



# Transcript – Testing times: When taking (and not taking) tests becomes a source of anxiety

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Paul: Hello and welcome to this webinar. Our experience of working with young people, or of our own lives, has shown that childhood and adolescence is a particularly sensitive period for social and emotional health and wellbeing. Psychological and educational research tell us that this can be due to both nature and nurture. The development of our brains and environments in which we work have a combined impact on us.

According to Ofqual, England's regulator of qualifications, examinations and tests, there is increasing evidence of depression and anxiety-like experiences among children and young people. This may be because we are now much more open to talk about such experiences and it may be because there is greater pressure on young people to perform, be qualified and ready for an increasingly competitive and uncertain workplace.

In recent years, there has been greater and more considered discussion about the particular pressures brought by examinations or tests. Some people state that a bit of stress is good for you but anxiety around taking assessments needs to be understood more deeply than that and managed appropriately. Stress in adolescence can result in consequences for the longer term.

This webinar is about how taking, or not taking, tests can become a source of anxiety and what can be done about it. My name is Paul Ellis. I'm head of Teaching and Learning at Cambridge Assessment International Education.

It's my pleasure to introduce our expert speaker for this webinar, Professor David Putwain from Liverpool John Moores University. Professor Putwain taught in various schools and sixth form colleges in the UK from 1994 to 2006. After completing a PhD in 2006, David joined Edge Hill University, working initially in the Department of Social and Psychological Sciences and subsequently in the Faculty of Education. David joined Liverpool John Moores University in May, 2016. His research interests focus on health psychological factors influence and in turn are influenced by learning and achievement. He has a long standing interest in test-anxiety among school-aged populations and the development of interventions to provide students with the tools they need to manage their test-anxiety. Welcome David.

David Putwain: Thank you very much for the introduction, Paul and it's an absolute pleasure to be able to talk with you today and to record this webinar.

So what I'd like to focus on are what I call the four Ws of test anxiety. That is what is test anxiety, where does it come from? Why is it important and finally what can be done about it?

So let's start off with number one. What actually is test anxiety?

Well, this is a fairly typical definition of test-anxiety. Emotional and physiological responses like panic, feeling dizzy and our heart beating very fast. And these are accompanied with thoughts dwelling on failure and the consequences of failure and resulting in what we call cognitive interference such as a sense of going blank, problems with concentration, problems with memory and so on. And these responses arise from appraising or judging the test as being highly threatening. And I'll explore a little bit on the next slide what that actually means.

But just a couple of points to make about this definition of test-anxiety. Many people, this is not unusual might become anxious for one-off situations, one-off exams, one-off test and so on. When we're talking about these responses here we're talking about people who have an enduring response like this to not just one or two exams but typically all tests or exams. So we quite often refer to it as being an enduring or a trait-like experience. But this doesn't mean that it's irreversible though because interventions have shown that test-anxiety is very amenable in relatively light-touch and short-term interventions to reducing.

And the other point to make about test-anxiety is that these aren't people who become anxious in all situations. It's very, very specific reaction to situations in which somebody's performance is going to be evaluated. And yeah, it's quite a narrow what we call situation-specific form of anxiety. So onto the point about threat, why might somebody view a test or an exam as being threatening? And this is because failure or the consequences of failure might be damaging to one's self-esteem. And sometimes these terms are used interchangeably, self-esteem, self-image, self-view, sometimes self-worth as well. And it might be that somebody views themselves as being somebody who's high-achieving or somebody who takes pride in achievement or they see themselves as an academic person. And therefore failure might threaten this particular view this person has of themselves but it could also threaten failure could potentially threaten one's aspirations.

And in the UK and many other parts of the world, we live in a very test-conscious culture. Everybody knows that particular grades and profiles are great and needed to advance one's educational aspirations, one's career aspirations and so on and so on. And then finally another reason why failure might be damaging is because how one feels they might be judged by important others. It could be family members, it could be siblings, it could be parents, grandparents, cousins but it could also be one's peers. And it could also be one's teachers. And this social element to it is hugely important for some people. And the essence of test-anxiety therefore we can say it's like an exaggeration, an exaggeration that the threat posed by failure. And therefore this could apply equally to actual tests as it could to school assess grades which are going to be used by many schools at the present time.

So let's move on to the signs of test-anxiety. So it's got what we call the cognitive element. And this refers to thoughts, for instance, thoughts about being overwhelmed, not in control, focusing on failure but the cognitive element is also got this interference side which I just mentioned a moment ago and a very common experience of many highly test-anxious students as they get into an exam. And they might have spent an awful lot of time preparing and learning, revising for that exam. And as soon as they get in there, they just go blank. They freeze up, they feel like I can't remember anything. And sometimes that experience can pass within five or 10 minutes but obviously in the time-pressured circumstance those five or 10 minutes can be very precious. But tests anxiety can also interfere with concentration and attention too.

Test-anxiety has an emotional or affective component. So feelings of panic, feelings of fear, feelings of anxiety and this might manifest as feeling faint, feeling one's heart is beating so fast it's going to explode. It's got a physiological element to it which is similar to the emotion one expect, these deep physical feelings associated with panic and anxiety. And it's also got a motivational element to it as well. And this can manifest in many different ways. So one of the

ways students manage their fears about failure is to be called disengaged from their studies or make what's called a strategic withdrawal of effort. And these are all avoidance-based forms of motivation. And I'm not suggesting that every reason a student might disengage with their studies or make less effort than they could, is due to test-anxiety. But what's important is that because these things can result from test-anxiety, we don't discount these as potential manifestations of test-anxiety.

So that was part number one. What is test-anxiety?

What I'd like to move on to consider now is where test-anxiety comes from. So what we've just looked at in part number one was the definition of test-anxiety. What is test-anxiety? What I'd like to consider now in part number two is where does test-anxiety come from? What the sources of test-anxiety are?

And I'd like to use that in order to explain this, something called the Self-Referent Executive Function Model which is a bit of a mouthful and quite often just refer to it as the S-REF Model. So this S-REF Model was originally developed as a model for clinical anxiety disorders such as social anxiety disorder, panic disorder, generalized anxiety disorder. And it's very popular among clinicians for guiding anxiety interventions. And this particular version of the S-REF Model that is used to explain test-anxiety was adopted by Gerald Matthews. And it's a highly detailed model. And I'll try and explain the different elements of it in a step-by-step fashion but it focuses on the way that a student consciously regulates their emotion, cognition and behavior and some of these regulation strategies that students used, function to exaggerate anxiety that is to make the threat seem greater than it actually is. And some of them function to maintain anxiety. and in the S-REF Model, in addition to self-regulation strategies, there's also two other components which are self-knowledge beliefs and situational interactions. And these two elements self-knowledge beliefs and situation interactions they interact with executive function to produce anxiety, distress and cognitive interference.

Okay, so onto the S-REF Model. So the model begins with a situational threat and this could be externally triggered such as being, for instance notified about the data of the forthcoming test or being reminded to revise for forthcoming test. But threats can also be internally triggered as well such as the student remembering about a forthcoming exam or remembering that they have to revise and situational threats could apply equally to SATS who assess grades as to actual tests. And what these situational threats do as indicated in the diagram here is they intrude into conscious thinking and they prompt a number of these executive processes.

And the first of these is the appraisal of forthcoming exam or test or SAT. And the student makes a judgment of how important the grade is whether that subject is useful and important, what the anticipated difficulty of obtaining a particular grade will be and so on. And test-anxiety is going to be higher when a subject is judged to be useful or important and when the anticipated difficulty is high. And we've also got an assessment of the stakes of the subject, that is what successful failure on exam be particularly important for a student, is a particular grade needed for educational progression or entry onto a college or university course or some other kind of training.

And exam anxiety is higher when the stakes of the exam perceived to be high. We've also got ineffective approaches to coping or ineffective forms of coping. And what we mean by ineffective forms of coping is that they function to inadvertently exaggerate the anxiety that is experienced.

So for instance, some forms of coping are effective and these are usually called problem-focused approaches and they can include planning, doing revision, subsequently doing the revision, asking for help. if there's something that's not understood and seeking emotional support when it's required, reminding oneself that effort is worthwhile, resolving oneself to try harder in the

future and so on. But ineffective forms of coping include thinking about forthcoming exam, sorry, avoiding thinking about forthcoming exam, trying to prevent others from knowing that there's an exam coming up and how one feels about it.

Thinking that nothing that you can do will change the outcome, ruminating about worries about the outcome, blaming others for failure and so on and so on. And these are all called avoidant forms of coping which as it suggests this to avoid thinking about the threat but we've also got something called emotion-focused coping which is when somebody becomes preoccupied with the anxiety rather than trying to reduce the threat situation. So these forms of coping are not very effective and that they inadvertently increase anxiety and they also minimize chances of exam success. And the last executive process we've gotten here is called metacognition. And this refers to how we go about monitoring our internal, emotional and cognitive state. And for instance how we try to intensify or suppress certain thoughts.

And what we find is that exam-anxious people tend to monitor their thoughts very closely and intensifying anxiety with beliefs for instance, that actually worrying is a good way to cope which it isn't. And that worries are out of control, one can't control one's worries. So to summarize exactly the processes that contribute to high levels of exam-anxiety are a judgment in exam is useful and important, that the consequences of success or failure are high, coping through avoidance thinking about an exam or focusing on reducing the anxiety rather than focusing on the issue which is actually trying to prepare well. And the metacognitive style that monitors beliefs closely combined with beliefs that worrying can be actually helpful and spiral out of control. Okay, so that's part one of the model.

So to summarize the executive processes that contribute to high exam anxiety are a judgment that an exam is important or useful, that the consequences of successful failure are high, that the student copes through avoiding thinking about an exam or focusing on reducing the anxiety rather than focusing on the issue which is actually preparing for that forthcoming exam. And a metacognitive style monitors beliefs closely combined with beliefs that worry can actually be helpful and that they won't spiral out of control.

Okay, so the next part of the model concerns the beliefs which somebody holds about themselves, that self-knowledge beliefs. And executive processes access negative beliefs about one's competence, one's academic competence. For instance, students might believe they're less competent than their classmates or their family members or it may be that they're not very good at demonstrating a knowledge and skills in exam settings. Students might believe they possess poor study skills as well. Executive processes also access the future plans a student had for dealing with this forthcoming exam.

The students who appraise an exam as high stakes, important, useful and difficult combine with the belief that one's not very competent might need to change and modify these plans. This decision-making process and planning is attentionally demanding and that itself might distract from other activities and lead to a decision to scrutinize one's thoughts and emotions about the exam more closely. And this can then feed back into executive processes, triggering unhelpful form. So coping such as avoidance and emotion focus. And additionally exam-anxious students often hold motives rooted in failure or fear of failure.

For instance students might be motivated not to appear as incompetent, not the gain lower grades than peers, classmates or family members, not to achieve lower than they have done previously or lower than a target grade. And these avoidant motivations can also help to trigger unhelpful forms of coping and as a flow of information, going back and forth between executive processes and self-knowledge beliefs. And this sets up what's called a self-regulating feedback loop. So for instance the student might view an exam as important or difficult that perceive themselves to have low competence. They want to avoid being seen as a failure. And so they

become preoccupied with worrisome thoughts and feelings about the forthcoming exam and without intervention or change the student then becomes locked into that cycle.

So to summarize the importance of self-knowledge beliefs for highly exam-anxious students or those that are negative and then we've got plans that focus on grade-related worries and emotions and avoid the motivations. For instance, being motivated to avoid being seen as a failure by others or oneself.

The third part of the model is the interaction with the situation. So the learning situation for instance in school. And as a result of being preoccupied with failure the student finds it difficult to stop thinking about the exam and the potential negative consequences and becomes particularly vigilant and sensitive to things that might indicate failure or judgements about one's competence.

And this is what psychologists called attention bias. It means that the person is very sensitive to threat-related information and they can process that information more easily and rapidly than non threat-related information and it can happen without any conscious awareness. And that's hence it's called unconscious bias. It's a form of unconscious bias. And following on from unhelpful coping-approaches the student can become disengaged, they can withdraw efforts and exam preparation. And this may provide a reason that protects one's sense of self-worth against being seen as incompetent. I made no effort, hence I failed but of course if a student does withdraw effort and engagement that paradoxically increases their likelihood of failure 'cause they've missed opportunities to try and improve themselves, practice exam questions, revise and so on. And a common form of avoidance-based self-sabotage. We call this is procrastination. For instance, the student putting off starting revision or doing work until the last minute. And that's a result of ineffective coping-approaches, focusing on worries and emotions rather than the action one needs take to maximize one's chances of success. So the interaction with the situation provide short-term feedback for executive processes, such as maintaining reinforcing the likelihood of failure, but it also has long-term feedback as well into self-knowledge beliefs. For instance it could reinforce the belief that one is not very competent.

So what we've got here are two more self-regulating feedback loops. And again, without change of intervention, the person becomes trapped in this cycle of fear of failure and out of a fear of failure not engaging in those behaviors that are going to undo it and increase one's chances of success. And then finally, without any change, the next time a test or exam comes along, the person is more likely to view it as a threat again, in the future. So the whole cycle begins all over again.

So to summarize the main point about interactions with the learning situation. The person becomes very sensitized or biased towards information that indicates a failure. They might withdraw and disengage from their studies, maybe as a form of self-worth protection and that can manifest through procrastination and self-sabotage.

Okay, the very final part of the model, the outcome of all of these processes is an increase in worry, distress and cognitive interference. And also when an anxious person becomes aware that that becoming anxious, that will then feed back into executive processes to monitor one's internal states even more closely and then to engage in regulatory strategies, try and suppress or down-regulate that anxiety to a manageable level. And unfortunately that usually means more forms of avoidance and emotion-focused coping. It can be effective in the short-term but certainly not as a long-term strategy.

So that's the complete S-REF Model. It's a very comprehensive model. It's a complex model. And I hope I haven't bamboozled you by going into all of this detail but what it does do and this is why it's helpful is that it identifies multiple points for intervention. Multiple points, where we can start to undue and break these cycles of self-regulated feedback. And for instance, these could be

metacognition and it could be self-knowledge beliefs. It could be exam planning, it could be coping and it could also be study behaviors. So these are the main points in the model. This is what we know about highly exam-anxious students. They hold negative beliefs about themselves. They use ineffective coping approaches and they tend to procrastinate and withdraw effort.

Okay, so onto the next part why is testing anxiety important? I'm going to cover two reasons. And the first is, as we've already mentioned it's a test-anxiety interferes with information processing.

So to a greater or lesser extent these are the skills that are required in different forms of assessment in order to do well and anxiety inhibits creativity, it reduces speed of processing. So somebody who's highly anxious takes a little bit longer to do the same or achieve the same level of performance as somebody who's low in anxiety. It interferes with memory. It makes it very difficult to recall facts. It interferes with attention in that it makes it difficult to keep one's attention focused on the task at hand, for instance answering our exam question because their attention keeps coming back onto their self-focused worries. It also reduces one's attentional focus and that can be very helpful.

For instance, if you think of some threat situations you're trying to move out of the way of a moving car or moving bus very quickly. It's very good to have a really narrow attentional focus but sometimes in an exam setting, you need to be able to think through what different scenarios might be or you need to be able to access different sorts of information and then narrow attentional focus doesn't help and it also reduces cognitive flexibility. That is the ability to think things through in different ways.

Now I'd just like to show you a graph here of the relationship between test-anxiety and achievement. And these are from a study I did quite a while ago now. It's published in 2008 and these are students from six schools in the Northwest of England. And we have GCSE score plotted on the Y-axis. And these were letter grades as they used to be used, A star, A, B and so on. And A star was given eight points. Grade A was given seven points, grade B was given six marks and so on. And sorry, that was on the Y-axis and test-anxiety is represented on the X-axis.

And I think probably the first point to make here is when you just look at this it just looks like a big mess. There's an awful lot of noise in the data but when we actually plot a line of best fit for it and confidence intervals around it, actually the majority of scores go in a sort of oval-shaped fashion that starts at the top left and goes down to the bottom right. And what this tells us is that people who are highly anxious tend to perform much worse and people who are low anxious, tend to perform better.

Now as it used to be the case anywhere in Wales and Northern Ireland, a grade C used to be a pass grade which according to the Y-axis of is fine. And so what we find is that the majority of highly test-anxious people were more likely to fail. And the majority of low test-anxious people were more likely to pass. Actually the difference, sorry, GCSE scores here. This was a combined aggregated GCSE score, average GCSE score for Maths, English and Science and the overall difference between the highest anxious students and the lowest anxious students on those three GCSE grades was, three GCSE subjects, sorry was two grades per subject, okay.

So the difference between high and low anxious students in this study was two grades for Maths, two grades for English and two grades for Science. And that's an awful lot of difference I think. It could potentially be the difference between three passes in key GCSE subjects and three fails in three GCSE subjects. Now meta-analysis which combined findings from lots of studies have replicated this kind of finding. And I've just cited one here, for instance from 2018. And they typically find these negative correlations between exam performance, test performance and anxiety.

But a reasonable question to ask is, is this just because students who are lower achieving in the first place just tend to become more anxious? So actually it's not that the anxiety is resulting in most performance, rather it's children, low ability children, adolescents or low-achieving children and adolescents who become more anxious. And I haven't cited them all here 'cause it will it'll take up too much time, too much space but there are several studies which statistically control for prior achievement. And what they've shown is that even when you do account for prior achievement or prior cognitive ability, that we still find anxiety, high levels of anxiety predict lower achievement. And that tells us that it's simply not the case that lower achieving students are those who are more anxious. It is those students that are more anxious who perform worse and that is such a critical finding.

Now, the other reason why test-anxiety is important is because it can be detrimental for wellbeing and good mental health. Now this is a study from the United States and it sample children and adolescents aged five to 10 years. And what we've got are the children's symptoms on generalized anxiety disorder which is abbreviated to GAD, social anxiety disorder, panic disorder, separation anxiety disorder and depression.

This study compared high with low test-anxious students on all of the symptoms of these different anxiety disorders. And we can see that highly test-anxious students, reported higher symptoms of generalized anxiety, social anxiety disorder, panic disorder, separation anxiety disorder and depression. And there are cut points on these particular scales. These are thresholds at which the person is likely to receive a diagnosis for that disorder. By rule, we can see that only test-anxious persons meet the diagnostic threshold for separation anxiety disorder with fortunately everyone's under the thresholds for the other disorders but nonetheless, we can see that the test-anxious, high test-anxious persons were more likely to be closer to the threshold. And actually there are several of the studies which show that actually many highly test-anxious students do meet these thresholds and many highly test-anxious students do become diagnosed with generalized anxiety, social anxiety disorders and so on.

And the final point I'd like to make about well-being and this is a very sobering finding actually and it comes from a study which was a review of coroner's reports of adolescent suicides. And it was adolescent suicides in England and they collected data review 16-month period, examined coroner's reports over a 16-month period, 2014 to 15. And in those coroner's reports specifically exam pressures, sorry, specifically academic pressures were cited as the cause of suicide in 27% of the cases and specifically exam pressures in 15% of cases. And so this really underscores the importance of taking test-anxiety seriously. It's not something that we should trivialize and it's not something as I've heard some people say that, it's the case that exams are supposed to be stressful. I'm not actually sure exams are supposed to be stressful but even if they were supposed to be stressful, it's missing the point that there are huge individual differences here in how people respond to that stress or pressure. And some people might respond to that stress or pressure very well and it becomes motivating for them. And they see the exam as a challenge and it actually helps them with their performance but that is not same for everybody. For some people that pressure becomes debilitating. And for those people, we definitely should not trivialize.

Okay, so I'm onto the final point of my presentation here and that is what can be done about test-anxiety. And the way I like to approach intervention for test-anxiety is to think about this model here which is a model which underpins cognitive behavioral intervention. And that is that behaviors, thoughts and emotions all interact with one another. So behaviors influence thoughts and emotions, thoughts influence behaviors and emotions and emotions influence thoughts and behaviors. So what this means is if we change any one of these three, it's going to have an impact on the other.

So if we change how we think it will change how we behave and feel, if we change how we feel it will change how we think and behave. And if we change how we behave it will change how we think and feel. And so what that means is that we can intervene with highly test-anxious students in terms of behaviors. And that's principally through helping them understand effective ways to revise. We can intervene with our emotions and that is principally through teaching students relaxation strategies. And we can intervene with students thinking which is teaching them how to identify and challenge thoughts which exaggerate or maximize anxiety.

So relaxation strategies are one of the easiest things that can be done. And I'm sure many people, if they have ever been to a yoga class or something like that, have done something very, very similar to this. And one method is called progressive muscle relaxation. And what happens in progressive muscle relaxation is that you generally lie down, you can sit up you don't have to be lying down and you gradually work through your body. So for instance, like schedule goes here forehead, eyes, cheeks, mouth, shoulders, arms and so on and you imagine tensing up or scrunching up the muscles in that part of the body as tight as you can. And then you hold them to five and then you let go and relax.

So you do that with the forehead. So you start off scrunching up your forehead, really, really, really tightly, count to five and then relax, let go. And then you work through all of the body and then you get to the end and then you tense up the whole body, everything, toes, feet, low back, legs, shoulders, arms, hold it for five and then let go. And that progression of becoming tense and letting go, becoming tense and letting go is teaching people how to identify or learn to identify the feeling when they're becoming anxious or tense in their muscles and then let go with that tension. It can help to relax them.

Something else that people have possibly done in yoga classes and this can be done in quite complex ways in yoga classes but it doesn't have to be complex. It's something called deep breathing or diaphragmatic breathing so breathing from the diaphragm. And the most simple way to do this is to place one hand over the chest and another hand around the diaphragm area. And just to close your eyes and then imagine breathing in and it's going past the hand on your chest and it's going all the way down to the hand on your diaphragm and then use that bottom hand on your diaphragm to feel your diaphragm expanding and then maybe hold your breath. Not so it's uncomfortable for just one, two, three, or five, three or five and then allow it to release again slowly. And it's very simple.

There's multiple videos on YouTube showing you how to do this. If you want to have a look at them but you can teach your students to do this. And for something that's so simple to learn. I found students really like this and they really like it generally because it's quite quick, it's an antidote to the physiological activation that goes with anxiety. It's an antidote to that, that works very, very quickly. It can calm people down very, very quickly.

So that's something to use when people become panicked because it will have very quick effects but importantly it gives people that sense that they're in control, that they actually, I can do something about this and it starts to build confidence. That actually anxiety isn't necessarily something I need to worry about because I can change it. I can do something about it. And that's how we're starting to see the effect if we work on relaxation strategies and we change how people feel and it starts to change how people think, okay. So that quick win strategies. A slightly more medium-term strategy is to teach students how to approach their revision or exam preparation in what we call a cycle of self-regulated learning. And the actual idea is quite simple. Set revision goals. I need to revise this or I need to prepare this for an exam.

Then the person actually does the revision but then they evaluate whether that revision was effective or not. And then they use that judgment of whether the revision was effective or not to set new goals. In my experience students are very, very good at one. They're very good at

making these sometimes very ornate and elaborate revision timetables of what they need to do and what they need to learn.

But two and three start getting a bit hit and miss. Students quite often do that revision but in my experience, students aren't necessarily very aware of different ways of revising. And so they're not aware of whether the effect, whether the approach they're using is the right approach for that particular subject whether they should be using a different approach. In fact, what those other approaches might actually look like. So I think a bit of time needs to be spent showing students different ways of revising, different ways of preparing for their exam. And naturally some students will gravitate more towards some styles than others and that's fine. And some students will find some styles more effective than others. And actually some styles are more effective for some subjects than others. And that's okay, that's okay.

But generally students, I find don't tend to evaluate whether their revision is being effective or not. And how does the student evaluate whether their revision is effective or not by testing themselves. And that might just be repeating back what they know to themselves, it might be telling everything they know to somebody else. It might be writing that down. It might be trying to practice exam question. There's loads of ways in which they can test that effectiveness of their revision. But that person has got to, the students got to give themselves some feedback. And if they're revision wasn't effective, then that's where they're setting new goals becomes critical because they either need to try a different method of revision or they need to do the revision again.

But what's really important is that a student does not continue with an ineffective approach. If their revision was effective then they can carry on and revise a different topic. If it wasn't effective as I said they need to revise and go and try a different approach.

That's the basic framework of self-regulated learning. And there's much more to it than that because goals have got to be realistic, achievable. They can't be too big. There's lots of importance of breaking things down into small goals and just revising small chunks at a time. And of course, once the subject has been revised it can't just be left. It's got to be re-revised. In fact, re-revising is a very powerful method of consolidating memory. And in fact, retesting is a very powerful method for consolidating memory as well. But I think this is something, this idea, this is not the domain of psychologists.

This is something that many teachers will be very comfortable doing, working with their students with. And what we're starting to do here in terms of the S-REF Model is breakdown that maladaptive interaction with the situation where teaching students have to get a sense of control over their future exam. So that even if an exam is seen as important and it's seen as difficult, the student is learning here, well, actually I know that I can achieve those outcomes that I want to. And that will then start to feed back into the self-confidence beliefs and their beliefs about themselves. That this is something that can be changed. It will start to change that coping approaches, will start to reduce their avoidant motivations and so on and so on.

So by changing behavior here it will then start to change how people think. Here are for instance, many different ways of revising with words that you could show to students and revising with sounds so using the mnemonics, identifying key words, students making up little rhymes and songs, podcasts. Visual ways to revise, like making posters, mind maps, graphs, flow charts and so on. There's loads of different ways. And also summary approaches which probably most important for very sort of text-heavy exams. And it might be organizing notes, highlighting key points, making summaries, making flash cards and so on.

And it's really important that these different methods that students are aware of these different methods of revising and students are exposed to maybe getting guided through some practices making these different approaches.

Okay, so the final method of intervention is where we try and talk, get thoughts that underpinned the anxiety. And this is a slightly longer strategy, longer-term strategy.

It's also a bit more complex. It's a bit more hard to do. It requires a bit more persistence on the part of the student.

Now this ABC-model here is a classic model used in psychological intervention. A stands for activating event, B stands for the beliefs about the activating event and C refers to the consequences, specifically the emotional consequences of those beliefs and to a lesser extent, behavioral consequences.

So for instance an activating event could be a forthcoming exam or school assess grade. A belief about that might be for instance, I think I'm going to fail. And the emotional consequence of that might be anxiety and the behavioral consequences might be withdrawing effort. Now what tends to happen is the people are not aware of B, people know they've got a forthcoming exam and they just get anxious. People know they've got forthcoming exam and they just start withdrawing effort 'cause it's just too threatening for them.

So people tend to bypass B and I go straight from A to C. And so what you need to work through are examples like this drawn from the students' own experiences that show them, excuse me, how their beliefs determine their emotional and behavioral consequences. The students have to learn, understand that A doesn't necessarily lead to C, that A only leads to C because of these particular beliefs. And you can show students how alternate beliefs.

For instance, I'll try my hardest could have alternate emotional consequences, such as feeling hopeful rather than anxious and alternate behavioral consequences, such as making effort with one's exam preparation, rather than not. And it's high in showing some students examples like this but then the student has got to go away and do it for themselves. And so it can be helpful for students to keep a diary of every time they get anxious and for them to reflect upon what they were thinking at that time.

So they can become aware of these beliefs and then they need to be shown ways, encourage ways of challenging those beliefs. Why might that belief I'm going to fail come from? Why is that unrealistic? A student might think, for instance I can't do anything about it. And that's simply not true. They could do something about it or a student might think, well, if I fail this exam, my whole life's going to be a failure. And again, that's simply not true. They're magnifying the threats. So really problematic beliefs are those that lead to exaggerating negative consequences at C. And this requires a bit of time.

This is not an instantaneous solution but it's also the best long-term strategy. I have a guide for students that includes these intervention approaches that I've described. It's intended for students aged 14 to approximately 18, 19 years and it's freely available.

So if anyone would like one of these guides and you're free to distribute it to your students to print it off and give it to them or to distribute it electronically. There's no copyright issues attached to it. Then please send me an email and I'll be more than happy to share this with you. And that's the end of my presentation. Thank you for listening. I hope it was useful. And I'm going to hand back to Paul at this particular point.

Paul: Wonderful, thank you very much, David. That was a very, very interesting presentation.



It has taught as much about test-anxiety about what to do and also explanations behind it as well. So I hope all of those of you who are listening to this have found this incredibly useful.

The guide that David refers to the end there is well worth a look as are some of the other materials that he's produced as well. And we'll be posting more around this topic on our websites and other places in the near future.

So I say thank you again, David and goodbye everybody. Thank you.