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Examining how flexi schools support the psychological wellbeing of marginalized youth: a longitudinal study

Benjamin J. Corry [ID], Lorelle J. Burton and Erich C. Fein [ID]

School of Psychology and Counselling, University of Southern Queensland, Toowoomba, Queensland, Australia

ABSTRACT

There exists little quantitative data on longitudinal life outcomes, such as employment and wellbeing, for marginalized students who reconnect with learning via flexible learning. This article reports on longitudinal associations between satisfying psychological wellbeing at school and quality of life after school. Forty-one past students of a flexible learning campus in a regional Australia City, aged between 18 and 31 years responded in an online survey, available over a 6-month period, on the school Facebook page. The survey measured satisfaction of psychological needs when at school (autonomy, relatedness and competence), and current quality of life factors (income, employment, positive relationships, emotions and accomplishment etc.). Bivariate correlation results suggested that greater satisfaction of basic psychological wellbeing at school is directly associated with improved psychology and wellbeing factors in later life. This has implications for research supporting investment in psychological wellbeing at school based on longitudinal wellbeing benefits.

Introduction and literature review

Introduction

At a global level, the Organization for Economic Co-operation and Development (OECD) leaves no doubt of the value of education to the economic prosperity, productivity and standard of living for entire nations (OECD, 2017). At a personal level, research indicates that an effective education helps to lower the risks of mental and physical health issues in life (Hancock & Zubrick, 2015; Layard et al., 2014; Te Riele, 2014). Throughout the literature, it is recognized that the purely academic aspect of any given pedagogy is not necessarily a strong predictor of a positive or successful life. Indeed, there is a complex interplay of other factors relating to basic human needs; physical, psychological, and social needs, which motivate youth to engage in, and benefit from, a formal education system and carry this engagement forward through life (Body & Hogg, 2019; Hancock & Zubrick, 2015). Positive school engagement can therefore enhance resilience and prevent individuals from becoming marginalized over the longer term (Hancock & Zubrick, 2015; Te Riele, 2014; Salmela-Aro et al., 2021).

CONTACT Lorelle J. Burton ✉ lorelle.burton@usq.edu.au
ⓘ Supplemental data for this article can be accessed here

Literature and theoretical overview

School disengagement

Disengagement may be cognitive (e.g. poor academic performance), emotional (e.g. low interest or poor social connections), or behavioural (e.g. distracting or disruptive behaviour) and it may relate to academic content, a specific class cohort, the school institution, or the education system as a whole (Hancock & Zubrick, 2015). Disengagement may manifest as behaviours ranging from distractions, not participating, overt misbehaviour and finally, school absence (Hancock & Zubrick, 2015). Hancock and Zubrick (2015) extensively reviewed student disengagement in primary and secondary schools in Australia. Their review spanned 113 publications of Australian data between 2010 and 2015. The study found evidence that approximately 20% of students were consistently disengaged and consequently performed 1-to-2-year levels below their engaged cohort. Additionally, 25% of 15 year old students felt that school had not prepared them for life and a staggering 22% felt they did not belong at school (Hancock & Zubrick, 2015). Disengagement therefore is more than non-attendance or non-completion with demonstrable negative impacts on wellbeing and quality of life over the long term (Gore et al., 2017; Hancock & Zubrick, 2015; McGregor et al., 2015; L. Ryan et al., 2019; Te Riele, 2014).

The Hancock and Zubrick (2015) literature review found that students who leave school before year 12 are at heightened risk of remaining unemployed, being socially excluded, and adopting risky health related activities, for example, smoking or drug misuse. They also identified that disengaged students are more likely to experience poorer physical and psychological health, and increased engagement in crime, with subsequent arrest and imprisonment. In addition to poorer economic consequences over the longer term, the impact of disengagement on individual quality of life, family dynamics, and the broader community are substantial (Burton et al., 2017; Hancock & Zubrick, 2015; McGregor, 2017; OECD, 2017; Te Riele, 2014). Typically the risk factors for school disengagement include being Indigenous, having low socio-economic status (SES), being male, having low parental education level, and living in a rural or remote location (Lamb et al., 2015; McGregor et al., 2015). Of note is that these risk factors are not readily changeable aspects of the individual, leaving the burden of change or intervention within the educational system or broader societal level.

Flexible learning options as an intervention for disengagement

In the context of this research, mainstream school is defined as the formal education systems as delivered by the various State Governments of Australia. In addition to mainstream schools, a wide range of flexible learning options have been established by different organizations to address the issue of student disengagement (Lamb et al., 2015; Plows et al., 2017; Te Riele, 2014). They have achieved this through providing enfranchising and inclusive educational models for students who have become disengaged through a range of varied and complex reasons (Lamb et al., 2015; Plows et al., 2017; Te Riele, 2014). Credentials and activities within these flexible options extended beyond the traditional academic qualifications and included extending competencies into life skills, parenting, and cultural programmemes. Te Riele (2014) recommended measures of educational experience comprise indicators beyond academic performance, to effectively compare flexible learning options with mainstream education from a student perspective.

Te Riele (2014) further linked successful learning with autonomy and control of content by the student, which in turn enhanced engagement. A foundation for putting this into practice relies on the ability of teachers to listen attentively to the students' needs and support tailored direction for individual students (Te Riele, 2014). Te Riele (2014) identified common themes of autonomy, positive student teacher relationships, respect, wellbeing, and a wider view of competence throughout Australian flexible learning options (Te Riele, 2014). These foundations are well supported throughout the literature as offering the student both authority and responsibility for self-determination in their education (Ciani et al., 2011; McGregor et al.,

2015; Plows et al., 2017; Powers et al., 2012). In addition, research shows that self-determination positively influences students' motivation, competence and importantly, pro-social behaviours (Ciani et al., 2011; R. M. Ryan & Deci, 2020).

By considering education as a process which influences an individual's subsequent QoL, flexible learning options represent an alternative approach to education when the mainstream process is not working for an individual. A key aspect of flexible learning is the autonomy or influence students have in determining their own areas of study, motivating their re-engagement in education (McGregor et al., 2015; L. Ryan et al., 2019).

Flexible learning options

Self Determination Theory (SDT) provides an empirical lens to view a student's subjective school experience, with its focus on Autonomy, Relatedness and Competence as motivators (R. M. Ryan & Deci, 2020).

SDT, with its focus on basic human needs as motivators, provides a means for understanding both adolescent and adult motivation (Ciani et al., 2011; Powers et al., 2012; R. M. Ryan & Deci, 2020; Seligman et al., 2009). The three basic needs of SDT–Autonomy, Relatedness and Competence–are empirically established (R. M. Ryan & Deci, 2020). Autonomy describes the perception of being the instigator of one's actions (R. M. Ryan & Deci, 2020). Autonomy motivates behaviour by embracing an individual's core values and utilizing their freedom to act (Craggs & Kelly, 2018). Relatedness describes feeling connected to others through loving, caring and supporting; it describes an individual's sense of belonging and acceptance by others (R. M. Ryan & Deci, 2020). Satisfying the need for relatedness delivers a sense of community and connection with others, either individually or in a group (Craggs & Kelly, 2018). In a school context, Relatedness may be experienced through association with teachers, classmates, and participating in school activities. Competence describes a sense of effectiveness in an individual's environment as well as the desire to express it. The need for competence motivates people to engage in challenges to maintain and enhance their own competence (Ciani et al., 2011). Depending on the nature of the competence being sought, an individual may be autonomously motivated in their actions to improve their competence (Demetriou & Bachner, 2019; R. M. Ryan & Deci, 2020). In a school context, this may include a student being able to choose a subject because they like it, doing extra work because of genuine interest, or achieving higher competence and subsequently creating further autonomous motivation. SDT therefore offers a theoretical lens through which to view the basic needs influencing levels of motivation or disengagement experienced by students in both mainstream and flexible learning options (Craggs & Kelly, 2018; R. M. Ryan & Deci, 2020).

Extrinsically, students are motivated to achieve in terms of income, and career and educational outcomes; intrinsically, students are motivated to achieve personal wellbeing and are positively oriented towards good psychological health.

Conceptual framework

Quality of life (QoL) and wellbeing

Theofilou (2013) demonstrated that any effective explanation of quality of life must include social, environmental, psychological, wellbeing and physical domains. Theofilou highlighted that QoL and wellbeing are used interchangeably to describe the same construct. Theofilou explained that historically there have been two sides to QoL; 'objective', defined by income and health for example, and 'subjective' defined using affect and satisfaction measures. Of note is that contemporary measures of QoL do not directly quantify such items as income or education, instead focussing on an individual's subjective satisfaction with them (Theofilou, 2013). This diverges from many longitudinal studies which focus specifically on income, education, career environment and other more tangible measures of QoL (Estes & Sirgy, 2019; Layard et al., 2014; Watson et al., 2016). To redress this imbalance, the current research will measure

both objective and subjective aspects of QoL. Extrinsic domains will be measured via income, education, and health outcomes; Intrinsic domains will include measures of psychological wellbeing and life satisfaction allowing the current data to be linked to economic and/or employment indicators and be quantified in monetary terms, without neglecting subjective wellbeing outcomes.

In informing both Extrinsic and Intrinsic QoL domains, Australian research by Cummins (1997) refined the Comprehensive Quality of Life Inventory Version 5 (ComQoL5) to quantify both Extrinsic and Intrinsic factors of QoL. Extrinsic measures include income, employment and education; Intrinsic measures include emotional wellbeing and life satisfaction (Cummins, 1997). Similarly, Cummins in partnership with The International Well Being Group (2006), developed the more contemporary Personal wellbeing Index for Adults (*Personal Satisfaction*). *Personal Satisfaction* will be used in this research as one measure of Intrinsic QoL quantifying the life satisfaction element of Theofilou's (2013) model. Additionally, Martin Seligman's (2011) theory of wellbeing will provide the second intrinsic measure of QoL.

Positive psychology and PERMA

This research will use the five domains of Seligman's (2011) Wellbeing Theory to quantify affect within the Intrinsic QoL construct, with each domain explained in turn below.

- (P) Positive Emotion. Positive emotion combines positive feelings and perceptions including happiness, life satisfaction, comfort, and ecstasy (Butler & Kern, 2016; Seligman, 2011).
- (E) Engagement. Engagement can be conceptualized as a multidimensional construct with cognitive, behavioural and emotional components (Butler & Kern, 2016; Hone et al., 2014). An extreme level of engagement is called a state of flow in which an individual is so engaged, in the task, that the pleasures experienced only become evident after the activity has ceased (Seligman, 2011; Seligman & Csikszentmihalyi, 2014).
- (R) Relationships. We need other people and our physical and psychological health, resilience, ageing process and mortality are all influenced by relationships with others (Gloria & Steinhardt, 2016; Howard et al., 2021; Xu, 2018). Positive relationships include both giving and receiving support, and a sense of feeling loved or connected (Seligman et al., 2009).
- (M) Meaning. Meaning in life has a strong cognitive element not required for other more subjective domains (Butler & Kern, 2016; Seligman, 2011; Steger, 2012). For meaning to be felt, an individual must comprehend their world and invest in a self-aligned purpose which may change over time (Seligman, 2011; Steger, 2012).
- (A) Accomplishment. Accomplishment is the most tangible, overt, and quantifiable domain of Seligman's (2011) Wellbeing Theory. It is however the individual's perception of Accomplishment which forms the basis of this factor (Adler & Seligman, 2016; Seligman, 2011).

Seligman's (2011) *PERMA* together with the life satisfaction dimensions offered by *Personal Satisfaction*, will be used to measure Intrinsic QoL. Extrinsic QoL will be measured using the objective measures in the ComQoL5 (Cummins, 1997), enabling comparisons with previous longitudinal research in the field (Richardson et al., 2016; The International Well Being Group, 2006; Weinberg et al., 2018).

Rationale

Prior research has demonstrated the efficacy of flexible learning options and identified key elements, including Autonomy, Relatedness and Competence, in re-engaging students in education (McGregor et al., 2015; Plows et al., 2017; Te Riele, 2014). While this past research has helped inform our understanding of what works for flexible learning options, by listening to the voice of the flexi

students, these case study and qualitative methodologies have limited generalizability. In short, there exists a gap in quantitative research comparing longitudinal QoL outcomes for students who re-engaged in education via flexible learning options. Consequently, the current research aimed to understand the longer-term impacts of flexible learning options on outcomes for formerly disengaged students who re-engage in learning via flexi schools.

Flexible will be defined as a relating to a flexible learning option. The study included an analysis of relationships between psychological needs (Autonomy, Relatedness and Competence) of past Flexible students and present QoL measures, up to 14 years after finishing high school. A Flexible Learning environment with it's stronger focus on student Autonomy, Relatedness and Competence offers an enhanced environment to assess any relationships. Correlations may be used to inform further research into educational pedagogies and associated long term benefits. By quantifying the longitudinal school influences on longer term outcomes, cost justification for education funding may draw on broader individual and community consequences than has traditionally been possible.

Research aim and hypotheses

The null hypothesis in this research is that there is no significant relationship between satisfaction of Self-Determination factors (Autonomy, Relatedness, Competence) at school and longitudinal Quality of Life measures after leaving school for Flexible students. The Alternative hypothesis is that there will be one or more significant relationship between satisfaction of Self-Determination factors (Autonomy, Relatedness, Competence) at school and longitudinal Quality of Life measures after leaving school for Flexible students.

A Bivariate Correlation Analysis will be conducted between the Basic psychological needs of Autonomy, Relatedness and Competence a student experienced at school, and QoL factors as measured by the Comprehensive Quality of Life Inventory Version 5, Martin Seligman's Positive Psychology constructs and Personal Satisfaction with life, respectively.

Research metodology

Participants

A total of 43 past students from a flexible learning school in regional Queensland, Australia, participated in the research. Two surveys were removed as they were completed by participants less than 18 years of age. The 41 participants remaining (9 male, 32 female), were aged between 18 and 31 years (*Median* = 23, *Mean* = 23.39, *SD* = 3.42) and attended the school for at least one year between 2003 and 2017. A histogram of participant ages is presented in Figure 1.

Method

Sampling and study design

The current study accessed past students at a Flexible learning school while the mainstream school was celebrating an anniversary of its operation during the same calendar year. Participants were sampled via a school anniversary re-union committee and invited to participate in an online survey instrument. This was done via school Facebook sites and several targeted emails by the school administration team. A participant information statement was provided on an introductory page of the online survey and consent obtained by the participant clicking to proceed. Participants were required to be 18 years or older, and to have attended the Flexible school for at least 1 year across Years 10, 11 or 12.

Variables were measured quantitatively in some instances using dichotomous or Likert type scales where scalar numerical values were not appropriate. Data was analysed for correlations using bivariate correlation analysis between historical variables and current quality of life measures. Statistical significance was determined at a probability of .05 ($p \leq .05$).
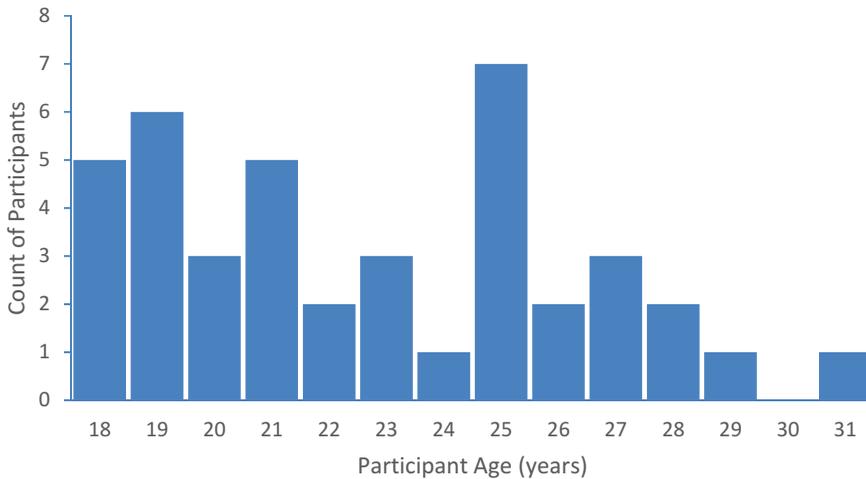
Figure 1. Histogram representing Participant Age

Ethical considerations

The survey itself was voluntarily and anonymously administered to participants using Survey Maker and was available for a 3-month period. All participants consented via clicking on an agree button at a consent statement prior to commencement of the online survey. Response data from the survey was imported into IBM SPSS GradPack Premium Version 25 for analysis. Electronic copies of responses are kept in a secure location and all participants' privacy was protected through anonymity at participation with no identifiable data collected. Ethical approval was obtained via the University of Southern Queensland Human Ethics Review Board, Australia (Approval H18REA071).

Measures

A 49-item survey was developed from previously validated scales in the relevant research literature. This survey was comprised of four psychometrically valid instruments to measure participants' past flexi school experiences and their current Intrinsic and Extrinsic QoL. In respect of the first scale, participant experiences of Autonomy, Relatedness and Competence were measured using an adapted form of the adolescent students' basic psychological needs at school scale (Tian, Han et al., 2014). Referents in Tian, Han et al.'s (2014) scale were modified in a minor way from the original scale, only in respect to time, to be reflective prompts rather than states of current appraisal. Written permission from the authors was not sought, the practice of changing referents is not uncommon and does not of itself, invalidate the scale (Leong, 2006). However, the performance of the scale with new referents should be checked via multiple studies (Cortina et al., 2020). In addition, extrinsic variables included education level, home ownership, employment status, income and the presence of medical issues and were measured using elements of the Comprehensive Quality of Life: Adult (Robert A. Cummins, 1997). Intrinsic variables included the experience and extent of positive emotion, engagement, positive relationships, meaning in life, accomplishment and personal satisfaction with life (Butler & Kern, 2016; The International Well Being Group, 2006). Please see the Technical Appendix for full details of all variables and the survey instrument details are available in a Technical Appendix by contacting the Corresponding Author.

Data analysis & statistical procedure

Data was collected via an online survey, delivered via a Facebook link on the school Facebook page, and via direct email through past student and staff informal networks. No individual school records were accessed to sample participants.

Surveys were completed online at a time and place of the Participant's choosing between 15 May 2018 and 3 August 2018.

Time to complete the survey varied between 2 minutes and 21 minutes with an average time of five minutes and seven seconds.

Prior to analysis the data was screened for missing values. The only survey item which had missing data was Income. Seven participants did not enter their Income. This represents a total missing percentage of 17.1%. To mitigate the impact of this missing data, all analyses were performed using bootstrapping (*Samples* = 1000, *CI* = 95%) and for all Income descriptive variables and correlations, the analyses were performed using n = 34. Additionally, one participant neglected to indicate whether they had any Medical Conditions (Y/N) but did list a medical condition. For this participant, the response for Medical Condition (Y/N) was altered to be a Yes (2).

Non-dichotomous variables were then checked for normality using skewness and kurtosis. Two variables exhibited levels of kurtosis beyond the recommended limit of ±2 (Field, 2013), income (2.05) and Relatedness (3.69). A review of the income histogram demonstrated an expected tail to the right with higher earning individuals reducing in number on an open-ended scale. This was considered typical for such a scale and Income has been retained in the analysis, though caution is advised in interpretation of income analysis. A similar investigation of the histogram for Relatedness (M = 4.44, SD = 0.61) showed a single, very low score of 2.20. This score at z = 3.67 is outside the recommended maximum z score of ± 3.29 (Field, 2013). This participant's scores across individual items does not reveal a pattern of unusual responses, nor does it indicate an error, as one of the items in the Relatedness construct is reverse scored. Consequently, this result has been left in for analysis and its impact on kurtosis noted.

Results

Descriptive statistics

Descriptive statistics for n, age, Autonomy, Relatedness and Competence factors are presented in Table 1. In addition, Cronbach's Alpha (α) is included to indicate the reliability of key variables. The α offers an indication of adequate scale reliability and thus performance (Field, 2013). The variables are grouped with participant number and Age at the top and Autonomy, Relatedness and Competence are at the bottom of the table. Of note is the lower representation of males to females within both cohorts. To understand if there were any gender

Table 1. Cronbach's Alpha (α) and Descriptive Statistics, M (SD), for n, age and school needs factors.

Variable	α[1]	All	Male	Female
n[a]	n/a	41	9	32
Age[a]	n/a	23.39 (3.42)	24.00 (2.45)	22.31 (3.78)
School Needs Factors				
Autonomy	.86	5.10 (0.69)	4.89 (0.63)	5.16 (0.72)
Relatedness	.74	4.44 (0.61)	4.56 (0.56)	4.41 (0.62)
Competence	.82	4.82 (0.89)	4.49 (1.10)	4.92 (0.82)

Note. [1]Cronbach's Alpha.
[a] n and Age statistics are included for consistency and reference.
Analysis performed using bootstrapping (*Samples* = 1000, *CI* = 95%).

influences which may confound results, independent t-Tests were conducted based on gender, covering all analysis variables and no significant gender differences were found within variables.

Scale reliability was established by comparing current results against those of an Australian study with 647 adolescent students ($n = 341$ male) where Autonomy, Relatedness and Competence showed satisfactory reliability (α = 85) for Autonomy; 80 for Relatedness; and 77 for Competence; (Tian, Han et al., 2014). Data from the current research yielded α values of 86 for Autonomy; 74 for Relatedness; and 82 for Competence. This indicates that all three subscales showed adequate reliability and is consistent with prior research (Tian, Han et al., 2014).

Descriptive statistics for QoL measures are presented in Table 2. Values of α for single items within Extrinsic QoL cannot be calculated and it remains uncertain whether Extrinsic QoL represents a valid single construct (Cummins, 1997; Layard et al., 2014; Theofilou, 2013). Consequently, only α values for Intrinsic QoL were computed. In this research α values were calculated for each subscale as follows; 91 for positive emotion (P); 72 for engagement (E); 69 for relationships; 75 for meaning (M); and 93 for accomplishment (A). These findings are consistent with prior research, however, the α = 69 for relationships, is slightly below the recommended cut off of 70 (Field, 2013). In contrast, the α value for *Personal Satisfaction* was calculated at 90, indicating a highly reliable measure, and is consistent with past research (The International Well Being Group, 2006). No significant gender differences were detected for any of the variables.

Results of correlation analysis

A bivariate correlation analysis was conducted to examine the nature of relationships among key variables. Given the non-parametric nature of some of the scales used, Spearman's rho was used to quantify the correlations. The correlations are presented in Table 3 for the three *School Needs* factors (Autonomy, Relatedness and Competence) and extrinsic and intrinsic *QoL* variables. A priori power analysis using G*Power 3.1.9.2, with $a=.05$, power of .80 and a large effect ($r_s = .50$), indicated a sample size of 29 was adequate (Faul et al., 2009; Field, 2013). For a medium effect ($r_s = .30$) with $a = .05$ and power of .80, a sample size of 84 was required (Field, 2013).

With respect to *School Needs* factors, large significant positive correlations were measured between Autonomy and Positive Emotion, and Engagement, respectively. Medium significant and positive correlations were found between Autonomy and Relationships, Meaning and *Personal*

Table 2.
Cronbach's Alpha and Descriptive Statistics, M (SD), for n, age and QoL items and factors.

Variable	α [1]	All	Male	Female
n	n/a	41	9	32
Extrinsic QoL Items				
Education Level[b]	n/a	2.10 (1.09)	1.56 (0.73)	2.25 (1.14)
Rent/Own	n/a	1.12 (0.33)	1.22(0.44)	1.09 (0.30)
(Rent = 1, Own = 2)				
Employed (No = 1, Yes = 2)	n/a	1.66 (0.48)	1.78(0.44)	1.62(0.49)
Income (000's) [a]	n/a	43.56 (32.92)	41.53 (30.50)	44.18 (34.18)
Medical Issues (No = 1, Yes = 2)	n/a	1.24 (0.44)	1.33 (0.50)	1.22 (0.42)
Intrinsic QoL Factors				
P (Positive Emotion)	.91	3.55 (0.85)	3.37 (0.86)	3.60 (0.85)
E (Engagement)	.72	3.58 (0.79)	3.15 (1.09)	3.70 (0.66)
R (Relationships)	.69	3.68 (0.66)	3.82 (0.78)	3.64 (0.65)
M (Meaning)	.75	3.57 (0.90)	3.41 (0.68)	3.61 (0.96)
A (Accomplishment)	.93	3.39 (1.03)	3.11 (1.08)	3.47 (1.02)
Personal Satisfaction	.90	3.68 (0.76)	3.48 (0.90)	3.74 (0.73)

Note. [1] Cronbach's Alpha (α).
[a]Income Descriptives Calculated using $n = 34$ (M = 8, F = 26) due to missing values reported by participants
[b]Education Level = 1 (Yr 10–12), 2 (Cert I–III), 3 (Cert III-Trade), 4 (Diploma), 5 (Bachelor), 6 (Masters), 7 (PhD).
Analysis performed using bootstrapping (*Samples* = 1000, *CI* = 95%)

Table 3. Spearman's correlations of school needs with QoL factors.

School Needs Factor[1]	Mean	SD	Age	Ed	Rent	Empl	$^a	Med	P	E	R	M	A	PS
Autonomy (SN1)	5.10	0.69	.02	.15	.05	.05	−.03	−.01	**.52****	**.52****	**.42****	**.42****	.26	**.46****
Relatedness (SN2)	4.44	0.61	.13	−.05	.25	.12	−.10	.11	.22	.14	**.40****	.04	.10	**.31***
Competence (SN3)	4.82	0.89	−.2	.17	.13	.11	.01	−.20	**.44****	**.51****	.30	.28	**.38***	**.38***

Note. [1] *School Needs* factors are numbered SN1 through SN3 on the Column Headers for table format.
[a]Income Correlations Calculated using $n = 34$ (M = 8, F = 26) due to missing values reported by participants
* $p = < .05$, ** $p < .01$.
Ed = Education Level, Rent = Rent/Own (Rent = 1, Own = 2), Emp = Employed Y/N (N = 0, Y = 1), {{footpara}}amp;#x00A0; = Income, Med = Medical Issues Y/N (N = 0, Y = 1), *PS = Personal Satisfaction, SN1* = Autonomy, *SN2* = Relatedness, *SN3* = Competence.
Analysis performed using bootstrapping (*Samples* = 1000, *CI* = 95%).
P = Positive Emotion, E = Engagement, R = Relationships (positive), M = Meaning, A = Accomplishment.

Satisfaction respectively, as was expected (Ciani et al., 2011; Powers et al., 2012; Tian, Chen et al., 2014). In addition to the *School Needs* factors, Relatedness was correlated significantly with Relationships. Of note is that Relatedness at school did not corelate significantly with any other PERMA factors than positive Relationships for past students. This makes intuitive sense and is as expected (Ciani et al., 2011; Powers et al., 2012; Tian, Chen et al., 2014).

Of note is that none of the School Needs factors (Autonomy, Relatedness or Competence) correlated with the Extrinsic QoL measures.

Overall, the current findings indicate positive relationships between Autonomy, Relatedness and Competence factors and the Intrinsic, not Extrinsic, QoL factors. Additionally, those correlations were both significant and represented either a medium or large effect size. This finding is not expected as prior research suggests Autonomy, Relatedness and Competence would each correlate across both Extrinsic and Intrinsic outcomes (Ciani et al., 2011; Powers et al., 2012; Tian, Chen et al., 2014). A further point of interest are the relationships between all three *School Needs* factors and Relationships in the PERMA construct; as well as with *Personal Satisfaction*.

Discussion

Research questions

The null hypothesis in this research is that there is no significant relationship between satisfaction of Self-Determination factors (Autonomy, Relatedness, Competence) at school and longitudinal Quality of Life measures after leaving school for Flexible students. The Alternative hypothesis is that there will be one or more significant relationship between satisfaction of Self-Determination factors (Autonomy, Relatedness, Competence) at school and longitudinal Quality of Life measures after leaving school for Flexible students.

These hypotheses were tested and finding were related to the literature on self determination in school and it's longitudinal impact on quality of life for students after finishing school.

Interpretation of results

Large, positive associations between satisfaction of the basic psychological needs (Autonomy and Competence) at school and an individual's future psychological wellbeing and personal satisfaction with life were identified. A sense of Autonomy at school has a large significant association with both positive emotions and engagement in later in life. Additionally, an increasing sense of Competence at

school had a large association with engagement later in life. Significant, medium positive associations with all three basic psychological needs (Autonomy, Relatedness and Competence) were identified across multiple future psychological wellbeing and personal satisfaction with life factors.

The absence of significant correlations between the three *School Needs* factors (Autonomy, Relatedness and Competence) with any of the Extrinsic QoL measures for example, income or education level, is of interest. This is surprising considering research showing the SDT factors of Autonomy, Relatedness and Competence, to each correlate with extrinsic QoL outcomes (Ciani et al., 2011; Powers et al., 2012; Tian, Chen et al., 2014). Much of this prior quantitative research, however, used relatively shorter time frames (two years) compared to this study. In this research, the maximum age of participants is 31, offering a timeframe of up to 14 years, and a median of 5 years, since the flexi school students completed Year 12. The current findings suggest there are other factors which account for variation in the extrinsic QoL measures for marginalized students. Other factors known to influence extrinsic QoL outcomes such as education level, occupation and income, can include parental education level and occupation, culture, and SES background, respectively (Gore et al., 2017; Hancock & Zubrick, 2015; Layard et al., 2014; Schoon & Polek, 2011; Watson et al., 2016). This may be explained by research indicating that factors in an adolescent's life such as parents, culture, and SES, typically continue to be influential long after school is completed due to their continued presence and may therefore continue to inform career, education, and financial choices (Gore et al., 2017; Schoon & Polek, 2011).

In contrast, Autonomy, Relatedness, and Competence factors are each significantly positively correlated with the intrinsic QoL measures (PERMA and *Personal Satisfaction*). It would appear from this research that better satisfying a sense of Autonomy, providing a sense of Relatedness for students, and allowing a sense of Competence to develop through engagement at school is significantly associated with improved intrinsic QoL outcomes in the future for students receiving a Flexible education.

Of interest are the positive relationships evident between Autonomy and Relatedness at school and relationships in the PERMA construct in later life. Positive relationships are foundational to our physical and mental health, resilience, and mortality. Students who enter flexible learning options do so generally because mainstream education is not 'working' for them and they don't feel they belong (Burton et al., 2017; McGregor, 2017; McGregor et al., 2015; Morrin, 2017; Te Riele, 2014). The significant positive correlation between Relatedness at school and relationships in later life may therefore indicate a unique benefit of enhanced social connections, care and support at school and represent students' renewed capability in forming positive relationships in later life.

Autonomy, Relatedness and Competence appear to interconnect and build on each other iteratively for positive, longer term outcomes (Vadeboncoeur & Vellos, 2016). The current data suggests that all three *School Needs* factors influence quality of life in later life, specifically helping marginalized students to build life satisfaction and maintain positive relationships after they leave high school. Indeed, positive relationships and attitude are known to have a range of positive associations with improved psychological and physical health as well as resilience (Estes & Sirgy, 2019; Gloria & Steinhardt, 2016; Xu, 2018).

Limitations

Several limitations in the methodology of this research are recognized. Firstly, while large effect sizes can be confidently interpreted with the current sample size ($n = 41$), some medium effect sizes may remain undetected in this data, and results should therefore be interpreted with caution. A larger sample size is recommended in future research to mitigate this effect. Secondly, the span of participants' ages means the years since being at school varied from 1 to 14 years. We can confidently assume that the school curriculum has changed over this time period, however, prior research indicates it is the students' having agency in determining the nature of their learning

experiences that is important to the student experience in flexi schools, not curricula per se (McGregor, 2017; McGregor et al., 2015). Current flexible education campuses offer opportunity for students to cook and eat together (Relatedness), greater support to access apprenticeships or TAFE course (Autonomy) and allow students greater time to gain mastery of areas which interest them specifically (Competence) for example. Such activities are typically outside of a typical mainstream curriculum.

Additionally, participant recollection of prior school experience is likely to vary within individuals and as time passes. These two factors highlight the limitations in using retrospective measurements. Thirdly, potential participants were contacted predominantly via Facebook or social networks with current or past teachers and staff. This process created similarities in cohort characteristics, for example, with gender skewed towards females. Further, it is possible that cohorts stay connected more strongly over time, which may explain the higher number of 25-year-old participants in the sample. Again, results should be interpretated with caution. A direct mailout based on the school enrolment data is recommended for future research to reduce the impact of these limitations and increase overall diversity in the sample.

Implications

These findings have implications for lowering the future burden on mental health services, community services, and potentially police and corrective services (Hancock & Zubrick, 2015; Te Riele, 2014; Rose et al., 2017). The current data therefore suggests that flexible learning options support individual student Autonomy at school and enhance psychological wellbeing after they leave school. Positive emotions, engagement in tasks, positive relationships and overall personal satisfaction with life are positively correlated with Autonomy, Relatedness and Competence experienced at school.

The benefit of improved individual Intrinsic QoL over the long terms has financial ramifications in the form of reduced individual access to, and expenditure on, Government healthcare and related community services (Hancock & Zubrick, 2015; Howard et al., 2021; Te Riele, 2014; Xu, 2018). This is particularly true for marginalized groups within the community. Consequently, research to further investigate the nature of these relationships as well as the potential magnitude of the economic benefits possible by better satisfying a student's basic psychological needs at school, is highly recommended.

Whilst the longitudinal research on student engagement and subsequent outcomes is expanding, there remain limited studies over more than a few years which also measure Quality of Life outcomes for students after they leave school (Salmela-Aro et al., 2021).

Additionally, it is recommended that future research compare a mainstream student cohort with a flexible student cohort over time to explore the magnitude of influence that satisfaction of Autonomy, Relatedness, and Competence needs at school have on future life indicators.

Conclusion

This research used a quantitative bivariate correlation analysis to understand the impact of satisfying the basic psychological needs for marginalized students' QoL over the longer term. The flexible learning campus context could also be considered an experimental intervention given the disengaged and marginalized experience of students studying there instead of in a mainstream campus. The 49-item questionnaire used embrace a broad range of outcome measures for Quality of life to identify associations with school experience. Given that the measures of psychological needs satisfaction at school was modified with respect to time (reflective prompts rather than states of current appraisal), results should be interpreted cautiously.

The results suggest that higher satisfaction of Autonomy, Relatedness, and Competence in marginalized students at flexible schools is positively associated with higher intrinsic quality of life measures (PERMA and *Personal Satisfaction*) over the long term. Thus, satisfying the basic psychological needs of

Autonomy, Relatedness and connectedness at school is positively associated with future intrinsic quality of life measures for students up to 14 years after they finish high school. Significant associations were identified between these three school needs factors and positive emotions, engagement, positive relationships, meaning from life, accomplishment, and personal satisfaction with life. The implication is that students who can experience mastery (Competence) in self-directed (autonomous) learning and establish relationships and connection at school are more likely to experience positive wellbeing in later life. Additionally students experiencing a greater sense of belonging and connection in school enjoyed an increased capacity for positive relationships later in life.

Contrary to expectations, the basic psychological needs at school were not associated with extrinsic QoL measures. For example, Autonomy, Relatedness, and Competence at school were not positively related with extrinsic QoL measures such as income and employment for Flexible students over the long term. This finding supports existing research on the association of specific factors such as parental level of education, SES, and cultural expectations or identity, for example, predicting Extrinsic QoL factors with larger effect. Further quantitative research is recommended.

This research identified that feeling autonomous, related to others, and having a sense of competence at school, may be associated with improved wellbeing outcomes for marginalized students, possibly for many years after they leave school.

The current research identified positive associations between satisfaction of the basic psychological needs at school and an individual's future quality of life. Self Determination Theory provides a framework for interpreting the basic needs driving student motivations at school and they were found to specifically relate to increased positive emotions, greater engagement, improved positive relationships, and elevated personal satisfaction with life well after school was finished. The benefits of improved wellbeing are more than simply subjective in nature, they directly impact the need to access health and psychology services, and engagement in the police and court system. Enhancing these factors in current cohorts of flexi students will influence the positive psychological development of the next generation. Future research should focus on untangling the subjective learning experiences of flexible learning students, and follow-up with graduates to establish how re-engagement in education can positively shape their future quality of life, with compelling economic and social benefits.

Notes on contributor

Corresponding author: Lorelle J Burton (lorelle.burton@usq.edu.au).

Benjamin J. Corry is now completing his Clinical Psychology endorsement at a large regional hospital working with children in the child protection system.

Lorelle J. Burton has received multiple national teaching excellence awards and is author of market-leading textbooks. She is a registered psychologist and is committed to extending her work beyond academia to promote community-based learning and wellbeing. Lorelle's current research involves partnerships with disenfranchised youth, older people, and Aboriginal and Torres Strait Islander Peoples. Her research team seeks people's own stories as a powerful way to strengthen communities and find new paths to support them into the future.

Erich C. Fein's work is based in national and international research teams and concerns psychological constructs and processes related to leadership, motivation, work performance, and occupational health outcomes. He has numerous

active research projects with the State of Queensland and a variety of non-profit organizations in Australia, promoting improvements in leadership, work motivation, and work performance and well-being. His ORCID ID is 0000-0003-4119-0130.

ORCID

Benjamin J. Corry http://orcid.org/0000-0002-4969-1477
Erich C. Fein http://orcid.org/0000-0003-4119-0130

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