

Examining Learner Engagement Strategies: Australian and Canadian Teachers' Self-Report

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Author Biographies

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Sheila Bennett, Ed. D., is a professor and former chair of the Department of Teacher Education. Professionally, Sheila has worked as a classroom and special education teacher, school board resource person and faculty member. She has been active in the field of special education for

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Deb Keen is Professor in the Autism Centre of Excellence in the School of Education and Professional Studies at Griffith University. She has worked with individuals who have developmental disorders and their families for over 30 years as a psychologist, educator, administrator and researcher. Deb's research in developmental disabilities, particularly autism, includes assessment and interventions related to communication, problem behaviour, engagement, family-centred practice and parent/professional partnerships.

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Abstract

The Learning and Engagement Questionnaire (LEQ) measures instructional and environmental variables associated with learner engagement. The present study sought to determine the suitability of the LEQ to measure learner engagement with a sample of Canadian teachers and to further investigate the factorial structure in comparison to the Australian context. Canadian teachers (N=739) from Kindergarten to Grade 12 responded to the LEQ in ways that are explained by two factors identified as "Instructional Cycle" and "Student-Directed Learning." The previously reported factor structure of the LEQ identified five factors in the Australian study: "Goal Directed Learning," "Task Selection," "Intensive Teaching," "Teacher Responsiveness," and "Planning and Learning Environment." There is a discussion of the cross-cultural differences between the Australian and Canadian participant groups and their dominant pedagogical approaches. The LEQ has the potential to raise teachers' awareness of the strategies they can use to facilitate inclusive practice through differentiated student engagement.

Keywords: Learner Engagement; Teachers; Survey Methods; Factor Analysis

Introduction

Learner engagement is an essential prerequisite for learning and vital to academic achievement. Disengaged students are more likely to experience difficulties academically and are at higher risk of dropping out of school (Fredericks, Blumenfeld, & Paris, 2004). Empirical studies have demonstrated a relationship between student engagement and academic performance. For example, a recent study found that engagement significantly predicted reading performance in a sample of 3,268 fifteen-year-old students from the US (Lee, 2014). Student engagement can also have a mediating effect on the positive relationship between classroom emotional climate and academic achievement (Reyes, Brackett, Rivers, White, & Salovey, 2012).

It has been proposed (vanUden, Ritzen, & Pieters, 2014) that there are three aspects that contribute to the concept of learner engagement: behaviour, emotion and cognition. Behavioural engagement is present when there is participation and effort during lessons and assignments. Emotional engagement is apparent when students are enthusiastic, interested and positive. Cognitive engagement occurs when students formulate their own learning goals, self-regulate, and strive to achieve academically. Students are more likely to be engaged behaviourally, emotionally and cognitively when their teacher demonstrates interpersonal behaviour that is highly cooperative and highly proximal. Engagement is also fostered by teachers who have self-efficacy beliefs (vanUden et al., 2014).

Learner engagement is also an outcome of effective teaching skills such as classroom management, differentiated instruction, cognitively challenging students and providing ample encouragement and support for students (Jordan, Schwartz, & McGhie-Richmond, 2009). Research (Gentry, Steenbergen-Hu, & Choi, 2011) indicates that teacher enthusiasm, feedback,

and content knowledge are keys to student motivation, learning, and engagement; positive and supportive student/teacher relationships are also integral to learner engagement. What and how they teach, and the ways they relate to individual students distinguishes exemplary teachers; lesson content and learning activities are meaningful and relevant to students and students have choice.

Students thrive in learning environments that resemble compassionate classroom communities, where student-centered instructional practices, and sound systems and structures are in place. When schools focus on academic and social classroom practices, there is an increase in both students' active engagement and social engagement through increased peer interactions, student autonomy, and inclusivity (Katz, 2013). In these classrooms there is respect for diversity and democratic management, students are given choice and access to a variety of resources as learning is differentiated. There is also collaboration among teachers as they are supported in their practice and their ongoing professional learning by an administrator who holds an inclusive vision (Katz & Sugden, 2012).

It is apparent that inclusion and effective teaching are also linked. Specifically, effective teachers hold beliefs about exceptionalities and their agency as educators to facilitate the learning of all of their students (Jordan et al., 2009). Effective teachers are those who assume responsibility for their students with exceptionalities and operate under the assumption that effective inclusion is effective for all students (Jordan et al., 2009). Teachers' epistemological beliefs about knowledge, learning and ability are the foundation of their beliefs about exceptionalities and their role in supporting the needs of all of their students (Jordan et al. 2009).

Learner engagement can be regarded as an essential component of an inclusive school context. Such a context is built on teachers' collaborative professional learning, strong

leadership, and the facilitation of students' learning by motivating and engaging them in interesting learning activities (Yeung, 2012). Teachers' attitudes towards student engagement and inclusive education vary according to their experience. For example, differences in implementing inclusive principles in schools can be correlated to teachers' ages. Specifically, primary school teachers who had significant teaching experience were confident in their ability to accommodate for students' needs. Moreover, teachers with a significant amount of inclusive experiences are more positive about inclusion in general (Unianu, 2012).

Although there is now strong evidence that student engagement plays an important role in promoting a range of positive outcomes such as academic achievement, reduced rates of school dropout, achievement of post-compulsory education and higher status occupations (Abbott-Chapman, Martin, Ollington, Venn, Dwyer, & Gall, 2014), disengagement is widespread (Bundick, Quaglia, Corso, & Haywood, 2014). Bundick et al. (2014) suggest that this may be due to a lack of understanding about how students are engaged at the classroom level and ways in which teachers can play a role in promoting student engagement.

It is therefore important to identify ways of supporting teachers, particularly those with less knowledge and experience, to use a range of instructional and environmental strategies known to enhance learner engagement. One tool that can help teachers to identify appropriate strategies is the Learning and Engagement Questionnaire (LEQ; Author et al., 2011). The LEQ is a self-report measure of their perceptions of the instructional and environmental variables associated with learner engagement and was developed to help teachers identify ways in which their practices influence child engagement in classroom learning activities. Items on the LEQ were constructed based on strategies reported in the research literature that have been effective in enhancing learner engagement. Authors of the LEQ examined the factor structure of the LEQ

and identified five scales: goal directed learning; task selection; intensive teaching; teacher responsiveness and; planning the learning environment. This factor structure was, however, based on an exploratory factor analysis, selected because of the small, Australian sample size, and further analysis with larger samples is required to assess the stability of the factorial structure (Brown, 2006).

The purpose of the present study was to determine the compatibility of the LEQ to measure learner engagement within a comparative context. By engaging in an analysis of the LEQ across Australian and Canadian contexts, researchers sought to examine whether this measure of engagement could be clustered along similar themes. By employing factorial structure analysis of the LEQ items, researchers explored whether terminology and understandings of student engagement could be translated between international boundaries and understood across teacher populations engaged in inclusive practice. In this way, the context of the LEQ was challenged to determine its face validity similar to prior cross-cultural administrations of survey instruments (Fer, 2007).

Methodology

Contextual and cultural differences can often be mitigating factors to the application of an instrument in a different country, as such, the authors were interested in examining how the results of LEQ, administered and responded to by Australian teachers would compare with a sample of Canadian teachers. Accordingly, the following research questions were posed: How do question items on the LEQ cluster into factors that represent responses derived from a Canadian sample of teachers? How do the factor clusters compare to the Australian administration of the LEQ?

Instrument: Questionnaire

The original LEQ (Author et al., 2011) included 45 items that measured the behavioural, emotional, and cognitive aspects of engagement as a function of classroom teaching practices. The analysis of the original LEQ data suggested five scale. The five scale with their Chronbach's α reliabilities were: "Goal Directed Learning" ($\alpha = 0.84$); "Task Selection" ($\alpha = 0.75$); "Intensive Teaching" ($\alpha = 0.72$); "Teacher Responsiveness" ($\alpha = 0.78$); and "Planning the Learning Environment" ($\alpha = 0.72$) (Author et al., 2011; p. 304). Participants self-report how frequently each strategy was used in their classroom on a five-point Likert scale ranging from 1 (never) to 5 (always). This same scale was used in the present study's administration. Based on data analysis that Author et al. (2011) completed, it was determined that the 45-item LEQ contained items that should be dropped due to the fact that there was redundancy and missing data (Enders, 2010). These eight items were removed from the LEQ (2011) resulting in the Canadian LEQ instrument with 37 items (see Appendix A). Demographic questions appropriate to the Canadian sample were added to the beginning of the instrument to capture respondents' teaching experience, age, gender, ethnicity, education level, and students (e.g., exceptionality) in their classroom.

Participants: Total sample and sub-sample

For the present study, the total number of Canadian respondents was 739 teachers from Kindergarten to Grade 12. Similar to their Australian counterparts, all participants held a bachelors degree and teacher certification. The following is an age distribution of the sample: 20-30 years (10%); 31-40 years (35%); 41-50 years (38%); over 50 years (17%). For the total sample, 81% of the respondents were female and 19% were male; 78% of the total sample of teachers had at least one student they were currently teaching identified with an exceptionality. A total of 471 respondents (64%) were currently teaching in primary classrooms (Kindergarten to Grade 3). There were missing data, so that the number of valid responses for the items ranged

between 719 and 739. Twenty individuals did not provide complete data, representing 2.7% of the sample. The total sample was drawn from a small school district in central Ontario that serves a widely distributed, rural, English-speaking population. Participants voluntarily completed the survey; there was a 89% response rate.

Procedure: Questionnaire Dissemination and Completion

The Canadian version of the LEQ was posted to an electronic survey site, Survey Monkey™. All teachers in the school district were emailed an invitation to participate in the anonymous questionnaire by following the electronic link provided. They were given 3 weeks to respond to the questionnaire. Completed responses were compiled in an EXCEL spreadsheet. A number of R (R Core Team, 2014) packages were used to conduct the analyses. These include *lavaan* (Rosseel, 2012) to conduct confirmatory factor analyses; *psych* (Revelle 2013) to conduct initial exploratory analyses; and *mice* (van Buuren & Groothuis-Oudshoorn, 2011) and *semTools* (Pornprasertmanit, Miller, Schoemann, & Rosseel, 2013) for multiple imputation of missing data and for combining the results of the multiple imputations.

Data Analysis and Results

The following section will describe both the steps in analyzing the data and the results of this analysis for the total sample of Canadian (K-12) teachers (N=739). Similar to the work of Author et al. (2011), the goal of the analyses was to reduce the 37-question items into factors that would reflect the dimensions of strategies used in the classroom to engage students.

Analysis of Total Sample of Teachers

Table 1. is a summary of the descriptive statistics for the total sample of teachers and includes both the mean and median as well as calculations of skewness and kurtosis.

Table 1. Descriptive statistics for the total sample (N=739)

Item	N	Mean	Median	Skew	Kurtosis
Q1	739	4.32	4	-0.59	0.73
Q2	739	4.42	4	-0.77	0.88
Q3	739	4.11	4	-0.70	2.28
Q4	738	3.18	3	-0.27	-0.67
Q5	738	3.40	3	-0.44	-0.18
Q6	737	3.70	4	-0.39	-0.05
Q7	737	3.98	4	-0.53	0.19
Q8	737	3.05	3	0.00	-0.52
Q9	737	4.20	4	-0.50	-0.17
Q10	737	4.13	4	-0.62	0.29
Q11	730	4.08	4	-0.73	0.42
Q12	730	3.78	4	-0.17	-0.66
Q13	730	3.91	4	-0.35	-0.16
Q14	730	4.02	4	-0.43	-0.12
Q15	730	4.29	5	-1.46	1.90
Q16	730	3.82	4	-0.18	-0.40
Q17	730	3.68	4	-0.21	0.15
Q18	729	4.01	4	-0.23	-0.13
Q19	730	4.06	4	-0.53	0.55
Q20	730	3.74	4	-0.40	-0.02
Q21	723	4.31	4	-0.74	0.89
Q22	723	4.50	5	-1.06	1.26
Q23	722	3.76	4	-0.38	0.17
Q24	722	4.05	4	-0.48	0.69

Q25	722	4.01	4	-0.37	0.27
Q26	721	4.07	4	-0.75	1.52
Q27	721	3.87	4	-0.50	0.34
Q28	722	4.07	4	-0.55	-0.02
Q29	722	3.91	4	-0.46	0.50
Q30	722	3.81	4	-0.44	0.13
Q31	719	4.20	4	-0.49	0.75
Q32	719	4.10	4	-0.23	-0.28
Q33	719	3.50	4	-0.17	-0.35
Q34	719	3.52	4	-0.19	-0.34
Q35	719	3.81	4	-0.76	1.61
Q36	719	3.57	4	-0.17	-0.18
Q37	719	4.23	4	-0.79	1.26

With reference to **Table 1.**, the means and medians are all above the midpoint of the scale and some items display moderate skewness and kurtosis (resulting from a tendency of teachers to use the 4 and 5 point on the scale more so than the 1 and 2 point). In addition, values for multivariate skew (166) and kurtosis (1734), and a visual test for multivariate normality (a Q-Q plot) revealed that the data display a significant deviation from multivariate normality. Consequently, the items were treated as ordinal categorical variables, not as normally distributed continuous variables.

A matrix of polychoric correlations (appropriate measure of correlation for ordinal categorical variables) was submitted to initial exploratory analyses: KMO Measure of Sampling Adequacy and Parallel Analysis. To deal with the missing data among the items, van Buuren's (2012) MICE algorithm was used to calculate a single imputed data set. The overall Measure of

Sampling Adequacy (MSA = 0.93) indicated that a factor analysis could be conducted with confidence and that there are factors underlying the data. The MSAs for individual items are mostly moderate to good (ranging between 0.74 and 0.95), but, the MSA for one item (Q8) is only mediocre (0.60).

The Parallel Analysis compared the eigenvalues of the data under investigation to eigenvalues obtained from a random set of data of the same size. The first and possibly the second eigenvalues are greater than what could be expected by chance, but the 3rd, 4th, and 5th eigenvalues are only marginally so. The indication is that there are likely only two factors underlying the data.

Next we conducted an Exploratory Factor Analysis but within a Confirmatory Framework (E/CFA). The E/CFA solution provides factor loadings as does conventional EFA, that form the basis of any interpretation, but in addition, the E/CFA is a confirmatory factor analysis (the E/CFA method of factor analysis is discussed in Brown, 2006). Thus it affords two main advantages over a conventional exploratory factor analysis. First, a robust weighted least squares estimator (WLSMV) is available. WLSMV has been recommended (Finney & DiStefano, 2006) for the analysis of skewed categorical data. Second, modification indices can be examined with a view to making adjustments to the E/CFA model to improve model fit. In particular, the correlations among the residuals of the items are usually constrained to be zero, but in some situations, that constraint can be relaxed so that some correlations are freely estimated. As discussed by Brown (2006), one such situation occurs when a survey contains similarly worded items, and indeed the LEQ contains pairs of similarly worded items: Q4 (“*I withdraw students who are difficult to engage for special instruction.*”) and Q5 (“*I arrange students who are difficult to engage into smaller groups.*”); Q21 (“*My teaching resources are*

carefully chosen before the day of my lesson") and Q22 (*"My teaching resources are ready to use when a lesson begins"*); and Q28 (*"I regularly record progress on goal learning for all my students"*) and Q34 (*"I teach important skills to students who are easily distracted in a one to one learning environment"*). The modification indices indicate whether or not significant improvements to model fit can be obtained by allowing the residuals between these pairs of items to be correlated. E/CFA needs the same number of identifying restrictions as does EFA. This means that factor variances are set to unity, the factor co-variances are freely estimated (i.e., to give an oblique rotation), an anchor item is selected for each factor but whose cross-loadings are fixed to zero (anchor items are selected using conventional EFA – they have a large loading on one factor and zero or close to zero loadings on the other factors), and the loadings for non-anchor items are freely estimated for each factor.

The fit indices employed in the analysis and the range of acceptable values are:

- χ^2 , df, p value; but for large sample sizes the index usually indicated that a better fitting model exists;
- CFI: > 0.90 is an acceptable fit; > 0.95 is a good fit;
- TLI: > 0.90 is an acceptable fit; > 0.95 is a good fit;
- RMSEA (and 90% confidence intervals): < 0.01 is a great fit; 0.05 - 0.02 is a close fit; 0.08 - 0.05 is acceptable fit. Also, a confidence interval allows a test of acceptable (if the higher end of CI is less than 0.08) or close fit (if higher end is less than 0.05). The CI is a 90% confidence interval because the hypothesis test is a one-tailed test;
- WRMR: categorical version of SRMR, values close to or less than 1 indicate good fit.

Fit indices for different versions of the two-factor solution are shown in **Table 2**.

Table 2. Fit indices for a range of two-factor E/CFA solutions

	Scaled χ^2 , df, p	CFI	TLI	WRMR	RMSEA (90% CI)
E/CFA	2427, 559, 0.008	.913	.902	1.579	.067, (.065, .070)
+ Q4 with Q5	2143, 558, 0.009	.926	.917	1.472	.062, (.059, .065)
+ Q21 with Q22	2022, 557, 0.008	.932	.923	1.423	.060, (.057, .063)
+Q28 with Q34	1992, 556, <.001	.933	.924	1.409	.059, (.056, .062)

The first row in **Table 2.** shows the fit indices for the solution replicating the EFA. The indices indicate a barely acceptable fit. However, there are some localised tensions in the solution. There is a large residual correlation between Q4 and Q5 (0.348). Also, the scaled modification index (MI) indicates a substantial improvement in fit (MI = 335.4) if we freely estimate the correlation between Q4 and Q5. On freeing the correlation between Q4 and Q5, there is an improvement in the fit (see the second line in **Table 2.**). Similarly, further improvements were obtained on allowing the correlation between Q21 and Q22 to be estimated (see the third line in **Table 2.**), and on allowing the correlation between Q28 and Q34 to be estimated (see the fourth line in **Table 2.**).

Table 3. shows the loadings for the sequence of solutions beginning on the left with the E/CFA solution; then a series of solutions each with an additional correlated error. In an initial analysis, Q8 contributed little to the solution and so the analyses reported here do not include Q8. Anchor items for the two-factor solution are Q12 and Q37. Items with loadings shown in bold are taken to contribute to the definition of the factor (using a cut-off loading of 0.4); and items with loading in italics are double loaders and are not taken into account in the interpretation. For all solutions, factor correlations are negligible – less than 0.01.

Table 3. E/CFA two-factor solutions

Item	E/CFA		+ Q4 with Q5		+Q21 with Q22		+Q28 with Q34	
	F1	F2	F1	F2	F1	F2	F1	F2
Q1	0.261	0.588	0.267	0.593	0.262	0.608	0.261	0.612
Q2	0.488	0.390	<i>0.490</i>	<i>0.401</i>	<i>0.490</i>	<i>0.419</i>	<i>0.488</i>	<i>0.424</i>
Q3	0.354	0.490	0.356	0.498	0.359	0.510	0.357	0.513
Q4	-0.048	0.421	0.058	0.293	0.059	0.295	0.062	0.293
Q5	-0.107	0.512	0.027	0.413	-0.029	0.416	-0.026	0.414
Q6	0.031	0.700	0.040	0.702	0.038	0.709	0.039	0.710
Q7	0.085	0.659	0.084	0.669	0.082	0.677	0.081	0.680
Q9	0.476	0.357	0.484	0.362	0.491	0.372	0.493	0.373
Q10	<i>0.447</i>	<i>0.466</i>	<i>0.449</i>	<i>0.475</i>	<i>0.455</i>	<i>0.487</i>	<i>0.454</i>	<i>0.490</i>
Q11	0.496	0.331	0.498	0.339	0.508	0.347	0.507	0.349
Q12		0.781	NA	0.788	NA	0.791	NA	0.793
Q13	0.053	0.736	0.055	0.746	0.058	0.750	0.058	0.752
Q14	<i>0.416</i>	<i>0.466</i>	<i>0.424</i>	<i>0.473</i>	<i>0.422</i>	<i>0.491</i>	<i>0.423</i>	<i>0.492</i>
Q15	0.386	0.267	0.390	0.267	0.393	0.279	0.394	0.279
Q16	0.128	0.609	0.128	0.618	0.133	0.622	0.133	0.624
Q17	0.394	0.449	<i>0.400</i>	<i>0.452</i>	<i>0.407</i>	<i>0.461</i>	<i>0.408</i>	<i>0.461</i>
Q18	<i>0.548</i>	<i>0.486</i>	<i>0.548</i>	<i>0.497</i>	<i>0.557</i>	<i>0.508</i>	<i>0.556</i>	<i>0.512</i>
Q19	0.584	0.349	0.587	0.355	0.603	0.361	0.604	0.362
Q20	0.554	0.272	0.555	0.285	0.566	0.293	0.566	0.295
Q21	0.777	-0.066	0.778	-0.063	0.659	0.041	0.659	0.042

Q22	0.763	-0.045	0.769	-0.045	0.619	0.081	0.620	0.081
Q23	0.363	0.488	0.365	0.496	0.370	0.505	0.369	0.508
Q24	0.643	0.362	0.640	0.371	0.652	0.381	0.651	0.385
Q25	0.631	0.291	0.631	0.300	0.645	0.307	0.645	0.310
Q26	<i>0.568</i>	<i>0.431</i>	<i>0.565</i>	<i>0.444</i>	<i>0.576</i>	<i>0.453</i>	<i>0.575</i>	<i>0.457</i>
Q27	0.471	0.308	0.470	0.320	0.481	0.326	0.482	0.327
Q28	0.267	0.426	0.278	0.426	0.279	0.436	0.310	0.379
Q29	<i>0.402</i>	<i>0.530</i>	<i>0.405</i>	<i>0.536</i>	<i>0.410</i>	<i>0.547</i>	<i>0.410</i>	<i>0.551</i>
Q30	0.311	0.619	0.316	0.629	0.322	0.637	0.326	0.637
Q31	0.713	0.224	0.720	0.230	0.741	0.235	0.741	0.236
Q32	0.596	0.306	0.597	0.316	0.609	0.324	0.608	0.326
Q33	0.015	0.686	0.011	0.693	0.015	0.694	0.017	0.695
Q34	0.099	0.546	0.121	0.544	0.123	0.549	0.123	0.522
Q35	0.478	0.270	0.486	0.267	0.496	0.274	0.498	0.273
Q36	<i>0.461</i>	<i>0.420</i>	<i>0.465</i>	<i>0.429</i>	<i>0.477</i>	<i>0.435</i>	0.478	0.436
Q37	0.746		0.751	NA	0.775	NA	0.776	NA

In **Table 2.** (see above), the fit for the initial E/CFA solution was barely adequate, but on making small adjustments to the model by allowing correlated residuals, the fit improved considerably. We have an adequate two-factor solution, and on the whole, the pattern of bolded and italic loadings is remarkably stable from one solution to the next.

We investigated three-, four- and five- factor solutions, but each suffered from one or more of a number of challenges: either it was difficult to locate anchor items; or it was difficult to interpret the solution; or there were a large number of items that did not load onto any factor. For these reasons we take the two-factor solution to be optimal.

Discussion

In this study, the structure of the Canadian version of the LEQ was best explained by a two factor solution with the factors identified as, “Instructional Cycle” and “Student-Directed Learning.” While the two scales represent distinct aspects of learner engagement, the scales are also somewhat correlated and together represent what Lam et al. (2014) have referred to as ‘facilitators’ of student engagement. In short, the Canadian teachers regard learner engagement as impacted by what they do to facilitate instruction and how involved in the learning the student is. This finding is different than the trinity of aspects that contribute to the concept of learner engagement: behaviour, emotion and cognition (vanUden, Ritzen, & Pieters, 2014). Items in the “Instructional Cycle” scale refer to fundamental components that underpin quality teaching and learning. These components are: assessment of student learning needs, interests and abilities (“*When I teach, I know exactly what I’m expecting each student to learn*”); setting goals and objectives (“*My goals and objectives are written so that I can easily observe when all students have met learning criteria*”); delivering instruction and use of resources (“*My teaching sessions allow students many opportunities to learn and rehearse new goal-related skills;*” “*My teaching resources are carefully chosen before the day of my lesson*”) and; evaluating the effectiveness of that instruction on learning outcomes (“*I have procedures in place to constantly monitor my students’ performance*”). Taken together, the items in this scale emphasize the relationship between “engagement” and “learning” within the instructional context.

The items in the “Student-Directed Learning” scale concern the teacher’s responsiveness to the student’s interests and the use of strategies to enhance student-directed learning. Items such as, “*I follow the interests of students if what I’ve planned is not achieving my goals and I have alternative ideas and resources ready if students are not responding to my teaching,*”

illustrate ways teachers may account for students' interests and respond to students who are disengaging. Additionally, teachers may offer choice to enable greater engagement and foster more self-directed learning (*"I prefer to teach new or important goals by joining in activities chosen or directed by my students;" "I involve myself in activities that are chosen and enjoyed by my students"*).

This Canadian-based study involved the use of a tool developed and trialed in Australia. The previously reported factor structure of the LEQ identified five factors while the Canadian version yielded two factors. The five factors in the Australian study were "Goal Directed Learning," "Task Selection," "Intensive Teaching," "Teacher Responsiveness," and "Planning and Learning Environment." These represent a much finer categorisation of strategies to facilitate student engagement than was evident in the current study. Differences between the Australian and Canadian teachers' response patterns might help to explain these different structures. Cultural differences may exist with language interpretation of the question items. For example, Canadian teachers more often refer to "goals" as "objectives" or "expectations." These semantics are driven by the dominant educational policy documents that are in place and commonly referred to in the Canadian provinces. Future versions of the LEQ may wish to consider some modification of the wording of items that may be open to different interpretations across cultures. This issue highlights one of the difficulties in using and/or adapting instruments across cultures.

In a similar vein, there are dominant pedagogical approaches espoused by the provincial/territorial ministry or department of education that might influence teachers' chosen practices. For example, currently, intensive, direct teaching is less prevalent in Ontario than it was a decade ago. As well, in the province of Ontario, it is mandatory that class sizes are small

(i.e., 20 students or less) and it is typical that an educational assistant is present to provide support for students identified with exceptionalities. Consequently, offering one-to-one instruction and engaging students who are distracted is a tenable practice. Examining the fairly high means/medians (all above the midpoint of the scale) also suggests that the teachers held distinct impressions of their pedagogical approaches – the reliability and validity of teachers’ self-reported pedagogical knowledge has been documented (Zelkowi, Gleason, Cox, & Bismarck, 2013).

There were also demographic differences in the Australian and Canadian participant samples that might explain different results. When we examine the total Australian (primary) sample and the primary teacher sub-sample from Canada (K-3), it is evident that both the Australian and Canadian sample were largely female (81%), however, the Australian sample was more evenly distributed by age and the greatest age group was 31-50 years at 52% compared the Canadian sample of teachers 31-50 years at 76%. The incidence of including a student with an exceptionality in the classroom was similar: 71% of Australian teachers and 69% of the Canadian teachers. Finally, sample size and type of statistical analysis were different between the two studies. The Australian study had a relatively small sample size (274 teachers) compared with 739 teachers in the current study. As a consequence, the Australian study employed an exploratory factor analysis while in this study, an exploratory/confirmatory factor analysis was undertaken and likely yielded more robust results.

This study has substantiated the value of the Learning and Engagement Questionnaire (LEQ) as a measure of the instructional and environmental variables associated with learner engagement in an effort to help teachers and administrators identify ways in which their practices influence child engagement in classroom activities. The impact of the implementation of the

LEQ on teacher behaviour is yet to be tested, but the LEQ has the potential to raise teacher awareness of some of the strategies they can use to facilitate student engagement. As Parsons, Nuland and Parsons (2014) have commented, teachers may “heighten student engagement if they understand its importance, know the types of tasks that encourage it, and have tools for assessing it” (p. 2).

Future research could examine the effects of using the LEQ not only as an in-service professional development tool for teachers, but also in teacher preparation programs where it may help to increase awareness of factors that influence learner engagement. Instruments such as the LEQ provide valuable information that assist in forming a pathway for teacher educators to re-examine traditional special education instruction that is often focused on disability specific information and compensatory strategies. This traditional form of instruction can contribute to the ‘othering’ of students with exceptionalities as needing a different form of service delivery. Focusing on learner engagement allows teacher candidates to explore curriculum delivery from a more inclusive standpoint. Utilizing the perspective of the learner at the centre of the planning and delivery of curriculum both in teacher training and with practicing teachers opens up considerations for a more robust and inclusive educational experience for all students in a classroom.

While teachers may have little or no influence over some factors that are known to be associated with academic achievement such as parental education, student engagement is considered to be malleable and dynamic and something teachers can influence. Teachers have the capacity to create engaging classrooms that positively impact long-term outcomes such as achieving post-compulsory school education and higher status occupations independent of

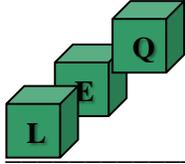
background factors (Abbott-Chapman et al., 2014). The LEQ offers one tool to assist teachers in this endeavour.

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Appendix A

DEMOGRAPHIC INFORMATION

Please answer ALL of the following questions about your work, your school, and your students. If you teach multiple classes, please decide on the group you find most difficult to engage and answer ALL questions on this form, and on the LEQ survey, in relation to this group only.

1. Where do you work? (Please tick one)

- Early childhood facility
- Special education school/unit
- Primary school (including Prep)
- Autism specific school/centre
- Other (please specify) _____

2. My school/centre is located in the suburb of _____

3. I have been teaching for: years months

4. My age is 20-30 31-40 41-50 Over 50

5. Gender: Male Female

6. Ethnic/Cultural Background (e.g., Italian/Canadian, Asian, Aboriginal)

7. What is your highest post-secondary qualification in education:

8. What class do you teach? (e.g., kindy, prep, the junior group, year 2). Remember to identify just a single class if you teach more than one.

9. Please specify the age range of the students in your group (e.g., 4-5 years):

10. How many students in total in your class? _____



ONLY ANSWER THESE IF YOU TEACH IN A REGULAR EDUCATION SETTING

11. Do you have any children with special needs in your group/s? Yes / No (Circle one)

12. If you circled ‘Yes’ for question 11, please indicate the number of children and their specific needs or diagnoses (e.g., ASD (1 child), learning difficulties (3 children), ADHD (1 child):

Please circle the number that best indicates your level of agreement with each statement, taking into consideration ALL the individuals in your class/group particularly those who may be difficult to engage in learning. Make your decision using the following guide:

Never (1) none of the time

Rarely (2) about 25% of the time

Sometimes (3) about half the time

Usually (4) about 75% of the time

Always (5) 95-100% of the time

		Never 1	Rarely 2	Sometimes 3	Usually 4	Always 5
1	I identify activities and items that will be of interest to my students.					
2	I assess materials and resources so that I can be sure they will be effective with my students.					
3	I maintain student interest during lessons when I need to move from one activity to the next.					
4	I withdraw students who are difficult to engage for special instruction.					
5	I arrange students who are difficult to engage into smaller groups.					
6	I have a range of materials available during my lessons to provide students who are difficult to engage with					

	some choices.					
7	I involve myself in activities that are chosen and enjoyed by my students.					
8	I don't allow students to make their own activity choices if I am teaching something important.					
9	I monitor the learning of students who have not engaged well with my teaching.					
10	All my teaching includes multiple opportunities to learn and practice new skills.					
11	I use data on all my students' performance to monitor progress, adjust goals and teaching strategies.					
12	I allow students to choose from an array of activities or materials.					
13	I investigate particular interests of my students and use this in my teaching.					
14	I deliberately plan ahead so that I can attend specifically to the needs of students who are difficult to engage.					
15	I plan the layout of my room including the seating arrangement of my students.					
16	I follow the interests of students if what I've planned is not achieving my goals.					
17	I can regain a student's attention to my teaching within the first moments of observing that he/she					

	is losing interest.					
18	By keeping my goals in mind, I create learning opportunities during just about any activity.					
19	I have procedures in place to constantly monitor my students' performance.					
20	My goals and objectives are written so that I can easily observe when all students have met learning criteria.					
21	My teaching resources are carefully chosen before the day of my lesson.					
22	My teaching resources are ready to use when a lesson begins.					
23	I have alternative ideas and resources ready if students are not responding to my teaching.					
24	My teaching sessions allow students many opportunities to learn and rehearse new goal-related skills.					
25	My teaching sessions mostly consist of arranging and offering opportunities for learning and practice of skills.					
26	I seize upon opportunities across all classroom activities for learning and practice of goal-related skills.					
27	I regularly record progress on goal learning for all my students.					
28	I provide one to one instruction for students					

	who are difficult to engage.					
29	I begin all teaching sessions with activities that will capture my students' interest.					
30	I create, or source, special teaching materials to assist students who are difficult to interest in my teaching.					
31	I am clear on what I'm trying to achieve for each of the students in my group.					
32	All opportunities for learning new skills in my classroom are offered when students are engaged.					
33	I prefer to teach new or important goals by joining in activities chosen or directed by my students.					
34	I teach important skills to students who are easily distracted in a one to one learning environment.					
35	I keep all students focused on my teaching during whole group instruction.					
36	I am never short of a strategy or idea to re-engage students who appear to lose interest in my teaching.					
37	When I teach, I know exactly what I'm expecting each student to learn.					