

Golf Foundation Skills for Life Research Project 2017 – 18 Final Report



FEBRUARY 12

Yeast Ltd

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Executive Summary

The Golf Foundation and Yeast Ltd collaborated on a research project to design a golf based Skills For Life Programme which developed the Mental Toughness and resilience of the participants involved. The programme was developed in conjunction with a number of PGA Teaching Professionals who have closely worked with the Golf Foundation in the past.

These PGA Teaching Professionals then delivered the programme to groups of young people, aged between 11 and 16 years, back at their golf clubs and academies. The participants completed an MTQ48 Mental Toughness Assessment at the start and end of the programme. The results of before and after were then analysed to establish whether there was a significant impact upon the Mental Toughness of the participants.

The results were outstanding. Average Mental Toughness increased in the participants by 20.00% during the programme. All other scales and subscales of Mental Toughness also increased, but due to the sample size of the study, only Commitment, Control, Life Control Confidence and Confidence in Abilities showed increases large enough to be significant.

As a result of the study, the Golf Foundation now plans to roll out this Skills for Life programme, in a controlled manner, across the country in order to dramatically increase their demonstrable social impact.

We would like to thank a number of parties who collaborated in this study and helped to make it a success:

- Brendon Pyle and the team at the Golf Foundation
- Jason Skelton and Rachel Hearty of Yeast Ltd.
- The PGA Teaching Professionals who engaged and delivered the programme: Alex MacGregor, Zachary Marsh, Matt Edgar and Tom Hide
- AQR and Dr John Perry who analysed the results
- All the young people who participated in the programme and took the time to complete the assessments and give us their feedback



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Background

The Golf Foundation

The Golf Foundation is a charity committed to giving children and young people the opportunity to experience golf and the benefits it has to offer. The Foundation believes that golf can offer young people Skills for Life, a healthy life and a sport for life.

The Golf Foundation's national development programme, HSBC Golf Roots, promotes the sport in schools and community groups, helps recruit and retain youngsters in clubs, and uses golf to promote important life skills such as respect, confidence and resilience (termed 'Skills for Life').

Funding for the Golf Foundation comes from a combination of bodies within the sport such as the R&A, European Tour, Professional Golfers' Association, Ryder Cup, England Golf and British Golf Industry Association. It also receives support from Sport England and its headline sponsor, HSBC. Increasingly, funding bodies are focusing on being able to measure the social impact of the projects they fund. Proposals which can demonstrate a tangible impact upon wider, social, issues are more likely to gain funding in the future as well as promoting the wider benefits of the sport to potential juniors and their parents.

The Research Project

The aim of this research project was to develop a Skills for Life Programme (taken from the principles of a Mental Toughness Development Programme), based around the development of golfing skills and delivered by PGA Golf Professionals.

The Golf Foundation selected and invited a number of leading PGA Golf Professionals who partner them in the delivery of their programmes to participate. These PGA Professionals, along with members of the Golf Foundation team and the Yeast team, formed the core project team for this programme.

The project was carried out in several stages:

Mental Toughness Training and Programme Design

Lead by the team from Yeast, this two day workshop enabled the team to be trained in Mental Toughness and then use this learning, combined with the team's knowledge and experience in delivering golf programmes to young people, to develop a ten week Skills for Life programme based on the principles of Mental Toughness development.

Yeast and the Golf foundation then developed a Coach's handbook and a participant's handbook to support this new Skills for Life programme. The programme was founded on the following coaching principles:

- Each session starts with a reflection on the last session (and the practice at home) to ensure that the previous learning is embedded.
- Learning is maximised by taking the participants outside of their comfort zone and by providing challenge.
- Learning is enhanced by the PGA Coaches asking great questions – open ended that encourage the participants to think.
- Following the reflection, each session will be introduced in a manner which builds commitment and engagement from each of the participants.

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- Activities are carried out on a whole-part-whole basis, where the group carries out an overall game or activity, is pulled back together to discuss and review it, and is then introduced a technique (such as breathing, visualisation etc.) before being given the opportunity to practice the activity with increased focus.
 - Techniques will be introduced to develop aspects of Mental Toughness as a normal part of the session, not as an add-on or something separate. Discussions will also take place to highlight where else the techniques can be useful to the participants outside of golf e.g. school, home, friends
 - Each session will conclude with a positive reflection – ‘What Went Well Even better if....?’ i.e. actions to improve next time. Participants will be encouraged to practice techniques before the next session and carry out their own reflection to embed and reinforce the learning.
 - Pros will also carry out reflection on their own performance in the session and take action to improve their coaching in the next session.

Initial Programme Delivery and Assessment

Each of the Teaching Professionals then recruited a group of young people, aged between 11 and 16 years, to participate in the first phase of programme. Each of these young people were requested to complete an MTQ48 assessment at the start and at the end of the ten-week programme.

Review of Results with PGA Teaching Professionals

At the end of the first delivery phase, the project team met to review the programme delivery. What went well, examples of good practice, lessons learned and what areas needed improving.

Actions to improve delivery of the programme were discussed, and the Teaching Professionals agreed to deliver a second phase of the programme incorporating the agreed improvements.

Other elements were also added to our “core principles” following the review:

- Participants are taught that it’s OK to make mistakes and not to be scared of failing a task – the key thing is to learn from each mistake.
- Commit to the process not the outcome.
- Use of language is really important – e.g. ‘relish the challenge’, ‘control the fizz’, ‘butterflies are good’
- Young people are encouraged to ask questions of themselves and self-reflect

Second Phase Programme Delivery and Assessment

Each of the Teaching Professionals recruited a second group of young people, again aged 11-16, to participate in the programme. Each was requested to complete an MTQ48 assessment at the start and at the end of the ten-week programme.

Final Review of Results

The project team met for a final time to discuss the results and share their experience and learning from this phase of programme delivery.

Analysis of Results

Analysis of the results was led by John Perry of MIC, supported by AQR Ltd. and Rachel Hearty from Yeast. This analysis was to determine whether the programme had had a significant impact on the Mental Toughness of the participants.

The MTQ Psychometric Measure

We chose to assess the impact of the ten-week Skills for Life programme by using the MTQ48 psychometric assessment to measure any changes in the Mental Toughness of the participants from the start to the end of the programme.

MTQ48 is a valid, reliable psychometric assessment which measures Mental Toughness. It was developed by Professor Peter Clough of the Huddersfield and AQR Limited, a leading psychometric test provider.

Mental Toughness defines how effectively individuals deal with stress, pressure and challenge. It describes the mindset that every person adopts in everything they do and is closely related to qualities such as character, resilience and grit. We can measure these qualities with the MTQ48.

Most psychometrics focus on the measurement of behaviours (how we act) and attributes (how we feel) – MTQ48 looks at how we think, which is a key driver for the development of behaviour and attributes.

Research carried out under the direction of Professor Peter Clough has identified the four key components of Mental Toughness. These are called the 4 Cs – Control, Commitment, Challenge and Confidence.

A significant amount of research has been carried out which demonstrates a correlation between increased levels of Mental Toughness and:

- Performance of an individual (in exams, tests and other measurable outcomes)
- Positive behaviours
- Employability
- Wellbeing
- Reduced levels of bullying and antisocial behaviours

If the Skills for Life Programme can be shown to have a positive impact on the Mental Toughness of the participants, the social impact of the programme can be demonstrated.

Yeast Ltd

Yeast Ltd, Formerly AQR Coaching, is an organisation which specialises in helping organisations get the most out of their people. They are the experts in applying Mental Toughness, coaching and a range of other techniques to improve the performance of individuals, teams and organisations.

The team at Yeast have all had successful careers across a wide range of sectors and disciplines and are all qualified Coaches with significant levels of experience in using Mental Toughness to help individuals and teams grow.

Most of Yeast's work involves working with Senior Management teams in large and medium size organisations, enabling them to transform the culture and the performance, mindset and behaviour of the employees.

However, Peter Wortley and Jason Skelton, two of the Senior Partners in Yeast, have a passion for helping young people and regularly dedicate some of their time to this area. This activity brings new learning into the team back at Yeast and helps inform and improve the services we offer to our core clients.

Overview and Feedback from Participants

The Two-Day Workshop

The two-day workshop was highly interactive and feedback all participants engaged with the theory on day 1 and contributed to the development of the programme on day 2.

Feedback from everyone who took part was extremely positive, one example is:

**“I was so impressed with the quality of the content over the two days
..... it’s great to see someone so passionate about what they are
delivering, yet still be willing to let us design the programme and just
guiding us to get the best end product.”**

Matt Edgar

Outputs from the workshop enabled the Yeast and Golf Foundation teams to detail a ten-week Skills for Life programme along with creating a Coaches Handbook and Participants Handbook to support the delivery of the programme.

Skype calls and social media groups were arranged between the PGA Teaching Professionals in order to maintain their engagement and share experience and best practice. These, however, were poorly attended over the Summer due to the limited time the PGA Teaching Professionals had available over this peak teaching season.

Initial Review Meeting

Only four of the seven PGA Teaching Professionals (Pros) who attended the workshops managed to successfully deliver the first phase of the Skills for Life Programme.

Reasons for the two not completing the delivery are not clear as very little feedback was received from these Pros and they did not attend the review, despite having been invited.

All the Pros who attended were extremely positive about the Programme and cited examples of where the tools they had incorporated into their lessons had benefitted the young people, both in their golf and in other areas. A couple of Pros gave poignant examples:

“One of my group had issues in being excluded from lessons and school for losing their temper and reacting to provocation a regular basis. We practiced using breathing techniques and demonstrated how they control the “fizz” inside. Since then, they are using them both on the course and in school to keep calm. As a result they have avoided exclusions for the past 6 weeks, which is exceptionally rare for them.”

Alex MacGregor

“A number of my group had the 11+ exams during the period we were delivering the program and we had a good discussion on how many of the techniques we had practiced would help them in taking the tests.

The following week two of them fed back that they had used the techniques in preparation for the tests and they had really helped them to focus and remain calm”

Zachary Marsh

One of the issues from the first phase was getting participants to complete the MTQ48 psychometric measure online. Coaches were reliant upon participants completing the measure once they went home and went online as they had no ability to do this during a lesson. In practice, this did not happen consistently and Pros were having to chase participants repeatedly to complete the measure.

It was agreed, due to a shortfall in the number of completed assessments, that the Pros would all deliver a second phase of the programme to a new group of participants. All the participants were keen to do so to help them complete the learning they had made so far.

One of the improvements agreed for the second phase was to ask participants to complete a paper copy of the test during the first and last session. These would then be inputted into the system by the Yeast team at the end of the program.

Final Review Meeting

The three Teaching Professionals who attended this review session all reported on their findings and experience. Unfortunately, due to other commitments, one was unable to attend but subsequently sent in his results. Each of the Coaches reported and focussed on different aspects of the Skills for Life Programme:

Tom Hide (Frinton) – reflected on aspects of improving the ability of participants to handle pressure and challenge and improve their buy-in and commitment.

Alex MacGregor (Addington Court) – reflected on how he had focused on life control and building confidence.

Zachary Marsh (Tonbridge) – reflected on how emotional control techniques had proved extremely powerful and how commitment to the sessions had been built during the programme.

Interestingly, when the results were reviewed, it highlighted differences between the clubs in line with the Pros' reflections above:

Frinton participants showed a large increase in challenge and commitment scales, as well as overall Mental Toughness.

Addington Court participants showed large increases in life control and Confidence in abilities, as well as in challenge and overall Mental Toughness.

Tonbridge participants showed large increases in commitment, emotional control and interpersonal confidence as well as overall Mental Toughness.

When the results were grouped together, they demonstrated a sizeable increase in overall Mental Toughness across all of the participants and looked extremely promising that the programme had made a difference to the participants involved.

Pros also fed back that they felt that both the training and process of delivering the programme had greatly benefitted their coaching practice in a number of ways:

- They had moved from teaching golf to coaching it and their style had changed as a result. Several of the Pros reported that they felt their communication with adult clients had improved as a result of the training and practice, and had received feedback that the quality of their lessons had significantly improved.
- They were able to differentiate the interventions required for each player with more experience.
- All felt that they could 'read people better' as a result of the training.
- The Skills for Life Programme was useful in selling the benefits of lessons to parents - many parents had improved their commitment to support their children attending the sessions as a result and it was expected that drop-out rates and recruitment would be improved.
- Coaches felt that the Skills for Life training helped them differentiate themselves from other Teaching Pros in the area, both with young people and adults.
- A couple of the Pros had talked to local schools about the program with an extremely positive reception.
- All the Pros felt that the flexibility of the program allowed them to deliver lessons in their own style, only better.
- One of the Pros had moved onto using the Mental Toughness feedback with members of his own coaching team, with an extremely positive effect.
- One Pro reflected that two of his juniors involved in the study had begun to help as young volunteers at his coaching and holiday sessions, with one boy wanting to become a Golf Coach.

Overview of Participant Feedback

Of the participants who completed feedback data:

The average overall impression of the Skills for Life Program, on a scale of 1-10

9.0

The average score of how much the program helped participants cope with stressful situations, on a scale of 1-10

8.14

The percentage of respondents who feel less stressed after completing the programme

85%

The percentage of respondents who feel more able to concentrate after completing the programme

85%

The percentage of respondents who feel they are a better golfer as a result of the programme

100%

The percentage of respondents who have used some of the skills they have learned in activities other than golf

100%

The percentage of respondents who would recommend the program to a friend

100%

Some of the comments received from participants are as follows:

“I used the breathing exercises to help me with my exams at school. As a result, I felt less distracted and more able to concentrate. I feel the programme has helped me with everyday life”

“Visualising and using the breathing techniques helped me calm down in exams and relax. This program makes you better at golf and better outside of golf”

“The programme really helped me in life and in golf. Each week was different and was extremely fun.”

Case Study of a PGA Teaching Professional

Tom Hide

Tom Hide is the owner of, and head Teaching Professional at, Coastal Golf Academy, based in Frinton-on-Sea, Essex. He was part of the original group of Golf Professionals that began the programme in March 2017.

Tom was an enthusiastic participant in the programme from the very start as he quickly recognised the benefits that the focus on Mental Toughness could bring to both his juniors and to his own business. As he is based very close to one of the Partners in AQR Coaching (now Yeast), he was able to benefit from some 1:1 coaching around the principles of Mental Toughness as well as having the Partner attend some of his coaching sessions.

“The programme overall has delivered significant benefits. I’ve been able to take on board lots of elements of Mental Toughness and apply them in my golf teaching to deliver better lessons and ultimately, better results for my juniors.”

Tom was particularly complimentary about the positive impact that building reflection time into his sessions has had on his participants and on him as a golf coach. Taking the time to reflect and review after each session and at the start of the next one was found to be really helpful in keeping focus on the overall objectives, celebrating the positives and managing through the inevitable challenges.

A key outcome for Tom was his ability to coach the participants on his programme to focus more effectively and to thus overcome the many challenges that they encounter on their golfing journey. In doing so, a significant majority of the participants increased their commitment to, and engagement in, the sessions that Tom facilitated.

“We were able to make the practice sessions fun and stimulating, whilst also challenging the juniors along the way. It was great that I didn’t really have to change my fundamental approach to coaching golf, and I was able to easily incorporate the techniques of Mental Toughness that I’d learned as part of the programme.”

A good example of the above approach is the “Pressure Putting” exercise that Tom incorporated into his sessions. Deliberately ramping up the pressure at certain times helped the juniors on the programme to deal with the nerves and fear of failure that so often stops them performing to their full potential. They were encouraged to embrace the situation and acknowledge how they were feeling rather than trying to ignore it, before bringing their focus back onto the task in hand and shutting out the external distractions.

They also used this technique on the golf course – as they walked up to their ball on the fairway, they would start to “switch on” their focus and start to concentrate on their pre-shot routine. Once they’d executed the shot, Tom would then encourage them to “let it go” as it was now done – they could reflect on what went well and what improvements they might make if faced with a similar situation again, but they weren’t allowed to dwell on any negatives. In fact, quite the opposite was true; Tom encouraged his juniors to stop focusing on the outcome (i.e. where their ball ended up) and got them to come up with at least one positive, even if the result was not what they were aiming for.

“Probably the biggest change for me was my increased use of questioning; rather than simply telling a participant what to do, I worked with them to help them to figure it out for themselves, albeit with guidance from me. I learned to use different language to connect with each of my juniors and to really personalise my approach to help bring out the best in each of them.”

In addition to the positive impact the programme has had on his juniors, Tom has also embraced the techniques of Mental Toughness in his business and has seen a number of benefits accrue to him personally. He thus remains a keen and committed advocate of the newly-constituted Skills for Life Programme offered by The Golf Foundation.

Results from Analysis

Summary of the Results

The findings of the analysis indicate significant increases in Commitment, Control, Life Control, Confidence, Confidence in Abilities and Overall Mental Toughness of the participants in the Skills for Life programme during its ten-week duration.

Average Mental Toughness increased in the participants by 20.00% during the Programme. All other scales increased, but only those in the table below showed increases large enough to be significant across the sample size of the study.

SCALE	% INCREASE OVER THE PROGRAMME
OVERALL MENTAL TOUGHNESS	20.00%
COMMITMENT	25.07%
CONTROL	20.10%
LIFE CONTROL	20.00%
CONFIDENCE	16.78%
CONFIDENCE IN ABILITIES	15.95%

The findings indicate that the Skills For Life Programme developed and delivered during the study was effective at increasing overall Mental Toughness and a number of the scales of Mental Toughness.

Full Analysis of the study can be found in Appendix 1.

From studies which have taken place previously, referenced in Appendix 2, it follows that participants in the program should:

- Perform at a higher level in exams, tests etc
- Behave more positively
- Have higher levels of employability
- Experience less stress
- Exhibit reduced levels of bullying and antisocial behaviours

Commentary on the Results

“These Results demonstrate the impact of coaching Skills for Life in a golf-based programme and are exactly what we set out to achieve at the start of the study. Thanks to the hard work and dedication of the entire project team, we have developed a programme which has a significant effect on the Mental Toughness of the participants in it. As a result, the programme has the potential to improve the ability of those who participate in it to deal with stress, pressure and challenge both inside the game of golf and in other aspects of their lives.”

Peter Wortley, Yeast Ltd.

“The belief in Skills for Life has underpinned the programmes of the Golf Foundation for a number of years – however, the results of this study are so exciting because for the first time we can evidence that golf does enhance the wider lives of young people and, thanks to Yeast Ltd and the PGA Coaches involved, we now have a practical and common sense method of helping more PGA Coaches to teach the skills in a normal golf session”

Brendon Pyle, CEO, Golf Foundation

This is an excellent example of the application of the Mental Toughness concept which is delivering real change. The research shows that Mental Toughness is one of the most important enablers in developing young people so that they achieve more, enjoy better well-being and become better equipped to deal with the challenges that they face now and into the future.

Peter Wortley and his colleagues are to be congratulated for using the MTQ48 measure both for diagnosis of individual needs as well as for evidencing change and exactly where that change is happening. If we are to make a difference in situations such as these it will be through evidenced based practice”

Doug Strycharczyk, AQR Ltd.

“These results provide tremendous support for the Skills for Life programme. Mental toughness is a personality trait that is not easily changed. This means that the 15-20% changes seen here are not only significant, but we can reasonably expect them to last a lifetime. The benefits of the programme to the young participants will go far beyond sport performance, as they can fall back onto their increased mental toughness for many of life’s future challenges.”

Dr. John Perry, Head of Psychology, MIC.

Next steps and Recommendations

Given the strength of the results of this study, it is extremely important that the Golf Foundation work on a plan to roll this program out to the wider golf community in the UK.

The recommendations below, therefore, are a combination of how the Golf Foundation raise awareness of the results and power of the programme, along with some suggestions about how the programme can be rolled out in a controlled manner.

Recommendations

1. Publish the findings in an executive summary and share with golfing and non-golfing media. This includes a national media campaign involving GF Ambassador, Andrew Beef Johnson, and potential profile via Naga Munchetty on BBC Breakfast.
2. Retain the 4 PGA Coaches as Skills for Life Ambassadors to help promote the findings and programme to a wider network of HSBC Golf Roots Coaches and other PGA members.
3. Retain the services of Yeast Ltd to help develop and deliver a training module to a wider network of PGA Coaches, with the support of the PGA. This should include the business model for coaches and the selling points to potential parents.
4. Golf Foundation to explore further how the learning from this study can be expanded to resources and training for schools and community groups.
5. Future measurement of participants will not be required but the GF and Yeast could develop a very simple survey (e.g. smiley faces) that can be used to show change from before to after 10-week programme.

Appendices

Appendix 1 – Full analysis of Results

Summary Report

The Golf Foundation

July 2018

Introduction

Forty-two participants completed the mental toughness questionnaire 48 on two occasions with an intervention to develop mental toughness in between.

Descriptive statistics

Data was screened for outliers, missing data, and normality, for which there were no issues (skewness < 2, kurtosis < 2). Descriptive statistics are presented in Table 1. Examination of the minimum and maximum values indicated a range of scores for all components of mental toughness.

Table 1. Descriptive statistics for pre- and post-test mental toughness scores

	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>SD</u>	<u>Skewness</u>	<u>Kurtosis</u>
<i>Pre-test</i>						
Mental Toughness	1.00	8.00	3.95	2.19	.20	-.97
Challenge	1.00	9.00	3.60	2.55	.71	-.73
Commitment	1.00	8.00	3.71	2.16	.33	-.97
Control	1.00	9.00	4.13	1.87	.35	-.11
Control - Emotion	1.00	8.00	4.55	1.94	.16	-.96
Control - Life	1.00	9.00	4.05	1.90	.15	-.07
Confidence	1.00	8.00	4.41	2.14	-.04	-.82
Confidence - Abilities	1.00	10.00	4.64	2.12	-.10	-.19
Confidence - Interpersonal	1.00	10.00	4.19	2.29	.77	.54
<i>Post-Test</i>						
Mental Toughness	1.00	10.00	4.74	2.03	.06	.14
Challenge	1.00	9.00	3.83	2.27	.61	-.56
Commitment	1.00	8.00	4.64	1.82	-.31	-.49
Control	1.00	9.00	4.98	1.91	-.05	-.15
Control - Emotion	1.00	9.00	4.95	2.04	-.08	-.83
Control - Life	1.00	10.00	4.86	1.88	.63	.89
Confidence	1.00	10.00	5.14	2.19	.07	-.70
Confidence - Abilities	1.00	10.00	5.38	2.38	.08	-.71
Confidence - Interpersonal	1.00	8.00	4.67	1.98	-.06	-.64

For all variables, mental toughness was slightly below the norm, which would be expected for such a group, but on average, all variables fell within the moderate category relative to normative values. A cursory glance at the mean values indicates that all variables increased from the pre-test to the post-test. It is necessary however, to test the statistical significance of each mean difference to determine the likelihood that this result came about by chance or as the result of intervention. To achieve this, a paired-samples t-test was conducted. The results of this are presented in Table 2.

Table 2. Pre- and post-intervention scores for mental toughness variables

Variable	<i>M</i> _{diff}	<i>t</i>	<i>p</i>	<i>d</i>
Mental Toughness	.79	2.65	.011	.41
Challenge	.24	0.60	.551	.09
Commitment	.93	3.06	.004	.47
Control	.83	2.88	.006	.45
Control – Emotion	.41	1.30	.202	.20
Control – Life	.81	2.86	.007	.44
Confidence	.74	2.84	.007	.44
Confidence – Abilities	.74	2.87	.007	.44
Confidence – Interpersonal	.48	1.69	.098	.26

Note. *M*_{diff} = mean difference, *t* = critical t-value, *p* = p-value for probability of null hypothesis being true, *d* = Cohen's *d* effect size.

The findings of the paired-samples *t*-test indicate statistically significant increases in commitment, control, life control, confidence, confidence in abilities, and overall mental toughness. To correct for multiple comparisons, we employed the Benjamini-Hochberg method of false discovery rate. This method calculates a *q* value which *p* must be less than to determine if the observed effect is likely to be statistically significant or a false discovery (i.e., by chance). All *p*-values below .0333 were considered statistically significant and therefore, none of the findings were considered to be false discoveries.

Next, we consider each of the variables individually.

Mental Toughness

Overall mental toughness presented a statistically significant increase between pre- and post-test scores. The mean difference of .79 from the pre-test value of 3.95 represents an increase of 20.00% (Figure 1).

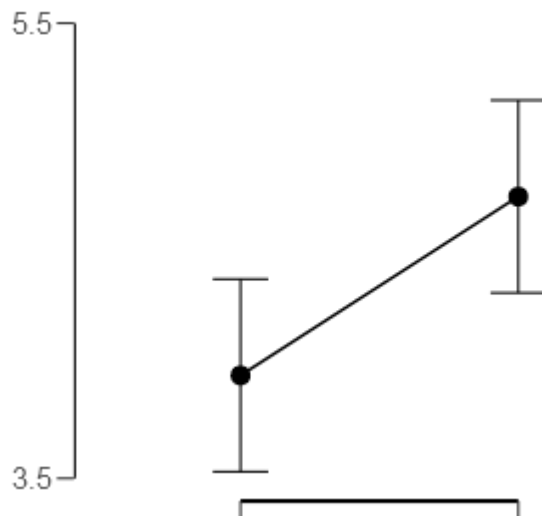


Figure 1. Pre- to post-test effects for mental toughness

Challenge

Challenge did not significantly change over the test period (Figure 2), presenting only an increase of 6.67%.

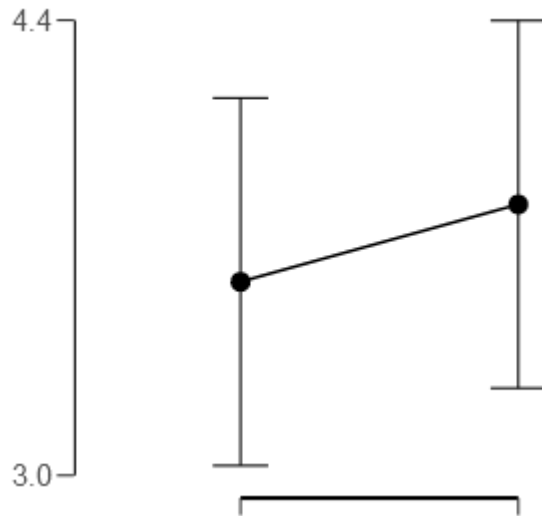


Figure 2. Pre- to post-test effects for challenge

Commitment

The largest difference was present for commitment, which increase by .93 from the pre-test score of 3.71, representing an increase of 25.07% (Figure 3).

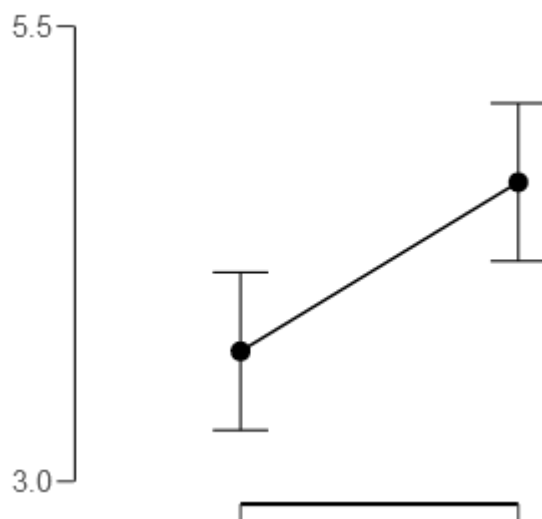


Figure 3. Pre- to post-test effects for commitment

Control

Overall control significantly increased in the pre- and post-tests (20.10%; Figure 4). Of the subscales, there was a significant increase in life control (20.00%; Figure 5), but not for emotional control (9.01%, Figure 6).

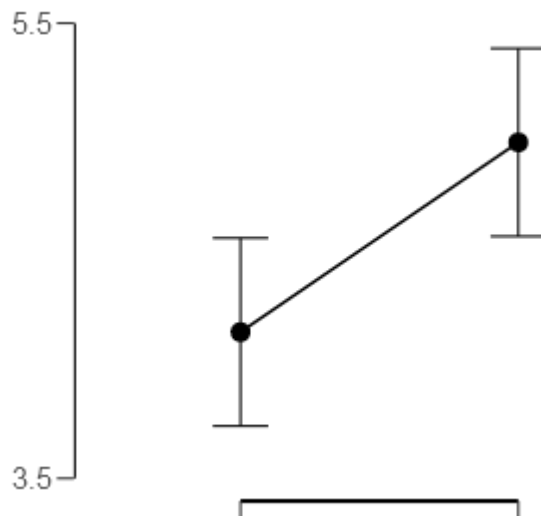


Figure 4. Pre- to post-test effects for control

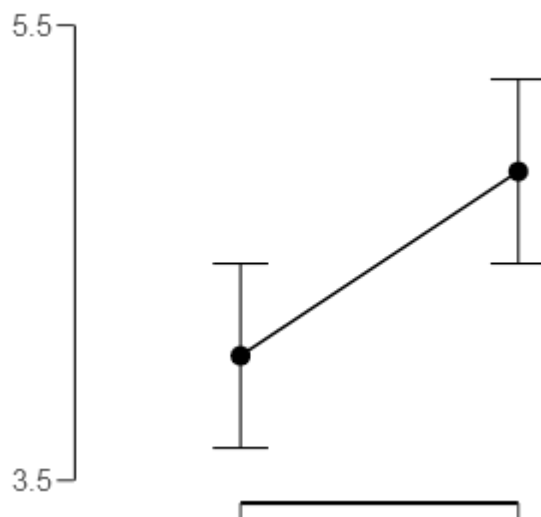


Figure 5. Pre- to post-test effects for control - life

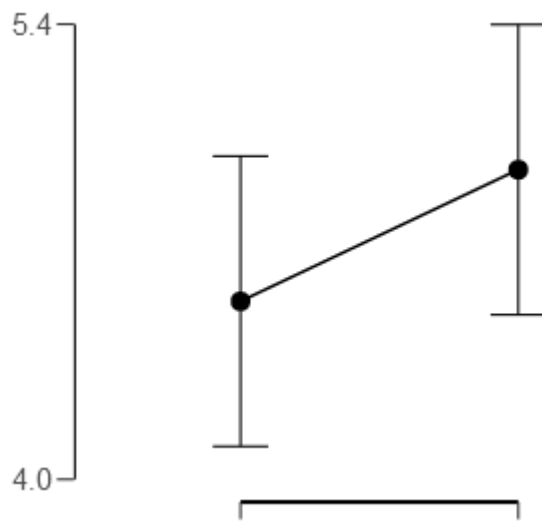


Figure 6. Pre- to post-test effects for control - emotion

Confidence

Overall confidence significantly improved from pre- to post-test (16.78; Figure 7). A similar significant effect was evident for confidence in abilities (15.95%; Figure 8), but there was no statistically significant effect for interpersonal confidence (11.46%; Figure 9).

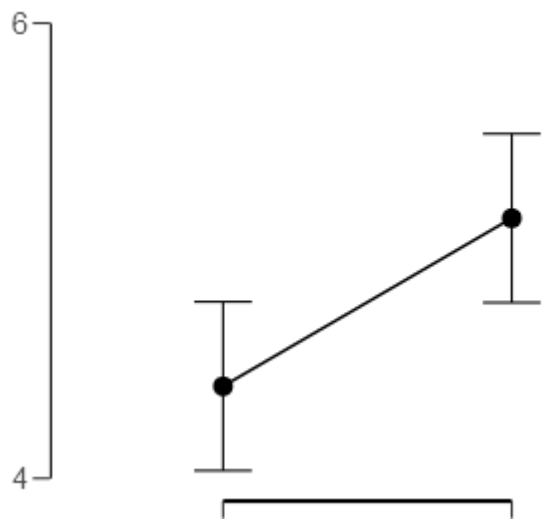


Figure 7. Pre- to post-test effects for confidence

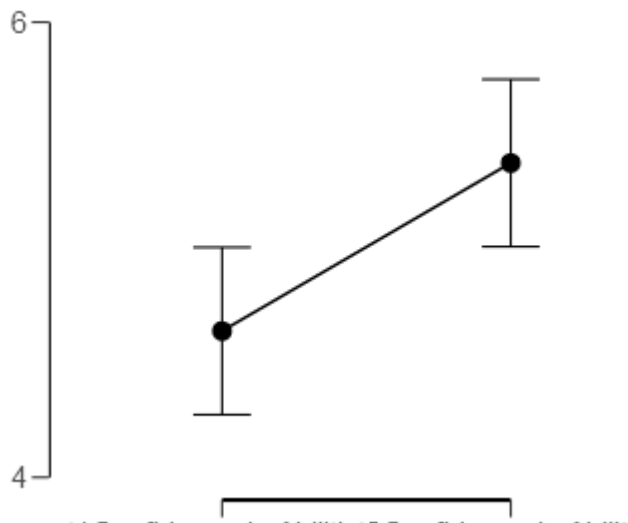


Figure 8. Pre- to post-test effects for confidence - abilities

Confidence Interpersonal

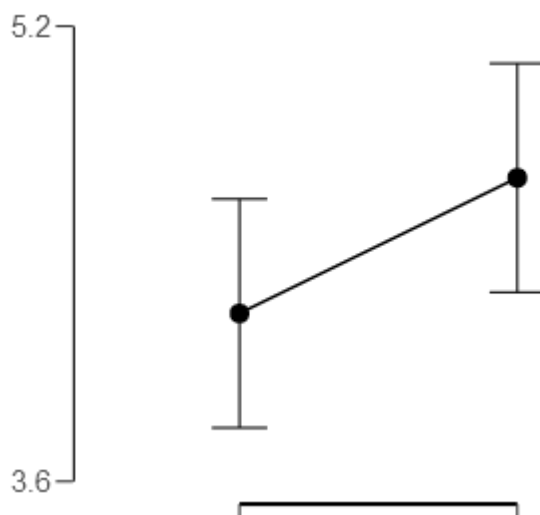


Figure 9. Pre- to post-test effects for confidence - interpersonal

Appendix 2 – References and other research papers

Clough, P.J., Earle, K., Crust, L., Nabb, S., & Clough, A. “Mental toughness in higher education: Relationships with achievement and dropout in University students”

St Clair-Thompson, H., Bugler, M., McGeown, S., Clough, P. “Adolescent’s classroom behaviour: The contributions of motivation and mental toughness”

St Clair-Thompson, H., Bugler, M., Robinson, J., Clough, P., McGeown, S. and Perry, J.L. “Mental toughness in education: Exploring relationships with attainment, attendance, behaviour and peer relationships”