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School-related subjective well-being promotes subsequent adaptability, achievement, and positive behavioural conduct

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Background. Previous studies have shown that subjective well-being and adaptability are linked to adaptive educational outcomes, including higher achievement and lower anxiety. It is not presently clear, however, how school-related subjective well-being and adaptability are related, or predict behavioural outcomes such as student conduct.

Aim. The aim of the present study was to test a bidirectional model of school-related subjective well-being and adaptability, and how they relate to achievement and behavioural conduct.

Method. Data were collected from 539 Year 12 students over four waves. Achievement and behavioural conduct were measured in the first wave of data collection (T_1), school-related subjective well-being and adaptability at the second and third waves (T_2 and T_3), and achievement and behavioural conduct again in the fourth wave of data collection (T_4).

Results. A structural equation model showed that T_2 school-related subjective well-being predicted higher T_3 adaptability, but not vice versa. T_3 school-related subjective well-being predicted greater T_4 achievement and positive behavioural conduct, and T_3 adaptability predicted greater T_4 positive behavioural conduct.

Conclusion. School-related subjective well-being promotes adaptability, achievement, and positive behavioural conduct, and adaptability is also related to positive behavioural conduct. Attempts to foster well-being and adaptability could show educational gains for students.

Subjective well-being (the presence of positive, and absence of negative, thoughts and emotions) and adaptability (the capacity to respond positively to change) have been linked to a range of positive educational outcomes including achievement, positive academic beliefs, enjoyment of school, and lower anxiety (Hascher, 2007; Martin, Nejad, Colmar, & Liem, 2012). Although evidence suggests that subjective well-being may vary substantially across different life domains (Abubakar *et al.*, 2015), studies of subjective well-being in educational settings rarely use measures that are specific to school contexts. Designs that control for prior variance with outcomes (e.g., achievement) are similarly rare. Furthermore, knowledge of how subjective well-being in education settings relates

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to a range of salient cognate constructs is limited and, to our knowledge, no studies have examined how subjective well-being is directionally related to adaptability (i.e., as a predictor or outcome). In the present study, we set out to address these concerns. School-related subjective well-being and adaptability were measured over two waves in a sample of students that had transferred to upper secondary education (referred to as 6th Form in England, where the data were collected). Their relations with academic achievement and behavioural conduct were examined while controlling for prior achievement and behavioural conduct.

Subjective well-being

In line with previous research on well-being (Diener, Oishi, & Tay, 2018), the present study conceptualizes well-being as a subjective construct that can be defined as the '. . .holistic quality of student's subjective experience in school with cognitive and affective elements' (Hascher, 2007, p. 333). Cognitive elements of well-being refer to one's thoughts, and affective elements to one's feelings, about school, persons in school, and the school context. Cognitive and affective elements can be either positive or negative, and a state of well-being conceived of as a surplus of positive relative to negative elements. According to Hascher (2003, 2008), well-being in school is observed by the presence of three positive indicators: positive attitudes towards school, enjoyment of school, and positive academic self-concept, and the absence of three negative indicators: worry about school, physical complaints in school, and social problems at school (see also Grob, Wearing, Little, & Wanner, 1996; Ryff & Keyes, 1995). As an experiential phenomenon, subjective well-being can be malleable and change depending on internal factors such as personality and character strengths (Shoshani & Slone, 2013; Tomyn & Cummins, 2011) as well as external contingencies such as quality of peer and teacher relationships at school (Goswarmi, 2012; Lee & Yoo, 2015).

Research has shown how various types of subjective well-being are related to positive educational outcomes. Using a composite measure, subjective well-being has been shown to correlate positively with achievement ($\beta = .28$) in primary school students aged 9 years (Miller, Connolly, & Maguire, 2013) and feeling accepted and fitting in at school in secondary school students ($\beta = .29$) aged 12–14 years (Frydenberg, Care, & Chan, 2009). In a large-scale study of students in primary and secondary school (aged 7–16 years), achievement correlated positively with various forms of well-being (emotional, behavioural, social, and school-related; rs = .11–.40) at all ages (Morrison-Gutman & Vorhaus, 2012). After controlling for prior achievement, emotional well-being at age 7 years predicted achievement at the age of 11 years ($\beta = .05$). In one study, however, well-being did not predict subsequent grade ($\beta = .04$) or test anxiety (βs = −.02 to −.09) in 16-year-old secondary school students after controlling for prior grade and test anxiety (Steinmayr, Crede, McElvany, & Wirthwein, 2016). In one of the few studies to use a school-specific measure, subjective well-being was negatively correlated with general school anxiety and test anxiety (rs = .15–.41) in secondary school students aged 12–17 (Hascher, 2007).

Although the evidence is largely supportive of positive links between subjective well-being and academic outcomes, in line with adjacent research areas such as that of achievement emotions (Pekrun, Goetz, Frenzel, Barchfeld, & Perry, 2011), there are three notable limitations. First, there is a lack of consistency in the conceptualization and measurement of well-being across studies, with many relying on lengthy, aggregated

measures that are typically non-school-specific. This issue is compounded when relations are established with constructs (e.g., school-related attitudes and emotions) that are closely related to well-being and used in some studies as indicators of well-being. To gain deeper insight into functional relations between constructs, it is important that antecedents and outcomes do not show construct overlap with well-being (Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2006). Furthermore, where general measures are used, it is difficult to draw conclusions about the specific contribution of well-being at school to outcome variables such as achievement. Second, with some notable exceptions (Morrison-Gutman & Vorhaus, 2012; Steinmayr *et al.*, 2016), studies do not control for prior achievement, thus limiting conclusions over the directionality of relations. Third, to date, only a limited range of outcomes have been explored and there is a need to expand the range of examined relations with other educational and psychological outcomes. In the present study, we use a newly developed, psychometrically sound brief scale that specifically assesses students' concurrent evaluations of their school-related well-being (SRW; Loderer, Vogl, & Pekrun, 2016) to examine how well-being relates to novel outcomes, namely adaptability and behavioural conduct, as well as achievement. Importantly, we control for prior variance in achievement and behavioural conduct.

Adaptability

Adaptability captures individual differences in the ways that persons respond to change (VandenBos, 2007). When faced with new, uncertain, or changeable circumstances, adaptable individuals can constructively regulate cognition, emotion, and behaviour (Martin, 2012; Martin *et al.*, 2012). Cognitive adaptability refers to the capacity to adjust thinking to new or uncertain situations, behavioural adaptability to the capacity to attempt new behaviour or modify existing behaviour, and emotional adaptability to regulate the intensity and durations of emotions (Gross & Thompson, 2007; Heckhausen, Wrosch, & Schulz, 2010). Thus, persons high on adaptability will be able to adjust to new situations in ways that will result in positive outcomes across these parameters. In this way, adaptability can be conceptually differentiated from other psychological constructs that focus on successful responses to adversity such as buoyancy, resilience, and mental toughness (Martin, Nejad, Colmar, & Liem, 2013; Martin *et al.*, 2012). Adaptability is focused on responding to change, whereas buoyancy, resilience, and mental toughness refer to responses to adversity.

As the capacity to respond positively to novel situations and change can be seen as particularly beneficial for maintaining and promoting psychological health and individual resources in dynamic contexts such as academic settings, adaptability is expected to relate to positive educational outcomes. In secondary school students aged 11–19 years, adaptability has been shown to correlate positively (rs = .30–.62) with incremental ability beliefs, academic buoyancy, achievement, and enjoyment of school (Martin *et al.*, 2012), and to predict class participation and enjoyment of school (βs = .15–.18) after controlling for prior variance in class participation and enjoyment of school (Martin *et al.*, 2013). Furthermore, adaptability is indirectly related to lower levels of school-related anxiety, performance–avoidance goals, self-handicapping, and disengagement, through increasing personal control over situational demands (βs = −.05 to .10), in secondary school students aged 11–19 years, again accounting for prior variance on focal outcomes (Martin, Nejad, Colmar, Liem, & Collie, 2015). In a sample of undergraduate students, adaptability indirectly related to end of semester grade (β = .28) through reduced disengagement and self-handicapping behaviour (Collie, Holliman, & Martin, 2017).

Linking subjective well-being and adaptability

Based on the previous deliberations, we propose that SRW and adaptability are related in a bidirectional fashion. Students who are more adaptable will, all other things being equal, experience a greater sense of well-being at school; students with a greater sense of SRW will, all other things being equal, become more adaptive. The link from adaptability to subsequent SRW is founded on the adaption theory of well-being (Diener, Lucas, & Scollon, 2006), according to which certain forms of regulatory strategies are more adaptive than others. Cognitive reappraisal, for instance, is associated with more positive emotions, fewer negative emotions, and better social support (Gross & John, 2003), and enhances memory for educational material (Davis & Levine, 2013). In contrast, denial is associated with more negative emotions and dissatisfaction (Bolger & Zuckerman, 1995), and expressive suppression has been shown to be related to more negative emotions, stress-related symptoms, and impairs performance on cognitive tasks (Johns, Inzlicht, & Schmader, 2008; Moore, Zoellner, & Mollenholt, 2008).

However, recent research has indicated the most important predictor of adaptation is not which strategies are used, but whether these strategies are used flexibly (Cheng, 2001). For instance, the ability to both flexibly enhance and suppress emotional expression in line with contextual demands has been shown to promote adaptability (Bonanno, Papa, Lalande, Westphal, & Coifman, 2004; Kashdan & Rottenberg, 2010). Accordingly, we expect persons with greater adaptability would be more flexible in the strategies used to cope with and regulate responses to novel or uncertain situations, be more likely to choose strategies that result in positive outcomes, and experience a greater sense of well-being.

The link from SRW to subsequent adaptability is underpinned by the role of positive affect and optimism in facilitating more flexible thought-action repertoires and information processing. In the broaden-and-build theory, positive emotions broaden cognition and attention enabling persons to identify and use novel ideas and actions, and build a series of resources and skills (Fredrickson, 2001; Kikken & Fredrickson, 2017). For instance, interventions designed to increase positive affect result in greater self-efficacy (Schutte, 2013) as well as optimism and emotional support from others (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008). Accordingly, we expect that persons with greater SRW will build up a stronger set of resources and skills that could be employed in novel or uncertain school-related situations providing the person with a greater repertoire of regulatory strategies, thus allowing the person to become more adaptive.

Aims of the present study

Previous research has shown that subjective well-being and adaptability are related to positive academic outcomes. However, studies have yet to examine how SRW and adaptability are interrelated. The aims of the present study were twofold. First, it was to examine a bidirectional model of SRW and adaptability. Second, it was to examine how SRW and adaptability predict two salient educational outcomes: achievement and behavioural conduct. Definitions of student behaviour and conduct can differ widely (Department for Education, 2012; Little, 2005). In the present study, we make use of official college data for student conduct; hence, this variable was defined by college policies. Using a robust multi-measurement time-point design, we measured SRW and adaptability on two occasions in a single academic year in a sample of students having transitioned to upper secondary education controlling for variance in prior achievement and behavioural conduct.

Adaptability is a germane construct for the sample examined in the present study. In the English educational system, following secondary school-exit examinations that students are required to take aged 16 years, students can choose a further 2 years of academic study in a tier of upper secondary education that is colloquially referred to as '6th Form'. Many, but not all schools offer 6th Form study and students may choose to continue with 6th Form study at their previous school if such study is offered. Alternatively, they may choose to transition to another school, or move to a 6th Form college specializing in education for those aged 16–19 years. In the present study, data were collected from students in their first year of a specialist 6th Form College having transitioned from secondary school.

The ideal model would have been to measure all constructs at all waves of data collection. Two pragmatic reasons influenced our choice of design. First, as outlined above, students had recently transitioned to a specialist 6th Form College. We were able to access prior achievement, from students' previous schools, from college records, but were not able to collect measurements of well-being and adaptability; students were not present at the institution who had agreed to participate in this study. Second, it was not possible for ethical reasons to collect measurements at the same time as students were sitting high-stake examinations that contribute to university acceptance. Doing so would have interfered with a student's preparatory activities. The compromise design was to measure well-being and well-being at two time points in the school year sufficiently spaced apart (approximately 6 months) as not to interfere with either college induction activities at the beginning of the year or examination preparation activities at the end of the year. Despite these compromises, our design is sufficiently robust to examine reciprocal relations between well-being and adaptability while controlling for stability paths and concurrent relations. Similarly, we are able to examine how well-being and adaptability predict subsequent achievement and conduct while controlling for autoregressive and cross-lagged relations with prior achievement and conduct.

The following hypotheses guided our analyses:

Hypothesis 1: School-related well-being will positively relate to subsequent adaptability; adaptability will positively relate to subsequent school-related well-being. Based on the correlations and path coefficients reported in the extant literature, we would expect these to be small to moderate in size.

Hypothesis 2: School-related well-being and adaptability will positively predict subsequent achievement and negatively predict behavioural misconduct. Based on the correlations and path coefficients reported in the extant literature, we would expect these to be small to moderate in size.

Method

Participants

The participants in this study were 539 students (male = 217, female = 317, missing = 5) from a 6th Form College[1] located in the North West of England. The ethnic heritage of participants was predominantly white Caucasian (n = 508) with smaller numbers from Asian (n = 16), black (n = 2), mixed (n = 4), and other backgrounds (n = 4). Five participants did not report their ethnic heritage. Thirty-seven participants were eligible

[1] *A 6th Form College is an institution providing upper secondary education for Years 12 and 13 found in England and Wales.*

for free meals (a proxy for low income). All participants were in Year 12 with a mean age of 16.9 years (SD = 0.64) at the first point of data collection and studying for a General Certificate of Education, Advanced Subsidiary (AS) Level, in up to four different subjects.[2] Across the two waves, 5.9% of data were missing. Little's test showed that data were completely missing at random ($p > .05$) and were handled using full-information maximum likelihood in subsequent analyses.

Measures

Adaptability

Adaptability was measured using the nine-item scale developed by Martin *et al.* (2012). This scale contains six items referring to cognitive-behavioural adaptability (e.g., 'I am able to think through a number of possible options to assist me in a new situation') and three items referring to affective adaptability (e.g., 'When uncertainty arises, I am able to minimize frustration or irritation so I can deal with it best'). Martin *et al.* (2012) advise that the two components of adaptability, namely cognitive-behavioural and affective adaptability, be combined into a single construct due to their strong connectedness and to avoid issues of collinearity, especially when used as a predictor. Participants responded to items on a five-point scale of 1 = strongly disagree to 5 = strongly agree. The internal consistency, construct validity, and predictive validity across academic and non-academic outcomes have been demonstrated in several studies (Martin *et al.*, 2012, 2013). In the present study, the internal reliability at both points of data collection was excellent (ωs > .87).

Well-being

Students' SRW was measured using a six-item SRW scale developed by Loderer *et al.* (2016). The items were designed to obtain students' global judgements of their overall well-being in school settings (e.g., 'All in all, I am content with my day-to-day school experiences.'). Based on confirmatory factor analysis (CFA), Loderer *et al.* (2016) found support for the intended one-factor structure of the scale. Additional psychometric analyses revealed excellent item-total correlations (rs = .63–.72) and good internal consistency (Cronbach's α = .87). Evidence of the discriminatory validity of the scale came from positive correlations with prior achievement (rs = .09–.31 across various school subjects), academic self-concept (r = .38), and pleasant academic emotions (rs = .59–.62), but negative correlations with unpleasant academic emotions (rs = −.41 to −.61). In sum, students' SRW was significantly related to their emotional experiences and self-concepts of ability, but conceptually distinct from these constructs. In the present study, 'school' was changed to 'college' to match the educational context. Participants responded on the same five-point scale as described above. Internal reliability at both points of data collection was excellent (ωs = .90).

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[2] *General Certificate of Education are qualifications that are typically studied over years 12 and 13. Advanced Subsidiary (AS) examinations were taken at the end of Year 12, and Advanced Level (A2) examinations were taken at the end of Year 13. At the point of data collection, AS examinations contributed to the overall A Level grade. From 2016, only A2 examinations contribute to the overall A Level grade (Department for Education, 2016).*

Academic achievement

T_1 academic achievement was taken from participants' mean college entry grades from General Certificate of Secondary Examination (GCSE) examination grades. GCSE examinations are standardized examinations taken by students at the end of compulsory secondary schooling (Year 11) in England, Wales, and Northern Ireland. Examinations in all subjects, except for mathematics, were graded on an eight-point letter scale (A* being the highest grade, followed by A, B, and so on, to a grade G). These were converted to a numerical value such that a higher grade received a higher numerical value (A* = 8, A = 7, B = 6, . . ., G = 1). Mathematics was graded on a nine-point scale (9 = the highest possible grade and 1 = the lowest).[3] T_4 achievement was taken from participants' mean grades on General Certificate of Education AS examination grades taken at the end of Year 12. AS examinations were graded on a five-point letter scale (A being the highest grade and E being the lowest). These were converted to a numerical value such that a higher grade received a higher numerical value (A = 5 and E = 1).

General Certificate of Secondary Examination and AS examinations were set and marked by a government approved and regulated awarding body. It is therefore not possible to provide statistics for the internal reliability of GCSE and AS grades. However, it should be noted that GCSE and AS marking procedures are standardized with highly structured mark schemes, examiner training, and examiner moderation procedures (Office of Qualifications and Examination Regulation, 2014). Research has shown a high level of internal consistency (Cronbach's αs = .74–.91), and a high degree of marker accuracy (rs between examiner mark and definitive mark = .89–.91), for GCSE and AS examinations (Bramley & Dhawan, 2010; Dhawan & Bramley, 2012).

Behavioural conduct

Data for behavioural conduct were taken from official college records. As part of the enrolment procedure, all students signed a code of conduct that defines unacceptable behaviour and the disciplinary policy. Minor forms of misconduct included smoking on college premises, using offensive language, or being absent from college without prior permission. Gross forms of misconduct include use of alcohol or drugs on college premises and bullying. These were logged by academic staff (teachers or pastoral tutors) on a central electronic register. The lower limit of misconduct warning is zero and although in principle there is no upper limit, students with high numbers of verbal warnings would be escalated up a disciplinary procedure resulting in temporary or permanent exclusion from college.

Procedure

T_1 achievement data were taken from students' mean GCSE grade on their entry to college. GCSE examinations are taken in May and June at the end of Year 11. T_1 behavioural conduct was taken from college records to cover the 6-week period from starting Year 12 in September to the half-term break (October). T_2 adaptability and well-being were measured in November, and T_3 adaptability and well-being were measured in March of the following year. Questionnaire items were presented in random order, along with demographic information, and administered during a period of the college timetable

[3] *From 2016 to 2017, GCSE letter grades in subjects were gradually replaced with numerical grades (Long, 2017).*

used for administrative matters. T_4 achievement data were taken from students' mean grade on AS examinations that were taken during May and June. T_4 behavioural conduct was taken from college records to cover the third term of Year 12 (April to July). Although, for brevity, we refer to achievement and behavioural conduct at the first and fourth waves of data collection as T_1 and T_4, respectively, they were not measured at the same point in time. The project was approved by an institutional research ethics committee and written permission provided by the college Principal. Students provided written consent at each phase of data collection.

Results

Preliminary analyses

Descriptive data

Descriptive statistics are shown in Table 1. Adaptability and achievement data were normally distributed (skewness and kurtosis within ± 1). T_3 SRW showed a slight negative skew and a leptokurtic distribution. T_4 behavioural conduct showed a high negative skew and leptokurtic distribution.

The measurement model

A measurement model was examined using a CFA. Achievement and behavioural conduct were treated as single-item latent variables. Following estimates derived from the literature (Hoy, Tarter, & Hoy, 2006; Watkins, Lei, & Canivez, 2007), GCSE and AS examination grades were not treated as perfect indicators of achievement (at T_1 and T_4, respectively), but modelled as $\lambda = .9$ ($\sigma_\varepsilon = .1$). Behavioural conduct at T_1 and T_4 was modelled as a perfect indicator ($\lambda = 1$). The corresponding indicators of adaptability and well-being at T_2 and T_3 were allowed to correlate.

This CFA, and all subsequent analyses, was performed in M*plus* v.8 (Muthén & Muthén, 2017) using the maximum-likelihood estimator with robust standard errors to account for deviations in distribution observed for T_3 well-being and T_4 behavioural conduct. Model fit was established from a variety of indices including the root mean square error of approximation (RMSEA), standardized root means square residual (SRMR), comparative fit index (CFI), and the Tucker–Lewis index (TLI). A good fitting model is indicated by RMSEA values of <.08, SRMR values <.06, and CFI/TLI values >.95 (Hu & Bentler, 1999). Several methodologists, however, have cautioned against interpreting these values in an

Table 1. Descriptive statistics for achievement, adaptability, school-related well-being, and behavioural conduct

	Range	Mean	*SD*	ω	Skewness	Kurtosis	Factor loadings
T_2 adaptability	1–5	3.55	0.60	.87	−0.53	0.36	.60–.73
T_2 school-related well-being	1–5	3.27	0.54	.90	−0.96	2.16	.74–.86
T_3 adaptability	1–5	3.54	0.62	.90	−0.63	1.09	.66–.77
T_3 school-related well-being	1–5	3.10	0.58	.90	−0.94	1.63	.69–.85
T_1 achievement	1–8	5.53	0.72	–	0.33	0.17	–
T_4 achievement	1–5	3.35	1.18	–	0.18	−0.57	–
T_1 behavioural misconduct	0–22	1.71	3.14	–	2.56	9.96	–
T_4 behavioural misconduct	0–12	0.80	1.66	–	3.05	11.36	–

overly strict fashion, especially when used with naturalistic data (Heene, Hilbert, Draxler, Ziegler, & Bühner, 2011; Lance, Butts, & Michels, 2006). The measurement model showed a relatively good fit, $\chi^2(482) = 730.60$, $p < .001$, RMSEA = .035, SRMR = .048, CFI = .959, and TLI = .953, by these standards. There were no obvious sources of model misspecification, and all items loaded $\lambda \geq .60$ on their respective factors. Internal reliability of adaptability and well-being was examined using McDonald's ω. As reported above, estimates showed good levels of internal reliability.

Latent bivariate correlations

To examine latent bivariate correlations, gender (0 = female, 1 = male) and age were added to the measurement model as possible covariates, and modelled as observed variables. This model showed a good fit to the data: $\chi^2(535) = 826.25$, $p < .001$, RMSEA = .035, SRMR = .047, CFI = .954, and TLI = .946. Bivariate correlations are shown in Table 2. School-related well-being correlated positively with achievement and negatively with behavioural conduct. T_3 adaptability was negatively correlated with T_1 behavioural misconduct. Female students reported lower adaptability, lower SRW, showed higher achievement, and had lower T_1 behavioural misconduct.

Measurement invariance

Starting with configural invariance, we examined how model fit changed in successive models when factor loadings (metric invariance), item intercepts (scalar invariance), and item residuals (residual invariance) were constrained to be equal over time (see Meredith, 1993). An increase in the RMSEA of <.015 and a reduction in CFI and TLI indices of <.01 are indicative of invariance (Chen, 2007; Cheung & Rensvold, 2002). Results are reported in Table 3. College-related well-being showed metric and partial scalar invariance, where the constraint for the intercept on one item showed non-invariance, and adaptability showed metric, scalar, and residual invariance. As metric invariance is considered sufficient to model relations over time (Widaman, Ferrer, & Conger, 2010), we proceeded to examine the structural equation model.

Structural equation modelling

A structural equation model was tested to examine how T_3 SRW and adaptability related to T_4 achievement and behavioural conduct, and included all auto- and cross-lagged paths between T_2 and T_3 SRW and adaptability, and between T_1 and T_4 achievement and behavioural conduct. For completeness, paths were also included from T_1 achievement and behavioural conduct to T_2 SRW and adaptability although these were not directly related to our hypotheses. Gender was included as a covariate. Age was not included as no meaningful correlations were shown with substantive study variables in Table 3. This model showed a reasonable fit to the data, $\chi^2(522)$ 832.23, $p < .001$, RMSEA = .037, SRMR = .051, CFI = .950, and TLI = .943, and so we proceeded to examine standardized path coefficients. We followed Keith's (2006) recommendations for the interpretation of the magnitude of standardized coefficients, such that βs > .05 are considered as small, βs > .10 as moderate, and βs > .25 as large.

Strong autoregressive paths were shown between T_2 and T_3 SRW ($\beta = .64$, $p < .001$) and between T_2 and T_3 adaptability ($\beta = .62$, $p < .001$). T_2 SRW was a moderate predictor of T_3 adaptability ($\beta = .18$, $p = .005$). T_2 adaptability was not, however, a statistically

Table 2. Latent bivariate correlations between adaptability, school-related well-being, achievement, behavioural conduct, gender, and age

	1.	2.	3.	4.	5.	6.	7.	8.	9.	.10
1. T_2 adaptability	–	.55***	.71***	.43***	.03	.05	−.09	−.05	−.21***	.03
2. T_2 school-related well-being		–	.52***	.68***	.13*	.11*	−.22***	−.22**	−.11*	−.05
3. T_3 adaptability			–	.71***	.05	.10	−.15*	−.08	−.18***	−.01
4. T_3 school-related well-being				–	.23***	.27***	−.22***	−.23***	−.10*	−.01
5. T_1 achievement					–	.60***	−.22***	−.28***	.24***	−.10
6. T_4 achievement						–	−.34***	−.38***	.14*	.10
7. T_1 behavioural misconduct							–	.60***	−.12*	.06
8. T_4 behavioural misconduct								–	−.09	.08
9. Gender									–	–
10. Age										–

Note. *$p < .05$; **$p < .01$; ***$p < .001$.

Table 3. Tests of measurement invariance

	χ^2	RMSEA	SRMR	CFI	TLI	Δ RMSEA	ΔCFL	ΔTLI
School-related well-being								
Configural	147.12 (69)	.048	.035	.972	.963			
Metric invariance	153.42 (75)	.046	.044	.972	.965	−.002	<.001	+.003
Scalar invariance	199.01 (81)	.054	.061	.957	.952	+.008	−.015	−.013
Partial scalar invariance[a]	180.89 (79)	.051	.053	.963	.957	+.005	−.009	−.008
Adaptability								
Configural	202.37 (120)	.037	.039	.970	.961			
Metric invariance	222.10 (127)	.039	.055	.965	.958	+.002	−.005	−.003
Scalar invariance	236.41 (136)	.038	.061	.963	.959	−.002	−.002	−.001
Residual invariance	244.42 (145)	.037	.058	.964	.961	−.001	+.001	+.002

Note. [a]Equality constraint relaxed on item 1 ('College is going well for me'). All models statistically significant at p <.001.

significant predictor of T_3 SRW ($\beta = .07$, $p = .26$). Strong autoregressive paths were shown between T_1 and T_4 achievement ($\beta = .54$, $p < .001$) and between T_1 and T_4 behavioural misconduct ($\beta = .61$, $p < .001$). Moderate cross-lagged paths were shown from T_1 achievement to T_4 behavioural misconduct ($\beta = -.13$, $p < .001$) and from T_1 behavioural misconduct to T_4 achievement ($\beta = -.20$, $p < .001$).

Over and above the variance accounted for by autoregressive and cross-lagged paths, T_3 SRW was a moderate predictor of T_4 achievement ($\beta = .15$, $p = .04$) and T_4 behavioural conduct ($\beta = -.17$, $p = .01$). T_3 adaptability was a moderate predictor of T_4 behavioural conduct ($\beta = -.14$, $p = .04$) but was not a statistically significant predictor of T_4 achievement ($\beta = -.05$, $p = .52$). Gender was moderately related to T_1 achievement ($\beta = .23$, $p < .001$), T_2 SRW ($\beta = -.16$, $p = .002$), T_2 adaptability ($\beta = -.25$, $p < .001$), and T_1 behavioural conduct ($\beta = -.11$, $p = .04$). All other relations with gender were not statistically significant (ps > .05).

Discussion

The aim of this study was to, first, examine a bidirectional model of SRW and adaptability, and second, examine how SRW and adaptability related to subsequent achievement and behavioural conduct. Data were collected from a sample of students having transitioned to a tier of upper secondary education (6th Form) in four waves over the course of a single academic year. The results showed that T_2 SRW was a moderate predictor of higher T_3 adaptability, but not vice versa, offering partial support for *Hypothesis 1*. T_3 SRW was a moderate predictor of greater T_4 achievement and behavioural conduct, and T_3 adaptability was a moderate predictor of greater T_4 behavioural conduct, offering partial support for *Hypothesis 2*.

Based on the broaden-and-build theory, it was expected that students with greater SRW would be able to identify and use a broader range of thought-action repertoires,

including coping and regulatory strategies (Fredrickson, 2001; Kikken & Fredrickson, 2017). In support of this theorization, we found that T_2 SRW was related to higher T_3 adaptability, after controlling for T_2 adaptability and concurrent relations between SRW and adaptability at T_2 and T_3. Based on the adaption theory of well-being, students who are more adaptive are able to choose and use more adaptive forms of coping and regulation (Diener *et al.*, 2006). Such students would be expected to experience more positive emotions, fewer negative emotions, and access better social support (Gross & John, 2003; Johns *et al.*, 2008; Moore *et al.*, 2008). Accordingly, we anticipated that more adaptable students would show greater SRW. Although adaptability and SRW were concurrently related (*r*s = .53 and .65 for T_2, and T_3, respectively; see Figure 1), T_2 adaptability did not predict T_3 SRW, after controlling for T_2 SRW and concurrent relations between SRW and adaptability at T_2 and T_3.

In summary, we did not find support for a bidirectional model; greater SRW predicted greater subsequent adaptability, but greater adaptability did not predict subsequent SRW. There are two contextual factors that should be taken into account when interpreting these findings. First, it is plausible that transition to a 6th Form College is a novel and uncertain situation and, therefore, adaptability would be likely to influence a successful transition. By the T_2 point of data collection, however, students were approximately 2 months into the first term. Those students with low adaptability at the beginning of term, and who may have taken longer to settle into their new environment, may have had sufficient time to adjust. Second, unlike the subjective well-being measure, the adaptability scale used in the present study was not school- or college-specific. While this measure has shown links to educational outcomes in other studies (Martin *et al.*, 2012, 2013, 2015), it is possible that a context-matched well-being and adaptability scales would show stronger relations over time. Notwithstanding these speculations, it is possible that adaptability only predicts concurrent well-being.

Following the theorization of school-related being and adaptability as being beneficial for a host of student outcomes (Hascher, 2003, 2008; Martin *et al.*, 2012, 2013, 2015), it was expected that school-related being and adaptability would positively predict achievement and negatively predict behavioural misconduct. In support, results showed that greater T_3 SRW predicted higher T_4 achievement and lower T_4 behavioural

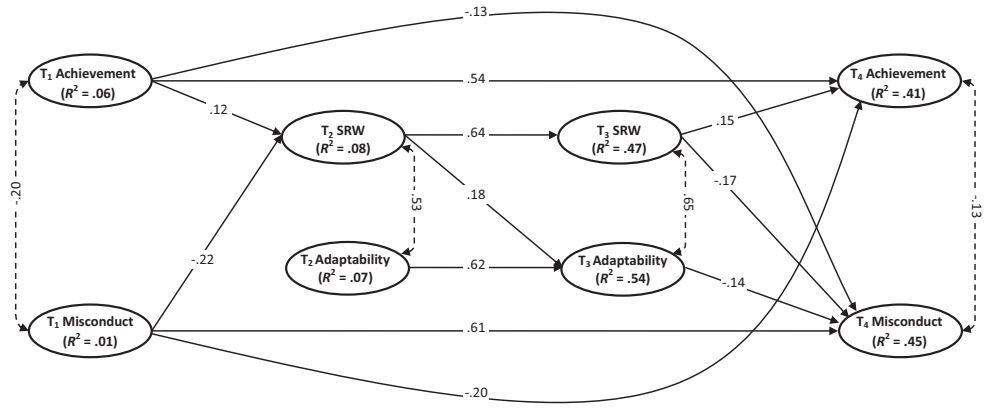

Figure 1. Structural equation model to show relations (standardized path coefficients) between T_2 and T_3 school-related well-being (SRW) and adaptability, and how T_3 SRW and adaptability predict T_4 achievement, and behavioural misconduct, controlling for T_1 achievement, and behavioural misconduct.

misconduct, controlling for the prior variance in T_1 achievement and T_1 behavioural misconduct, and the concurrent relations with T_3 adaptability. Thus, the advantageous nature of higher SRW has been demonstrated in a robust fashion. These findings tally with earlier research showing that higher well-being is related to subsequent achievement (Miller *et al.*, 2013; Morrison-Gutman & Vorhaus, 2012; Steinmayr *et al.*, 2016; van Batenburg-Eddes & Jolles, 2013) and support the theoretical proposition that the combination of positive cognition, affect, and relationships that comprise well-being result in educational gains.

Greater T_3 adaptability predicted lower T_4 behavioural misconduct, but was unrelated to T_4 achievement, again using the same robust analyses as for T_3 SRW (controlling for autoregressive relations with T_1 achievement and T_1 behavioural misconduct and concurrent relations with T_3 SRW). Thus, after partialling out the shared variance with T_3 SRW, T_3 adaptability remained a unique predictor of subsequent behavioural misconduct, but not achievement. We anticipated that adaptability would be positively related to achievement, due its previously reported relations with achievement (Martin *et al.*, 2012) as well as a nexus of interconnected educationally beneficial constructs related to achievement including class participation, enjoyment of school, and control (Martin *et al.*, 2013, 2015). One study, however, reported that adaptability was only indirectly related to achievement; *r*s were not statistically significant and masked competing positive and negative mediators (Collie *et al.*, 2017). Given the small *r*s that also emerged in the present findings (*r*s = .03–.10; see Table 2), a similar explanation could apply here.

Limitations and implications for future studies

As highlighted above, the first wave of self-report measurement may not have been sufficiently close to the beginning of term to capture the utility of adaptability in transition to a novel and uncertain college environment. Furthermore, a general measure of adaptability was used that may not be as sensitive as a school- or college-specific measure. Future studies may wish to adapt measures of adaptability to make them context-specific and, where transition is a salient concern, should consider measuring adaptability closer to the start of term so long as it does not interfere with induction processes. Future work should also consider adopting complimentary qualitative approaches to the study of subjective well-being at school. Such approaches can help to uncover the experiences of young people relating to well-being in greater depth, the complexity of their relationships within the college setting and how these relate to well-being, their achievements and their view of adaptability.

Implications for practice

The findings presented in this study add to the evidence base for the benefits of well-being showing that while subjective well-being might be a desirable goal in itself, it is also a means by which to achieve positive educational outcomes. In an era where educational policy has incentivized schools to maximize educational attainment at the expense of wider personal development (Bonell *et al.*, 2014), our findings demonstrate the folly of ignoring the former at the expense of the latter; greater well-being contributes to, rather than detracts from, positive educational outcomes. Given concerns over the mental health of adolescents (Davies, 2013), and the potential of schools to positively impact on the well-being of adolescents (Hollis *et al.*, 2017), we fully endorse the argument that well-

being should be given greater weight in the school curriculum (Oades, 2017). There are numerous evidence-based interventions that have been shown to positively impact on the subjective well-being of children and young people (Durlak, Weissberg, & Dymnicki, 2011; Farahmand, Grant, Polo, Duffy, & Dubois, 2011). Educational and school psychology practitioners and researchers have a valuable role in helping schools to select, implement, and evaluate those programmes that can benefit the well-being of their students most effectively.

Conclusion

The findings of this study further highlighted the beneficial value of student well-being for educational outcomes by showing relations with two hitherto un-researched constructs, adaptability and behavioural conduct, along with achievement. Students with higher well-being subsequently report themselves to be better at responding to novel and uncertain situations, show better achievement on standardized examinations, and are less likely to infringe the college discipline policy. Although adaptability was unrelated to future well-being, or achievement, we build on previous studies showing the beneficial value of adaptability by showing relations with behavioural conduct. Students who reported themselves to be better at responding to change are less likely to infringe the college discipline policy. These findings suggest that attempts to foster well-being and adaptability would be beneficial for students.

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