Author/s:
Rickard, NS;Chin, TC;Cross, D;Hattie, J;Vella-Brodrick, DA

Title:
Effects of a positive education programme on secondary school students' mental health and wellbeing; challenges of the school context

Date:
2024-01-01

Citation:
Rickard, N. S., Chin, T. C., Cross, D., Hattie, J. & Vella-Brodrick, D. A. (2024). Effects of a positive education programme on secondary school students' mental health and wellbeing; challenges of the school context. Oxford Review of Education, 50 (3), pp.309-331. https://doi.org/10.1080/03054985.2023.2211254.

Persistent Link:
https://hdl.handle.net/11343/344475

Oxford Review of Education

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/core20

Effects of a positive education programme on secondary school students' mental health and wellbeing; challenges of the school context

Nikki S. Rickard, Tan-Chyuan Chin, Donna Cross, John Hattie & Dianne A. Vella-Brodrick

To cite this article: Nikki S. Rickard, Tan-Chyuan Chin, Donna Cross, John Hattie & Dianne A. Vella-Brodrick (30 May 2023): Effects of a positive education programme on secondary school students' mental health and wellbeing; challenges of the school context, Oxford Review of Education, DOI: 10.1080/03054985.2023.2211254

To link to this article: https://doi.org/10.1080/03054985.2023.2211254

Published online: 30 May 2023.

OXFORD REVIEW OF EDUCATION
https://doi.org/10.1080/03054985.2023.2211254

Effects of a positive education programme on secondary school students' mental health and wellbeing; challenges of the school context

Nikki S. Rickard [a,b], Tan-Chyuan Chin[a], Donna Cross [c], John Hattie [d] and Dianne A. Vella-Brodrick [a]

[a]Centre for Wellbeing Science, Melbourne Graduate School of Education, The University of Melbourne, Melbourne, Australia; [b]School of Psychological Sciences, Monash University, Melbourne, Australia; [c]Telethon Kids Institute, The University of Western Australia, West Perth, Australia; [d]Melbourne Graduate School of Education, The University of Melbourne, Melbourne, Australia

ABSTRACT

Previous research has demonstrated wellbeing benefits for positive education programmes (PEPs) facilitated by clinicians or experts or outside the school context. The current study explored the effects of a Year 10 PEP led by teachers trained in positive education and embedded within the Australian secondary school context. A mixed-methods design compared students receiving PEP ($n = 119$) with a wellbeing-as-usual comparison group ($n = 34$) matched on age and socioeconomic status. Depression, anxiety, autonomy, gratitude and mindfulness levels did not differ between groups. Levels of satisfaction with life and relatedness were significantly higher for the intervention than for the comparison students at the post-intervention time point. Qualitative analyses revealed that students valued having engaging and relatable teachers, brief interactive sessions and personally relevant applied content. School-based PEPs may therefore provide some limited ongoing support as students transition into their senior years of secondary school. Delivering positive education within the school context, however, raises challenges relating to levels of teacher training and availability. Capturing the student voice in the current study was valuable and indicated that both teacher and programme factors were central to student engagement in PEPs.

KEYWORDS

adolescent wellbeing; longitudinal; depression; anxiety; life satisfaction; relatedness

Introduction

Adolescents experience a range of challenges including transition to and throughout secondary school and into emerging adulthood, identity consolidation, social acceptance and sexuality issues (Boldero & Fallon, 1995; Coleman, 2011; Sawyer et al., 2018). These challenges are arguably becoming more complex over recent decades, with a greater diversity in family structures, growth of digital technologies that impact communications with friends and family as well as strangers and an extension of the adolescent period of at

CONTACT Nikki S. Rickard nrickard@unimelb.edu.au Centre for Positive Psychology, Melbourne Graduate School of Education, University of Melbourne, 100 Leicester Street, Carlton 3004, Australia

least five years due to earlier onset of puberty and sexual awareness, and delayed entry into the labour market due to unemployment, massification of higher education and longer periods living in the parental home (Coleman, 2011; Sawyer et al., 2018).

Navigating these challenges is crucial for healthy development (Brady & Kendall, 1992), and while most adolescents adjust to these changes successfully, others experience varying degrees of psychological distress or difficulties. Globally, at least one in 10 adolescents is estimated to experience a mental health condition, with affective disorders, including depression and anxiety, among the most common (World Health Organization, 2017). The risk of many mental health issues increases substantially in the senior years of secondary school, with the 12-month prevalence of major depression increasing from 1.2% in children aged 4–11 years to 4.6% in adolescents aged 12–17 years, and generalised anxiety increased from 1.8% to 2.6% in an Australian sample from 2013 to 2014 (Goodsell et al., 2017). Despite an increased vulnerability to depression and anxiety, adolescents are often reluctant to seek professional help for mental health issues (Rickwood et al., 2007). Universal prevention strategies are therefore advantageous as their delivery is widespread, resulting in lower perceived stigma (Keyes et al., 2010).

Implicit in many theories of adolescent development is the critical role of the environment in shaping and supporting an adolescent's response to key transition milestones. According to the 'stage-environment fit' theory (Eccles, 2004), individual development is dependent on the environment offering opportunities appropriate to their developmental stage, with positive environments increasingly allowing young people to take control of their own development. The school environment, for example, should offer sufficient opportunities for students to direct their own learning rather than be dominated by teacher-led classroom activities (Zimmer-Gembeck et al., 2006), and this is indeed what students are requesting (Vella-Brodrick et al., 2020). Life course theory suggests that key transition points at school (such as from primary to secondary school, and again midway through secondary school) offer important 'discontinuities' that facilitate an adolescent's development, promoting the need to learn new skills and develop new social connections (Coleman, 2011). Graham (2004) argues that schools can help empower students by using teaching methods that increase students' autonomy and responsibility, making the curriculum more 'real world' and offering students a more equal relationship with adults for example through having a say in school governance and teacher quality. Not surprisingly, then, research on school-based wellbeing programmes has shifted from treating mental ill-health, such as depression and anxiety, towards an increased focus on promoting positive functioning. One of the key roles of the school then is to provide an environment which enables adolescents to utilise their strengths to develop their full potential (Zarrett & Lerner, 2008).

School-based wellbeing programmes are especially attractive as they deliver mental health information in a familiar and supported environment. Adolescents spend a substantial amount of time within the school environment (Hofferth & Sandberg, 2001), and cultivating social and emotional wellbeing is increasingly recognised as a fundamental priority in school curricula (e.g. Allen et al., 2018; Seligman et al., 2009; Slemp et al., 2017; Taylor et al., 2017). The connection between the development of these social and emotional skills and academic learning has been demonstrated (see a meta-analysis by Durlak et al., 2011). Socioemotional learning curricula that aim to explicitly teach coping skills and resilience, and raise awareness of the importance of students' strengths, self-determination, positive relationships and emotions, are becoming more

mainstream within schools (Waters, 2011). Hence, there is a growing interest in school-based 'positive education' programmes which focus on helping young people to flourish in life using best practices in education.

Positive education, with its focus on assets, complements existing approaches to school-based mental health and is consistent with a dual model of mental health (Keyes, 2005; Suldo & Shaffer, 2008) in which good mental health is defined as both the absence of mental illness and the presence of positive indices of wellbeing, such as satisfaction with life, resilience and social connectedness. Meta-analyses of school-based programmes designed to prevent or provide early intervention for mental health issues have generally found small but positive effect sizes (Calear & Christensen, 2010; Neil & Christensen, 2009; Tejada-Gallardo et al., 2020). Characteristics of the programme (such as how interactive and practical the programme is) and of the service providers (whether mental health professionals or teachers lead the programme) appear to moderate the impact of school-based programmes (Sandler et al., 2014). Programmes which offer skill practice and active discussion were more effective than more didactic programmes (Tobler et al., 2000), and programmes led by mental health professionals were found to be more effective than those led by teachers for a range of mental health outcomes (Calear & Christensen, 2010; Fisak et al., 2011; Stice et al., 2009; Teubert & Pinquart, 2011; Tobler et al., 2000). A review by Weare and Nind (2011) identified school-based mental health programmes that were embedded within a whole-school approach as most likely to be effective, with changes to school culture, teaching skills, parental education and community involvement all crucial.

An evidence base is building for the benefits of positive education programmes (Vella-Brodrick et al., 2020; Waters, 2011). The framework for many of these programmes has been Seligman's 'PERMA' model of positive psychology, which focuses on enhancement of positive emotions (hedonic wellbeing), engagement and flow, meaning and purpose, positive relationships and achievement (Seligman, 2012; Seligman et al., 2009). Multi-component programmes are thought to be most successful as interventions relating to hedonic wellbeing may yield pleasure in the short term, but interventions focusing on meaning and purpose may yield longer-term impacts (Tejada-Gallardo et al., 2020). For example, the Penn Resiliency Program (PRP) involves regular 90-minute sessions that aim to build coping strategies, raise emotional awareness and teach a flexible and optimistic thinking style. A meta-analysis of studies evaluating the PRP in young (aged 10–13) adolescents showed that the programme significantly reduced depressive symptoms (Brunwasser et al., 2009), yielding a small average effect size of $d = 0.11$ post-intervention. Effects increased somewhat at follow-up time points up to a year later ($d = 0.21$), which the authors suggest may be due to the time it takes for students to apply the skills beyond the classroom. Significant reductions in anxiety levels have also been reported following the PRP (Roberts et al., 2003, 2004). However, when non-randomised studies are excluded, meta-analysis revealed no significant effects of the PRP (Bastounis et al., 2016). The strongest trends observed were for PRPs led by programme developers or trained health professionals (psychologists, social workers or nurses) rather than teachers (Cardemil et al., 2002; Chaplin et al., 2006; Gillham et al., 1995, 2007; Reivich et al., 2013). The fidelity of the programme – including how much of the programme content is covered, and the integrity of coverage – has also been found to be a crucial factor in PRP effectiveness (Gillham et al., 2006). Notably, programmes delivered in school

settings or by school staff (e.g. Harnett & Dadds, 2004; Seligman et al., 2009) appear to have been less effective than those delivered by programme developers or in primary care settings. The PRP includes considerable content in cognitive behavioural therapy, so it is possible that delivery of this subject matter may require more specialised knowledge and training to achieve optimal effects. Irrespective of who delivers the programme, there is evidence to suggest that teacher attitudes to the intervention can influence student outcomes. For example, Quinlan et al. (2019) found that teacher attitudes towards a strengths programme which was delivered by external facilitators mediated student outcomes such as positive affect, engagement, autonomy, competence and relatedness. These authors concluded that teacher training in positive education is vitally important.

Also of importance is the anticipated outcome related to adolescent wellbeing, particularly for those who are in the latter years of high school where there are increased academic and social pressures in addition to rapid physiological and neurological growth. Researchers need to be realistic about the outcomes to be achieved at this time when young people typically experience a decline in mental health (Burke & Minton, 2019; Twenge et al., 2019). Hence, maintaining satisfactory mental health and mitigating the natural decline may be a more feasible outcome than improved mental health (Burke & Minton, 2019). Wellbeing programmes for young people need to be well considered and robust to permeate these real-world challenges. In addition, continued exposure to wellbeing education and training throughout secondary school may be necessary to maintain any benefits achieved from PEPs.

Given the importance of quality and fidelity in the programme content and delivery of PEPs, this level of attention raises another challenge relating to its scalability. A school-delivered programme has benefits relating to high accessibility and efficiency compared with more individualised mental health services; however, the programme buy-in, investment and preparation are of paramount importance prior to programme delivery. In this context, efforts have been made to embed positive education knowledge and skills more strategically and extensively in schools.

The Geelong Grammar School (GGS) positive education programme (GGSPEP), which is the focus of the current study, is strongly embedded in a whole-school approach. GGS is a large, multi-campus, private boarding school which has pioneered positive education in Australia. Since 2008, the school has involved all its teaching and support staff in positive education professional development from experts in the field (Seligman et al., 2009). Staff are involved in initial three-day in-house training in positive education, and parents of students can also attend positive education weekend intensives. Positive education is explicitly taught in dedicated positive education curricula in Years 9 and 10, and these are supported with a 'learn it, live it, teach it, embed it' framework (Hoare et al., 2017) which promotes learning about and applying positive education for the entire school community, as well as providing support structures and application mechanisms which are both formal and informal.

The Year 9 'Timbertop' programme, which is held in a rural location in the Victorian highlands away from the usual school campus, embeds resilience into many aspects of the heavily outdoor focused education (Norrish et al., 2013). Throughout the year-long compulsory programme, students (typically around 100 attend) learn independent living skills required for the secluded bushland, including chopping wood and heating water, and participate with staff in rigorous hiking, rafting, skiing and cross-country runs. The programme also trains students in a range of positive psychology skills including active constructive responding, avoiding thinking traps, character strengths and activating events,

thoughts and consequences (ATC) (Seligman et al., 2009; see Vella-Brodrick et al., 2020 for further details of the Timbertop programme). The Timbertop programme is a clear example of Graham's (2004) idea of empowering adolescents through education as they are given significantly more responsibility in their daily life activities and are given the opportunity to develop and demonstrate their maturity. This programme has yielded significant benefits for measures relating to self-determination theory (i.e. higher levels of autonomy, competence and relatedness), positive psychology (i.e. higher levels of mental wellbeing and satisfaction with life, strengths use and gratitude) and mental health (i.e. lower levels of depression and anxiety measures) when compared with wellbeing-as-usual control schools that have adopted less comprehensive wellbeing programmes (see Table 1; Chin et al., 2022; Vella-Brodrick et al., 2015).

The Year 10 programme takes place at GGS' senior school campus and includes further training on positive psychology topics such as resilience, gratitude and growth mindset in both dedicated positive education classes and embedded within regular curriculum. Unlike the benefits of the GGS Year 9 Timbertop programme, the impact of the school-based Year 10 programme at GGS has not been reported. Given the high level of teacher training and whole-school approach to positive education at GGS (see Hoare et al., 2017), the Year 10 programme offers a robust exemplar of a well-resourced positive education programme led by trained teachers and offered within the school context. It is also an extension of the highly effective Year 9 PEP that most of the Year 10 students have experienced and, hence, serves to maintain these heightened states of wellbeing, despite the increased risks of mental health decline.

The aim of the current study was to conduct a small-scale evaluation of the mental health and wellbeing outcomes of the school-based Year 10 GGSPEP. Consistent with a dual model approach to mental health, a range of mental health and wellbeing measures were assessed, including depression and anxiety, mental

Table 1. Descriptive statistics (mean [standard deviation]) for mental health and wellbeing measures from Year 9 Timbertop experiences (reproduced with permission from Chin et al., 2022).

	Comparison	GGSPEP
Depression**		
Pre-programme	4.51 (4.39)	4.72 (4.36)
Post-programme	5.09 (4.37)	3.47 (3.84)
Anxiety**		
Pre-programme	4.56 (3.76)	4.62 (3.76
Post-programme	4.57 (3.74)	3.28 (3.54)
Stress		
Pre-programme	6.42 (4.62)	6.63 (4.15)
Post-programme	7.46 (4.24)	6.15 (3.81)
Mental Wellbeing**		
Pre-programme	49.04 (8.92)	49.45 (8.41)
Post-programme	48.30 (8.89)	52.58 (7.62)
Satisfaction with Life**		
Pre-programme	4.50 (1.05)	4.52 (0.95)
Post-programme	4.37 (1.02)	4.97 (0.68)
Strengths Knowledge**		
Pre-programme	39.81 (7.96)	40.22 (9.03)
Post-programme	39.06 (7.70)	42.28 (6.68)
Strengths Use*		
Pre-programme	67.41 (14.63)	68.76 (15.45)
Post-programme	66.08 (14.05)	70.73 (12.26)

**$p < .001$, *$p < .05$.

wellbeing, fulfilment of psychological needs (autonomy, competence and relatedness), gratitude and mindfulness. Qualitative data were also obtained to explore students' experience with the content and delivery of the PEP. In contrast to much previous research, the PEP was delivered by school facilitators who had been extensively trained by PRP experts.

A comparison group matched on age and socioeconomic status also received school-based wellbeing programmes, but these were not as extensive as the GGSPEP. It was predicted that the GGSPEP would maintain satisfactory wellbeing levels for the GGS students relative to the comparison school students.

Method

Participants

The sample consisted of 153 students; 119 students were in the GGSPEP intervention group (64 M, 55 F; mean age 15.11, SD 0.58), while 34 were in the comparison group (wellbeing-as-usual programmes offered by matched private schools) (28 M, 6 F; mean age 15.24, SD 0.55). The GGS is a semi-rural, independent private school located approximately 65 km from the Melbourne CBD. To enable a comparison of wellbeing with schools of similar socioeconomic demographics to GGS, students from independent private schools only were recruited. This resulted in one boys-only and one co-educational boarding school being included in the comparison group – all of which were independent private schools. The comparison schools comprised representation from both rural and metropolitan schools. There was, however, differential uptake of the invitation to participate in this research, with 84% of eligible students from GGS participating, while only 40% of eligible participants from the comparison schools participated. All but 10 students in the GGSPEP had also participated in the GGS Year 9 Timbertop programme (92%).

Intervention (GGS) and comparison groups were equivalent on age demographics, $t(151)=-1.13$, $p = .26$. A chi-square analysis indicated that the gender ratio differed across groups, with a higher male:female ratio in the comparison group than in the intervention group (as expected due to the inclusion of a boys-only school in the comparison group). Results must therefore be interpreted with caution given the gender differences, and other potential differences between the treatment and comparison schools that are beyond experimental comparison. A Mann-Whitney U-test on postcode indices of socio-economic status (SES) revealed that the groups were matched on SES, with about a third from high SES (GGS: 30%, comparison 32%), and the majority of the rest from average SES (GGS 57%, comparison 65%). In addition, all schools had similar socio-economic levels with all three ICSEA values ranging from 1,110 to 1,156, which was above average. A randomly selected subset of Geelong Grammar students ($n = 33$; 15 females and 18 males) also participated in four focus groups at the end of the year.

Measures

The online survey contained a range of psychological questionnaires and scales which formed part of a larger study. The measures utilised in this study, which all have sound psychometric properties, are described in Table 2.

Table 2. Questionnaires reported in this study, with sample items.

Variables	Questionnaire	Description and reliability for this sample
Mental illness (depression and anxiety)	Patient Health Questionnaire Kroenke et al. (2009)	• Four-item measure of anxiety and depression symptoms • Rated on a 4-point scale from 1='Not at all' to 4='Nearly every day' • Cronbach's α = .83
Mental wellbeing	Short Warwick-Edinburgh Mental Wellbeing Scale Tennant et al. (2007).	• 7-item measure of mental wellbeing • Rated on a 5-point scale from 1='None of the time' to 5='All of the time' • Cronbach's α = .89
Life satisfaction	Students' Life Satisfaction Scale Huebner (1991)	• 7-item measure of global life satisfaction in children • Rated on a 6-point scale from 'Strongly disagree' to 'Strongly agree' • Cronbach's α = .81
Autonomy, competence & relatedness	Children's Intrinsic Need Satisfaction Scale Véronneau et al. (2005)	• 18 items that assess adolescents' autonomy, competence and relatedness across three contexts (at home, at school and with friends) • Rated on a 5-point scale from 1='Not true for me' to 5='Really true for me' • Cronbach's α = .89
Resilience	Connor-Davidson Resilience Scale Connor and Davidson (2003)	• 10-item measure of resilience • Rated on a 5-point scale from 'Not true at all' to 'True nearly all the time' • Cronbach's α = .91
Gratitude	Gratitude Questionnaire McCullough et al. (2002)	• 6-item measure of gratitude • Rated on a 7-point scale from 1='Strongly disagree' to 7='Strongly agree' • Cronbach's α = .77
Mindfulness	Mindful Attention Awareness Scale Brown and Ryan (2003)	• 14-item measure of dispositional mindfulness • Rated on a 6-point scale from 1='Almost never' to 6='Almost always' • Cronbach's α = .89

Procedure

Year 10 students were invited to participate in a study on the assessment of wellbeing in young people. Consent was obtained from both students and their parents/carers, and all procedures were conducted with approval from the University of Melbourne Human Research Ethics Committee (Approval Number 1238710). The current study was part of a larger longitudinal study evaluating wellbeing programmes in schools.

The Geelong Grammar School Positive Education Programme (GGSPEP)

The GGSPEP Year 10 programme followed an extensive set of positive psychological modules which include expressing gratitude, neuroplasticity and growth mindset, physical health, building resilience, exploring purpose and core values, mindfulness and fostering relationships. Sessions evaluated in this study were run weekly across the 2014 school year and were 90 minutes in duration. These were led exclusively by the school's teachers and were a combination of theory and practical content. Positive education was, however, also embedded into a whole-school approach, with traditional subjects highlighting positive psychology topics, and where possible non-teaching staff were also trained in its principles. Staff were provided with professional development in positive education, including an initial three-day induction course based on the Penn Resiliency Program as well as ongoing regular training based on the GGS model of Positive Education (https://www.ggs.vic.edu.au/learning/wellbeing/what-is-positive-edu

cation/positive-education-model/). Staff and students were also encouraged to apply positive psychology learnings in all aspects of their life. Excursions and activities – such as fund-raising, swimming, carnivals and reading programmes for neighbouring primary schools – were also linked to positive education content.

The 'Wellbeing-as-Usual' comparisons

Although the comparison 'wellbeing-as-usual' schools did not explicitly deliver positive education programmes during 2014, they each included a wellbeing framework and curricula which taught aspects of wellbeing such as mindfulness and positive coaching which focuses on building relationships and working towards meaningful goals. These topics were part of the core school curricula and, hence, all students attended these classes. The two 'wellbeing-as-usual' schools also promote wellbeing through their pastoral care and counselling services, as well as through the occasional workshops and presentations by external individuals or organisations focusing on promoting mental health. By 2015, both the comparison schools expanded their wellbeing curricula to include similar topics to the positive education school such as flourishing, character strengths, resilience and relationships. At all times, however, these schools spent less time than the positive education school, with the positive education school spending around 90 minutes weekly, and the 'wellbeing-as-usual' schools spending 60–90 minutes weekly and 50 minutes every two weeks. So although many of the wellbeing topics were taught across all three schools by 2015, the programme time and depth were more extensive for the GGSPEP.

Participants completed the quantitative surveys across two time points, one at the beginning (Time 1; around mid-February, approximately three months after completion of the Year 9 programme) and another at the end (Time 2; around early December) of the school year. Surveys were administered to participants online via SurveyGizmo software (www.surveygizmo.com). Small incentives (e.g. $20 iTunes vouchers) were offered for participation via a lottery system. Survey completion at each time point took 30–40 minutes and occurred in the usual class time.

Focus group participants ($n = 33$) were randomly selected from the GGS sample and were invited in small groups with a member of the research team to one of the four focus groups which were held in a classroom at GGS at the end of the year. They were invited to speak about their experiences with the Year 10 GGSPEP. Participants were asked questions about what they liked most and least about the PEP and the factors that were important for a successful PEP. They were asked to provide feedback on both the content and delivery of the PEP, how the PEP impacted them and their wellbeing, and their overall level of satisfaction with the GGSPEP. Each session was audio recorded and later transcribed and analysed for key themes. Thematic analysis was used to identify key themes and patterns from the focus group transcripts.

Design and analysis

A mixed-methods design was utilised in this study, with quantitative survey data and qualitative data obtained from focus groups. The quantitative study involved a quasi-experimental design as groups (GGS or comparison schools) were pre-existing, and participants therefore could not be randomly assigned to intervention

or control conditions. Quantitative data were analysed in 2×2 mixed design ANOVAs (with time the repeated measure, and group the between-group measure), to assess changes across the year for both the intervention and comparison groups. Assumption checks confirmed homogeneity of variances between groups, normal distributions and no outliers. The experiment-wise error rate was set at $\alpha = .05$ for each analysis. Qualitative data from focus groups were collected via an explanatory sequential method to help explain and interpret the survey data. The focus group data provided a more detailed and context-specific account of GGS participants' specific positive education learnings gained throughout the year within the school context. A thematic analysis was conducted on all the focus group audio recordings using Braun and Clarke's (2006) six-step framework:

(1) Audio recordings were transcribed by the research team;
(2) Data were coded in a systematic manner across all the transcripts;
(3) Relevant codes were then collated into potential themes;
(4) The themes were reviewed in relation to the coded extracts and the complete data;
(5) Clear definitions and names for each theme were generated;
(6) Compelling examples were extracted for reporting.

The research team took an inductive, data-driven approach by identifying themes that are strongly linked to the overall data. This approach of thematic analysis is recommended for interview or focus group data as it is not driven by the researchers' theoretical interest and therefore less likely to be influenced by the researchers' analytic preconceptions (Braun & Clarke, 2006).

Results

Change in mental health indices

Mental health indices were similar for intervention and control groups across both time-points (see Figure 1). Baseline levels were confirmed by independent t-tests to be equivalent across groups for all mental health measures (Table 3), although satisfaction with life trended higher for the intervention group at baseline, $t(151) = 2.00$, $p = .051$. The two-way mixed ANOVA confirmed a significant group effect for satisfaction with life ratings, $F(1,151) = 5.55$, $p = .02$, $\eta_p^2 = .035$, but no time, $F(1,151) = 0.12$, $p = .735$, $\eta_p^2 = .001$, or interaction effect, $F(1,151) = 0.12$, $p = .735$, $\eta_p^2 = .001$, confirming higher levels of life satisfaction were maintained for the GGSPEP group at both time points.

No statistically significant time (depression: $F(1,151) = 3.53$, $p = .06$, $\eta_p^2 = .023$; anxiety: $F(1,151) = 0.03$, $p = .857$, $\eta_p^2 = <.001$; wellbeing: $F(1,151) = 0.03$, $p = .858$, $\eta_p^2 < .001$); group (depression: $F(1,151) = 0.19$, $p = .664$, $\eta_p^2 = .001$; anxiety: $F(1,151) = 0.001$, $p = 976$, $\eta_p^2 = <.001$; wellbeing: $F(1,151) = .064$, $p = .800$, $\eta_p^2 = <.001$), or interaction (depression: $F(1,151) < .001$, $p = .990$, $\eta_p^2 < .001$; anxiety: $F(1,151) = 0.03$, $p = .857$, $\eta_p^2 < .001$; wellbeing: $F(1,151) = 0.07$, $p = .932$, $\eta_p^2 = <.001$) effects were observed in the Year 10 beginning or end period for each of these measures, indicating no difference between the intervention and comparison group at baseline or

Table 3. Summary of differences between groups at baseline.

						t-test for Equality of Means				
Time 1 Variables	Group	N	Mean	Std. Dev	Std. Error Mean	t	df	Sig. (2-tailed)	Mean Diff	Std. Error Diff
Depression	Pos Ed	119	1.52	1.49	0.14	−0.422	151	0.675	−0.097	0.229
	Comparison	34	1.62	1.07	0.18					
Anxiety	Pos Ed	119	1.70	1.67	0.15	−0.120	151	0.905	−0.038	0.316
	Comparison	34	1.74	1.48	0.25					
Mental wellbeing	Pos Ed	119	25.45	3.96	0.36	0.268	151	0.789	0.210	0.784
	Comparison	34	25.24	4.28	0.73					
Satisfaction with life	Pos Ed	119	33.62	5.56	0.51	2.000	151	0.051	2.151	1.076
	Comparison	34	31.47	5.52	0.95					
Autonomy	Pos Ed	119	22.46	3.68	0.34	0.737	151	0.462	0.521	0.707
	Comparison	34	21.94	3.48	0.60					
Competence	Pos Ed	119	23.54	3.58	0.33	1.356	151	0.177	0.950	0.700
	Comparison	34	22.59	3.68	0.63					
Relatedness	Pos Ed	119	23.76	3.44	0.32	1.566	151	0.119	1.021	0.652
	Comparison	34	22.74	3.04	0.52					
Resilience	Pos Ed	119	26.27	6.49	0.60	−0.605	151	0.546	−0.731	1.208
	Comparison	34	27.00	5.08	0.87					
Gratitude	Pos Ed	119	33.70	6.08	0.56	0.977	151	0.330	1.109	1.136
	Comparison	34	32.59	4.90	0.84					
Mindfulness	Pos Ed	119	3.06	0.83	0.08	0.002	151	0.998	0.000	0.157
	Comparison	34	3.06	0.71	0.12					

across the Year 10 programme. The time effect for depression, however, approached significance, indicating a trend for both groups to experience an increase in depression levels over the school year.

Change in wellbeing indices

The intervention group appeared to report higher levels of relatedness and slightly higher levels of competence at baseline than did the comparisons (see Figure 2), although independent t-tests comparing baseline differences were not significant (see Table 3). However, the trend was consistent across the year, and an ANOVA confirmed a significant group effect for relatedness, $F(1,151) = 4.09$, $p = .045$, $\eta_p^2 = .026$. The group effect for competence also approached significance, $F(1,151 = 3.28$, $p = .072)$, $\eta_p^2 = .021$. These findings indicate that GGSPEP students had higher levels of relatedness and competence relative to the comparison group across the year. This was expected, as a previous evaluation (Vella-Brodrick et al., 2020) reported significant increases in all domains of psychological needs fulfilment for this cohort in the previous year.The group effect for autonomy was not significant, $F(1,151)=0.21$, $p=.646$, $\eta_p^2=.001$, and there were no time (relatedness: $F(1,151)<.001$, $p=1.00$, $\eta_p^2=<.001$; competence: $F(1,151)=0.41$, $p=.522$, $\eta_p^2=.003$; autonomy: $F(1,151)=1.38$, $p=.242$, $\eta_p^2=.009$), or interaction effects for any of the three needs satisfaction measures (relatedness: $F(1,151)<.001$, $p=1.00$, $\eta_p^2=<.001$; competence: $F(1,151)=0.48$, $p=.490$, $\eta_p^2=.003$; autonomy: $F(1,151)=0.45$, $p=.502$, $\eta_p^2=.003$).

There were no significant differences between groups on resilience, gratitude or mindfulness measures at either baseline or across the year.

Qualitative data (focus groups)

Focus group participants were all from the intervention group. A thematic analysis of the focus group participants' discussion revealed three key themes.

The first theme related to the *importance of having engaging teachers*. Participants felt that teachers had to be (a) knowledgeable in their content area and (b) trusted by the students. Participants, for example, raised concerns about the Year 10 PEP delivering relevant content and using examples and activities that students could relate to:

> We need practical stuff. Like the book in Timbertop, the examples were so relevant, and they were pretty much like things that actually happen to you … things that you can relate to. Whereas now … they are like this famous person and that has no relevance to us. There could be so many things they could be saying about boarding school … like stuff that we actually go through.

They also noted that programme teachers needed to be able to facilitate and encourage interactive group discussions. The capacity to share their personal experiences with how they used positive education to overcome challenges/obstacles in their own lives was also highly valued:

> I think I had a lot of resilience last year (at Timbertop). I don't think you can learn resilience in a classroom. You learn from experience so like new students, it is hard to expect them to understand it from listening to a teacher talk about someone who's been persecuted for some reasons in a third world country. Like none of us will relate to that.

The second theme related to the *format and delivery of the Positive Education classes*. Students reported a preference for briefer didactic sessions/talks (e.g. 30 minutes) over longer (90 minutes) sessions:

> Sessions are way, way too long … hard to focus. I think I learnt more last year (at Timbertop), like when we were doing something we talked about it, whereas this year I feel like we just do a lot of sheets, just reviewing a lot of things we've already learnt. There's a lot of repetition.

The need for student participation was a consistent observation, whether that included hands-on, experiential activities, interactive discussions or small group discussions. Objectives also needed to be clearly articulated for all lessons so students could understand how the activity related to their personal or academic outcomes:

> Yeah I kind of find more student involvement … I thought that was better that we got to talk about what we thought on it, what our thoughts were on the topic … rather than times when it was more like we got spoken to.

> Any activity that sort of involves everyone … together in a group, working as one cohesive group … that's something that will make you think of other people as well.

The third theme related to the *content of the Positive Education programme*. The Year 10 programme was contrasted to the highly applied setting of the Year 9 Timbertop programme and found to be less relatable than the previous year's programme. The content was reported to be highly theoretical and at times repetitive:

> I think that generally this year … because it was more specific it was less relatable to everyone, like post-traumatic growth and the black dog and stuff, all that got to do with

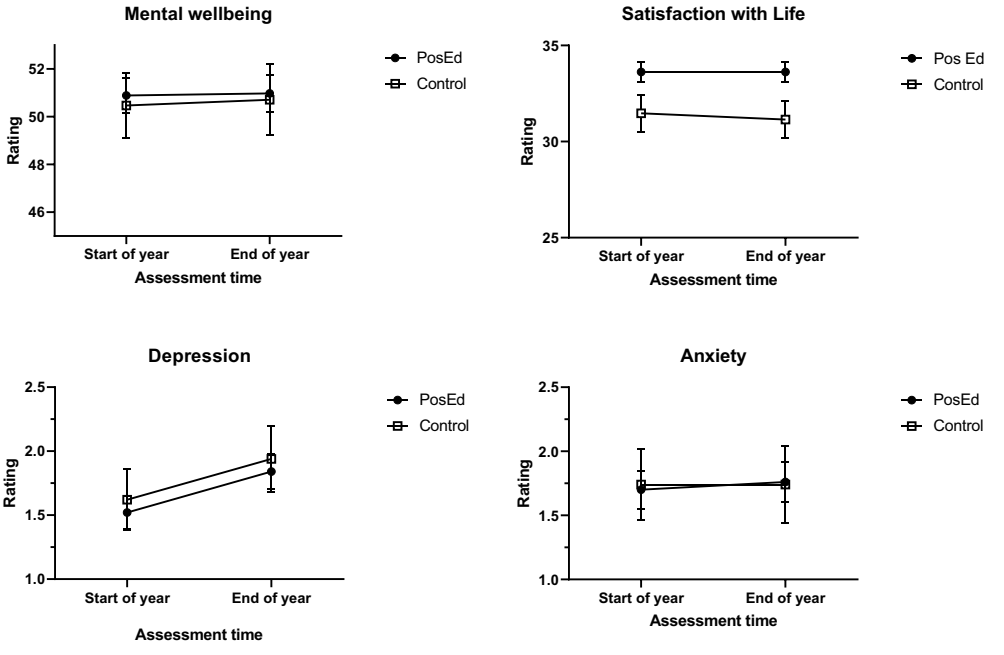

Figure 1. Mental health and wellbeing levels for the positive education (intervention) and wellbeing-as-usual programmes (comparison) groups across the year.

> helping some people . . . but with last year it was something generally you can do everyday, like when your thought comes . . . like I enjoyed last year more because it is more relatable like you could think about the pros and cons of a situation, like everyday, there will be a situation which you could apply everyday. Like this year it was a bit dry like it was difficult to relate to. There's like so much repetition . . . and it is really hard to stay motivated.

Participants recommended tying content to Year 10 life challenges, such as coping with examinations and daily academic hassles, and actual situations experienced in boarding school, such as lack of sleep:

> We need more relatable, practical stuff . . . like things that apply to us now. For example, post traumatic growth may be useful in the future but it is so . . . so hard to relate to right now . . . something like coping with stress . . . about exams would be better. More of health . . . like the sleep, nutrition and health . . . that was good . . . that really applies to us.

Discussion

The aim of the current study was to evaluate the mental health (depression and anxiety) and wellbeing (mental wellbeing, autonomy, competence and relatedness, gratitude and mindfulness) outcomes of a school-based positive education programme. In contrast to the extensively evaluated Penn Resiliency Program, the PEP evaluated in this study was delivered by school facilitators who had been extensively trained by PRP experts. A comparison group matched on age and socioeconomic status received school-based

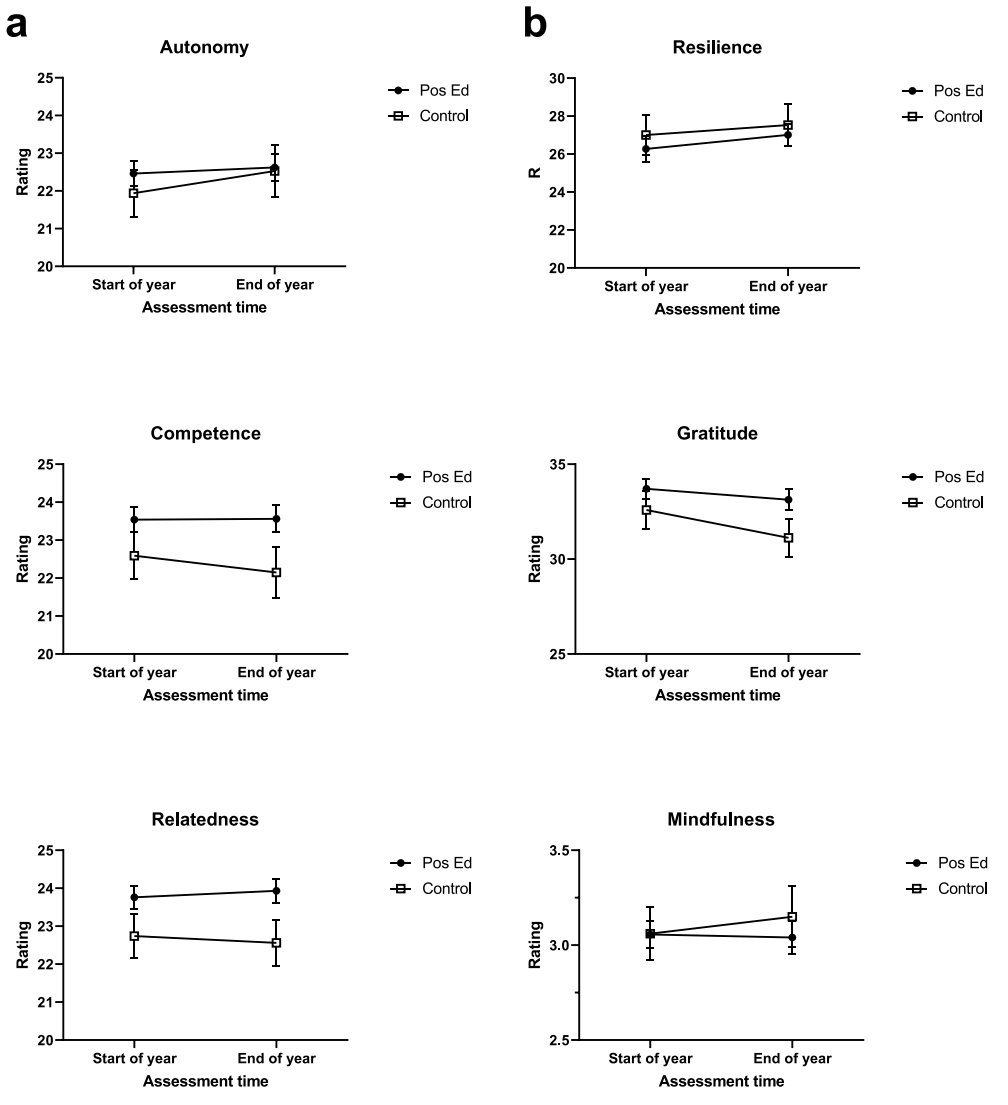

Figure 2. (a) Psychological needs fulfillment measures and (b) Positive psychology measures (gratitude, resilience and mindfulness) for the positive education (intervention) and wellbeing-as-usual programmes (comparison) groups across the year.

wellbeing programmes as usual. A sub-sample of students receiving the GGSPEP also provided additional details about their experience via focus groups.

No significant improvements were observed across the year in any of the quantitative outcome measures for the intervention group receiving the Year 10 PEP relative to the wellbeing-as-usual comparison group. However, students in the intervention group showed higher levels of functioning at the start of the year on several positive measures of wellbeing (satisfaction with life and relatedness), and these levels did not return to comparison group levels throughout the entire Year 10. This suggests that the Year 9 Timbertop outdoor PEP had benefits for students'

wellbeing that endured beyond the cessation of the programme. Further, these higher levels were maintained at the end of the Year 10 programme, some ten months later, indicating that benefits yielded from the Year 9 Timbertop programme (Chin et al., 2022) may have been sustained by another dose of Positive Education in the subsequent year.

A notable strength of the current study is the longitudinal nature of the assessments, allowing a tracking of outcomes beyond the highly effective Timbertop PEP experience. The longer-term impact of school-based social emotional programmes more broadly has been questioned in several reviews (Catalano et al., 2002; Weare & Nind, 2011). Taylor et al. (2017) also found in their meta-analysis that the benefits of social emotional wellbeing programmes were most persistent in younger students (5–10 years), with no follow-up effects in adolescents aged 14–18 years (although this might have been an artefact of attrition). Longitudinal studies are important to contextualise short-term programmes within the longer student lifecycle and to assess the sustainability of outcomes resulting from unique programmes such as the outdoor Year 9 Timbertop experience. Several previous evaluations of positive education have demonstrated maintenance of benefits on follow-up at periods between six months and three years (Adler, 2016; Cutuli et al., 2006, 2013; see also Brunwasser et al., 2009). Nevertheless, the current study is one of the first published studies to evaluate the effects of school-based programmes beyond these previous time frames, keeping in mind the continued exposure to positive education throughout the evaluation. This is important given that the positive effects of such programmes may also vary depending on the adolescents' developmental stage, with perhaps greater opportunities realised when they enter key transition periods (Coleman, 2011).

The absence of further improvement or at least maintenance of mental health in GGS Year 10 students was not anticipated. A substantial dose (around 90 minutes weekly) of dedicated positive education content is provided within the Year 10 curriculum, and positive education has been previously found to impact measures of both wellbeing and mental ill health (Taylor et al., 2017). The Year 10 programme, however, does not focus explicitly on mental illness (which was a major focus of the Year 9 programme), which may contribute to these null findings for mental ill health. Combined with the enhanced risk of mental health concerns and behaviour problems at this age level (e.g. Moffitt, 1993; Twenge et al., 2019), it is perhaps not surprising that the benefits of depression and anxiety measures were not more pronounced across this year. It is also noteworthy that the improvements in depression and anxiety observed in the Year 9 programme (Chin et al., 2022) had largely dissipated by the start of Year 10. In contrast, there is substantial focus on positive psychology outcomes (such as strengths and growth mindset) and physical health (such as energy levels and sleep) in the Year 10 programme. While physical health was not assessed in the current report, no improvements in wellbeing measures were observed except for life satisfaction and relatedness results which were maintained. Life satisfaction and relatedness are key components of positive education; hence, these outcomes are to be expected, particularly with young people where social development and satisfaction of personal needs are heightened. Furthermore, these findings indicate that the PEP has greater impact on positive indices of mental health and wellbeing than negative indices and validates the adoption of a dual model of mental health

(Keyes, 2005; Suldo & Shaffer, 2008) in evaluation studies. It also suggests that the effects may be more pronounced during pivotal transition points such as Year 9 (14–15 years of age), consistent with life course theory (Coleman, 2011).

Focus groups conducted with Year 10 students provide some insight into the limited outcomes observed in this study. The Year 10 programme must also be considered against the backdrop of the Timbertop experience, which occurs in a remote bushland location and in conjunction with a unique outdoor education experience. The majority of the GGSEP students (92%) had participated in Year 9 at GGS, and the Timbertop experience is for many students transformative and yields significant wellbeing improvements. It is feasible that the dramatic benefits of the Year 9 programme for wellbeing are unique to the rural experience, and it is not realistic to expect the full programme characteristics and outcomes to be replicated and maintained when students return to the regular school campus. In fact, many successful school-based positive youth development programmes contain significant extra-curricular activities (see Larson, 2000). For example, one focus group participant said, 'I think I had a lot of resilience last year (at Timbertop). I don't think you can learn resilience in a classroom' (Year 10 participant). This return to regular school life at a traditional school campus poses many challenges for students, who may further experience a decrease in wellbeing during this transition period ('transition blues'). The increase in teacher-led instruction and constraints of the school campus may challenge some of the gains in autonomy achieved from the Year 9 experience, which are believed to be important for wellbeing (Zimmer-Gembeck et al., 2006). Given that the majority of students experienced Timbertop in Year 9, maintaining some aspects of wellbeing achieved from the Timbertop experience may therefore be a sufficiently realistic goal of positive education offered during the return to the campus-based programme in Year 10 in the future and may be critical for managing the transition back to mainstream school life.

Student feedback confirms that experiencing positive education in the school context represents a significant challenge for students who have received the outdoor-based programme. A key driver of the gains observed in the students' previous year was the highly experiential outdoor setting of the Year 9 Timbertop programme which enabled them to practice their positive education skills more readily within a highly supportive environment. Students appreciated the personalised nature of the programme and close-knit teacher-staff community who endorsed and practised positive education. In contrast, the Year 10 school-based programme was found to be harder for students to relate to and apply their positive education learnings to their own lives within the more traditional school environment. Previous research has identified that the impact of PEPs is associated with the integrity of programme delivery (Gillham et al., 2006), so it is possible that students perceived the Year 10 programme to be less authentic or relevant to them, especially compared with the Timbertop programme. Providing specific assistance for a smoother transition from Timbertop to the school's main campus may benefit student wellbeing. This can be achieved, for example, through a well sequenced programming of positive education from Year 9 to Year 10 as well as through a mentoring process to mentally prepare and build capacity for the transition process.

A need for programme content which better addresses the changing demands at this level (such as increased stress related to examinations and poorer sleep) is also a common theme expressed by the focus group participants. The school

context offers great opportunities for universal training in wellbeing, but it also poses significant challenges. Students emphasised the importance of having engaging teachers, who are authentic in their delivery and who make the topic relevant and relatable to everyday challenges that young people are currently facing. Students value teachers with whom they feel personal connections and whom they can trust, and who involve them in interactive and group discussion activities. It is therefore recommended that young people are included in the development of PEPs (e.g., Vella-Brodrick et al., 2023), and that ongoing teacher training emphasises the importance of maintaining a personalised and youth-friendly yet contemporary approach to the pedagogy. For example, providing mental health and wellbeing apps for young people to use at their convenience is becoming more common (Bakker et al., 2016; Bidargaddi et al., 2017), although more work is needed to understand their effects. In addition, students indicated they were more likely to learn and benefit from interactive group discussions and experiential activities that go beyond the classroom. A move away from theoretical, repetitive or abstract content to relevant, interactive and small discussion-based activities was recommended by students. This is consistent with previous research which recommends a more reflective style of curriculum, which may include scenarios from students' own lives, and electronically delivered activities (Bastounis et al., 2016; Graham, 2004). Importantly, as found by Quinlan et al. (2019), teachers' own beliefs about their ability and buy-in to the positive education approach may still be a barrier to implementing positive education programmes with fidelity. Despite the significant resources and commitment supporting the GGSPEP, student feedback indicates that at least some of the time, teachers may still not be confident or sufficiently interested in adopting the full content of the positive education curriculum. Bastounis et al. (2016) recommend simplification of PEPs to ensure teachers are comfortable and capable to lead them with integrity.

Another explanation for the absence of expected effects in the current study is that the comparison group may have demonstrated more positive outcomes than anticipated. This may be partly attributable to the 'wellbeing-as-usual' curriculum containing a reasonable level of social emotional learning content, which expanded over the course of the study and began to align with some of the positive education group content (albeit over approximately 50% less exposure time). In addition, there was a lower participation rate (40% of eligible students from comparison schools participated in the research, in contrast to 84% of students from GGS). All participants were also aware that the aim of the study was to evaluate the effects of positive education on wellbeing. The comparison group may therefore have comprised the more motivated students or less distressed students at the year level, resulting in a bias in positive functioning (or a potential 'John Henry effect') and lower rates of reported depression or anxiety.

A further limitation of the quasi-experimental design of the study was that it was not possible to randomly allocate participants to an intervention and control group within the same school, largely due to GGS's preference to offer positive education to all Year 10 students. This meant that the positive education condition was nested within GGS, and the control was nested within other comparison schools. As a result, the positive education group comprised a different gender ratio than the comparison group and there were considerably fewer participants from the comparison schools. The location of the

intervention entirely within a single, well-resourced school in which the majority of students are boarding also limits the generalisability of findings, as it cannot be inferred that similar effects would be obtained in entirely government-funded school settings.

Conclusion and recommendations

The current findings suggest the importance of engagement for students to benefit from a PEP. The GGS Year 10 programme incorporated a suite of evidence-based positive education topics and was embedded in a whole-school context, with professional positive education development for teachers. Despite the high quality of this programme, the only gains experienced from the previous Timbertop programme to be maintained into the following Year 10 PEP were in life satisfaction and social relatedness, and these effects were small in size. This is consistent with previous meta-analyses that have demonstrated small effect sizes or an absence of evidence for school-based PRPs (e.g. Bastounis et al., 2019). In this context, it is promising that improvements in life satisfaction and relatedness yielded by the Year 9 Timbertop PEP were maintained at both Year 10 baseline (after three months of no positive education) and by the end of Year 10 (following 10 months of the school-based PEP).

Given the context of increasing concerns of educationalists and policy-makers regarding adolescent mental health, school-based programmes remain a cost-effective and inclusive means of promoting wellbeing. The current findings confirm previous indications that the impact of positive education is moderated by numerous factors, including who delivers the programme and whether it is embedded into the classroom or contains extra-curricular activities. The impact is also likely to be modulated by the developmental stage at which it is offered; hence, the impact is likely to be variable across the school years.

Student feedback suggests that student engagement is a key factor in effective PEPs. The opportunity to relate topics to their current life events and to discuss and interact with others via activities appears critical to engaging students. Importantly, life satisfaction and social relatedness levels continued to be higher for the intervention group throughout the challenges of Year 10 when mental health and wellbeing is typically observed to decline. This suggests that the learnings from positive education may still have been utilised by GGS students to promote wellbeing. A final key recommendation is to involve students more directly in both the development and delivery of PEPs to ensure the programme is highly engaging. Inclusion of innovative teaching tools and technologies may also provide a more contemporary interface for students to engage with programme content and to embed positive education principles within their daily life. By recognising the contribution of individual factors, programme factors and the environment in which students engage with the programme, a systems approach is likely to benefit both the development and delivery of school-based PEPs.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This project was funded by the Australian Research Council [LP130100357] - Enhancing adolescent mental health through positive education, in partnership with Geelong Grammar School. Donna Cross' contribution to this paper was supported by NHMRC Research Fellowship [GNT 1119339].

Notes on contributors

Nikki S. Rickard (PhD) is a professor of Wellbeing Science at the Melbourne Graduate School of Education, University of Melbourne. She is a registered psychologist and holds honorary academic positions with Monash University and Western Sydney University. She is an international expert in music psychology and emotional wellbeing, with special interests in positive education, music education and eMental health. She held office as President of the Australian Music & Psychology Society (2014–2016) and of the Asia-Pacific Society for Cognitive Sciences of Music (2015) and was the foundation's Editor-in-Chief of the Psychology of Well-Being: Theory, Research and Practice Journal (2011–2015). She has led collaborative research projects evaluating specialist music education programmes at primary and secondary levels and the development and evaluation of smartphone-based technologies that enable real-time monitoring of mental health and emotional wellbeing and link users to mental health services as required. Her research aims to develop safe and engaging youth-friendly interventions to help empower young people to optimize their wellbeing.

Tan-Chyuan Chin (PhD) is a Senior Research Fellow at the Centre for Wellbeing Science at the University of Melbourne. She is a wellbeing scientist, music psychologist and the Director of the Wellbeing Profiler. Her research examines the enablers and contextual factors of what contributes to optimal and sustainable ways of wellbeing across the lifespan. Tan-Chyuan specializes in multi-method approaches of measuring wellbeing for needs analyses and programme evaluation, using a combination of established and innovative techniques across physiological, psychological and behavioural experience sampling methods. Tan-Chyuan is currently working on projects examining the impact of Positive Education on enhancing youth wellbeing and mental health during high school and the post-high school transition. She is also leading several local government community and youth wellbeing projects.

Donna Cross is a Winthrop Professor with the Faculty of Medicine, Dentistry and Health Sciences at the Telethon Kids Institute at the University of Western Australia and an adjunct professor at Edith Cowan University and Curtin University. Donna is the Programme Head, Development and Education and Director, Early Childhood Development and Learning Collaboration (CoLab) at the Telethon Kids Institute. In 2012, she was named Western Australia's Australian of the Year in recognition of her work to improve the health and wellbeing of young people. Donna has an international reputation for developing and rigorously testing school-based interventions that contribute to sustainable changes in policy and practice. Donna and her co-investigators have been awarded more than $30m in research funding since 1999, including eight NHMRC grants, six ARC grants and 34 WA Health Promotion Foundation research grants (all category 1 grants). She currently has six large longitudinal research projects underway that aim to build the capacity of school leaders, teachers, parents and students in the areas of social and emotional wellbeing; bullying and cyberbullying prevention and management; online safety; and childhood anxiety and depression prevention.

John Hattie is a Laureate Professor at the Melbourne Graduate School of Education at the University of Melbourne, Australia. Until recently, Professor Hattie has been Director of the Melbourne Education Research Institute at the University of Melbourne since 2011. He is also the Chair of the Australian Institute for Teaching and School Leadership (AITSL), through which he provides national leadership in promoting excellence so that teachers and school leaders have maximum impact on learning. He is also past-president of the International Test Commission and Associate Editor of the British Journal of Educational Psychology and American Educational Research Journal. Professor

Hattie was awarded the New Zealand Order of Merit in the 2011 Queen's Birthday Honours, is a Fellow of the Australian Council for Educational Leaders and the American Psychological Association, and has published and presented over 500 papers, and supervised 190 thesis students. He has authored Visible Learning: A synthesis of over 800 meta-analyses relating to achievement, which is one of the world's largest evidence-based studies into the factors that improve student learning and involves more than 80 million students from around the world.

Dianne Vella-Brodrick holds the Gerry Higgins Chair in Positive Psychology and is Director of the Centre for Wellbeing Science at the Melbourne Graduate School of Education, University of Melbourne. She is a registered psychologist and Member of the Australian Psychological Society and College of Health Psychologists. She is a Fellow of the International Positive Psychology Association (IPPA) and is currently on the IPPA Council of Advisors. Dianne was an inaugural editor of the journal *Psychology of Well-Being: Theory, Research and Practice*, co-editor of the 2022 *Handbook of Positive Psychology in Schools (3rd Ed)* and inaugural Director of the Masters of Applied Positive Psychology program at the University of Melbourne. Her research interests include the development and evaluation of well-being programmes, particularly in positive education, performance optimisation, and workplaces. She specialises in innovative mixed method designs which utilise the latest technology, experience sampling method and biological indices of well-being. Dianne has been involved in the development of numerous well-being measures and programs including the Wuzzup app, the Wellbeing Profiler and more recently she founded the Bio-Dash wellbeing and optimal performance program.

ORCID

Nikki S. Rickard http://orcid.org/0000-0002-4236-8538
Donna Cross http://orcid.org/0000-0001-6217-5058
John Hattie http://orcid.org/0000-0003-3873-4854
Dianne A. Vella-Brodrick http://orcid.org/0000-0002-4534-1998

References

Adler, A. (2016). *Teaching wellbeing increases academic performance: Evidence from Bhutan, Mexico, and Peru*. Publicly Accessible Penn Dissertations. http://repository.upenn.edu/edissertations/1572

Allen, K., Kern, P., Vella-Brodrick, D., & Waters, L. (2018). Understanding the priorities of Australian secondary schools through an analysis of their mission and vision statements. *Educational Administration Quarterly*, *54*(2), 249–274. https://doi.org/10.1177/0013161X18758655

Bakker, D., Kazantzis, N., Rickwood, D., & Rickard, N. S. (2016). Mental health smartphone apps: Evidence-based recommendations for future development. *Journal of Medical Internet Research – Mental Health*, *3*(1), e7. https://doi.org/10.2196/mental.4984

Bastounis, A., Callaghan, P., Banerjee, A., & Michail, M. (2016). The effectiveness of the Penn Resiliency Programme (PRP) and its adapted versions in reducing depression and anxiety and improving explanatory style: A systematic review and meta-analysis. *Journal of Adolescence*, *52*, 37–48. https://doi.org/10.1016/j.adolescence.2016.07.004

Bastounis, A., Callaghan, P., Banerjee, A., & Michail, M. (2016). The effectiveness of the Penn Resiliency Program (PRP) and its adapted versions in reducing depression and anxiety and improving explanatory style: A systematic review and meta-analysis. *Journal of Adolescence*, *52*(1), 37–48. https://doi.org/10.1016/j.adolescence.2016.07.004

Bidargaddi, N., Musiat, P., Winsall, M., Vogl, G., Blake, V., Quinn, S., Orlowski, S., Antezana, G., & Schrader, G. (2017). Efficacy of a web-based guided recommendation service for a curated list of readily available mental health and wellbeing mobile apps for young people: Randomized controlled trial. *Journal of Medical Internet Research*, *19*(5), e141. https://doi.org/10.2196/jmir.6775

Boldero, J., & Fallon, B. (1995). Adolescent help-seeking: What do they get help for and from whom? *Journal of Adolescence*, *18*(2), 193–209. https://doi.org/10.1006/jado.1995.1013

Brady, E. U., & Kendall, P. C. (1992). Comorbidity of anxiety and depression in children and adolescents. *Psychological Bulletin*, *111*(2), 244–255. https://doi.org/10.1037/0033-2909.111.2.244

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822

Brunwasser, S. M., Gilham, J. E., & Kim, E. S. (2009). A meta-analytic review of the Penn Resiliency Program's effect on depressive symptoms. *Journal of Consulting and Clinical Psychology*, *77*(6), 1042–1054. https://doi.org/10.1037/a0017671

Burke, J., & Minton, S. J. (2019). Well-being in post-primary schools in Ireland: The assessment and contribution of character strengths. *Irish Educational Studies*, *38*(2), 177–192. https://doi.org/10.1080/03323315.2018.1512887

Calear, A. L., & Christensen, H. (2010). Systematic review of school-based prevention and early intervention programs for depression. *Journal of Adolescence*, *33*(3), 429–438. https://doi.org/10.1016/j.adolescence.2009.07.004

Cardemil, E. V., Reivich, K. J., & Seligman, M. E. P. (2002). The prevention of depressive symptoms in low-income minority middle school students. *Prevention & Treatment*, *5*(1), Article 8. https://doi.org/10.1037/1522-3736.5.1.58a.

Catalano, R. F., Berglund, M. L., Ryan, J. A. M., Lonczak, H. S., & Hawkins, J. D. (2002). Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Prevention & Treatment*, *5*(1). https://doi.org/10.1037/1522-3736.5.1.515a

Chaplin, T. M., Gillham, J. E., Reivich, K., Elkon, A. G., Samuels, B., Freres, D. R., Winder, B., & Seligman, M. E. P. (2006). Depression prevention for early adolescent girls: A pilot study of all girls versus co-ed groups. *The Journal of Early Adolescence*, *26*(1), 110–126. https://doi.org/10.1177/0272431605282655

Chin, T.-C., Rickard, N. S., & Vella-Brodrick, D. A. (2022). Promoting mental health and wellbeing in young people: Outcomes of an integrated strengths-based and experiential residential program. Manuscript submitted for publication.

Coleman, J. (2011). *The nature of adolescence* (4th ed.). Routledge.

Connor, K. M., & Davidson, J. R. T. (2003). Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). *Depression and Anxiety*, *18*(2), 76–82. https://doi.org/10.1002/da.10113

Cutuli, J. J., Chaplin, T. M., Gillham, J. E., Reivich, K. J., & Seligman, M. E. (2006). Preventing co-occurring depression symptoms in adolescents with conduct problems: The Penn Resiliency Program. *Annals of the New York Academy of Sciences*, *1094*(1), 282–286. https://doi.org/10.1196/annals.1376.035

Cutuli, J. J., Gillham, J. E., Chaplin, T. M., Reivich, K. J., Seligman, M. E. P., & Gallop, R. J. (2013). Preventing adolescents' externalizing and internalizing symptoms: Effects of the Penn Resiliency Program. *International Journal of Emotional Education*, *5*(2), 67.

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405–432. https://doi.org/10.1111/j.1467-8624.2010.01564.x

Eccles, J. (2004). Schools, academic motivation and stage-environment fit. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 404–434). Wiley.

Fisak, B., Jr., Richard, D., & Mann, A. (2011). The prevention of child and adolescent anxiety: A meta-analytic review. *Prevention Science*, *12*(3), 255–268. https://doi.org/10.1007/s11121-011-0210-0

Gillham, J. E., Hamilton, J., Freres, D. R., Patton, K., & Gallop, R. (2006). Preventing depression among early adolescents in the primary care setting: A randomized controlled study of the Penn

Resiliency Program. *Journal of Abnormal Child Psychology*, *34*(2), 203–219. https://doi.org/10.1007/s10802-005-9014-7

Gillham, J. E., Reivich, K. J., Freres, D. R., Chaplin, T. M., Shatté, A. J., Samuels, B., Elkon, A. G., Litzinger, S., Lascher, M., Gallop, R., & Seligman, M. E. (2007). School-based prevention of depressive symptoms: A randomized controlled study of the effectiveness and specificity of the Penn Resiliency Program. *Journal of Consulting & Clinical Psychology*, *75*(1), 9–19. https://doi.org/10.1037/0022-006X.75.1.9

Gillham, J. E., Reivich, K. J., Jaycox, L. H., & Seligman, M. E. P. (1995). Prevention of depressive symptoms in schoolchildren: Two-year followup. *Psychological Science*, *6*(6), 343–351. https://doi.org/10.1111/j.1467-9280.1995.tb00524.x

Goodsell, B., Lawrence, D., Ainley, J., Sawyer, M., Zubrick, S. R., & Maratos, J. (2017). *Child and adolescent mental health and educational outcomes. An analysis of educational outcomes fromYoung minds matter: The second Australian child and adolescent survey of mental health and wellbeing*. Graduate School of Education, The University of Western Australia.

Graham, P. (2004). *The end of adolescence*. Oxford University Press.

Harnett, P. H., & Dadds, M. R. (2004). Training school personnel to implement a universal school-based prevention of depression program under real-world conditions. *Journal of School Psychology*, *42*(5), 343–357. https://doi.org/10.1016/j.jsp.2004.06.004

Hoare, E., Bott, D., & Robinson, J. (2017). Learn it, live it, teach it, embed it: Implementing a whole school approach to foster positive mental health and wellbeing through positive education. *International Journal of Wellbeing*, *7*(3), 56–71. https://doi.org/10.5502/ijw.v7i3.645

Hofferth, S. L., & Sandberg, J. F. (2001). How American children spend their time. *Journal of Marriage and Family*, *63*(2), 295–308. https://doi.org/10.1111/j.1741-3737.2001.00295.x

Huebner, E. S. (1991). Initial development of the student's life satisfaction scale. *School Psychology International*, *12*(3), 231–240. https://doi.org/10.1177/0143034391123010

Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, *73*(3), 539–548. https://doi.org/10.1037/0022-006X.73.3.539

Keyes, C. L. M., Dhingra, S. S., & Simoes, E. J. (2010). Change in level of positive mental health as a predictor of future risk of mental illness. *American Journal of Public Health*, *100*(12), 2366–2371. https://doi.org/10.2105/AJPH.2010.192245

Kroenke, K., Spitzer, R. L., Williams, J. B., & Löwe, B. (2009). An ultra-brief screening scale for anxiety and depression: The PHQ–4. *Psychosomatics*, *50*(6), 613–621. https://doi.org/10.1016/S0033-3182(09)70864-3

Larson, R. W. (2000). Toward a psychology of positive youth development. *American Psychology*, *55*(1), 170–183. https://doi.org/10.1037/0003-066X.55.1.170

McCullough, M. E., Emmons, R. A., & Tsang, J. (2002). The grateful disposition: A conceptual and empirical topography. *Journal of Personality and Social Psychology*, *82*(1), 112–127. https://doi.org/10.1037/0022-3514.82.1.112

Moffitt, T. E. (1993). Adolescence-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review*, *100*(4), 674–701. https://doi.org/10.1037/0033-295X.100.4.674

Neil, A. L., & Christensen, H. (2009). Efficacy and effectiveness of school-based prevention and early intervention programs for anxiety. *Clinical Psychology Review*, *29*(3), 208–215. https://doi.org/10.1016/j.cpr.2009.01.002

Norrish, J., Williams, P., O'Connor, M., & Robinson, J. (2013). An applied framework for positive education. *International Journal of Wellbeing*, *3*(2), 147–161. https://doi.org/10.5502/ijw.v3i2.2

Quinlan, D., Vella-Brodrick, D. A., Gray, A., & Swain, N. (2019). Teachers matter: Student outcomes following a strengths intervention are mediated by teacher strengths spotting. *Journal of Happiness Studies*, *20*(8), 2507–2523. https://doi.org/10.1007/s10902-018-0051-7

Reivich, K., Gillham, J. E., Chaplin, T. M., & Seligman, M. E. P. (2013). From helplessness to optimism: The role of resilience in treating and preventing depression in youth. In S. Goldstein & R. B. Brooks (Eds.), *Handbook of resilience in children* (pp. 201–214). Springer Science + Business Media.

Rickwood, D., Deane, F. P., & Wilson, C. J. (2007). When and how do young people seek professional help for mental health problems? *The Medical Journal of Australia*, *187*(7), S35–39. https://doi.org/10.5694/j.1326-5377.2007.tb01334.x

Roberts, C., Kane, R., Bishop, B., Matthews, H., & Thomson, H. (2004). The prevention of depressive symptoms in rural school children: A follow-up study. *The International Journal of Mental Health Promotion*, *6*(3), 4–16. https://doi.org/10.1080/14623730.2004.9721934

Roberts, C., Kane, R., Thomson, H., Bishop, B., & Hart, B. (2003). The prevention of depressive symptoms in rural school children: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, *71*(3), 622–628. https://doi.org/10.1037/0022-006X.71.3.622

Sandler, I., Wolchik, S. A., Cruden, G., Mahrer, N. E., Ahn, S., Brincks, A., & Brown, C. H. (2014). Overview of meta-analyses of the prevention of mental health, substance use, and conduct problems. *Annual Review of Clinical Psychology*, *10*(1), 243–273. https://doi.org/10.1146/annurev-clinpsy-050212-185524

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *Lancet Child Adolescent Health*, *2*(3), 223–228. Epub 2018 Jan 30. PMID: 30169257. https://doi.org/10.1016/S2352-4642(18)30022-1

Seligman, M. (2012). *Flourish*. William Heinemann Australia.

Seligman, M., Ernst, R., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: Positive psychology and classroom interventions. *Oxford Review of Education*, *35*(3), 293–311. https://doi.org/10.1080/03054980902934563

Slemp, G., Chin, T.-C., Kern, M., Siokou, C., Loton, D., Oades, L., Vella-Brodrick, D., & Waters, L. (2017). Positive education in Australia: Practice, measurement, and future directions. In E. Fryenberg, A. J. Martin, & R. J. Collie (Eds.), *Social and emotional learning in Australia and the Asia Pacific, part 1* (pp. 101–122). Springer.

Stice, E., Shaw, H., Bohon, C., Marti, C. N., & Rohde, P. (2009). A meta-analytic review of depression prevention programs for children and adolescents: Factors that predict magnitude of intervention effects. *Journal of Consulting and Clinical Psychology*, *77*(3), 486–503. https://doi.org/10.1037/a0015168

Suldo, S. M., & Shaffer, E. J. (2008). Looking beyond psychopathology: The dual factor model of mental health in youth. *School Psychology Review*, *37*(1), 52–68. https://doi.org/10.1080/02796015.2008.12087908

Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting positive youth development through school-based social and emotional learning interventions: A meta-analysis of follow-up effects. *Child Development*, *88*(4), 1156–1171. https://doi.org/10.1111/cdev.12864

Tejada-Gallardo, C., Blasco-Belled, A., Torrelles-Nadal, C., & Alsinet, C. (2020). Effects of school-based multicomponent positive psychology interventions on well-being and distress in adolescents: A systematic review and meta-analysis. *Journal of Youth and Adolescence*, *49*(10), 1943–1960. https://doi.org/10.1007/s10964-020-01289-9

Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., & Stewart-Brown, S. (2007). The Warwick-Edinburgh mental wellbeing scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, *5*(1), Article ID 63. https://doi.org/10.1186/1477-7525-5-63.

Teubert, D., & Pinquart, M. (2011). A meta-analytic review on the prevention of symptoms of anxiety in children and adolescents. *Journal of Anxiety Disorders*, *25*(8), 1046–1059. http://www.sciencedirect.com/science/article/pii/S0887618511001204

Tobler, N. S., Roona, M. R., Ochshorn, P., Marshall, D. G., Streke, A. V., & Stackpole, K. M. (2000). School-based adolescent drug prevention programs: 1998 meta-analysis. *The Journal of Primary Prevention*, *20*(4), 275–336. https://doi.org/10.1023/A:1021314704811

Twenge, J., Bell Cooper, A., Joiner, T. E., Duffy, M. E., & Binau, S. G. (2019). Age, period, and cohort trends in mood disorder indicators and suicide-related outcomes in a nationally representative dataset, 2005–2017. *Journal of Abnormal Psychology*, *128*(3), 185–199. https://doi.org/10.1037/abn0000410

Vella-Brodrick, D. A., Chin, T.-C., & Rickard, N. S. (2020). Examining the processes and effects of an exemplar school-based wellbeing approach on student competency, autonomy and relatedness. *Health Promotion International*, *35*(5), 1190–1198. https://doi.org/10.1093/heapro/daz115

Vella-Brodrick, D. A., Rickard, N. S., Hattie, J., Cross, D., & Chin, T. -C. (2015). *An evaluation of year 10 positive education at Geelong Grammar School: Findings from 2014*. The University Of Melbourne.

Vella-Brodrick, D., Patrick, K., Jacques-Hamilton, R., Ng, A., Chin, T-C., O'Connor, M., Rickard, N., Cross, D., & Hattie, J. (2023). Youth experiences of co-designing a well-being intervention: reflections, learnings and recommendations. Oxford Review of Education, 1–20. https://doi.org/10.1080/03054985.2023.2194621

Véronneau, M.-H., Koestner, R. F., & Abela, J. R. Z. (2005). Intrinsic need satisfaction and well–being in children and adolescents: An application of the self–determination theory. *Journal of Social and Clinical Psychology*, *24*(2), 280–292. https://doi.org/10.1521/jscp.24.2.280.62277

Waters, L. (2011). A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist*, *28*(2), 75–90. https://doi.org/10.1375/aedp.28.2.75

Weare, K., & Nind, M. (2011, December). Mental health promotion and problem prevention in schools: What does the evidence say? *Health Promotion International*, *26*(Suppl 1), i29–69. https://doi.org/10.1093/heapro/dar075

World Health Organization. (2017). *Depression and other common mental disorders: Global health estimates*. Geneva. CC BY-NC-SA Licence 3.0 IGO. Cataloguing-in-Publication.

Zarrett, N., & Lerner, R. M. (2008). Ways to promote the positive development of children and youth. *Child Trends*, *11*(2), 1–5. https://cms.childtrends.org/wp-content/uploads/2014/05/2008-11PositiveYouthDev.pdf

Zimmer-Gembeck, M. J., Chipuer, H. M., Hanisch, M., Creed, P. A., & McGregor, L. (2006). Relationships at school and stage-environment fit as resources for adolescent engagement and achievement. *Journal of Adolescence*, *29*(6), 911–933. https://doi.org/10.1016/j.adolescence.2006.04.008