The Development of a Tool for Investigating the Barriers and Supports to Participation in School Life and Feelings of Belonging: Part 1

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Abstract Students' experience of learning, relating and belonging are crucial to their participation in school. With ever growing concern about young people's mental health and levels of informal and formal exclusion it is timely to investigate how schools can be supported in meeting the social and psychological needs of learners. The focus of this paper is the development of a questionnaire to investigate the relationship between pupils' experience of belonging and the barriers they encounter in the school setting. Our aim was to test out the tool prior to full standardisation. Data was collected from 722 students across four secondary schools. Four factors were identified within the scale with one factor, that which measured emotional security and comfort, demonstrating moderate correlations to all other scales indicating that it had an underlying relationships to different aspects of the school environment. Students who disclosed SEND had a greater likelihood of demonstrating low connectedness than would be expected by chance alone, with some differences in the degree to which particular items were predictive of overall levels of connectedness.

Keywords: word; belonging, barriers to participation scale, connectedness

Introduction

The focus of much educational policy in England lies with improving the attainment and academic progress of young people but there is also ever growing international concern about their social and psychological needs (OECD 2003; 2017). In England we are witnessing rising levels of mental health issues and increasing levels of school exclusion (Sadler et al 2017; DfE 2019). It is therefore timely to investigate how we can support schools in meeting the social and psychological needs of diverse learners.

It has long been recognised that pupils' experience of learning, relating, and belonging are crucial to their participation and engagement in school, (McLaughlin and Clarke, 2010). This is particularly the case for vulnerable pupils who are disadvantaged and marginalised in schooling. However, when the categories Special Educational Need and Disability (SEND)

are invoked in schooling, justifications are often couched solely in terms of individual deficits. Slee (2019) has argued that the discourse of inclusion has been appropriated by 'the ethic of competitive individualism'. He further suggests that professionals involved in processes of assessment draw on traditions of argumentation and ways of reasoning through their use of categories. Once categories are invoked and allocated, as Hjorne and Saljo (2004, p.1) demonstrate, they serve as rhetorical devices that create a common understanding of school difficulties for school staff, parents, and other actors, and may simultaneously transform multifaceted problems into organic dysfunctions. Whilst categories have a certain seductive lure that reassures school staff, parents, and other actors that something has been done, they often serve to deflect and direct attention away from salient features of complex situations.

In this paper we are concerned with the dynamics of relations of individuals with their social environments and not specific deficits (Dejaeghere, 2020). This shifts the gaze away from individual characteristics of pupils onto the barriers and supports that are experienced in particular social situations. We draw on our earlier studies that were designed with the overall aim of making schools better places for learning. Our previous focus was on the experiences of disabled pupils and we sought to identify the barriers and supports to participation in the school environment and compare these with the experiences of their nondisabled peers (Author 2008; 2010). These studies privileged the views of the young people themselves, and a reoccurring theme in relation to identifying both the barriers and the supports were social relationships. Friends were key for both disabled and non-disabled pupils, yet seldom mentioned when we asked parents about the barriers and supports for their child. This reinforced our understanding of the interconnectedness between learning, relating and belonging (McLaughlin and Clarke 2010) for all children, and the importance of the social as well as academic environment.

Our focus here is on the relationship between the barriers and supports that young people encounter in school and their sense of belonging, a term that is often used interchangeably with feelings of connectedness. We draw on the work of Goodenow (1993) who defined 'students' sense of belonging or psychological membership…[as] the extent to which students feel personally accepted, respected, included and supported in the school social environment' (p.80). This definition is highly consistent with that of inclusion provided by Miller and Katz (2002) as: 'a sense of belonging: feeling respected, valued for who you

are; feeling a level of supportive energy and commitment from others so that you can do your best' (p17), and that when you encounter barriers, it implies "you are out of place, you are different", you don't belong here (Reeve 2012 p82).

Recent reviews of the literature have sought to identify key attributes of feelings of connectedness. St-Armand, Girard and Smith (2017) describe these as positive emotions such as a sense of pride, feeling useful, and attached; positive relations such as feeling respected, supported and enabled; being involved, participating and making a contribution; and a state of harmonization, namely being aligned with others. Craggs and Kelly's (2018) analysis adds safety and security as well as positive relations and relationships, feeling known and accepted, and experience of belonging to a group. Their review of school belonging research leads them to define the higher-order concept of school belonging as 'feeling safe to be yourself in and through relationships with others in the school setting,' (p.58).

The concept of belonging or being connected to school has more recently been situated within the broader social, cultural and political landscape. Allen and Kern (2017) see belonging as 'influenced by individual, relational, and organization factors inside a broader school community and within a political, cultural and geographical landscape unique to each school.' (p.105). In this sense schools can be seen as providing a unique context, one in which a high level of connectedness cannot be simply transplanted.

There are compelling data to suggest that schools need to be aware of levels of low connectedness, with evidence to suggest that there may be larger differences within rather than between schools (OECD 2017). Past studies have found links with depression and depressive symptoms (Bond, Butler, Thomas, Carlin, Glover, Bowes, Patten, 2007; Buck, Millings Montgomery, Spears, Stallard, 2012; Loukas, Suzuki, Horton, 2006); explored mediating factors (Shochet and Smith, 2014); and academic implications (Bond et al. 2007; Niehaus, Moritz Rudasill, and Rakes, 2012) but with limited attention to pupils with special educational needs and disability (Cumming et al 2018). This gap in research is highly significant given that a sense of belonging, of being included rather than excluded, has been described as a key protective factor for young people lowering the likelihood of engaging in behaviours that put them at a health or social risk (Loukas et al. 2006).

Allen and Kern's (2017) meta-analysis of the data from 45 studies revealed that teacher and parent support and personal characteristics of the young person (such as conscientiousness,

hope, social intelligence and coping ability) were strong correlates with a sense of school belonging. However other research has found as we did (see Author 2015) that young people place emphasis on their peer relationships in the secondary school years (Holdsworth and Blanchard 2006; Craggs and Kelly 2018).

Schools play an important role in determining future lives that is not simply confined to academic outcomes. In order to understand how schools can support the diverse needs of learners we need to investigate these experiences, foregrounding the subjective and affective. This paper concerns the development of a tool to investigate the relationship between pupils' experience of belonging and the barriers they encounter in the school setting. Our longer-term aim was to support schools in responding to the diverse needs of learners through identifying and removing the barriers encountered by pupils and to understand the ways in which the cultures of schooling mediate the experiences of relating, learning and belonging. This is a three-phase project working collaboratively with volunteer schools and here we discuss the development of an online questionnaire which formed part of the first phase. Our aim was to trial the tool prior to full standardisation. Our purpose was to develop, refine and validate the questionnaire through a process of analysis similar to those advised and delineated by best practice literature for scale development and validation (Boateng et al. 2018). We were guided by the following questions: What factors are identified within this scale? Is there internal reliability? What are the factors associated with high and low connectedness? How does connectedness vary between different minority and majority groups?

Development of the Questionnaire

Our original questionnaire (see Author et al 2008 for details of its development) already collected data in relation to how pupils felt at different times and places and during different types of lessons. Using a 5 point Likert scale, it explored how pupils felt during lessons, during break times, at lunch time, outside moving around between buildings, during special events (such as concerts and charity days) on school visits and trips, working individually, in pairs/groups, whole class teaching, and during different types of lesson (practical lessons such as art, food technology; sports and physical activities); during tests and assessment, and homework. It also asked them how often they were absent, whether they had a disability or difficulty (with a number of examples) which had gone on for a year or more; and who they turned to for sources of support.

To these items we added a further 11, five from the original Goodenow (1993) scale and a further six that reflected more recent literature on connectedness and addressed issues of safety, security, and being oneself. These had been previously trialled (Daniels, Tse, Ortega, Stables and Cox 2019) with young people transferring from primary to secondary school. The items addressed personal acceptance (people being friendly and being able to be oneself), respect (from pupils and staff), sense of belonging (being part and proud), but also safety/security (lessons and non-lessons). Additional open questions inviting comment on the nature of the barriers and support encountered formed part of the data collection but are not reported on here.

Methodology

Following University ethical approval we made a presentation to a University-Local Authority liaison group explaining the project and invited schools to take part in this collaborative project, in which we would share the data with the schools and meet later to discuss the findings. We suggested that they focus on year 8, but schools chose whether the questionnaire could logistically be administered online to the entire year 8 group. Four schools volunteered to take part and the questionnaire was completed by 722 pupils, who were assured of their anonymity and that they could miss out any questions they didn't want to answer.

Insert table 1 here

Analysis

Data analysis was undertaken through the use of IBM SPSS 25 (IBM Corp. 2017) and MLwiN 3.03 (Charlton Rasbash, Browne, Healy and Camerson 2019). Item responses were examined for normality and outliers. Whilst item response distributions approximated normality (|Skewness| < 2, |Kurtosis| < 7; Kim, 2013), due to the use of Likert scale response items, many items exhibited ceiling effects and outliers. Outliers were determined as unlikely to exert undue influence through inspection of trimmed means, and were therefore retained for inclusion in future analyses. Little's MCAR test suggested that missing values could be treated as missing completely at random ($\chi^2_{[963]} = 990.530$, $p = .262$), indicating that subsequent analyses would not be biased by missing data (Kang, 2013).

Results

1. Factors identified within the Instrument

Factors were extracted through principal axis factoring (PAF) with an oblique, direct oblimin rotation, which sought to identify and extract the fewest number of latent factors which could account for the common variance in responses amongst items. A four-factor solution, explaining approximately 49% of the variance cumulatively was preferred based on inspection of eigenvalues and the scree-plot, demonstrating item loadings above .32, minimal item cross loadings (i.e. <.40), and no factors with fewer than three items (Tabachnick and Fiddell, 2007; Costello & Osborne, 2005). Seven items were removed due to inadequate factor loadings (<.32; for removed items see Table 3). A subsequent PAF analysis, with an oblique rotation, of the remaining twenty items, indicated a four-factor solution explaining 49% of common variance. The relatively low degree of variance explained by this PAF solution is, in part, due to the removal of both shared and error variances in extraction, reducing the eigenvalues and percent of variance explained (Beavers et al., 2013). Moreover, the reduced common variance explained by the factor solution is arguably due to abstract, multifaceted nature of the latent variables identified**.** Factors identified were labelled based on perceived commonalities amongst items which loaded together. Thus, factors were identified as representing: Emotional Security and Comfort (or belonging): Social Environment (including Extra Curricular Activities); School Environment and Academic Environment. The identified factor structure is presented below, in Table 2.

Insert table 2 here

Seven items – which concerned pupils' feelings at different times and places – were excluded from further analysis as they failed to contribute to a simple factor structure and failed to demonstrate a primary factor loading of .32 or greater.

Insert table 3 here

2. Inter-scale Correlations

In order to further assess and confirm construct validity, inter-scale correlations were examined (see Table 4). The strength of inter-scale correlations ranged from weak (r = .305) to moderate (.554; Evans, 1996). All inter-scale correlations were below r=.70 (which

corresponds to an overlap of <50%), indicating that each scale measured a unique concept relative to others (Leung et al., 2010; Slootweg et al., 2014). Those scales demonstrating correlations exceeding r ≥.40 are considered conceptually related (Aletras et al., 2010; Jayasekara, Rajapaksa & Bredart, 2008). Indeed, higher inter-scale coefficients were identified between scales which represent conceptually similar constructs (e.g. social and school environment scales) than those measuring competing constructs (e.g. social and academic environment scales). Inter-scale correlations, which were all statistically significant ($p<.01$) and of weak-to-moderate (0.305 to 0.554) magnitude, therefore confirm construct validity and evidence that scales, although related, measured generally distinct dimensions of student connectedness (i.e. divergent validity).

Insert table 4 here.

3. Internal reliability

Internal consistency of the factors was determined using Cronbach's alpha, ranging from moderate to very good reliability (see Kline, 1999; Nunnally, 1978). The Emotional Security and Comfort scale demonstrated very good internal consistency (α =.874); both the School Environment (α = .717) and Academic Environment (α = .716) demonstrated good reliability; and Social Environment and Extracurricular Activities scale demonstrated moderate reliability (α = .693).

4. Determining cut off points

A variety of different methods were considered for determining optimal cut-off points for the categorization of high- and low-connectedness. The absence of a 'gold-standard' referent – typically constituted by a previously validated measure - proved a particular impediment in the calculation of appropriate cut-off points for high- and low-connectedness. ROC curve analysis, commonly employed in derivation of cut-points (Hajian-Tilaki, 2013), relies upon such gold standard measure, serving as a "separator" or "decision" state variable, and, therefore, could not be effectively utilized. An alternative procedure for cut-off point calculation in the absence of gold standard referents proposed by Barua et al. (2013), which adjusts values to account for population variation within items, was also considered. However, due to the non-normality of the current data, cut-off point estimates were considered problematic.

Given the non-normality of composite variables for derived scales (determined based on histograms and Q-Q plots), as well as the lack of a gold standard referent, the derivation of cut-off points based on quartiles was considered appropriate, with the 75th percentile considered as a minimum cut-off point for positive scoring scales and the 25th percentile the maximum cut-off point for negative scoring scales (Barua et al 2013). This yielded a minimum mean cut-off for high connectedness of 4.3039 (75th percentile) and a maximum mean cut-off for low connectedness of 3.550 (25th percentile).

5. Relative Importance of Items

Relative weight analysis was conducted using RWA-Web (Tonidandel and LeBreton, 2015) in order to determine the proportionate contribution of item scores for each item to predicted variance in pupils' mean connectedness scores, thereby identifying the relative importance of items in measuring student connectedness. Confidence intervals for relative weights were based on bootstrapping with 10,000 replications (Tonidandel et al., 2009). See Table 5 for relative importance of items, with items sorted in descending order based on rescaled relative weight.

Patterns of Connectedness

Two approaches to identifying patterns were considered. Cluster analysis initially was applied to examine potential patterns of connectedness which might be apparent in pupils' responses to subscales identified in the current analysis, while this identified groups of pupils demonstrating similar patterns across the scales, and a natural stratification into high, moderately-low and low levels of connectedness, it also led to some cross-over for pupils assigned to different clusters.

A more practicable approach, and one that we would anticipate schools adopting, is to use the interquartile cut-offs, taking the 1st quartile as low connected and the 4th as high connected. These data were in fact are largely consistent with the cluster analysis. Both indicate relatively consistent patterns of response across subscales, such that those indicating high scores in one subscale were likely to demonstrate high scores in all other subscales whilst those indicating low in one subscale were likely to demonstrate low in all other subscales. Table 5 sets out the demographics, revealing proportionate distribution for gender but not for SEND.

Inset Figure 1

In addition we present figures presenting the average scores across scales on connectedness group allocation as determined by quartiles for each individual school.

Insert figure 2

Pupils with SEND

A pairwise Mann-Whitney test indicated significant differences between the mean connectedness scores of pupils who disclosed SEND and non-SEND pupils (U = 38590.5, p <.001). Furthermore, a chi-square test of association indicated a significant relationship between pupil SEND status and pupils with low connectedness (based on identified cut-offs; $\chi^2[1] = 27.652$; p <.001), with adjusted residuals indicating that pupils who disclosed SEND exhibited significantly greater likelihood of reporting low connectedness (36.8% of SEND pupils) than would be expected by chance alone (p<.001), whereas non-SEND pupils exhibited significantly less likelihood of reporting low connectedness than would be expected by chance alone (18.4% of non-SEND students; p <.001).

Results of the relative weight analysis enabled further investigation of the relative importance of items in prediction of pupils' connectedness between differing demographic groups. Relative item importance was analysed for pupils who disclosed SEND and non-SEND pupils respectively in order to identify items' differential functioning and importance for pupils based on disclosed SEND status. The relative weight of items 2, 12, 27, and 28 in predicting pupils' mean connectedness differed significantly. Item 2 demonstrated significantly greater weight in predicting connectedness for non-SEND pupils whereas items 12, 27 and 28 exerted significantly greater weight in predicting connectedness for disclosed SEND pupils.

Discussion

We set out to test out a tool that would investigate the relationship between pupils' experience of belonging in school and the barriers they encountered, prior to full standardisation. Our analysis suggested that the scales identified in the instrument revealed very good to moderate levels of internal reliability and measured distinct dimensions of connectedness (divergent validity), suggesting that pupils' responses to items that explored

how they felt at different times and places were consistent with their sense of belonging to the school. The strongest predictors, unsurprisingly, were those items derived from those developed by Goodenow (1993). However, how children felt during lessons (item 24); about tests, assessments, and exams (item 15); and doing homework (item 16) also featured amongst the top items for predicting overall connectedness.

Other studies have consistently found that average levels of connectedness fall above 3 given a 5-point scale (Goodenow 1993; Blum et al 2002), including pupils with disability (McMahon et al 2008) and therefore not following a normal distribution. In the absence of a standardised comparator or gold standard to act as a referent for cut off scores, and, similar to other measures of connectedness, the skewedness of the data, we derived cut-off scores with respect to the interquartile range. This gives the potential for schools to identify common barriers that pupils who score below the 25th percentile encounter. For example, if moving around the school environment is associated with low connectedness scores it could invoke a whole school approach to looking at 'pinch' points and how these can be better managed, for example through timetabling.

Four factors were identified within the scale; Emotional Security and Comfort (Belonging), being in the wider School Environment, the Academic Environment, and the Social Environment. The Emotional Security and Comfort Scale demonstrated moderate correlations with all the other scales indicating that this aspect of connectedness has an underlying, conceptual relationship across these various "environments" in which pupils demonstrate distinct feelings of connectedness.

Seven items in the scale had low factor loadings and did not demonstrate sufficient common variance with other items, indicating that they were not measuring the same underlying aspects (latent factors) of connectedness that other items were measuring. These included questions that asked pupils how they felt during practical lessons and during physical activity lessons. A further item asked about whole class teaching, another about missing school. Because the items did not vary in a similar fashion to other groups of items (factors identified), their place in the questionnaire should be revisited. This reveals the complexity of linking measures of belonging to barriers within the environment. For example, as others have found the relationship between attendance and sense of belonging is not straight forward (OECD 2003). Pupils with a low sense of belonging may still attend school regularly, conversely pupils with poor attendance may feel a strong sense of belonging but

either through illness or other commitments (e.g. caring responsibilities, sports activities) may regularly miss school. Attendance was a topic of particular interest to schools with 'poor attenders' as much a focus of school concern as pupils with SEND. Schools were also interested in pedagogic styles of teaching and at the time of the study using a range of different seating plans. Monitoring pupil experiences of changes that result from these 'hot topics' has a place in questionnaires and 'no effect' data is as important at a school level as items that do predict variation in connectedness.

Our analysis using quartile cut-offs set out patterns of scores at both the aggregated level and for each individual school. This exemplified the way in which the four subscales identified a natural stratification of student response - for example, students falling within the top quartile for connectedness typically demonstrated high scores across the four subscales. Pupils scored highly on items of belonging: they felt good or very good across a range of academic and social settings. Conversely, the group of pupils falling within the lowest quartile for overall connectedness typically demonstrated low scores on all subscales, although notably scores in relation to emotional security and comfort were, on average, lower than those for other factors. Pupils who disclosed SEND were over-represented within this low-connected group, with over a third falling within the low-connected group, and underrepresented within the high-connected group.

Analysis of pupil responses can also provide a school-level pattern using school-specific quartile cut-offs (as opposed to cut-offs presented here using aggregated data), thereby enabling identification of specific areas represented by the sub-scales that are of concern to prioritise for action for pupils showing low overall levels of connectedness. For example, mean scores for the sub-scale School Environment in Xenon school was notably low for pupils in the low connected group, suggesting that break and lunch times, and moving around school were particularly problematic for this group.

Students who disclosed SEND had a greater likelihood of demonstrating low connectedness than would be expected by chance alone. There were also other differences between pupils with respect to three particular items predicting levels of connectedness. Two of the three items concerned feelings of safety; feeling safe in lessons (item 27) and feeling safe at break and lunch times (item 28) together with item 12, working by yourself exerted significantly greater weight in predicting how connected pupils with SEND feel than they did for pupils without a disclosed SEND. Conversely, how pupils felt in lessons had a significantly greater

weight in predicting how connected non-SEND pupil felt than SEND students. It is important when considering these results, to keep in mind that significant differences in these weights do not necessarily reflect any differences in the scores (or responses) to these items, but rather indicate a difference in the degree to which they were predictive of overall connectedness.

We have made a distinction in this questionnaire between disclosing a difficulty or disability and non-disclosure. Both disability and special educational needs are formally defined in England as context related. Where the environment is supportive, pupils with a particular health condition, impairment or learning difficulty will not experience barriers to participation. To put it in the context of the Equality 2020 Act, there will be no impact on their daily life. Further, for ethical reasons it was important that pupils felt they could answer honestly and remain anonymous. Providing schools with their aggregated data was felt to be more likely to promote a systemic response to removing barriers, enabling schools to be inclusive for all children rather than prompt categorical related interventions.

Conclusion

The questionnaire proved to be a reliable tool, with good levels of internal consistency within the scales. With the removal of 7 items, collectively the scales explained 49% of common variance in the data. This relatively low degree of explained variance is likely reflective of the abstractness of items and their conceptually distance from the latent variables they are explaining (Beavers et al., 2013). Notwithstanding, this was found to be a tool that is sensitive to differences in feelings of connectedness between different groups of participants with consistent patterns of response across the four subscales. It suggests that while pupils with SEND fall within high, moderate and low connectedness groups, they are over-represented in the latter group. Their responses suggested that safety was a key factor, more so than for other individuals, and an important issue for schools to address.

While the sample exceeded sample sizes regarded as necessary for item production procedures and the development of latent constructs (Guadagnoli and Velicier 1988; Comprey and Lee 1992) it was derived from just four volunteer schools and although these were quite diverse, as can be seen by differences in the percentage of pupils with SEND, the tool requires testing with a wider sample as part of procedures for full standardisation. This will provide us with the opportunity for ongoing work with schools to investigate how pupils'

sense of belonging changes over time. At the same time it will enable us to compare our findings with those trialling our instrument in other parts of Europe and South America. Our work with schools will enable us (and them) to understand how these changes relate to the removal of barriers. In doing so it shifts the emphasis from an individual deficit-based approach, where for example particular pupils are taught strategies to manage their difficulties, to a systemic approach that benefits a wide range of pupils. Importantly these changes are based around pupils' views on their experiences of their school environment; rather than reliant on adults to infer their feelings. Pupil voice is central to developing a sense of belonging.

Declaration of Interest

The authors declare that they have no conflict of interests

Funding

This study was funded through The John Fell Fund (Oxford University)

Data Availability

Due to ethical reasons these data are not publically available

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Appendix

Tables (N=8) and Figures (N=2)

	School 1 'Kings'	*School 2 'Dale'*	*School 3 'Xenon'*	*School 4 'Nunney'*	*Total*
N	203	153	239	136	722
Female (%)	103 (51.2%)	77 (51.7%)	127 (53.8%)	74 (54.4%)	381 (52.8%)
Male (%)	93 (46.3%)	69 (46.3%)	103 (43.6%)	57 (41.9%)	322 (44.6%)
Other (%)	5 (2.5%)	3 (2.0%)	6 (2.5%)	5 (3.7%)	19 (2.6%)
Missing data (%)	2 (1%)	4 (3%)	3 (1.3%)	0	9 (1.2%)
SEND Pupils (%)	61 (30%)	27 (17.6%)	52 (21.8%)	31 (22.8%)	171 (23.7%)
Female	17 (27.9%)	6 (22.2%)	20 (38.5%)	19 (61.3%)	
Male	41 (67.2%)	20 (74.1%)	30 (57.7%)	10 (32.2%)	
Other	1 (2%)	1 (7%)	1 (2%)	2 (6%)	
Missing Data	2	0	0	0	

Table 1. Demographic statistics for participants.

	Emotional Security and Comfort	*School Environment*	*Social Environment*	*Academic Environment*
23. I am treated with as much respect as other students	.763			
26. I feel proud of belonging to this school	.673			
27. I feel safe in this school at break and lunchtimes	.664			
25. The teachers here respect me	.646			
28. I feel safe in this school at break and lunchtimes	.606			
22. People at this school are friendly to me	.602			
24. I can really be myself at this school	.584			
19. I feel like a real part of the school	.509			
31. I can have time on my own in this school	.402			
30. There are lots of places to be with my friends in this school	.366			
3. How do you generally feel during break		.774		
4. How do you generally feel at lunchtime		.730		
5. How do you generally feel moving between lessons		.363		
6. How do you generally feel during special events (like school concerts, charity days)			.731	
7. How do you generally feel on school trips and visits			.729	
11. How do you feel working in pairs or small groups			.345	
15. How do you feel about tests, assessments, exams				.767

12. How do you feel working by yourself		.568
16. What do you feel about homework?		.424
2. How do you generally feel How do you generally feel during lessons		.349

Table 2. Factor loading and communalities based on a principal axis factoring extraction with oblique rotation. Factor loadings <.32 are suppressed.

Table 3

10.	When all students are doing the same task, led by the teacher
13.	Practical classes (like art, food tech, lab sessions and so on)
14.	Sports, games, dance, gym
32.	And what about life outside school? Do you find it difficult to do the things you want to do?
33.	What about missing school, do you have to take time off school?
38.	When you need support, where is the best place to find it?

Table 3. Items excluded due to insufficient factor loadings (<.32) in the above, four-factor solution

Table 4

	School Environment	Social Environment	Academic Environment	Emotional Security and Comfort
School Environment				
Social Environment	.447**			
Academic Environment	.305**	.310**		
Emotional Security and Comfort	.482**	.429**	.554**	

Table 4. Inter-scale Pearson's correlation matrix for identified connectedness scales. **All inter-scale correlations are significant at the p<.01 level.

Table 5

Item	*Raw Relative Weight*	*95% CI Lower Bound*	*95% CI Upper Bound*	*Rescaled Relative Weight*
19. I feel like a real part of the school	0.06437	0.05979	0.06852	6.44
26. I feel proud of belonging to this school	0.06391	0.05937	0.06805	6.39
2. How do you generally feel: During Lessons	0.06002	0.05453	0.06429	6.00
24. I can really be myself at this school	0.05794	0.05157	0.06342	5.79
15. How do you generally feel: Tests, assessments, exams	0.05485	0.04826	0.06109	5.49
25. The teachers here respect me	0.05450	0.04795	0.05999	5.45
23. I am treated with as much respect as other students	0.05394	0.04872	0.05848	5.39
16. What do you feel about doing homework?	0.05031	0.04341	0.05685	5.03
30. There are lots of places to be with my friends in this school	0.04926	0.04181	0.05568	4.93
31. I can have time on my own in this school	0.04930	0.04210	0.05548	4.93
27. I feel safe in this school during lessons	0.04741	0.04042	0.05317	4.74
28. I feel safe in this school at break and lunchtimes	0.04663	0.03960	0.05239	4.66
22. People at this school are friendly to me	0.04698	0.03871	0.05197	4.61
5. How do you generally feel: Moving between lessons	0.04580	0.03819	0.05236	4.58
3. How do you generally feel: During break	0.04529	0.03797	0.05162	4.53
11. How do you feel: Working in pairs or small groups	0.04461	0.03652	0.05149	4.46

7. How do you generally feel: On school trips and visits	0.04432	0.03617	0.05179	4.43
6. How do you generally feel: During special events (like school concerts, charity days)	0.04236	0.03475	0.04939	4.24
4. How do you generally feel: At lunchtime	0.04214	0.03419	0.04963	4.21
12. How do you feel: Working by yourself	0.03694	0.02780	0.04489	3.69

Table 5. Relative weights of items calculated through RWA-Web (Tonidandel and LeBreton, 2015).

Table 6

	Number of Students (n)	Proportion of Students	Scale Mean Z-score [sd]				
			School Environment Scale	Social Environment Scale	Academic Scale	Emotional Security and Comfort Scale	Overall Connectedness Score
High-Connected	180	24.8%	.675 [1.20]	.613 [.554]	.880 [.657]	1.12 [.483]	1.16 [.028]
Moderately-Connected	367	50.6%	.064 [.743]	.092 [.718]	.045 [.723]	.057 [.532]	.074 [.019]
Low-Connected	178	24.6%	-.805 [.619]	-.800 [1.29]	-.983 [.897]	-1.23 [.687]	-1.32 [.053]

Table 6 Connectedness group means, and number/proportion of students in each group

Table 7

	Low Connected	***Moderately Connected***	***High Connected***
N	180	368	182
Gender			
Female	90 (23.7%)	192 (50.5%)	98 (25.8%)
Male	73 (22.7%)	167 (52.0%)	81 (25.2%)
Other	12 (63.2.%)	6 (31.6%)	1 (5.3%)
SEND Status			
SEND	78 (36.8%)	99 (46.7%)	35 (16.5%)
Non-SEND	91 (18.5%)	259 (52.5%)	143 (29.0%)
School			
Kings	45 (22.2%)	100 (49.3%)	58 (28.6%)
Dale	34 (22.2%)	78 (51.0%)	41 (26.8%)
Xenon	70 (29.4%)	116 (48.7%)	52 (21.8%)
Nunney	31 (22.8 %)	74 (54.4%)	182 (22.8%)

Table 7 Demographics of each group.

Figure 1

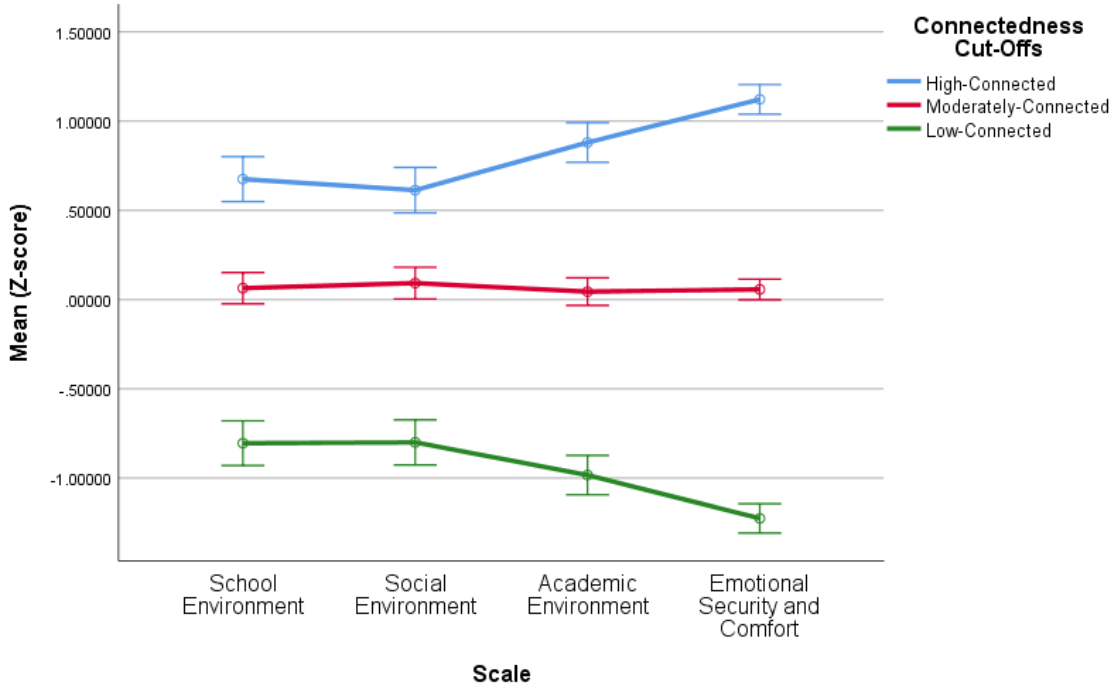


Figure 1 Mean Z-scores for quartile cut-offs for connectedness subscales

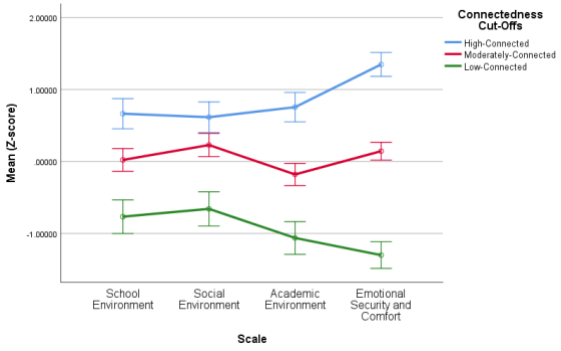
Table 8

School		High-Connected	Moderately Connected	Low Connected
Kings	Number of Students	56	99	44
	Proportion of Students	28%	49.5%	22.5%
Dale	Number of Students	41	78	34
	Proportion of Students	26.8%	50%	22.2%
Xenon	Number of Students	51	116	70
	Proportion of Students	21.5%	49%	29.5%
Nunney	Number of Students	30	74	31
	Proportion of Students	22.2%	54.8%	23%

Table 8 Number and proportion of students by quartile in each school

Figure 2

Kings



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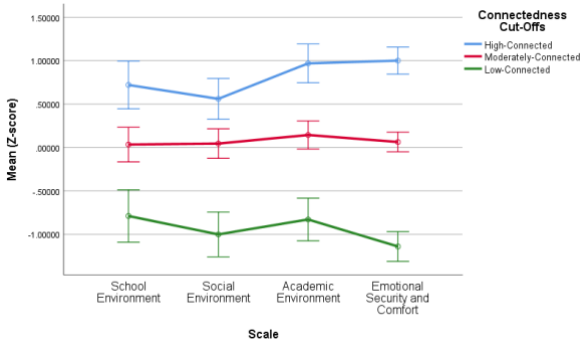

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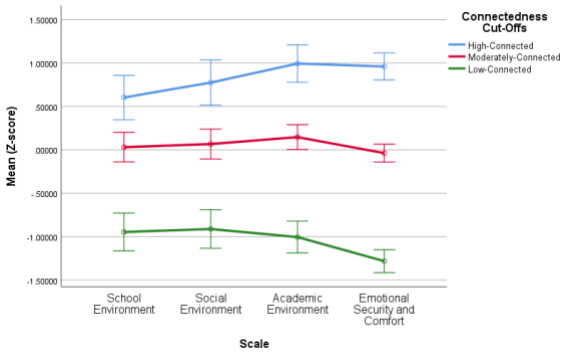

Nunney

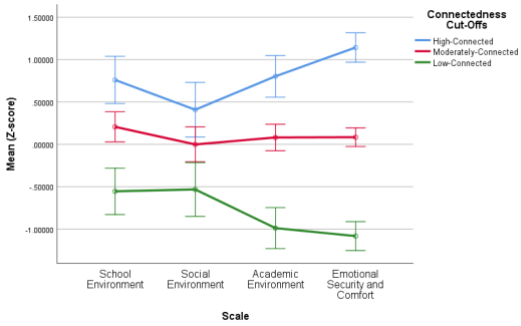

Figure 2: School level mean z scores for quartiles