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The Impact of a Short Test-Wiseness Intervention on Standardised Numeracy Assessment Scores: A Cautionary Tale about Using NAPLAN Growth Data to Evaluate Primary Schools

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Abstract

Building on the rich tradition of 'teacher as researcher' in mathematics education, I describe a study undertaken whilst working as a mathematics specialist in an Australian primary school. The focus of the study was on examining whether explicitly teaching students test-taking strategies ('test-wiseness') improved their performance on a standardised numeracy assessment; specifically, a practice version of the Year 3 National Assessment Program – Literacy and Numeracy (NAPLAN). The study was unusual for teacher-research in that it adopted an experimental design. Thirty-eight Year 2 students (7 and 8 year olds) were randomly allocated to either an intervention condition (n=19) focused on developing test wiseness, or a 'business as usual' control condition (n=19). It was found that exposure to test-taking strategies improved student numeracy performance, with the intervention group significantly out-performing the control group. Implications of the findings are discussed, with a particular focus on what they mean in an environment where schools are increasingly held to account through the use of 'value-add' metrics.

Keywords: Standardised assessment; Test wiseness; Test preparation; Mathematics education; Primary education; NAPLAN.

Introduction

Background Literature

The Australian National Assessment Program – Literacy and Numeracy (NAPLAN) was implemented in 2008. Across all Australian schools, all students in Year 3, Year 5, Year 7 and Year 9 are expected to sit assessments relating to both literacy and numeracy. According to the Australian Curriculum, Assessment and Reporting Authority (ACARA) who have been responsible for developing and administering the assessment, the primary goal of NAPLAN is to assess whether students have the foundational skills and knowledge to facilitate "their productive and rewarding participation in the community" (ACARA, nd-a). In addition, ACARA (2011) note that NAPLAN data can be used, along with other tools, to assess student performance and "identify any areas of need requiring assistance". Finally, ACARA (nd-a) also suggest that

NAPLAN data can support evaluations at the systems level, and support comparisons across jurisdictions.

The NAPLAN assessment, and equivalent assessments in other jurisdictions, remain a topic of some controversy. For instance, It has been suggested that when a national, standardised assessment such as NAPLAN is perceived by teachers and schools as 'high stakes', it can negatively impact the student learning experience (Polesel, Rice & Dulfer, 2014). Such negative impacts are argued to be driven by its influence on both the instructional content delivered and the pedagogical approaches adopted, with teachers often led to act in ways inconsistent with their own professional judgement (Mathison & Freeman, 2003). Specifically, it is thought that high stakes testing can lead to a narrowing of the curriculum with a pre-occupation with those subject areas reflected in such assessments, and a neglect of other subjects. In practice, this generally means that so-called core subjects, such as English, mathematics and science, receive an increasing percentage of instructional time at the expense of, for example, arts education (Sabol, 2010; Thompson, 2012). In addition, many commentators have argued that high-stakes testing can lead teachers to reject student-centred pedagogies that support deep comprehension and knowledge application in favour of more didactic, dogmatic teaching methods focused on knowledge transmission (Au, 2008; Cunningham & Sanzo, 2002).

Although NAPLAN is in no direct sense 'high stakes' for students (although it may be perceived that way by students themselves – see Howell, 2017), the same cannot necessarily be said for principals and teachers. For example, it has been argued that the publication of school results through the website, *My School,* and the fact that the media have subsequently used this information to construct league tables of high and low performing schools, has increased pressure on schools to focus on raising NAPLAN results (Lobascher, 2011). Although fears that

parents will use this data as a primary factor in determining which school to send their children to appear largely unfounded (Rowe & Windle, 2012), there is data to suggest that almost half (46%) of teachers agree that NAPLAN serves as a "means of helping parents choose schools" (Polesel et al., 2014, p. 650). Moreover, it is clear that NAPLAN data is a primary source of information used by education departments for informing, and structuring, school review processes (Owen, 2018).

Given the controversy surrounding NAPLAN, it is not surprising that the extent to which teachers should prepare students for the NAPLAN assessment has also been subject to heated debate. Two issues that warrant separate consideration are *teaching to the test*, and preparing students for standardised assessments through explicitly attending to students' *test-wiseness*.

Although the notion of teaching to the test appears inherently negative and undermining of teacher autonomy, the extent to which teaching to the test is viewed as problematic by teachers is perhaps contingent on whether the test is measuring valued learning outcomes (Mathison & Freeman, 2003). However, there is certainly evidence that teachers do indeed feel pressure to 'teach to the test'. For example, Polesel et al., (2014) survey of AEU members found that almost three-quarters of teachers agreed or strongly agreed with the statement that "NAPLAN means I teach more to the test".

However, independently of teaching to the test there is a need for teachers to consider teaching students *how to take a test*. The need to apply appropriate test-taking strategies, what might be referred to as test-wiseness (Sarnacki, 1979), ensures that students are able to effectively demonstrate their knowledge of the material being tested. Test-wiseness has been defined in the literature "as a test-taker's capacity to utilize characteristics and formats of the test to receive a high score" (Peng, Hong & Mason, 2014, p. 368). Some skills grouped under the

umbrella term *test-wiseness* include: disregarding/ eliminating implausible answers/ alternatives; ensuring that you do not leave a question blank, and guessing if you are unsure; taking advantage of any hints provided in a question/ assessment; checking that you have not made any errors; and test time-management (Peng et al., 2014).

It is well established that explicitly teaching test-taking strategies positively affects test performance (Beidel, Turner, & Taylor-Ferreira, 1999; Kretlow, Lo, White, & Jordan, 2008; Lam, 2013; Samson, 1985). Given these consistent findings, it has been recommended, in the interest of fairness, that students in early secondary school be given access to test-wiseness training as part of their school instruction (Rogers & Yang, 1996). However, other authors continue to query the value of teaching test-taking skills. For example, Kettler, Braden, & Beddow (2011) argue that "while spending 15–20 min once per year teaching test-taking skills is not likely to cause concern, including isolated instruction on test-taking skills repeatedly in one's lesson plan at the expense of grade-level content is not an appropriate strategy" (p. 158).

Rationale for the Current Study

Despite the fact that there is quite an extensive literature on the efficacy of developing test-wiseness, I determined that it was pre-mature to decide to introduce a program to teach test-taking skills to Year 2 students at my school in preparation for NAPLAN the following year, without first undertaking some further research of my own. There were three reasons for this decision. First, the vast majority of research into test-wiseness has involved older children, young people or adults, and there is less research into the effect of test-wiseness in the early years of schooling. Secondly, I could not locate any studies specifically looking at test-wiseness in a NAPLAN context. Moreover, beyond supporting students to become familiar with the NAPLAN process, ACARA, as the developer and administrator of NAPLAN, does not make any

mention of the value in developing test-wiseness. On the contrary, ACARA (nd-b) states: "ACARA would like to emphasise that we do not believe in the value of excessive preparation for NAPLAN beyond teaching the Australian Curriculum and familiarising students with the NAPLAN process". Thirdly, there is evidence that more time-intensive test-wiseness interventions (e.g., 9 or more program hours) are substantially more effective (Samson, 1985); however, in my view (and my schools' view), spending upwards of 5% of mathematics instruction time (e.g., 9 or more hours out of approximately 200 hours) dedicated to test-wiseness was neither feasible nor desirable. Consequently, given concerns expressed by some researchers and commentators that a focus on developing test-wiseness can be problematic, not least because it detracts from valuable time that could be spent teaching the curriculum (Kettler et al., 2011), I wanted to be confident that a short test-wiseness intervention would support students in improving their numeracy scores.

From my personal perspective as a mathematics specialist working predominantly with students in the first three years of schooling (Foundation, Year 1, Year 2), I queried the degree to which many of our young students were 'test-wise'. Although I had no interest in orientating the school towards 'teaching to NAPLAN', I was open to the idea that, as teachers, we have an obligation to ensure that student performance on such an assessment is broadly reflective of their underlying mathematical ability. Consequently, I set about developing a short test-wiseness intervention to use with Year 2 students, in preparation for the Year 3 NAPLAN assessment. The purpose of the current study was to explore whether explicit instruction in test-taking strategies, and opportunities both to rehearse these strategies, and to discuss assessment results with peers, positively impacted numeracy scores on a NAPLAN-style assessment for these Year 2 students.

Method

The current study builds on the rich tradition of 'teacher as researcher' in mathematics education (Huillet, 2014), although is relatively unusual for a teacher-researcher study in that it focuses on quantitative data collection methods and adopts an experimental research design (Foong, 2007). At the time of developing and implementing the intervention, I was working at the study school two days per week running a mathematics program that emphasised mental computation strategies. At that stage, I was predominantly working with Foundation, Year 3 and Year 4 students, although was also running a weekly session with the Year 2 students (the study participants).

Participants

Study participants were 38 Year 2 students from a primary school in the outer Melbourne metropolitan area, Victoria, Australia. The school community was neither notably advantaged nor disadvantaged from a socio-economic perspective, with the distribution of relative advantage broadly reflective of the state as a whole. In Victoria, students generally turn 8 years old in Year 2. Students at Year 2 level at the study school had experienced relatively minimal exposure to standardised testing in numeracy prior to the study, particularly testing containing worded problems. Most participants had completed the "I can do maths" assessment at the end of Year 1 (ACER, 2015). Approximately one-quarter of students (24%) had completed the numeracy on-demand assessment in the middle of Year 2 (VCAA, n.d.).

Measures

Numeracy Score

Numeracy score was measured using the Example NAPLAN Test available through the ACARA website (ACARA, 2012). The test contains 35 questions and students are allowed up to

45 minutes to complete the test. On both occasions, the test was administered by teachers at the school in accordance with the guidelines established by ACARA for the actual administration of NAPLAN tests. For example, questions were read to students on request, however the paraphrasing of questions to aid comprehension was avoided (ACARA, 2015).

Procedure

All participants sat the Example NAPLAN test during the last week of Term 3 (n=36), or the first week of Term 4 (n=2). This constituted the pre-program assessment. Participants who completed the test within the allotted time (which was almost all participants) were encouraged to 'check their tests carefully', and then permitted to draw a picture.

During the second week of Term 4, half of the study participants (n=19) were randomly allocated to the test-wiseness intervention condition, and half (n=19) were allocated to the control condition.

The test-wiseness intervention consisted of three 50-minute sessions (once-a-week, for three weeks), primarily focussed around developing basic test-taking skills. Each session was divided into four segments: mini-lesson, practice questions, peer discussion and whole-of-class discussion.

1. Mini-lesson (approx. 10 mins). During the mini-lesson, basic test-taking strategies were discussed. These included:
    a. Ensuring that you do not accidentally skip a page/ questions when taking a test (I relayed a personal anecdote of how I had accidentally skipped several pages of an important test I had taken in Year 6, and how I had been annoyed at myself afterwards, because I knew I would have done better on the test had I been more careful)

b. Ensuring that you 'have-a-go' at every question, and try and never leave a question blank
c. If you are unsure about the answer to a question:
    i. Have a smart guess (Are there any answer options you know are wrong? If so, cross them out. Do any answers look right? See if you can work backwards to check if they are right).
    ii. Draw a picture or diagram to help you (e.g., a picture modelling the problem in the story or a number line).
    iii. Get the teacher to read the question to you.

It is worth noting that several of these suggestions (e.g., make a drawing or diagram, guess and check, work backwards) are well-established, generic, problem-solving strategies (Reys et al., 2012), whilst others are explicitly highlighted in the test-wiseness literature (Peng et al., 2014).

2. Practice-questions (approx. 15 mins). Students undertook several (generally around 10) NAPLAN-style practice questions, sourced from the Queensland Curriculum and Assessment Authority (QCAA, n.d.). These questions were undertaken independently, under test-like conditions.
3. Peer-discussion (approx. 10-15 mins). Students were paired-up, and initially tasked with ensuring that their partner had not skipped over a question or page of questions. Next, students were asked to compare and discuss their answers. They were encouraged to try and explain/ justify their reasoning, with a particular focus on which (if any) of the test-taking strategies that had drawn upon to support them with the question.

4. Whole-of-class discussion (approx. 10-15 mins). Responses to questions were discussed as a class, again with a focus on using some of the test-taking strategies discussed earlier in the session (e.g., working backwards, drawing pictures/ diagrams) to explain/ justify responses.

Year 2 students allocated to the control condition attended mathematics class in their classroom as per usual during the time in which the intervention sessions were taking place, undertaking a unit of work on place value.

All participants sat the Example NAPLAN test again during the fifth week of Term 4 (n=38). This constituted the post-program assessment. Prior to sitting the post-program assessment, the intervention group were given a final mini-lesson (approx. 10 mins) to briefly revisit and reinforce the previously outlined test-taking strategies.

Results

Descriptive Statistics

Figure 1 presents pre-program and post-program numeracy scores for both the control group and the intervention group. It is apparent that numeracy scores improved across both conditions, however students in the testwise intervention condition achieved more dramatic improvements in numeracy scores. Specifically, while the mean score in the control condition improved by 13% (15.2 to 17.2), the corresponding improvement in the intervention condition was 24% (15.5 to 19.2). In order to examine whether the differences between the two groups was statistically significant, some additional analysis was undertaken.

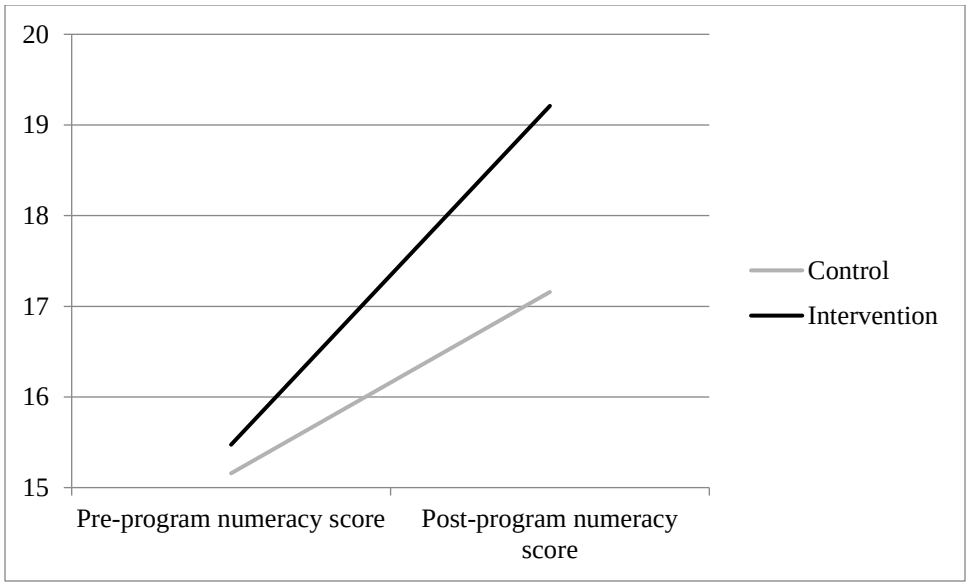

Figure 1. Comparison of pre-program and post-program numeracy scores for control and intervention groups

Main analysis: Evaluation of intervention

A between subjects analysis of covariance (ANCOVA) was performed on participants' post-program numeracy scores. The independent variable consisted of program-type (intervention vs control), with pre-program numeracy score introduced as a covariate. Analyses were performed using IBM SPSS Statistics (version 22). Results of the evaluation of the assumptions of normality of sample distributions, independence, linearity, and homogeneity of regression slopes were satisfactory.

After adjusting for pre-program scores, it was apparent that numeracy scores did vary significantly by program-type, with $F(1, 35) = 5.388$, $p < 0.05$. Specifically, participants in the intervention group achieved higher numeracy scores, compared with participants in the control condition, with a medium-effect size reported ($\eta^2 = 0.13$). The adjusted marginal means for post-program numeracy score are displayed in Table 1.

Table 1. Adjusted marginal mean post-program numeracy score

Program-type	Mean	Std. Error	95% CI Lower Bound	95% CI Upper Bound
Control	17.272	.556	16.143	18.400
Intervention	19.097	.556	17.968	20.225

a. Covariate appearing in the model are evaluated at the following value: Pre-program numeracy score = 15.316

Additional analysis: General practice effect

A repeated-measures t-test was performed to compare control group participants' pre-program and post-program numeracy scores, to examine for the presence of a general practice effect. A difference between pre-program (M=15.16 , SD=5.76) and post-program (M=17.16, SD=4.44) scores was revealed; $t(17)= -3.126$, $p<0.05$, $\eta^2=0.14$, revealing the presence of a practice effect. Although this has been termed a 'practice effect', it needs to be kept in mind that approximately half a school term passed between the two assessment periods, and therefore it is possible that the difference in performance reflects genuine learning that occurred in this period.

Discussion and implications

It appears that participating in a test-wiseness intervention had a positive impact on the numeracy scores for Year 2 students in the current study. This is consistent with previous literature, with the effect size reported here slightly larger than the small effect sizes typically reported for brief test-wiseness interventions (Samson, 1985). This likely reflects the low base level of test-wiseness of the current cohort, who had little previous exposure to standardised assessments.

In addition to the intervention positively impacting test scores, there was evidence for a practice effect. Specifically, students in the control condition significantly improved their performance on the post-assessment condition, without any additional intervention designed to improve numeracy performance. In fact, the effect size for this practice effect ($\eta^2=0.14$) was similar in magnitude to the effect size for the intervention ($\eta^2 = 0.13$), despite students in the

control group receiving only one opportunity to practice. Again, this is consistent with prior research, which has established that opportunities to take practice-tests substantially impacts test performance (even compared with active control conditions, such as re-reading material), and that one practice-test is sufficient for these benefits to be realised (Adesope, Trevisan, & Sundararajan, 2017).

The strengths of the current study were that it was both classroom-based, lending it ecological validity, whilst also adopting an experimental design, where individual students were randomly allocated to the treatment or control group. In addition, the focus on early primary school students (Year 2) was relatively unusual, given that the majority of studies that have examined the impact of test-taking strategies have focussed on older students or adults (e.g., Beidel et al., 1999; Lam, 2013). The major limitation of the study was the small sample size (n=38), meaning that only medium-effect sizes would have been detected as statistically significant. However, given that the drivers of the study were largely pragmatic (i.e., Is a short-term test-wise intervention worthwhile?), this small sample size can be viewed as a check on the practical significance of the findings. From my perspective as a teacher, it is unlikely that anything less than a medium-effect size would justify the intervention in the first instance.

The tentative conclusion of the current study is that test preparation focussed on the mechanics of the assessment makes a difference to student numeracy scores on NAPLAN. Teaching ‘how to take a test’ is an effective means of improving test performance, at least amongst a group of students largely inexperienced in undertaking standardised tests. However, the implications of this conclusion likely depend on your belief in the value, and perhaps permanency, of NAPLAN, and standardised assessments in general. There are at least two different arguments that might be put forward. First, it might be claimed that the current study

suggests that it is not appropriate to use NAPLAN to assess and compare the performance of individual students, teachers, or even schools. The implication is that as students levels of *test-wiseness* are likely to vary considerably across schools and populations of students, the assumption that differences in test scores reflect differences in underlying numeracy performance is problematic.

Alternatively, it might be instead emphasised that undertaking standardised assessments is an inevitable and necessary aspect of schooling, and therefore, that supporting students to develop *test-wiseness* should be a consideration of educators at all levels (Brown, 1982; Crocker, 2005). Indeed, in response to the above concern, it has been argued that developing *test-wiseness* will improve the validity of standardised assessments, and ensure that differences in test performance better reflect differences in underlying skills and knowledge (McPhail, 1981, Crocker, 2005). At the same time, it has also been suggested that relatively disadvantaged groups of students (e.g., low SES background) will benefit most directly from explicit efforts to improve test-wiseness, as these students are less likely to be exposed to these skills incidentally. Consequently, it could be contended that ensuring that all students are taught test-taking skills, and provided with opportunities to undertake practice tests, is necessary on equity grounds.

My own conclusion is that a short, test-wiseness intervention is justifiable from both an equity and efficacy perspective, even for students as young as Year 2. However, recent conversations with a number of principals and school leaders have led me to the conclusion that many might not agree with me, although not necessarily due to ethical concerns around standardised testing. In Victorian primary schools at least, it appears that principals (and, by proxy, teachers) are increasingly held to account for the *growth* in NAPLAN scores between Year 3 and Year 5, rather than the absolute scores themselves. Although other data are considered

alongside this growth measure, it appears that the outcome of many school reviews undertaken by the education department rests substantially on this 'value-add' metric. The current study clearly suggests that education departments becoming preoccupied with such a metric is highly problematic, as it incentivises schools to ensure that students develop test-wiseness *between* Year 3 and Year 5, rather than prior to sitting their Year 3 assessment.

As noted earlier, the advice from ACARA seems to be that explicitly preparing for NAPLAN is unnecessary, beyond "familiarising students with the NAPLAN process" (ACARA, nd-b). However, it appears there might be a need for it to more explicitly address the issue of test preparation. The current study suggests that opportunities to both undertake a practice assessment and receive a short test-wiseness intervention improves NAPLAN numeracy scores by 24% on average. Whether this largely arbitrary gain in student performance, achieved across a total of four 50-minute sessions, is realised in Year 2, or in Year 4, has the potential to change the entire narrative around a school's so-called performance.

One is reminded of the observation that "what gets measured, gets managed". The corollary is that education departments and school review teams in particular need to be extremely cautious before assuming that NAPLAN data can be co-opted into performance targets for schools.

References

ACARA (2012), Year 3 Numeracy: Example Test. Available online at: http://www.nap.edu.au/verve/_resources/Example_Test_Numeracy_Y3.pdf

ACARA (2015), NAPLAN: National protocols for test administration. Available online at: http://www.nap.edu.au/verve/_resources/National_protocols_for_test_administration_2015_-_web_version.PDF

ACARA (2011). My School: Fact Sheet. Available online at: http://docs.acara.edu.au/resources/About__NAPLAN.pdf

ACARA (nd-a). Fact Sheet: Frequently asked questions about the My School website. Available online at: http://docs.acara.edu.au/resources/FAQs.pdf

ACARA (nd-b). Frequently asked questions: NAPLAN – general. Available online at: https://www.nap.edu.au/information/faqs/naplan--general

ACER (2015), I can do maths: Revised reports. Available online at:

https://www.acer.edu.au/documents/ACERPress_ICDM.pdf

Adesope, O. O., Trevisan, D. A., & Sundararajan, N. (2017). Rethinking the use of tests: A meta-analysis of practice testing. *Review of Educational Research, 87*(3), 659-701.

Au, W. (2008). Between education and the economy: High-stakes testing and the contradictory location of the new middle class. *Journal of Education Policy, 23*(5), 501-513.

Beidel, D. C., Turner, S. M., & Taylor-Ferreira, J. C. (1999). Teaching study skills and test-taking strategies to elementary school students: The testbusters program. *Behavior Modification, 23*(4), 630-646.

Brown, D. (1982). Increasing test-wiseness in children. *Elementary School Guidance & Counseling, 16*(3), 180-186.

Crocker, L. (2005). Teaching for the Test: How and Why Test Preparation is Appropriate. In R. P.Phelps (ed.), *Defending Standardized Testing*, Lawrence Erlbaum, Mahwah, NJ, pp. 159-174.

Cunningham, W. G., & Sanzo, T. D. (2002). Is high-stakes testing harming lower socioeconomic status schools?. *NASSP Bulletin, 86*(631), 62-75.

Foong, P. Y. (2007). Teacher as researcher: a review on mathematics education research of Singapore teachers. *The Mathematics Educator, 10*(1), 3-20.

Howell, A. (2017). 'Because then you could never ever get a job!': children's constructions of NAPLAN as high-stakes. *Journal of Education Policy, 32*(5), 564-587.

Huillet, D. (2014). Teacher as Researcher in Mathematics Education. *Encyclopaedia of Mathematics Education* (pp. 582-583): Springer.

Kettler, R. J., Braden, J. P., & Beddow, P. A. (2011). Test-taking skills and their impact on accessibility for all students. In *Handbook of Accessible Achievement Tests for All Students* (pp. 147-159). Springer, New York, NY.

Kretlow, A. G., Lo, Y. Y., White, R. B., & Jordan, L. (2008). Teaching test-taking strategies to improve the academic achievement of students with mild mental disabilities. *Education and Training in Developmental Disabilities*, *43*(3), 397-408.

Lam, R. (2013). Formative use of summative tests: Using test preparation to promote performance and self-regulation. *The Asia-Pacific Education Researcher, 22*(1), 69-78.

Lobascher, S. (2011). What are the potential impacts of high-stakes testing on literacy education in Australia?. *Literacy Learning: The Middle Years, 19*(2), 9.

Mathison, S., & Freeman, M. (2003). Constraining elementary teachers' work: Dilemmas and paradoxes created by state mandated testing. *Education Policy Analysis Archives, 11*(34).

McPhail, I. P. (1981). Why teach test wiseness?. *Journal of Reading, 25*(1), 32-38.

Owen, J. (2018). Whole school evaluation: Approaches used in the public school system in victoria, australia. *Japanese Journal of Evaluation Studies, 18*(2), 3-9.

Peng, Y., Hong, E., & Mason, E. (2014). Motivational and cognitive test-taking strategies and their influence on test performance in mathematics. *Educational Research and Evaluation, 20*(5), 366-385.

Polesel, J., Rice, S., & Dulfer, N. (2014). The impact of high-stakes testing on curriculum and pedagogy: A teacher perspective from Australia. *Journal of Education Policy, 29*(5), 640-657.

QCAA (n.d.). Year 3 numeracy: NAPLAN test preparation. Available online at:

https://www.qcaa.qld.edu.au/Naplan-numeracy-yr3.html

Reys, R., Lindquist, M., Lambdin, D., Smith, N., Rogers, A., Falle, J., Frid, S., & Bennett, S. (2012). *Helping children learn mathematics.(1st Australian Ed.).* Milton, Queensland, Australia: Wiley.

Rogers, W. T., & Yang, P. (1996). Test-wiseness: Its nature and application. *European Journal of Psychological Assessment, 12*(3), 247-259.

Rowe, E. E., & Windle, J. (2012). The Australian middle class and education: A small-scale study of the school choice experience as framed by ‘My School’ within inner city families. *Critical Studies in Education, 53*(2), 137-151.

Sabol, R. (2010). *No Child Left Behind: A Study of its Impact on Art Education.* Lafayette, IN: Purdue University, Indiana National Art Education Foundation.

Samson, G. E. (1985). Effects of training in test-taking skills on achievement test performance: A quantitative synthesis. *The Journal of Educational Research, 78*(5), 261-266.

Sarnacki, R. E. (1979). An examination of test-wiseness in the cognitive test domain. *Review of Educational Research, 49*(2), 252-279.

Thompson, G. 2012. *Effects of NAPLAN Executive Summary*. Murdoch: Murdoch University.

VCAA (n.d.). On demand testing. Available online at:

http://www.vcaa.vic.edu.au/pages/prep10/ondemand/index.aspx