

CRASHING INTO POTENTIAL (CIP) is a wellbeing program delivered to Australian school students in years F-12. This study was done on a VCE-VM Literacy and Well-being program delivered to students between the ages of 16-18, attending a professional training organization engaged by their school, to complement their education. The study was designed to measure the capacity that the CIP framework - used in all CIP programs - has, to influence the resilience of students, therefore increasing their ability to overcome adversity when facing strenuous and difficult life events. CIP is a 10-week program that comprises recourses for teachers with lesson plans, Scott's memoir *CRASHING INTO POTENTIAL: Living with my injured brain* (Years 9, 10, 11, 12), a CIP 1-hour keynote presentation, student workbooks, and the CIP 10-week Overcoming Adversity Workshop. Students in this study started the program by listening to Scott present a 1-hour keynote presentation. Following this, students read the memoir and completed the CIP literacy resources and workshop. The program was completed by 19 students, with 19 students completing two resilience scales, CD-RISC and ARS-30, on three occasions – before the program started, during week 5, and upon completion of the program with the largest increase made during weeks 5 to 10. The program's content has been designed by Scott B Harris and his team of professional psychologists and teachers, to teach students the skills of overcoming adversity that Scott has learnt in his life's journey of overcoming adversity himself. The study was completed by Scott B Harris, Michael Butson, and Prof. John Hattie ONZM.

Quality of the measures

As the sample size is small, the results from all three administrations were used simultaneously to investigate the factor structure to ascertain the quality of the measures.

Academic Resilience Scale. Cassidy (2016) introduced the *Academic Resilience Scale*, using 532 undergraduate students, and reported three underlying dimensions: perseverance, reflecting and adaptive help-seeking, and negative affect and emotional response. Using a maximum-likelihood model with correlated factors (Promax rotation) there was evidence of two of these Cassidy' factors, but a stronger Coping with Stressors factor. The reliability

(coefficient alpha) estimates for these three were .88, .86, and .86, respectively, providing strong confidence in using the total scores for these students.

Perseverance related to continuing to act, having the confidence to face challenges, not being discouraged by failure, and adaptability to change.

Coping with stressors related to bouncing back, making difficult decisions, dealing with whatever occurs, staying focused and skills in coping with stress.

Adaptive help seeking related to having a strong purpose in life, skills to attain goals and meet roadblocks, feeling in control, welcoming challenges, and knowing where to seek help.

	Perseverance	Coping with stressors	Adaptive help seeking
20. In dealing with life's problems, sometimes you have to act on a hunch without knowing why.	0.97	0.03	-0.28
5. Past successes give me confidence in dealing with new challenges and difficulties.	0.73	0.11	-0.03
16. I am not easily discouraged by failure.	0.66	0.19	0.05
17. I think of myself as a strong person when dealing with life's challenges and difficulties.	0.64	0.12	0.05
6. I try to see the humorous side of things when I am faced with problems.	0.63	-0.22	-0.22
9. Good or bad, I believe that most things happen for a reason.	0.55	-0.29	0.39

15. I prefer to take the lead in solving problems rather than letting others make all the decisions.	0.53	0.03	-0.01
1. I am able to adapt when changes occur.	0.52	0.28	0.13
19. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.	0.44	0.22	0.02
10. I give my best effort no matter what the outcome may be.	0.42	0.09	0.09
25. I take pride in my achievements.	0.32	0.27	0.22
8. I tend to bounce back after illness, injury, or other hardships.	-0.09	1.07	-0.19
18. I can make unpopular or difficult decisions that affect other people, if it is necessary.	0.11	0.69	0.05
4. I can deal with whatever comes my way.	0.21	0.65	-0.07
2. I have at least one close and secure relationship that helps me when I am stressed.	-0.11	0.50	0.13
14. Under pressure, I stay focused and think clearly.	-0.05	0.48	0.43
7. Having to cope with stress can make me stronger.	0.02	0.43	0.26
12. Even when things look hopeless, I don't give up.	0.42	0.43	-0.05
21. I have a strong sense of purpose in life.	-0.01	0.03	0.87

24. I work to attain my goals no matter what roadblocks I encounter along the way.	0.14	-0.10	0.77
3. When there are no clear solutions to my problems, sometimes fate or God can help.	-0.33	0.00	0.74
22. I feel in control of my life.	-0.18	0.22	0.64
23. I like challenges.	0.42	-0.27	0.62
13. During times of stress/crisis, I know where to turn for help.	-0.05	0.38	0.50
11. I believe I can achieve my goals, even if there are obstacles.	0.04	0.34	0.42
Correlations between the factors			
Perseverance	1.00		
Coping with stressors	0.59	1.00	
Adaptive help seeking	0.49	0.60	1.00

Connor-Davidson Resilience Scale. The Connor-Davidson Resilience Scale was based on 806 adults with many having resilience related issues. There were four correlated factors named Motivate to keep trying, Hardiness, Increased monitoring, and Giving up. The reliability (coefficient alpha) estimates for these four factors were .88, .51, .68 and .55, respectively providing strong confidence in using the total scores for the first and third scales, and caution for the second and fourth scores.

Motivate to keep trying related to setting goals and keep trying, using past successes to motivate, and facing difficulties.

Hardiness was related to stopping negative thoughts, working harder, using feedback, considering new solutions, and considering strengths and weaknesses.

Increased monitoring related to rewarding performance, evaluating achievement and effort, and seeking encouragement and feedback.

Giving up related to being disappointed, annoyed and blaming others

	Motivate to keep trying	Hardiness	Increased monitoring	Giving up
16. *I would keep trying	0.95	-0.19	0.00	0.03
25. I would set my own goals for achievement	0.85	-0.04	-0.03	-0.08
18. *I would use my past successes to help motivate myself	0.70	-0.06	0.13	0.09
19. I would begin to think my chances of getting the job I want were poor	0.65	0.07	-0.21	0.08
24. *I would try different ways to study	0.65	0.23	0.09	-0.36
23. *I would stop myself from panicking	0.60	0.16	-0.24	0.09
28. *I would feel like everything was ruined and was going wrong	0.60	0.02	-0.17	-0.07
17. *I would not change my long-term goals and ambitions	0.59	0.21	-0.01	0.03
26. *I would seek encouragement from my family and friends	0.47	0.21	0.07	0.07

7. I would begin to think my chances of success at university were poor	0.29	0.01	0.27	0.18
9. *I would do my best to stop thinking negative thoughts	-0.29	0.97	-0.17	0.28
11. *I would work harder	0.19	0.79	-0.30	0.01
2. *I would use the feedback to improve my work	0.08	0.73	-0.11	-0.14
4. *I would use the situation to motivate myself	-0.01	0.68	0.26	0.08
13. *I would try to think of new solutions	0.13	0.66	0.01	-0.14
3. I would just give up	0.20	0.56	-0.26	0.13
8. *I would see the situation as a challenge	-0.14	0.52	0.14	0.10
21. *I would seek help from my tutors	0.05	0.47	0.45	-0.14
27. I would try to think more about my strengths and weaknesses to help me work better	0.15	0.44	0.39	-0.08
12. I would probably get depressed	0.12	0.41	-0.09	0.27
5. I would change my career plans	0.19	0.39	0.03	-0.05
30. *I would look forward to showing that I can improve my grades	0.28	0.34	0.17	0.05
29. *I would start to self-impose rewards and punishments depending on my performance	-0.34	-0.01	0.88	-0.03

20. *I would start to monitor and evaluate my achievements and effort	-0.16	0.45	0.57	-0.03
22. *I would give myself encouragement	0.31	0.23	0.52	0.16
1. I would not accept the tutors' feedback	-0.08	0.26	-0.31	-0.11
14. I would be very disappointed	0.09	-0.12	0.10	1.00
6. I would probably get annoyed	0.19	-0.07	0.08	0.60
15. I would blame the tutor	-0.29	0.21	-0.08	0.35
10. *I would see the situation as temporary	0.10	0.19	0.19	0.32
Correlations between the factors	1	2	3	4
Motivate to keep trying	1.00			
Hardiness	0.63	1.00		
Increased monitoring	0.43	0.45	1.00	
Give up	0.39	0.40	0.07	1.00

(Questions noted with a * have been reversed.)

Differences over time

A repeated measures analysis of variance was used to detect differences over the three times. Caution is needed as the sample size is very small (N=20); thus, the statistical power to detect significant differences is low. There were overall differences (Wilks Lambda.302, Mult.F = 2.34, df = 14, 40, P = .018). The univariate F-ratios show significant changes in the three ARS scales but less so in the three Connors scales- and no change in Increased monitoring.

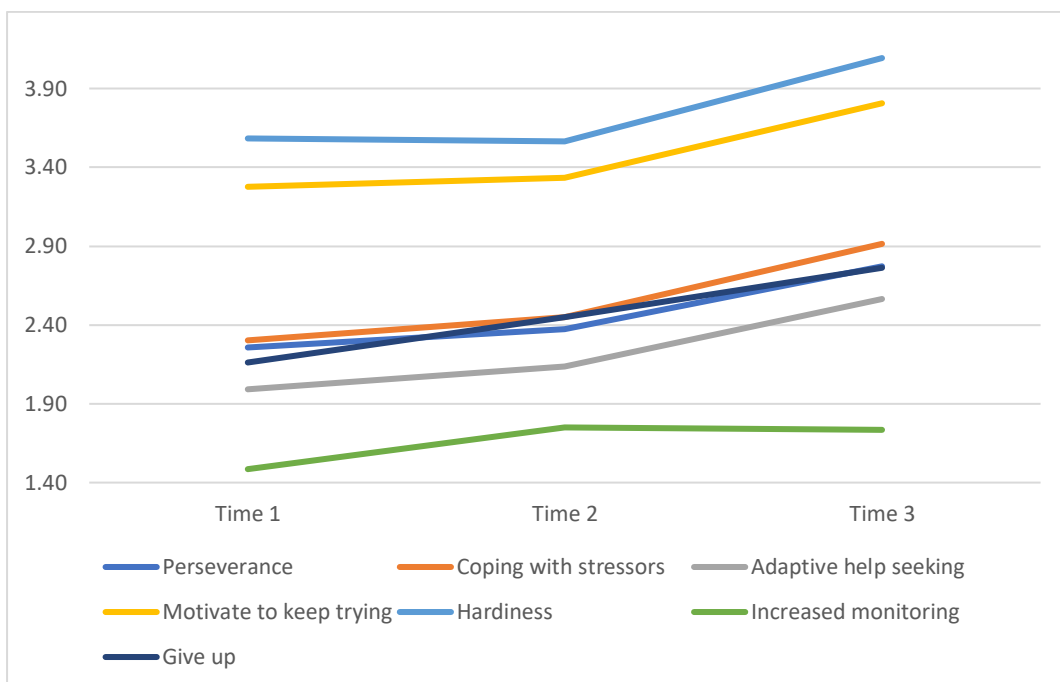
	F	df	p	Time 2 - 1	Time 3 - 2
Perseverance	12.57	2, 26	<.001	0.17	0.54
Coping with stressors	13.01	2, 26	<.001	0.21	0.58
Adaptive help-seeking	12.34	2, 26	<.001	0.17	0.53
Motivate to keep trying	5.24	2, 26	0.020	0.07	0.62
Hardiness	7.59	2, 26	0.003	-0.03	0.68
Increased monitoring	0.23	2, 26	0.750	0.28	-0.02
Give up	10.19	2, 26	0.002	0.42	0.50

The effect-sizes show there were improvements from Time 1 to Time 2, but the greatest changes occurred between Time 2 and 3 -- the current dosage of the program (10 weeks) is likely necessary to initiate major changes. The CIP program had no effects on Increased Monitoring, but important changes in the other 6 scales. Note, the effect-sizes from Time 1 to Time 3 (last column) are appreciable for all but the Motivation scale. The program appears to be having major impact on these students.

	<u>Time 1</u>	<u>SD</u>	<u>Time 2</u>	<u>SD</u>	<u>Time 3</u>	<u>SD</u>	<u>ES (T3 - T1)</u>
Perseverance	2.26	0.66	2.37	0.72	2.77	0.76	0.74
Coping with stressors	2.30	0.60	2.45	0.79	2.91	0.83	0.88

Adaptive help seeking	1.99	0.83	2.14	0.88	2.56	0.74	0.67
Motivate to keep trying	3.28	0.71	3.33	0.89	3.81	0.65	0.66
Hardiness	3.58	0.65	3.56	0.85	4.09	0.69	0.68
Increased monitoring	1.49	0.88	1.75	0.98	1.73	0.79	0.27
Give up	2.16	0.74	2.45	0.64	2.76	0.62	0.87

The differences in the means across the three times is depicted in Figure 1. The students started higher on Hardiness and Motivation to keep trying and the means were similar from Time 1 to 2 but markedly increased in the program's second half. The means for Coping with stressors, Adaptive help seeking, giving up, and Persistence steadily increased from Time 1 through Time 2 towards the higher means at Time 3. There was a small increase in increased monitoring from Time 1 to Time 2 but no change to Time 3. This is an aspect of the CIP program that may need closer attention



The five ARS items that showed most and least change from Time 1 to Time 3 were:

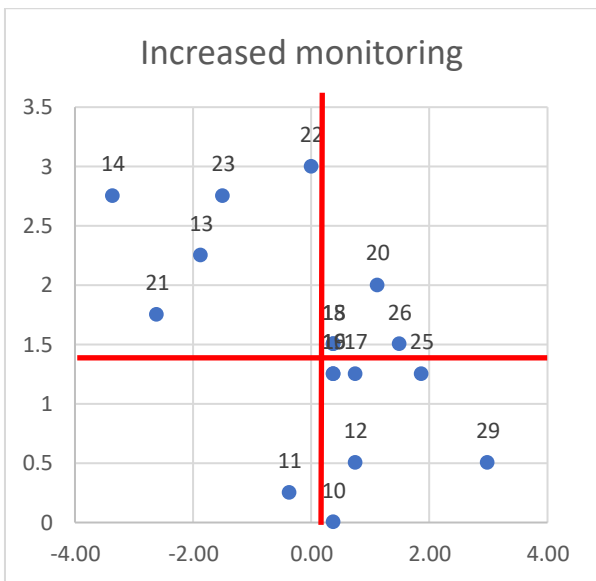
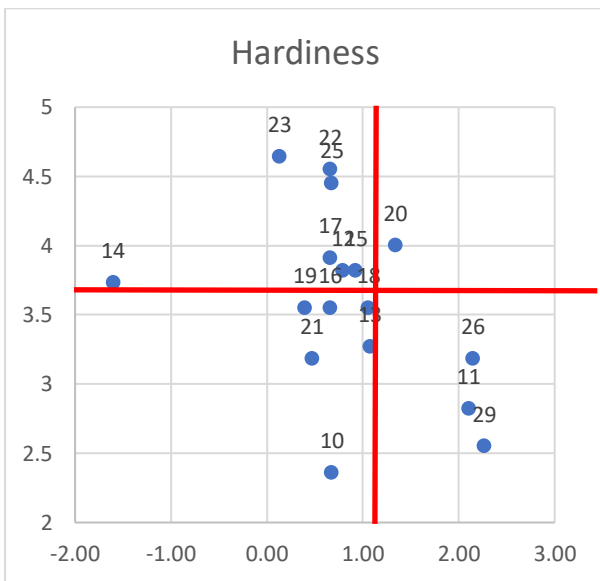
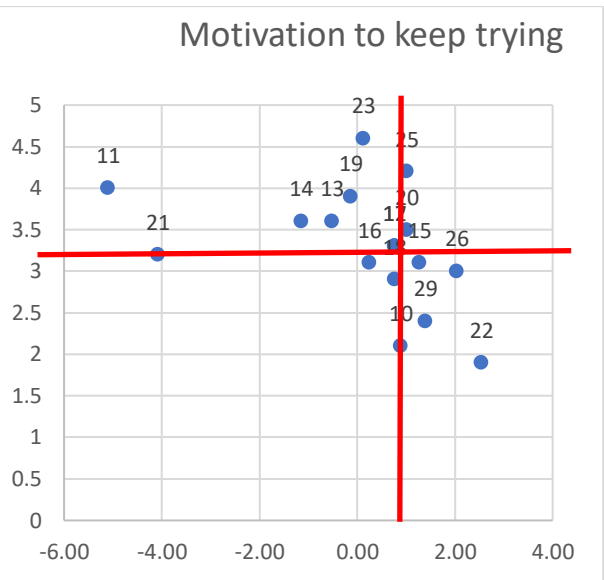
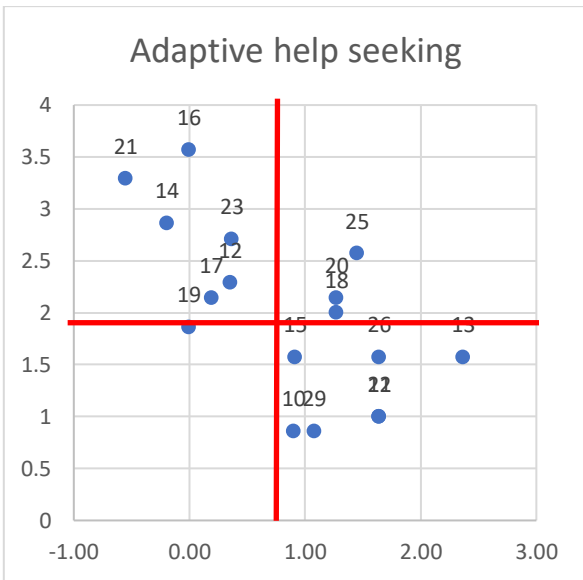
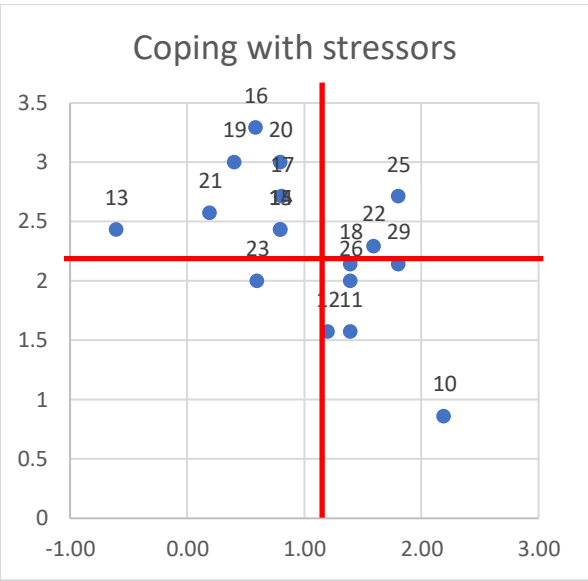
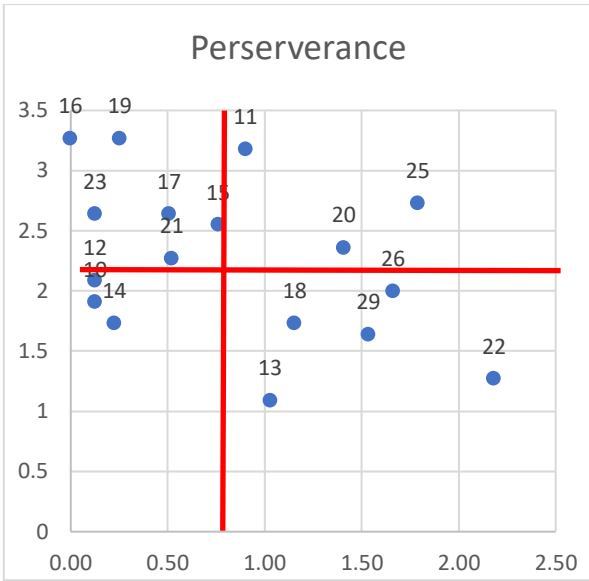
	ES change	Time 1	Time 3
Top 5 most improved items			
<i>2. I have at least one close and secure relationship that helps me when I am stressed.</i>	0.91	2.44	3.44
<i>13. During times of stress/crisis, I know where to turn for help.</i>	0.91	1.94	2.94
<i>16. I am not easily discouraged by failure.</i>	0.81	1.94	2.83
<i>9. Good or bad, I believe that most things happen for a reason.</i>	0.80	2.00	2.89
<i>21. I have a strong sense of purpose in life.</i>	0.74	1.63	2.44
Bottom 5 with least change over time			
<i>22. I feel in control of my life.</i>	0.39	2.13	2.56
<i>17. I think of myself as a strong person when dealing with life's challenges and difficulties.</i>	0.35	2.50	2.89
<i>4. I can deal with whatever comes my way.</i>	0.34	2.63	3.00
<i>20. In dealing with life's problems, sometimes you have to act on a hunch without knowing why.</i>	0.31	2.44	2.78
<i>19. I am able to handle unpleasant or painful feelings like sadness, fear, and anger.</i>	0.03	2.69	2.72

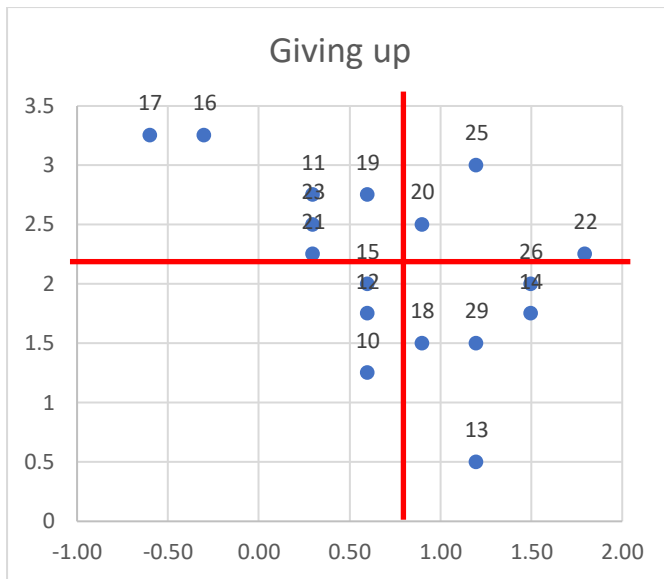
The five Connors-Davidson items that showed most and least change from Time 1 to Time 3 were:

Top 5 most improved items	ES change	Time 1	Time 3
<i>6. I would probably get annoyed</i>	1.39	2.25	3.89
<i>14. I would be very disappointed</i>	1.07	2.19	3.44
<i>23. I would stop myself from panicking</i>	0.96	2.94	4.07
<i>7. I would begin to think my chances of success at university were poor</i>	0.91	2.31	3.39
<i>30. I would look forward to showing that I can improve my grades</i>	0.84	3.75	4.73
Bottom 5 with least change over time			
<i>3. I would just give up</i>	0.34	3.88	4.28
<i>13. I would try to think of new solutions</i>	0.31	3.69	4.06
<i>29. I would start to self-impose rewards and punishments depending on my performance</i>	0.22	2.88	3.13
<i>1. I would not accept the tutors' feedback</i>	0.19	3.50	3.72
<i>18. I would use my past successes to help motivate myself</i>	0.15	3.63	3.80

It is noted that Person 28 had extremely low means on all variables and is need of major support.

The following graphs show the student's gain score (from Time 1 to 3) relative to their starting score on each scale. For example, for Perseverance, students 25, 20, and 26 started above average and made appreciable gains, and students 13, 18, 22, and 29 started below average and made appreciable gains. The other students did not make above-average gains, and it can be seen they were already high on these measures, so this is not surprising. Programs are meant to impact those who start lower. For all scales, the greatest improvements were for those students who started below average.





Conclusions

The two measures appear to have good estimates of reliability and clear factor structures – but the overriding small sample size should provide much caution. There seem to be seven major dimensions measured by these scales:

Perseverance related to continuing to act, having the confidence to face challenges, not being discouraged by failure, and adaptability to change.

Coping with stressors related to bouncing back, making difficult decisions, deal with whatever occurs, staying focused and skills in coping with stress.

Adaptive help seeking related to having a strong purpose in life, skills to attain goals and met roadblocks, feeling in control, welcoming challenges, and knowing where to seek help.

Motivate to keep trying related to setting goals and keep trying, using past successes to motivate, facing difficulties.

Hardiness was related to stopping negative thoughts, working harder, using feedback, considering new solutions, considering strengths and weaknesses.

Increased monitoring related to rewarding performance, evaluating achievement and effort, seeking encouraging and feedback.

Giving up related to being disappointed, annoyed and blaming others.

There were statistically significant differences over time for all but Increased Monitoring. Thus, one aspect of the program worth strengthening relates to enabling students to use feedback and rewarding performance to increase desired behaviors and thoughts. For the other six scales, the effect-size change scores are appreciably high, indicating major changes on these variables over the course of the program. Perhaps not surprising, the changes were greatest for those students who started below the mean at the outset. The program may need strengthening to enable those who start above average to improve or identifying the students who started below average and only invest working with these students.

The items with the greatest changes related to learning about help seeking, dealing with failure, and developing a stronger sense of purpose for life, and improving academic success.

The items with the least changes related to feeling in control over this life, believing they were strong to deal with adversity, seeking solutions, some coping strategies, and dealing with sadness, fear, and anger.

Overall, this small sample of 19 students in 1 class show much promise for the program. Given the small sample size, the likelihood of NOT findings improvement is increased (as low power to detect changes) and that there were changes is exciting.

October 2022