

Institution: Liverpool John Moores University (LJMU)		
Unit of Assessment: UoA23 - Education		
Title of case study: Exam pressures and how to beat them: Supporting students preparing for their GCSEs		
Period when the underpinning research was undertaken: 2016-2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
David Putwain	Professor of Education	1/5/2016 - present
Period when the claimed impact occurred: 2017 to 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>An ongoing programme of research led by Prof. Putwain has been underway at Liverpool John Moores University since 2016 to examine the assessment, antecedents and outcomes, of debilitating exam anxiety in adolescent students preparing for GCSE examinations. This research has identified how beliefs, styles of emotional regulation, and study behaviours, interact and combine to determine exam anxiety. Furthermore, his research has shown high levels of exam anxiety are found in a concerning proportion of students in Years 10 and 11 (approximately 18%), and is associated with lower GCSE achievement and emotional wellbeing. To address the pressing need for evidence-based approaches to support highly exam anxious adolescent students findings from this programme of research have been used to support students in three ways: (1) The BBC Education Bitesize Mindset campaign 2017-18 was framed around key findings for the effective management of exam pressures. (2) Resources for secondary schools, based on around key findings for the effective emotion regulation of exam anxiety, were endorsed and distributed by the Department for Education. (3) Cognitive-behavioural interventions have been developed and evaluated (through randomised control trials) for highly exam anxious students. Putwain has also been featured on two BBC television programmes about exam anxiety in adolescents: The 'One Show' (2017) and 'Trust Me I'm a Doctor' (2018).</p>		
2. Underpinning research		
<p>The outputs reported here belong to an ongoing programme of educational psychology research concerning high levels of debilitating examination anxiety among adolescents. This programme of research has three strands. First, Putwain has undertaken the only research in England to establish the assessment, measurement, and prevalence, of examination anxiety [1]. Second, Putwain has led studies into the personal and situational antecedents of examination anxiety. Third, Putwain has led studies into the effects of examination anxiety on educational achievement and psychological wellbeing. This programme of research was initiated in 2003 by Putwain and continues to the present day. Putwain joined LJMU in 2016 as a Professor of Education and the outputs listed below were supported by a small grant awarded by the British Academy (September, 2017).</p> <p>There are two central and integrative features of this body research that underpin the impact described in this case study. First, the underpinning research shows that examination anxiety is a complex and multi-causal phenomena. Antecedents of examination anxiety are often examined in isolation from each other and so it is not clear how antecedents interact and combine. Putwain's research has used an integrative model by utilising cutting edge latent variable modelling approaches to examine how personal beliefs, such as one's academic competence, interact with executive processes, such as emotional regulation and appraisal of coping options, and self-defeating behaviours, such as a strategic withdrawal of effort, to influence examination anxiety and subsequent examination performance [2]. This research suggests that there are multiple</p>		

points at which malleable psychological constructs could be targeted (cognitive beliefs, emotional regulation strategies, and examination preparation behaviours) prior to examinations to reduce examination anxiety.

Second, anxiety is detrimental to, not facilitative of, examination performance. Information-processing models show how anxiety interferes with the working memory processes that are required to interpret and respond to assessment demands during examinations. Anxiety occupies limited working memory resources and inhibits one's capacity to recall information from memory, hold and manipulate information in the mind, perform complex problem solving tasks, and shift attention back and forth from different tasks. Putwain's research shows how the debilitating effects of anxiety on performance can be reduced by psychological factors including the role of perceived control [3] and overcoming the anxious tendency to avoid effort as a means of self-worth protection [4]. This research shows that there are strategies that highly exam anxious students could employ to minimise the detrimental effects of anxiety on performance (e.g., overlearning strategies to reduce cognitive load).

The encouraging message in Putwain's research is that it is possible for students to learn strategies for how to effectively manage both their anxiety and the debilitating performance effects of anxiety. His research has shown, in two randomised control trials, that a relatively brief six-week cognitive-behavioural intervention (STEPS: Strategies to Tackle Exam Pressure and Stress) that targets cognitive, emotional, and behavioural processes, is effective in reducing examination anxiety compared to controls ($d_s = .77 - 1.14$), and that increasing perceived control is critical to achieving this outcome [5,6].

3. References to the research

The following outputs have been subject to rigorous peer review in highly-respected international journals:

- [1] Putwain, D.W., von der Embse, N.P., Rainbird, E.C., & West, G. (2020). The development and validation of a new Multidimensional Test Anxiety Scale (MTAS). *European Journal of Psychological Assessment*. Advance online publication, doi: 10.1027/1015-5759/a000604
- [2] Putwain, D.W. (2019). An examination of the Self-referent Executive Processing Model of test anxiety: Control, emotional regulation, self-handicapping, and examination performance. *European Journal of Psychology of Education*, 34(2), 341–358. doi:10.1007/s10212-018-0383-z
- [3] Putwain, D.W., & Symes, W. (2018). Does increased effort compensate for performance debilitating test anxiety? *School Psychology Quarterly*, 33(3), 482-491. doi:10.1037/spq0000236
- [4] Putwain, D.W., & Aveyard, B. (2018). Is perceived control a critical factor in understanding the negative relationship between cognitive test anxiety and examination performance? *School Psychology Quarterly*, 33(1), 65-74. doi: 10.1037/spq0000183
- [5] Putwain, D.W., & Prescod, M. (2018). Is reducing uncertain control the key to successful test anxiety for Secondary school students? Findings from a randomized control trial. *School Psychology Quarterly*, 33(2), 283-292. doi: 10.1037/spq0000228
- [6] Putwain, D.W., & von der Embse, N.P. (2020). Cognitive-behavioural intervention for test anxiety in adolescent students: Do benefits extend to school-related wellbeing and clinical anxiety. *Anxiety, Stress, and Coping*. Advance online publication. doi: 10.1080/10615806.2020.1800656

4. Details of the impact

Providing a Resource for Staff in Secondary Schools to Help Support the Wellbeing of Students Preparing for their GCSEs (2018 onwards)

Approximately 580,000 students take GCSE examinations each year. Putwain's research shows approximately 1 in 10 male, and 1 in 5 female, students report a level of exam anxiety that presents significant risk to achievement and mental health. Although schools support students in a variety of ad-hoc ways there is a high perceived need for additional evidence-based resources targeted specifically for exam anxiety. In response to these concerns a resource pack, drawing on key research findings from Putwain's research (e.g., how students can learn effective emotion regulation strategies to manage anxiety) was developed for schools that comprised of a poster outlining key issues, an assembly presentation with accompanying notes, a student guide on effective coping with exam pressure, and a staff guide for effective student support [A].

The resource pack was distributed in 2018 to 200 LJMU partnership secondary schools based in the Liverpool City Region and the wider North West with a reach of approximately 30,000 students per a single year, 10 Educational Psychology services, who support secondary schools, based in the North West and South West regions of England. A follow-up survey [B] showed materials used in a variety of intended ways (e.g., school assembly, personal social and health education lessons, distributing student guides in form time, and so on). Responders indicated that the materials had proved helpful in supporting students, for instance, "[the materials] Helped to instigate conversations and allowed pupils to understand that stress is a normal response", "Pupils took more care over emotions", and "...students found the resources useful".

The (English) Department of Education has endorsed the student guide and made it available through the Office of Qualifications and Examinations Regulation website from March 2019 onwards [C] and referenced in a House of Commons debate on 7th May 2019 [D]. The student guide was viewed 135,824 times on the Ofqual Twitter feed, and was downloaded 51,322 times from the Ofqual Facebook page and 9,770 times directly from the Ofqual webpage, over the summer 2019 examination season [E]. Total downloads were 196,916. A second round of distribution planned for the 2020 GCSE and A Level examinations was cancelled due to the disruption resulting from the Covid virus.

Contributing to BBC Mindset Bitesize Campaign to Support Secondary School Students Preparing for their GCSEs 2017-2018

The BBC Mindset Campaign comprised of twelve short films using peer-to-peer coaching. Each film focused on a key aspect of effective coping with exam pressures and was accompanied with links to online resources. Putwain developed the themes for each of the films based on findings arising from his research, advised on the editing on the films to ensure that key messages were clearly delivered, and provided the on-screen text to accompany the films [F].

The BBC surveyed 992 students across 2017 and 2018 on the GCSE results day to gauge their experiences of using the Mindset resources [G]. 68% of students reported that Mindset resources helped them to feel more mentally prepared for their GCSEs, 63% reported it helped them to feel calmer about taking their exams, 68% helped them to revise better, 67% reported it helped them to feel supported, and 70% reported helped them to perform their best. Students commented that

"It's really reassuring for students who find it [doing GCSEs] stressful", "It made me feel as if I was not alone", "It's useful to know how others felt in the situation you were in", and "It was reassuring having the Mindset and it did set my mind at rest during an awful time".

Using Cognitive-Behavioural Intervention with Secondary School Students Preparing for their GCSE Examinations to Reduce Exam-Related Anxiety

The intervention (STEPS) comprises of six sessions, each lasting approximately 45 minutes, delivered to a group of 6-8 students, by a trained facilitator. Each session had a specific focus that utilised findings from Putwain's research (see outputs 2, 3, and 4, listed in section 3) to help students to effectively manage their anxiety. Session 1, for example, focused on understanding the signs of high exam anxiety and their triggers. Session 2 focused on effective emotion regulation, and so on. It has been delivered to nine LJMU partnership secondary schools from 2017 – 2020. Anonymous feedback was collected from 142 students and compiled into short reports for schools [H]. 63% of students reported feeling in a better position to control their anxiety before and during their GCSE examinations, 61% reported feeling better able to cope with the pressures of taking GCSE examinations, and that 86% students reported they had learnt useful methods of controlling anxiety that can be implemented during GCSE examinations. Comments from students included "the techniques helped me to achieve calmness", "it helped me to understand the reasons why I panic and how to overcome it", "it helped me to overcome my anxiety", and "I learnt lots of relaxation techniques and that its okay to panic as long as I can deal with it".

In 2019-20 short anonymous first hand narratives were collected from 17 students after they had completed STEPS [I]. In these narratives students described the benefits they had taken from the STEPS programme including feeling more confident about exams and being able to manage anxiety more effectively. A selection of comments to illustrate these benefits included the following: "I liked learning about the visualisation techniques as they can help me when I'm in an exam and I'm panicking. I can imagine myself after the exams and being relieved which would help calm me down", "The STEPS programme has helped me to deal with my stress and has given me tips to encourage me to revise. I'm feeling really confident in myself", "The STEPS course was helpful in stressful situations such as the breathing techniques when I get worked up and have NATS [negative automatic thoughts]. It helped me to calm down and relax thinking more realistically/positively about everything in the situation, allowing me to take a break and then finish the work", "Before STEPS I was nervous about my exams and didn't know many revision techniques. After STEPS I feel like I know how to revise. I feel like I know relaxation techniques so when I'm stressed I can pause and sort it out" and "Before I was not confident in myself and let my struggles around mocks get the better of me. Now I feel like I can go into an exam stress free as I understand that I can only do the best I possibly can".

STEPS is used by Hounslow Child and Adolescent Mental Health who conducted an independent evaluation in 2017-18. Feedback collected from 35 students from four secondary schools showed that 82% of students found the intervention either 'helpful' or 'very helpful' and exam anxiety reduced on average by 17.5% [J]. When asked what the best thing about the intervention was, students replied with comments like "It helped me in preparation for GCSEs; how to relax and feel less stressed going in [to an exam]", "helped me to understand the reasons why I panic and how to overcome it", and "being able to talk about anxiety, especially when you can't tell anyone".

There have also been two randomised-control trials of STEPS published in peer-reviewed journals (outputs 5 and 6 listed in section 3). The first, conducted with 56 students from two secondary schools, one from London and one from Liverpool, over 2016-17, showed moderate to large statistically significant reductions in examination anxiety ($d_s = .76 - 1.14$) following intervention. The second, conducted with 146 students from eight secondary schools located in London and Liverpool, over 2018-19, showed a large reduction in test anxiety ($d = .86$) following intervention.

5. Sources to corroborate the impact

[A] **Baseline Questionnaire for School Resources:** Responses to questions of whether exam anxiety support resources are necessary

[B] **Follow-up Questionnaire for School Resources:** Responses to questions of how resources were used and if anything had changed.

[C] **Ofqual/ LJMU Guide:** www.gov.uk/government/publications/coping-with-exam-pressure-a-guide-for-students

[D] **Student Guide featured in Parliamentary Debate:**

<https://hansard.parliament.uk/Commons/2019-05-07/debates/4A15582C-2430-43DA-A1BE-983176BDB9A4/IvybridgeCommunityCollegeExaminationPressure>

[E] **Ofqual Feedback on Student Guide:** A summary of statistics provided by Ofqual for the views and downloads of the student guide.

[F] **BBC Cheryl Townson Testimonial:** A letter from Cheryl Townson (the producer of the Bitesize Campaign) from the BBC confirming Putwain's contribution to the BBC Bitesize Campaign.

[G] **Cheryl Townson Mindset Impact:** Findings of the BBC Survey for Mindset.

[H] **STEPS School Reports for LJMU Partnership Schools:** Compilation of reports sent to schools.

[I] **Student Narratives After Completing STEPS:** A compilation of first-hand narratives from 17 Year 11 students after completing STEPS.

[J] **STEPS Hounslow Report 2018:** A report from West London NHS Trust CAMHS Services for their use of STEPS in 2018.