MEASUREMENT MODELS OF THE QUALITY OF SCHOOL LIFE

Noel P. Hurley
&
Jeffrey Bulcock
Faculty of Education
Memorial University of Newfoundland

Introduction

In recent years, bullying has become one of the most troubling issues facing school systems in Canada. A. Wayne MacKay lead a task force study on bullying for the Province of Nova Scotia that is one of the best researched and most reasonably developed works in this area. His report entitled "Respectful and Responsible Relationships: There's No App for That" framed the task force report on bullying and cyber-bullying for the Province of Nova Scotia. MacKay (2012) noted that 225,000 cases of bullying occur each month in Canadian high schools.

Bullying has existed for as long as we have had school. More recently, the labeling of bullying behaviours among adults has become more common providing evidence that these behaviours are not confined to youth. Bullied students are often those who differ from other students; the differences could be gender, sexual orientation, disability, racial origin, or anything else that sets them apart from the main stream. These feelings of isolation are exacerbated by being bullied (MacKay, 2012).

The present study presents a model that was developed by the authors and one that draws heavily on previous research by Williams (1981) and others. The model has been used by a number of Eastern Canadian Provinces to determine how connected students are to their schools. This kind of research needs to be resurrected and extended to provide schools with needed information to make our school environments more inclusive and welcoming, safer places for all of our students. WE need to expand the traditional approach to bullying to include the vast unsupervised playground of cyber-space. The model put forward here can form a basis for expansion into that space. The notional concept of pro-social behaviours being necessary to develop meaningful relationships based on positive interactions has to form part of schooling and home-based approaches to student socialization. The increased use of social media for communication, particularly among our youth, makes supervision of this "cyber-playground" an almost impossible task. Thus the long term solution lies in the development of increased social responsibility and respect for one another rooted in increased development of acceptable pro-social behaviours. The present model can be used as a base to devolve new measurement approaches to help gauge how our students feel relative to their schooling experiences and to others within their schooling environment.

Theory

Most quality of school life (QSL) research has been completed by psychologists in the schooling satisfaction tradition. The basis for their work was job satisfaction theory as developed by Herzberg (1962). Herzberg argued that productivity is responsive to the morale of the workers. This argument has been successfully applied to the relationship between the morale of students and their schooling outcomes. Much of the research in this area has used sociological variables in a research paradigm similar to the Guthrie (1988) model for conducting research in educational finance.

Schibeci (1989) found causal relationships to exist between schooling achievement in science and student attitudes toward science. Other research identified relationships to support the argument that school achievements in mathematics and reading were responsive to students' attitudes toward schooling (Bulcock, 1988; Bulcock & Whitt, 1989; Hurley, 1995; Whitt, 1988). Da Costa (1995) identified a negative relationship between personal teacher efficacy and pupil attitudes but in the same study found a negative relationship between pupil attitudes and schooling achievement. The identification of these relationships and the inconsistencies of some of the relationships underscores the need for more accurate measurement of the effects of student attitudes toward schooling.

The theory underlying this version of the quality of school life (QSL) instrument was developed by the Australian educational researcher, Trevor Williams; and is available in the Australian Council for Educational Research monograph series (Number 12, 1981). Williams in turn drew on the work of Talcott Parsons (1953) and Spady and Mitchell (1979). Parsons held that every social system had to deal recurrently with four problems or functional imperatives; namely, adaptation, goal attainment, integration, and latency; and that these problems were parallelled by lower order organizations. For example, schools are organized to address aspects of the integration function of society. At this level of the social order the four imperatives, parallelling those at the societal level, may be identified as societal expectations for schooling; namely technical competency, personal development, social integration, and social responsibility. The schools are organised in such a way as to address each of these responsibilities; hence, schools develop (i) certification structures concerned with standards, (ii) instructional arrangements concerned with the curriculum, (iii) socialization concerned with the internalization of educational goals and values, and (iv) supervisory structures concerned with social control and school discipline. From the perspective of the student, however, these school structures are experienced as (i) the opportunity to learn, (ii) the usefulness or relevance of schooling, (iii) identification with the student role, and (iv) self-perception of one's status or prestige as a student. The parallelism of these structures from the societal level to the school level through to student perceptions of these structures is shown in Figure 1.

Societal level structures	Societal expectations for schooling	Parallel school structures	Student experiences of schooling
A. Adaptation (the economic system)	Technical competency	Certification (standards)	Opportunity to learn
G. Goal attainment (governance)	Personal development	Instruction (the curriculum)	The relevance or utility of schooling
I. Social integration (social solidarity)	Social integration	Socialization	Identification with the student role
L. Latency (tension management)	Social responsibility	Supervision	Perception of own status as student

Figure 1. A simplified version of Williams' model of student experiences of schooling

Here, our purpose is twofold: to identify the extent to which the Williams' model fits the data on grade 6 students in Newfoundland, and to assess the psychometric properties of the model components. It is argued that in a valid model, the student experiences of schooling, or their perceptions of these experiences will constitute a measure of the quality of their school lives, and that this quality will govern their schooling satisfaction and dissatisfaction. For this purpose we use a modified version of the Williams QSL instrument. Williams pretested his instrument on year ten students in several Melbourne high schools, then on a national sample of 14 year-olds. Bulcock (1989) simplified the instrument in order to administer it to elementary school children. The sample consisted of all the children in Newfoundland's grade 6 classrooms in the Fall (October) of 1991, N=8670. The data, however, was ill-conditioned. Of the 43 variables in the data set 13 had between 30 and 32 per cent missing data. Thus, the analysis was restricted to the approximately 5500 students, some 63 per cent of the total, who provided answers to each QSL question. See Appendix A for information on the frequencies and missing data, and Appendix L for the questionnaire.

Exploratory Factor Analysis, Stage One: A Principal Axes, Six Factor Solution with Iterated Communalities, Rotated to Varimax Criteria

For the past 6 years the Division of Evaluation, Department of Education, Government of Newfoundland, has used the Williams QSL instrument to assess the quality of school life, and the satisfaction with schooling, of students in grades 6, 7, 8, and 12. The findings of these studies have been reported using essentially the same classification as that developed by Williams; namely, five QSL domains (opportunity to learn, usefulness of schooling, identification with the school, perceived status as a student, and perception of teachers), and two affective outcomes (general satisfaction with schooling, and schooling dissatisfaction). This was also the classification identified by the present writers following an analysis of the grade 8 QSL data in 1989. The present analyses of the grade 6 data confirm the presence of two outcome variables, but support for the QSL domains is restricted to three, not the five that have usually been reported by the Department. These differences need not be regarded as problematic. Continuing research is likely strengthen the original instruments and result in theory modification accordingly. Some of the differences in the findings over the past 14 years are illustrated by Figure 2.

Williams #1, 1981	Williams #2, 1981	Bulcock #1, 1989	Bulcock #2, 1995
General affect	General affect	Schooling satisfaction	General satisfaction
Positive affect			
Negative affect	Negative affect	Student dissatisfaction	Student dissatisfaction
Status	Status	Student status	Student status
Identity	Identity	Identification w school	
Adventure in schooling		Usefulness of schooling	
Opportunity to learn	Opportunity to learn	Opportunity to learn	Opportunity to learn
	Perception of teachers	Perception of teachers	Perception of teachers

Figure 2. The domains of schooling as depicted in separate analyses from 1981 to 1995

The first step in the analysis was exploratory; designed to provide some preliminary information on the latent structure as postulated in the 1989 analysis of grade 8 students in Newfoundland. As shown in Table 1 six factors, using the eigenvalue greater than one criterion (Kaiser, 1958), emerged from the principal axes solution, rotated to Varimax criteria: the two affective outcome factors (general satisfaction and student dissatisfaction), and four QSL domains (student status, opportunity to learn, perception of teachers, and an embryonic identification with school factor). Only loadings greater than 0.3 are reported on the grounds proposed by Minnally (1967: 357) that at least ten percent of a factor's variance should be explained by an item. While there were five loadings greater than 0.3 on the sixth factor, with but one exception they were minor loadings; that is, had loaded higher on other factors. See Appendix B for details. In view of these findings the data was reanalyzed, only this time five factors were specified, not six.

Exploratory Factor Analysis, Stage Two: A Principal Axes Five Factor Solution, with Varimax Rotation

In the first exploratory factor analysis the solution was considered inadequate because the sixth factor was a singleton; that is consisted of only a single unique item. In this second exploratory analysis a five factor solution, using Varimax rotation was used. As before 43 items were analyzed. The results indicated that there were five clearly defined factors with factor loadings greater than 0 3, as shown in Table 2. The loadings ranged from .772 for Q20 on Factor 1, to -.303 for Q2 on Factor 4. The items with minor loadings on other factors are also indicated in Table 2.

Given Table 2 findings it seems reasonable to claim that contrary to the 1989 grade 8 data with its seven dimensions, the 1991 grade 6 data provided support for five dimensions: the two affective outcome dimensions (satisfaction and dissatisfaction), and three QSL domains (student status, perceptions of teachers, and the opportunity to learn). There was no support for perceived utility of schooling or student identification with the school, both of which were identified in the 1989 data. The former utility of schooling items were clustered in the schooling satisfaction dimension for the grade 6 sample; and the former identification items as found by Williams had either to be dropped because the loadings were too modest, or were to be found located in the student status domain.

Table 1. Factor Loadings from the First Exploratory Analysis

Item	Label	Loading	*
	Factor 1, Positive Affect/Satisfaction with Schooling		
Q1	...I like to be	.673	
Q[4]	...I learn new things	.431	
Q8	...get enjoyment	.550	
Q[9]	...I find work interesting	.542	
Q13	...I feel great	.711	
Q14	...I feel bored	-.514	*F5
Q16	...I like all my subjects	.594	
Q20	...I really like to go	.775	
Q23	...I am genuinely interested in my work	.529	*F4
Q27	...learning is a lot of fun	.653	
Q34	...I feel happy	.622	
Q37	...my friends and I get together	.357	
Q41	...I am proud to be a student	.515	
	Factor 2, Perception of own Student Status		
Q6	...people think a lot of me	.594	
Q11	...people come to me for help	.458	
Q17	...I have a lot of friends	.442	*F6
Q18	...I feel important	.539	
Q24	...I get along with everyone	.364	*F6
Q25	...people credit me for what I do	.472	
Q32	...teachers help me to help out	.337	
Q39	...people think I can do a lot of things	.504	
	Factor 3, Perception of Teachers		
Q7	...teachers treat me fairly in class	.606	
Q12	...teachers listen to what I say	.514	
Q19	...teachers are usually fair	.483	
Q26	...teachers give me the marks I deserve	.396	
Q33	...teachers help me to do my best	.437	*F6
Q[40]	...I like my teachers	.494	*F1
	Factor 4, Opportunity to Learn		
Q3	...I am happy with how well I do	.410	
Q15	...I know how to cope with the work	.429	
Q22Q	...I get satisfaction from the work I do	.447	
29	...I feel good about my work	.501	*F1
Q36	...I can handle my school work	.506	
Q43	...the work I do is important to me	.373	*F1, F6
	Factor 5, Negative Affect/Dissatisfaction with Schooling		
Q21	...I feel sad	-.517	
Q28	...I feel lonely	-.551	
Q35	...I get upset	-.544	
Q38	...I sometimes wish I were different	.416	
Q42	...You are bossed around too much	-.435	
	Factor 6		
Q30	...I learn the things I need to know	.404	

*Indicates item with minor loading on other factors, as shown.

Table 2. Exploratory Factor Analysis, Stage Two: A Rotated Principal Axes Solution for 43 Items'

Items	Factor Loadings					h^2	
Factor 1, Positive Affect/Satisfaction with							
Q1 ...I like to be	.671					.513	
Q4 ...I like to learn new things	.423					.330	
Q8 ...I get enjoyment	.547					.397	
Q9 ...I find my work interesting	.537					.441	
Q13 ...I feel great	.708					.626	
Q14 ...I feel bored	-.509					.410	*F4
Q16 ...I like all my subjects	.590					.437	
Q20 ...I really like to go	.772					.670	
Q23 ...I am genuinely interested in my work	.523					.475	*F5
Q27 ...learning is a lot of fun	.647					.556	
Q34 ...I feel happy	.616					.575	
Q37 ...My friends and I get together	.352					.250	
Q41 ...I feel proud to be a student	.507					.503	*F2
Factor 2, Perceptions of Teachers							
Q7 ...teachers treat me fairly in class		.543				.385	
Q12 ...teachers listen to what I have to say		.519				.354	
Q19 ...teachers are usually fair		.461				.269	
Q26 ..teachers give me the marks I deserve		.439				.283	
Q30 ...I learn the things I need to know		.445				.313	
Q33 ...teachers help me to do my best		.565				.441	
Q40 ...I like my teachers		.524				.488	*Fl
Q43 ...the work I do is important to me		.395				.419	*F1. F5
Factor 3, Student Status							
Q6 ...people think a lot of me			.583			.376	
Q11 ...people come to me for help			.447			.228	
Q17 ...I have lots of friends			.485			.330	
QI8 ...I feel important			.545			.455	
Q24 ...helps me to get along with everyone			.415			.300	
Q25 ...people credit me for what I can do			.483			.345	
Q32 ...teachers ask me to help out			.356			.283	*F2
Q39 ...people think I can do a lot of things			.502			.337	
Factor 4, Negative Affect/Dissatisfaction with							
Q2 ...I feel restless				-.303		.180	
Q21 ...I feel sad				-.515		.356	
Q28 ...I feel lonely				-.537		.358	
Q35 ...I get upset				-.548		.376	
Q38 ...I wish I were different				.418		.191	
Q ...you are bossed around too much				-.440		.318	
Factor 5, Opportunity to Learn							
Q3 ...I am happy with how well I do					.403	.293	
Q5 ...I know how to cope with the work					.416	.279	
Q22 ...I get satisfaction from the work I do					.436	.370	
Q29feel good about my work					.491	.483	*F1
Q36 ...I learn to handle my school work					.493	.360	
Proportion of total variance	14.4	6.9	6.2	4.1	4.2		
Proportion of common variance	40.2	19.3	17.3	11.5	11.7		

1. Three items with loadings less than 0.3 were dropped from this analysis; namely, Q5, Q10, and Q31. See Appendix C for details. * Denotes items with minor loadings on other factors as shown.

Measurement Models

Following this second exploratory analysis there is sound support for the existence of five dimensions to the quality of school life data. Moreover, the dimensions are grounded in the theoretical perspective underlying this investigation. Effectively, the exploratory analyses have helped to refine the item pool; though only three out of the 43 original items had to be dropped. The analyses under this heading (measurement models) take the remaining 40 items and use them in more exact tests of the fit of the model to the data, along with estimates of the validity and reliability of the scales.

Table 4 analyses were conducted scale by scale in order to generate a series of measurement models. The form of each model is the same; namely, a single latent variable or hypothetical construct is considered adequate for accounting for the covariation among the observed indicators of the scale. In other words, each latent construct accounts for, or causes, all of the covariation among the indicators; that is, contributes to the variance of each indicator. Effectively, we are assuming that the variation in each indicator is divisible into two components, a common part associated with the posited construct, and a specific part attributable to unrelated influences including measurement error and unspecified system noise. The model is illustrated with reference to one of the five constructs -- perception of teachers -- in Figure 3.

Insert Figure 3 about here.

Table 3 provides the statistical information for the final models, but see Appendices D, E, F, G, and H for the details. We used a maximum likelihood estimator for each of the five dimensions for the grade 6 population. Each theoretical domain is presented separately along with the factor loadings for each indicator. Each loading may be interpreted as a validity coefficient for the item; that is, as an index of the magnitude of the association between the item and its associated construct. Note that three additional items were eliminated at this third stage of the analysis because their inclusion lowered the reliability estimates for the measurement model concerned. While the magnitude of the factor loadings would suggest an acceptable fit to the data, the chi-square goodness-of-fit statistics do not support this interpretation since large chi-square values correspond to a bad fit. Unfortunately, the chi-square goodness-of-fit index is extremely sensitive to sample size. Thus, for large samples small discrepancies in fit may be deemed statistically significant as is the case here. For this reason we follow the advice of Pedhazur and Schmelkin (1991: 667) who caution "against undue reliance on and indiscriminate use of indices of fit," as does Norusis (1993: 62).

Table 3. Maximum Likelihood Measurement Models for the Five Scales Generated by the QSL Data

Item	Item-total Correlation	Factor Loading	Error Variance
Positive Affect/Satisfaction with Schooling			
...I like to be	.670	.708	.499
Q4 ...I like to learn new things	.517	.535	.714
Q8 ...I get enjoyment	.588	.623	.612
Q9 ...I find my work interesting	.624	.648	.581
Q13 ...I feel great	.742	.783	.386
RQ14 ...I feel bored	.543	.573	.672
Q16 ...I like all my subjects	.627	.662	.562
Q20 ...I really like to go	.750	.794	.370
Q23 ...I am genuinely interested in my work	.628	.652	.574
Q27 ...learning is a lot of fun	.704	.739	.454
Q34 ...I feel happy	.708	.748	.440
Q41 ...I feel proud to be a student	.634	.667	.556
Chi-square = 769.09 df = 54p = .0001 Alpha reliability = .911			
Perception of Teachers			
Q7 ...teachers treat me fairly	.575	.669	.552
Q12 ...teachers listen to what I have to say	.520	.606	.633
Q19 ...teachers are usually fair	.480	.556	.691
Q26 ...teachers give me the marks I deserve	.457	.528	.721
Q33 ...teachers help me to do my best	.534	.619	.617
Q40 ...I like my teachers	.550	.644	.585
Chi-square = 78.03 df = 9p = .0001 Alpha reliability = .774			
Student Status			
Q6 ...people think a lot of me	.507	.596	.645
Q11 ...people come to me for help	.394	.449	.798
Q17 ...I have lots of friends	.438	.507	.743
Q18 ...I feel important	.573	.672	.548
Q24 ...helps me to get along with everyone	.445	.507	.743
Q25 ...people credit me for what I do	.512	.592	.650
Q32 ...teachers ask me to help out	.419	.473	.776
Q39 ...people think I can do a lot of things	.501	.582	.661
Chi-square = 273.63 df = 20 p = .0001 Alpha reliability = .773			

Table 3 (cont'd.)

Item	tem-total Correlation	Factor Loading	Error Variance
Negative Affect/Dissatisfaction with Schooling			
Q2 ...I feel restless	.295	.353	.875
Q21 ...I feel sad	.461	.607	.632
Q28 ...I feel lonely	.434	.570	.675
Q35 ...I get upset	.476	.622	.613
RQ38 ...I wish I were different	.322	.387	.850
Q42 ...you are bossed around too much	.414	.510	.740
Chi-square = 60.06 df = 9 p = .0001			
Alpha reliability = .675			
Opportunity to learn			
Q3am happy with how well I do	.450	.544	.704
Q15 ...I know I can cope with the work	.442	.526	.723
Q22 ...I get satisfaction from the work I do	.499	.610	.628
Q29 ...I feel good about my work	.553	.684	.532
Q36 ...I can handle my school work	.497	.594	.647
Chi-square = 143.25 df = 5 p =.0001			
Alpha reliability = .729			

1. For the statistical details related to each of these dimensions of the QSL data refer to Appendices D, E, F, G, and H. Items with the prefix R were reverse scored at this stage of the analysis.

Validity

It has already been noted that in one sense validity may be defined as the correlation between the latent variable and the item composite. These relationships are presented in Table 4. See Appendix J for details.

Table 4. Correlations between Latent Variables and Unweighted Composites

Relationship Latent Variable	Composite Variable	Correlation (r)
Satisfaction	UWsatisfaction	.996
Opportunity to learn	UWopportunity	.995
Dissatisfaction	UWdissatisfaction	.879
Student Status	UWstatus	.992
Perception of Teacher	UWteacher	.996

While the kind of validation reported in Table 5 which focuses on the internal structure of measurement models is usually considered a necessary element of construct validity, it is not considered sufficient. Instrument validation calls for the integration of evidence from several sources. Thus, in addition, we need to know something about the relationship between a construct and other constructs. In this case between the five dimensions of the QSL data. We can hypothesize on the basis of the theory, for example, that the two constructs student satisfaction and dissatisfaction with schooling, will be negatively correlated. As shown in Appendix J this is the case: $r = -.499$, $p < .0001$. Similarly, given the theoretical framework, we can argue that the affective outcomes (satisfaction and dissatisfaction) will prove responsive to changes in the quality domains of schooling (student status, perceptions of teachers and the opportunity to learn). Which as shown in Table 6 is indeed the case.

Table 5. Correlations between the Quality Domains of Schooling and the Affective Outcomes of Schooling'

Domains	Satisfaction	Dissatisfaction
Student status	.530	-.369
Teachers	.583	-.415
Opportunity	.603	-.418

1. See Appendix I for details.

It can also be hypothesized that the quality domains will compose a composite in their own right (i.e., as a second-order factor), and as such will also be associated with the outcomes of student satisfaction and dissatisfaction. As shown in Appendix I the correlations are .689 and -.480 respectively. Note that the second- order factor had an alpha reliability of .774. These relationships are depicted graphically in Figure 4.

Insert Figurer 4 about here.

The foregoing efforts at establishing content validity, while congruent, may still not be sufficient evidence for the skeptic. It is desirable, therefore, to go beyond the relationships among the constructs themselves. This can be achieved by examining the relationships between the constructs and observed variables. In the present case we can examine relationships between selected latent variables and region and gender as observables -- a procedure known as the known groups approach. We have no reason to suppose, for example, that the latent constructs have anything to do with regional residence. In Newfoundland, the students attending school on the Avalon Peninsula regularly outperform students from other regions on tests of school achievement. Does this mean that these students are likely to find schooling more attractive than students from other regions of the province? We think not. In the case of gender, however, we believe on the basis of prior evidence (e.g., Bulcock, Whitt and Beebe, 1991) that girls are likely to define the quality of their school lives more favourably than boys. The results are presented in Table 6, and the statistical details presented in Appendix K.

Table 6. Correlations between Three Quality Domains of Schooling and Two Objective Variables, Avalon and Gender

Domains	Avalon	Gender
Perception of Teachers	.005	.168
Satisfaction with Schooling	-.049	.233
Dissatisfaction	-.035	-.141

Finally, we conducted a cross-structure analysis (Campbell, 1960). We hypothesized on the basis of the theory that satisfaction and dissatisfaction as outcomes of schooling would be responsive to changes in student perceptions of the quality domains; and, further, that the covariation between the outcomes would prove responsive to the quality domains as common causes. The results are reported in the following path diagram, Figure 5, while the details may be seen in Appendix I. Note that all the hypotheses embodied by the model were supported and that 48 per cent of the covariation between the outcomes was accounted for by the quality domains as common causes of that covariation.

Insert Figure 5 about here.

Summary

It is clear from the foregoing analysis that some students experience their school as a lively, even exhilarating place to be, while for others the school is a depressing, even unhappy place. Yet schooling is mandatory in most nations. For example, in Newfoundland and Labrador students spend some 11 to 13 years in school, one sixth of the average life span. While there have been thousands of studies focusing on the achievement outcomes of schooling and while the concepts of achievement such as aptitude, intelligence, and cognitive ability are common language terms, the same cannot be said of the affective outcomes -- that is, whether or not students are happy, whether or not they like school, whether or not they experience satisfaction with their schooling, and whether or not they get along with their teachers. The concepts associated with the quality of school life for students are seldom defined and almost never measured. It was this research imbalance between the cognitive and affective outcomes of schooling which prompted Williams to address the problem in the first place. Extending the older study to include the MacKay (2012) task force report shows us that this area probably requires closer attention than any time in the recent past.

Those familiar with Williams' quality of school life research will recognize that this study draws heavily on both his conceptualization of QSL and on the methodology he used for measuring the quality domains of schooling. Our starting point like his was an exploratory factor analysis of the indicators of the quality domains in order to identify their latent structures. Concurrently, we were interested in refining the item pool, which we accomplished by reducing the data instrument items from 43 items to 37. Those items which did not contribute to the definition of the main clusters or factors were eliminated. Factor analyses of the remaining items resulted in five emergent factors which were readily interpretable; and, more important, were consistent with, but not identical to, Williams' theoretical structure. The two affective outcome variables identified by Williams remained unchanged as student satisfaction and student dissatisfaction respectively, though some might quibble about the fact that different analysts have given them different labels even though they are synonymous. Three of the five quality domains postulated by Williams emerged in the present analysis. Remember that Williams' samples were 14 year-olds, while Newfoundland grade 6 students at the time of instrument administration were mostly 11 year- olds; and remember, too, that the grade six data was ill-conditioned for unknown reasons so that when using a list wise deletion procedure the returns of almost 40 per cent of the population could not be used.

There is no way of knowing whether the approximately 5,500 cases which were analyzed were representative of the population of 8670 grade 6 students. Whether the data departed from theoretical considerations, or whether the differences between the present findings and those of earlier findings by Bulcock et al. (1989) -- see Figure 2 -- were attributable to differences in data analysis is unknown. Effectively, we do not know whether it is the theory or the data that are responsible for the discrepancy in the number of quality domains identified. Since grade 7 and grade 12 Newfoundland samples are still to be analyzed it is likely that subsequent replications using these data sets will go some distance toward resolving the issue. In the meantime let it be said that there is no ambiguity about the fit between the five constructs identified here and their indicators. The discrepancy is certainly not such as to undermine the theory; rather, the reader should feel reasonably confident that the theory in holistic terms is being upheld. The present study seen in this light is but one brick in the building block known as theory building. Many more bricks will be in place a decade from now.

What have we found? We have found that grade 6 students experience generalized feelings of satisfaction with their schooling experience. They find their school work interesting, that learning can be a lot of fun, and that most are proud to be students. At the same time they experience some disaffection for schooling. They can feel lonely; they say they are bossed around too much; and they sometimes get upset. These two affective outcomes proved responsive to student perceptions of their schooling experiences -- in terms of their status as students, their perception of teachers, and their perceptions of the opportunities they have to learn. Student status was derived almost exclusively from their perceptions of how they were treated by others. It depended, for example, on whether people credited them with what they can do; whether they were able to get along with others, both teachers and peers; and the extent to which others looked up to them for help. The teacher factor would seem to demonstrate that the quality of student-teacher interactions is important -- a fact that is hardly surprising since such interactions dominate the greater part of a school day. The opportunity to learn or stimulus to learning factor has emerged in every QSL analysis since research on the Williams' model began in 1981. It is construct which seems to capture students' feelings of confidence and competence in what they do in school. Thus, they report that they are happy with how well they do; are confident they can cope with the work; and that they feel good about what they do in school. Figures 4 and 5 amply demonstrate that both these three quality domains govern overall student well-being.

In terms of the psychometric properties of the QSL model, it would appear that by formulating a few additional questionnaire items to the teacher, opportunity, and dissatisfaction domains, and/or by modifying those items with loadings less than 05, the reliability estimates are likely to be strengthened. Before doing so, however, it would be prudent to replicate the present analysis on the as yet unanalyzed grade 7 and 12 populations. Note that the alpha reliability is an unweighted procedure which assumes that each item in a construct has unit weight; hence, can be regarded as a lower bound estimate. Thus, we are inclined to regard reliabilities for affective items in questionnaire instruments of .75 or higher as perfectly satisfactory. Nevertheless, the above suggestions, if acted upon, would improve matters. The validity of the model is surely not in question. Both the construct and concurrent validities were found to be congruent with the theory, even though, as is always the case, there is room for improvement. Let it suffice to say that the present analysis provides substantial support for the Williams' model of the quality of school life. Five quality dimensions of schooling previously identified by Williams were unambiguously defined and measured in the present replication. In short, the data demonstrates that each domain has both empirical and theoretical validity.

References

Bulcock, J.W. (1988). ***Indicators of the quality of school life: A validation study.*** Paper presented at the International Symposium on the Methodological Aspects of Empirical Research in Sociology, Institute of Sociological Research, The USSR Academy of Sciences, Moscow.

Bulcock, J.W., & Whitt, M. (1989). ***The responsiveness of high school achievement to student perceptions of the quality of school life.*** St. John's: Institute for Research and Development.

Bulcock, J.W., Whitt, M.E., and Beebe, M.J. (1991). Gender differences, student well-being, and high school achievement: Alberta ***Journal of Educational Research,*** 37, 3, 209-224.

Campbell, D.T. (1960). Recommendations for APA test standards regarding construct, trait or discriminant validity. ***American Psychologist, 15,*** 546-553.

daCosta, J.L. (1995). Teacher collaboration: A comparison of four strategies. ***The Alberta Journal of Education, 41, 4,*** 407-420.

Hurley, N.P. (1995). ***Resource allocation and student achievement: A microlevel impact study of differential resource inputs on student achievement outcomes.*** Unpublished doctoral dissertation, University of Ottawa, Ottawa.

Kaiser, H. (1958). The varimax criterion for analytic rotation in factor analysis. ***Psychometrica,* 23,** 187-200.

MacKay, A.W. (2012). **Respectful and Responsible Relationships: There's No App for That.** The Report of the Nova Scotia Task Force on Bullying and Cyber-Bullying. Government of Nova Scotia. Halifax, NS.

Norusis, M.J. (1993). ***SPSS for Windows: Professional Statistics* V. 6.0.** Chicago: SPSS Corporation. Nunnally, J.C. (1967). ***Psychometric Theory.*** New York: McGraw Hill.

Parsons, T. (1953). A revised analytic approach to the theory of social stratification. In R. Bendix and S.M. Lipset (eds.), ***Class, status and Power.*** Glencoe, Ill.: The Free Press.

Pedhazur, E.J. and Schmelkin, L.P. (1991). ***Measurement, Design and Analysis.*** Hillsdale, NJ.: Erlbaum.

Schibechi, R.A. (1989). Home, school, and peer group influences on student attitudes and achievement in science. ***Science Education, 73(1),*** 13-24.

Spady, W. and Mitchel, D.E. (1979). Authority and the management of classroom activities. In D.L. Duke (ed), ***Classroom Management.*** **Seventy-Eighth Yearbook of the National Society for the Study of Education,** Part II. Chicago: University of Chicago Press.

Whitt, M. (1989). ***The responsiveness of high school achievement to the quality of school life for grade ten students in Newfoundland.*** Unpublished masters thesis, Memorial University of Newfoundland, St. John's.

Williams, T. and Batten, M. (1981). ***The Quality of School Life.*** Hawthorn, Victoria, Australia: The

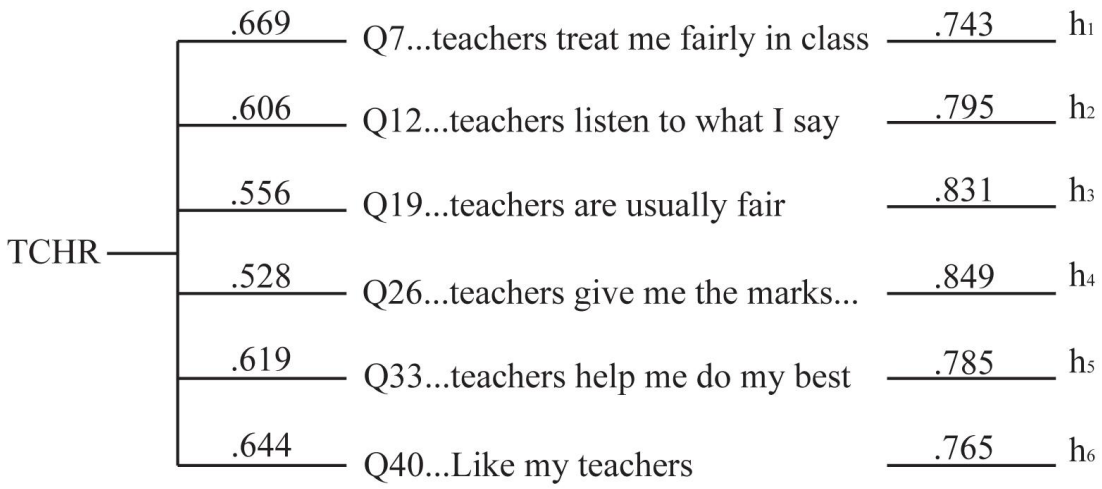

Figure 3. Perception of teachers measurement model

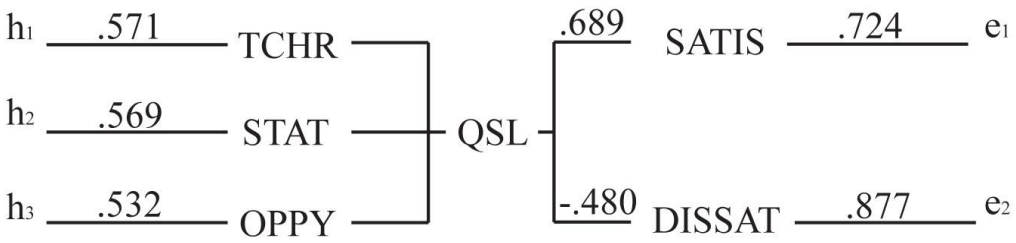

Figure 4. Relationships between quality of school life as a second-order factor and the affective outcomes of school

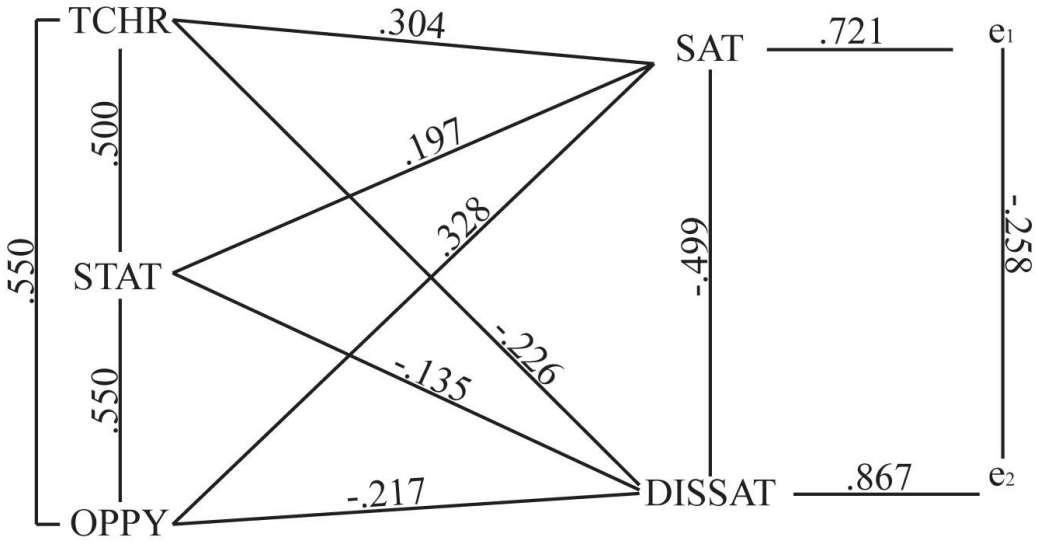

Figure 5. Conceptual model of the responsiveness of affective schooling outcomes to three domains of schooling (grade6, N = 5637)