year 3	-0.227***	(0.034)
Level 3-4 prep-year 3	-0.338***	(0.035)
Excluding withdrawn and absent		
PSD receipt prep-year 3	-0.224***	(0.032)

Probit model of attaining national min. stds.

	Heckman selection			Univariate
	Marginal effects	Coefficient	Marginal effects	Marginal effects
PSD receipt prep-year 3	0.418*	-1.176***	0.035***	0.022
	(0.217)	(0.088)	(0.013)	(0.014)
Leave-out own, school mean disability exemption rate (1)	--	-0.523***	--	--
		(0.055)		
Leave-out own, school mean disability withdrawn rate (2)	--	-0.486***	--	--
		(0.045)		
(1) x (2)	--	0.244***	--	--
		(0.038)		
School mean non-disability withdrawn rate (3)	--	(0.118)	--	--
		(0.077)		
(2) x (3)	--	0.174***	--	--
		(0.058)		
Constant	1.585***	1.178***		--
	(0.201)	(0.128)		
Rho	-0.283	[0.11]		

School choice and accountability in Victoria

- Highly liberalised school education market
 - High degree of school choice, including from Catholic and independent schools
 - Public schools have high levels of fiscal autonomy
- School achievement in NAPLAN is central to school accountability
 - School choice is supported by reporting of school-average NAPLAN scores in *MySchool*
 - Declining public-school enrolments can lead to school closure or merger
 - School-average NAPLAN scores are part of a suite of indicators used for regulatory oversight
- Everyone is expected to participate in NAPLAN, but:
 - Principals may exempt students with disability & new NE migrants, with consent from parents
 - Parents can withdraw children on philosophical or religious grounds

Introduction

- National and international obligations to provide inclusive and high quality education ‘for all’ in mainstream education
 - UN General Assembly 2030 Agenda for Sustainable Development
 - UN Convention on the Rights of Persons with Disabilities
 - National anti-discrimination legislation, e.g. *Disability Discrimination Act 1992*
- Mainstream education is also recognised as being best for children with disability
 - For children with disability, this means equal access to quality education in mainstream schools (Cologon 2013; Hehir et al. 2016; Forlin et al. 2013; Mitchell 2014)