Excellence in Professional Practice Conference 2017

Case studies of practice

Australian Council *for* Educational Research

ACER

CONTENTS

FOREWORD

The Excellence in Professional Practice Conference (EPPC) is now in its fifth year, and is an exciting and vibrant forum for teachers and schools to share the outcomes of their investigative research work into their own practices.

Through events and publications, ACER is keen to support and share ways in which teachers and school leaders work as an 'improvement community' through 'collective leadership'. The focus of an improvement community is on finding solutions to specific problems of practice. The shared activities of the community include understanding starting points; designing possible solutions; monitoring implementation and changes in practice; monitoring student outcomes; and evaluating the effectiveness of new solutions through ongoing, iterative 'improvement research'. To enhance this 'improvement agenda' a new category was introduced to the conference program; the case study of practice. We are pleased we are able to now present in this Case Studies of Practice book the 12 case studies of practice presented as concurrent sessions at EPPC 2017.

The case studies of practice offer educators a unique insight into how individual schools 'self-manage' problems of practice identified in their school context. Through the evidence-based investigations, the case study authors describe successful practice at a particular point in time with a focus on the implications for teaching and learning. The case studies present accounts of school leaders, teachers and at times partner educationalists working together to develop approaches to a particular identified school concern. Methods they employ to solve the issue or concern are discussed with evaluative comments and summaries of the evidence of impact and conclusions. The case studies, although context-specific, provide key messages and offer new insights into successful strategies that can lead to improved outcomes in other settings.

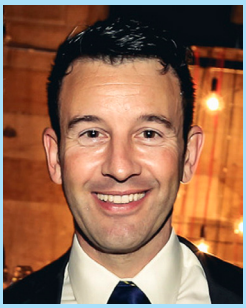
The case studies approach engages the teacher in an evidence-based practice that places them as the 'researcher' within their own school context. The processes and outcomes of case study research creates new systems and developed understandings for teaching and learning. Case study research is a powerful organisation element for schools dealing with the ongoing cycle of school improvement agendas and challenges of the 21st century in light of teachers' increasing role in the development of educational knowledge for today's classroom.

I thank the Case Study authors for their contribution to this book and congratulate them on their continued quest to improve learning in their schools.

Lynda Rosman

ACER Institute
Manager Programs and Projects

TRACKING AND VISUALISING STUDENT EFFORT: A Practical Analytics Tool for Student Engagement



Robin Nagy is currently the Dean of Students at Redlands School, Sydney. Robin has been a practising teacher for over twenty years. He has worked for six years at Cranbrook School, Sydney as a Housemaster and Teacher of Mathematics. Robin has also worked internationally as a Mathematics Teacher and Head of Year at Bangkok Patana International School, Thailand and City of London School, UK. Robin also worked in industry as a Firmware Development Engineer. He served on the Executive of the Mathematics Association of New South Wales for several years and has presented at numerous state and national conferences.

Overview of the context and scope of the study

There is an urgent need for our educational system to shift assessment regimes from a narrow, high-stakes focus on grades, to more holistic definitions that value and nurture the qualities that lifelong learners will need. In the world beyond the classroom, dispositional characteristics such as persistence, resilience, self-discipline and effort are increasingly becoming valued as more reliable indicators of success than academic results alone, and this is supported by current research into these 'non-cognitive' character traits.

This case study describes the development and refinement of a (secondary) school-wide 'Student Effort Tracking' project which seeks to quantify and make visible each student's effort over time and its relationship to academic achievement.

The rationale behind a school-wide focus on 'effort', rather than solely on academic achievement, is to improve intrinsic motivation for learning in all students, by explicitly identifying and recognising the behavioural and learning dispositions which promote growth mindsets and lead to academic development and improvement.

This practical analytics tool has been deployed in successive iterations over seven years, in two Sydney secondary schools. There is strong evidence that it has successfully improved student motivation for learning across all cohorts and has led to high quality, data-driven coaching conversations between students and teachers.

One of the ways in which this data is reported to staff and students is using a dynamic bubble-chart to display student progress over time: https://vimeo.com/168306314

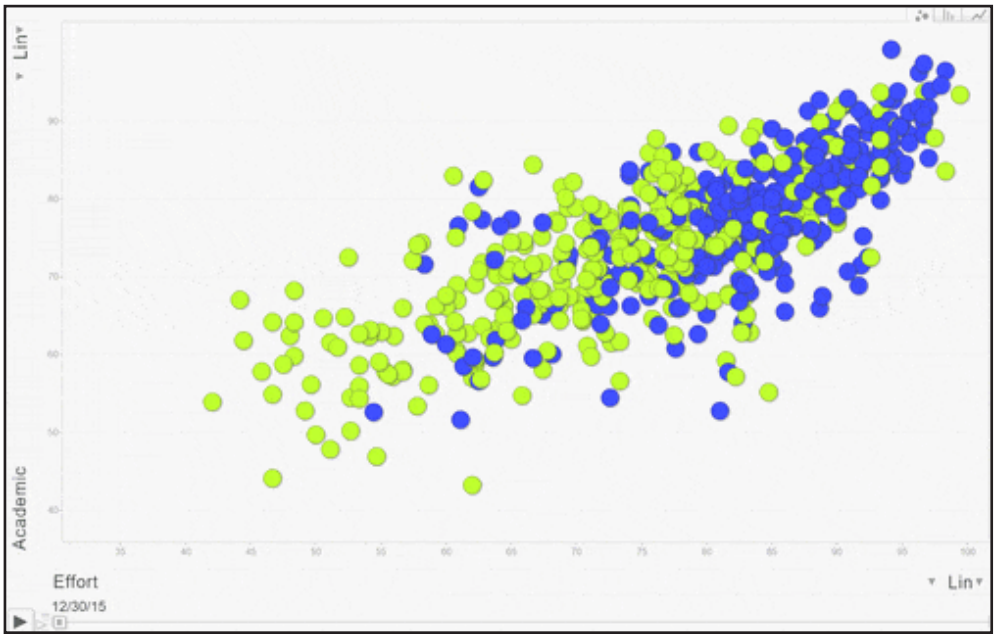


Fig.1 A Still Frame from the Dynamic Bubble-Chart showing Academic Achievement against Effort with boys in green and girls in blue.

Fundamental to ensuring buy-in from all stakeholders, has been agreement of a shared set of expectations and standards for 'effort-grading', including the creation and development of agreed criteria and rubrics. This has been achieved through regular staff and student dialogue and evaluation and refinement of the salient behavioural and learning dispositions which comprise 'student sffort'.

Overview of the data collected and analysed

Currently, at the end of each term, student 'effort' is graded by teachers in three criteria, 'Behaviour', 'Diligence' and 'Engagement' using a five point scale and rubric (see Fig.2). This results in a score from 3 to 15 in each subject.

Effort Tracking Rubric

	5- Outstanding	4- Very Good	3- Good	2- Fair	1- Unsatisfactory
Behaviour	Classroom Conduct and Attitude, Politeness and Respect, Consideration for the Learning of Others				
	Proactively models positive classroom behaviour and attitude at all times, avoids distraction and shows respect and consideration for others. Is polite and courteous at all times.	Consistently demonstrates good behaviour and attitude conducive to learning and avoids distractions in class.	Usually demonstrates a positive attitude in class and is rarely distracted.	Generally shows a positive attitude in class but is sometimes distracted or inconsiderate of the learning of others.	Rarely exhibits conduct and attitude appropriate for a conducive learning environment.
Diligence	Self-discipline, Self-reflection, Independent Motivation, Persistence, Conscientious Application to Classwork and Homework				
	Demonstrates an excellent approach to all activities in class and at home, presenting work to the best of his/her ability at all times and bringing all required equipment to class. Is independently motivated and disciplined and takes pride in the quality of all work produced, frequently exceeding expectations of conscientiousness and persistence.	Completes all work to a high personal standard in a timely manner and fulfils all expectations for coursework. Brings all equipment to class. Demonstrates a self-disciplined approach to all activities and often independently persists when academically challenged.	Usually completes work to a good personal standard, brings equipment to class and demonstrates self-discipline in application to coursework.	Shows some self-discipline in completing most coursework with a reasonable level of application.	Rarely fulfils expectations with regard to self-discipline, conscientiousness and application to coursework.
Engagement	Classroom Focus, Communication (Verbal and Body Language), Personal Presentation and Punctuality, Participation and Contribution in Groups and Class				
	Consistently demonstrates the highest standards of attention and focus in class, contributing where appropriate to group or classroom forums and/or demonstrating active listening skills at all times. Is always punctual and well-presented.	Actively listens to all teacher explanations and instructions and where appropriate, participates in group and class forums. Is punctual and well-presented.	Usually demonstrates good focus in class, listening to teacher instructions and explanations and appropriately participating in group and class forums. Is usually punctual and well-presented.	Is generally well-focused and on-task in class, participating from time to time in group class forums.	Is rarely focused in class and often off-task.

Fig.2 An example of the Effort Tracking Rubric

One important aspect of entering this data is that the whole class is graded on each criteria in turn, to reduce the influence of grading from one criteria to the next for a particular student and to ensure consistency of application of the rubric to each student in the class. Evidence suggests that when a student is graded on multiple criteria at once, the correlation between criteria is much higher. For this reason, effort grading is kept quite separate from academic achievement input.

An overall 'Effort Score' is then created by averaging all these subject grades and scaling to yield a number from 20 to 100. This 'Effort Score' is then tracked against the student's academic achievement from term to term, and presented in the dynamic bubble chart, set (anonymously) against the background of all other students. Importantly, students also grade their own effort using the same approach (without seeing their teachers' grading) and their 'Effort Score' can then be compared to that of their teachers.

Following publication of these effort grades, at the start of each term, teachers have targeted student-led coaching conversations with all students based on their effort scores from the previous term, and students use the 'bubble-chart' and quantitative subject-specific information to set goals for the term ahead within the context of 'Effort'.

Although this rubric continues to be discussed and refined, it is often in the analysis of teacher-student assessment discrepancy that shared expectations are re-aligned. Indeed, there is evidence to suggest that the precise syntax of the rubric has little effect on the distribution of grades and that both teachers and students adopt a 'global impression' approach to their assessment. Nevertheless, the ongoing development of the rubric provides an important process for articulating a set of shared standards and expectations surrounding the learning environment.

Overview of the theoretical, research or methodological approach

The theory and development of this project are set out extensively in a the following peer-reviewed paper which was published in the Journal of Learning Analytics Special Section on Learning Analytics for 21st Century Competencies in September 2016:
https://learning-analytics.info/journals/index.php/JLA/article/view/4954/5621 (Nagy, 2016).

Schools seek to maximise the best possible academic outcomes for their students, but these are usually determined systemically, through assessment via high-stakes summative testing. However, a results-driven success-focus can paradoxically lead to a decline in achievement for some students and a widening of the gap between higher and lower achieving students; this is due to the detrimental effect on student wellbeing and intrinsic motivation for learning (McDonald, 2001; Harlen & Deakin Crick, 2003). Students who lack innate 'academic buoyancy' (Martin, 2010) see their lack of success in academic assessment as evidence to support a fixed mindset; that diligence has no effect on 'smartness' and they lose confidence in their own capacity to learn (Black & Wiliam, 1998; Harlen & Deakin Crick, 2003).

The three criteria of Behaviour, Diligence and Engagement find resonance with recent research suggesting a tripartite taxonomy of character (Park et al, 2017); respectively intrapersonal, intellectual and interpersonal traits, although there is a degree of fluidity and overlap, particularly with the first and third of these factors.

Outcomes of the approach

Over the past 12 months, every cohort has seen an improvement in average Effort grades (see Fig.3) and there is considerable evidence to suggest that the process is making a positive difference to student motivation for learning (see Figs.4 and 5).

Moreover, on several occasions, a dramatic decline in a particular student's effort score has highlighted (sometimes previously unknown) pastoral issues and allowed timely interventions to occur. Comparison of student and teacher grading can often reveal students with perfectionist tendencies as well as those who lack an objective sense of their own character. In these cases, appropriate interventions and targeted coaching conversations can be tailored to suit individual students' needs.

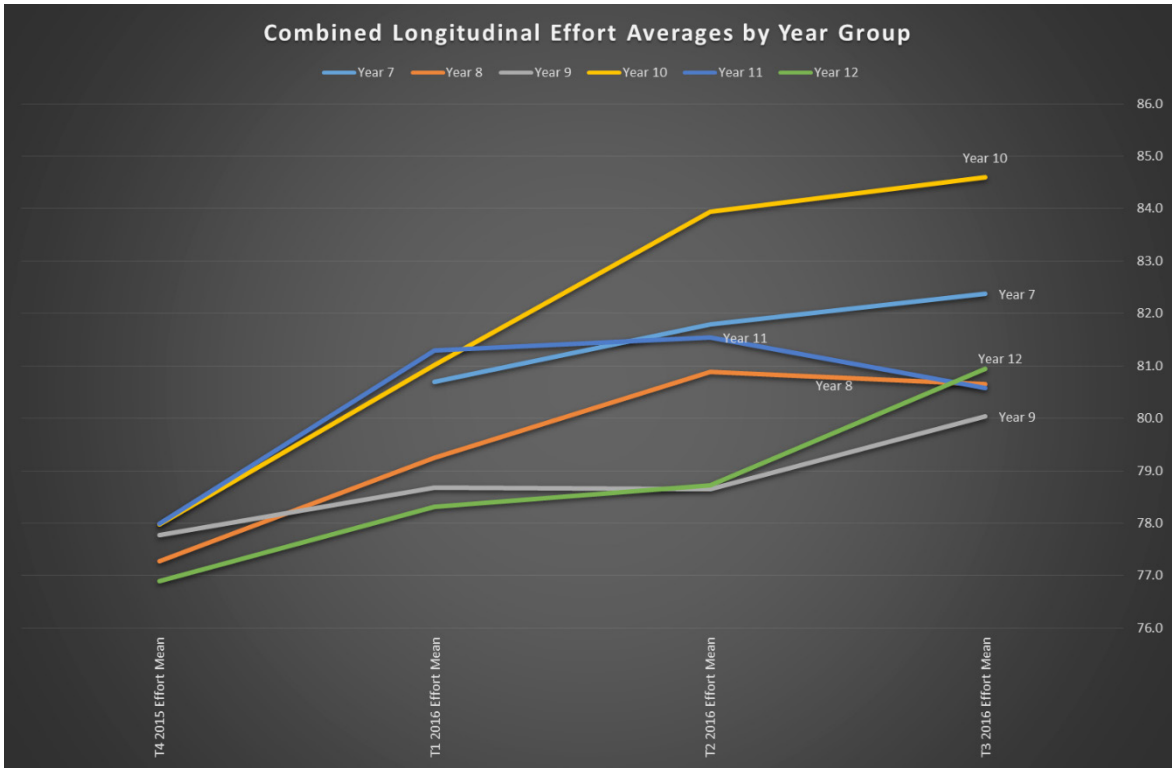


Fig.3. Graph showing average effort score improving in all cohorts over a year

There have been interesting indications that further analysis of boys' and girls' effort grading may yield useful information which could further inform teachers' practices. For instance, in all cohorts, the discrepancy between (teacher assessed) boys' and girls' effort scores is significantly greater than the discrepancy between their respective academic achievement scores. This would suggest that perhaps teachers' classroom expectations are naturally biased towards female behavioural and learning dispositions. Alternatively, it may suggest that girls are more willing to identify and adhere to teacher expectations and/or are more visible in doing so. Reflecting on whether or not our shared expectations of classroom behaviour, diligence and engagement are equally beneficial for both boys' and girls' learning is one important consequence of this analysis.

By focusing on the processes rather than the outcomes of learning, the school's 'success-focus' can be intentionally shifted towards these more nurturing and developmental dispositions under the umbrella term 'Effort'. In this way, all students can see a more immediate indication of 'success' by monitoring progress in their 'Effort Grades'. This promotes the adoption of a growth mindset when viewed in the context of the dynamic bubble chart, where students have visual reinforcement of the positive, but delayed, correlation between effort and academic achievement. In addition, student intrinsic motivation is fostered with a positive effect not only on academic achievement and student wellbeing, but on lifelong-learning traits and character development.

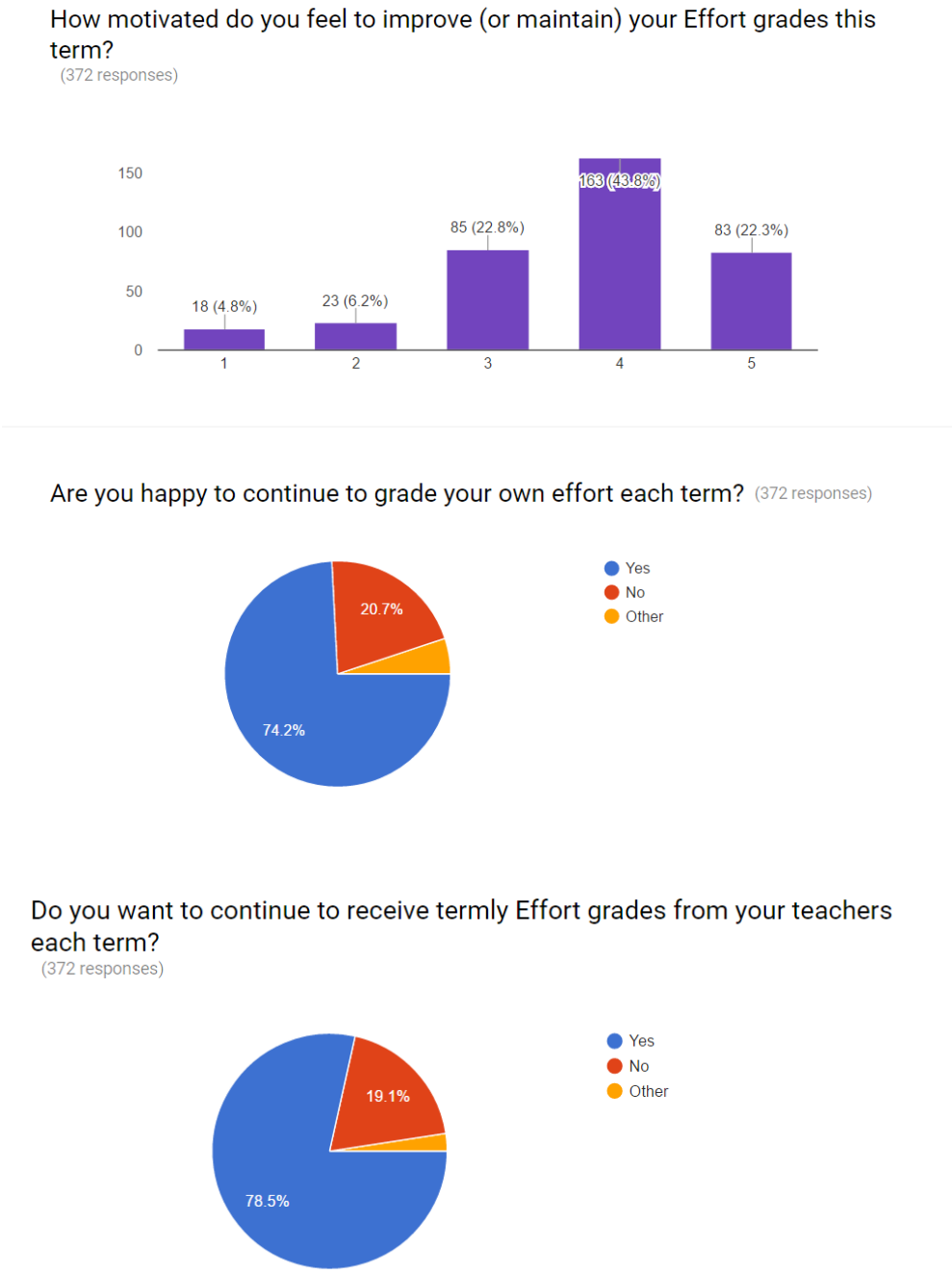
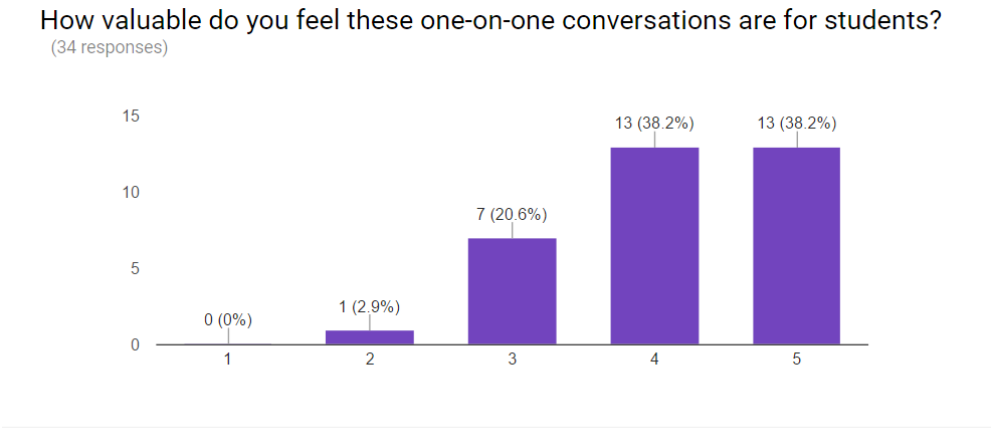


Fig.4 Results of a recent Student Survey on Effort Tracking, showing an overwhelmingly positive response to the motivational aspects of effort grading.



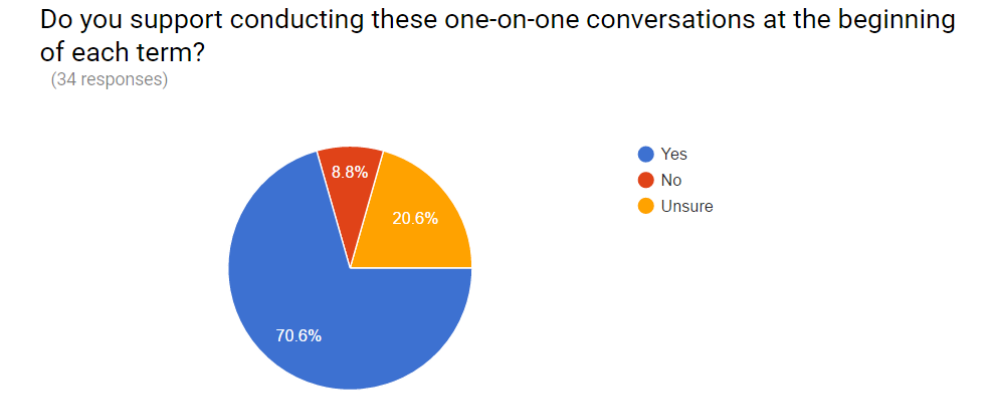


Fig.5 Results of a recent Staff Survey on Effort Tracking, showing a strongly positive response to the usefulness of termly one-on-one coaching conversations.

Some student comments from a recent feedback survey include:

- The effort tracking project is a really good way for students to understand where they are in the year in terms of effort. It also is an efficient way to know what your teachers think. [Year 8 girl]
- I feel like the effort tracking is great as it shows you how far you have come and can serve as either a reward (which feels great) or a reminder to focus and concentrate more in school. [Year 8 boy]
- It gives me confidence and reassurance to hear from my teachers and make sure I understand how to improve and be on the same page with the teacher. [Year 9 girl]
- I believe that the effort tracking project is very useful and allows for me to set goals and improve on my grades. [Year 9 boy]
- I think it's important to recognise that effort and success are often closely linked so I think effort tracking is valuable. [Year 10 girl]
- It has given me the ability to reflect on my efforts during the school year. I think that the results make you think about changing your attitude to learning. [Year 10 boy]
- Effect tracking puts into perspective how hard I try in class and makes me realise I can do even better. [Year 11 girl]
- Effort Tracking is a great way to see how I am improving over the year and has helped me improve my effort and overall grading. [Year 11 boy]
- I think the project encourages me to maintain energy and engagement in my lessons, as it is nice to be recognised for the work I put in. [Year 12 girl]
- I feel like it's a great tool which is helpful for reflecting how hard you're working regardless of your actual results. It's also interesting / very important to see the disparity between how you think you're going versus how your teachers view your efforts. [Year 12 girl]
- It shows the direct correlation between effort and results. [Year 12 boy]

Some staff comments from a recent feedback survey include:

- It is great in the Senior Study context because you can initiate conversations about their effort and attitude in the library that are positive and constructive. It leads them to examine their attitude and can lead to an increased effort and a positive improvement with at-risk students. It is also affirming for the hard workers and allows conversations re: clever use of time and resources. In short it is helpful across the whole spectrum. It lets them seem you 'notice' them in a positive way. [Teacher/Librarian]
- I think effort tracking is important as it acknowledges those students who try very hard, however, do not achieve a high academic result. [Teacher/ Year 10 Pastoral Tutor]
- These interviews were particularly helpful in bonding with the tutor class, and for students to see my value in their school lives for the upcoming year. [Teacher/Year 12 Pastoral Tutor]
- I think this is an excellent initiative, it is a worthwhile tool that has been embraced. [Teacher]

Conclusions and recommendations

Research indicates that increasing testing does not raise academic standards and promotes an extrinsic rather than intrinsic motivation for learning. Rather than nurturing a joy of lifelong learning, this 'results-driven focus' emphasises distinct ability-divisions which promotes 'fixed-mindsets' in students, teachers and parents. The result is to create an academic climate where failure is seen as a reinforcement of inability, rather than a challenge to be overcome, and one in which students' anxiety levels increase, often with a detrimental effect on their performance and wellbeing.

By comparing students with each other based on their effort, rather than their achievement alone, we subtly shift the systemic 'success-focus' onto qualities which promote a growth-mindset in all students and develop important 'non-cognitive' character traits such as persistence and resilience. The engagement and professional development of teachers is critical to embedding and sustaining a project of this sort.

This case-study shows that, although challenging, evaluating and quantifying student effort is possible, and that it is in the dynamic tracking processes and conversations surrounding this formative form of assessment, where many of the main benefits are to be found, rather than in the momentary snapshots and finite, summative effort scores themselves.

References

Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education*, 5(1), 7–74. http://dx.doi.org/10.1080/0969595980050102

Bryk, A. (2015). *Learning to improve: How America's schools can get better at getting better*. Boston: Harvard Education Press.

Buckingham Shum, S., & Deakin Crick, R. (2012). Learning dispositions and transferable competencies: Pedagogy, modelling and learning analytics. *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge* (LAK 12), 92–101. http://dx.doi.org/10.1145/2330601.2330629

Costa, A. L., & Kallick, B. (2009). *Habits of mind across the curriculum: Practical and creative strategies for teachers*. Alexandria, VA: Association for Supervision and Curriculum Development.

Covey, S. R. (1989). *The 7 Habits of Highly Effective People: Powerful Lessons in Personal Change*. New York: Free Press.

CLARA (2016). Crick Learning for Resilient Agency: Learning Emergence LLC. [Web site]. Retrieved from http://clara.learningemergence.com

Deakin Crick, R., Huang, S., Ahmed-Shafi, A., & Goldspink, C. (2015). Developing resilient agency in learning: The internal structure of learning power. *British Journal of Educational Studies*, 63(2), 121–160. http://dx.doi.org/10.1080/00071005.2015.1006574

Duckworth, K., Fielding, G., & Shaughnessy, J. (1986). *The relationship of high school teachers' class testing practices to pupils' feelings of efficacy and efforts to study*. Portland, OR: University of Oregon.

Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.

Jackson, R. C. (2014). Concentration. In R.C. Eklund, G. Tennenbaum (Eds.), *Encyclopedia of sport and exercise psychology* (Vol.1), (pp. 159—161). Thousand Oaks, CA: Sage Publications.

Harlen, W., & Deakin Crick, R. (2002). A systematic review of the impact of summative assessment and tests on students' motivation for learning. In: *Research Evidence in Education Library*. London: EPPI-Centre, Social Science Research Unit, Institute of Education.

Harlen, W., & Deakin Crick, R. (2003). Testing and motivation for learning. *Assessment in Education*, 10(2), 169–207. http://dx.di.org/10.1080/0969594032000121270

Hobsons. (2014). *Student Feedback and Progressive Reporting* (Report). Melbourne: Hobsons Australia Pty Ltd. Retrieved from http://www.bps.sa.edu.au/__files/f/16997/Hobsons student feedback and progressive reporting June14.pdf

Kellaghan, T., Madaus, G., & Raczek, A. (1996). *The use of external examinations to improve student motivation*. Washington, DC: AERA.

Martin, A. J. (2010). *Building classroom success: Eliminating academic fear and failure*. London: Continuum.

McDonald, A. (2001). The prevalence and effects of test anxiety in school children. *Educational Psychology*, 21, 89–101. http://dx.doi.org/10.1080/01443410020019867

Nagy, R. P., (2016). T*racking and Visualising Student Effort: Evolution of a Practical Analytics Tool for Staff and Student Engagement. Journal of Learning Analytics*, 3(2), pp.164-192. . http://dx.doi.org/10.18608/jla.2016.32.8

Park, D., Tsukayama, E., Goodwin, G. P., Patrick, S., & Duckworth, A. L. (2017). *A tripartite taxonomy of character: Evidence for intrapersonal, interpersonal and intellectual competencies in children*. Contemporary Educational Psychology, 48, 16-27.

Perkins-Gough, D. (2013, September). Educational leadership: The significance of grit — A conversation with Angela Lee Duckworth. *Educational Leadership*, 71(1), pp. 14–20. Retrieved from http://www.ascd.org/publications/educational-leadership/sept13/vol71/num01/The-Significance-of-Grit@-A-Conversation-with-Angela-Lee-Duckworth.aspx

Pollard, A., Triggs, P., Broadfoot, P., McNess, E., & Osborn, M. (2000). *What pupils say: Changing policy and practice in primary education*. London: Continuum.

Roderick, M., & Engel, M. (2001). The grasshopper and the ant: Motivational responses of low achieving pupils to high stakes testing. *Educational Evaluation and Policy Analysis*, 23, 197–228.

Schunk, D. (1991). Self-efficacy and academic motivation. *Educational Psychologist*, 26, 207–231. http://dx.doi.org/10.1080/00461520.1991.9653133

Smith, L. H., & Kays, T. M. (2010). *Sports psychology for dummies* "cheat sheet." Mississauga, ON: John Wiley & Sons Canada.

19 Prospect Hill Road, Camberwell, VIC 3124 AUSTRALIA
Phone: +61 3 9277 5555
www.acer.edu.au

Design by ACER Creative Services
ABN 19 004 398 145