

# Literacy-Related Professional Development Preferences of Secondary Teachers

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*A survey of 100 teachers in one Ontario school board examined their literacy-related professional development preferences. The majority preferred short durations of literacy-related professional development. A small number did not want any literacy-related professional development. The most preferred forms of professional development were shared practice, mentoring, observation of colleagues, and collaborative lesson development. Preferences for form and content of professional development varied between subject areas and course types.*

*Un sondage a été réalisé auprès de 100 enseignants d'une commission scolaire ontarienne afin de déterminer leurs préférences en matière de perfectionnement professionnel lié à l'alphabétisme. La majorité des enseignants sondés préfèrent des cours de courte durée de perfectionnement professionnel lié à l'alphabétisme. Un petit nombre ne souhaite suivre aucun cours de perfectionnement professionnel lié à l'alphabétisme. Les formes préférées de perfectionnement professionnel sont les pratiques partagées, le mentorat, l'observation des collègues et le développement collaboratif de systèmes éducatifs. Les préférences en matière de forme et de contenu du perfectionnement professionnel varient fonction de la discipline et du genre de cours.*

## Literacy Across the Curriculum

Educators and researchers have argued for the incorporation of literacy across the curriculum in secondary schools (Biancarosa & Snow, 2004; Edmonds et al., 2009; Heller & Greenleaf, 2007; Scammacca et al., 2007). This practice is also described as language across the curriculum, content area literacy, adolescent literacy, and academic literacy. To implement language across the curriculum, secondary teachers in all disciplines would integrate literacy-related instructional strategies into their practice. However, implementing literacy across the curriculum in a secondary school takes years of sustained effort, as the school moves through multiple stages of implementation (May, 2007).

## Challenges to Implementing Literacy Across the Curriculum

Analyses of secondary students' achievement have linked achievement to teachers' incorporation of literacy instruction into their practice (Scammacca et al., 2007; Wigent, 2013). A variety of factors contribute to a lack of secondary teacher support for literacy across the curriculum. A lack of knowledge (Lewis & Wray, 1999; Meyer, 2013), resistance to providing

literacy support (Harreveld, Baker, & Isdale, 2008; Knight, 2000), and resistance due to an interest in maintaining traditional secondary school departmental structures (May, 2007) may all contribute to a lack of support among teachers.

Secondary teachers are subject specialists, and the typical secondary school structure emphasizes subject area disciplines. As subject area specialists, secondary teachers regard their responsibility as being one of ensuring that their students master the knowledge of their discipline. However, teachers who do implement literacy strategies in their various subject areas may not have the background necessary to make effective decisions and choices when it comes to literacy instruction (Lewis & Wray, 1999; Meyer, 2013). Moreover, differences have been shown to exist in literacy-related instructional practices between various disciplines (Fisher & Frey, 2008; Kiuahara, Graham, & Hawken, 2009). A difference in instructional needs in the disciplines necessitates professional development that is designed for the specific needs of each discipline.

Even when teachers are aware that students benefit from literacy across the curriculum, research has indicated many are resistant to providing that instruction in their secondary courses. Harreveld et al. (2008) found that secondary teachers acknowledged that reading literacy is critical for secondary students, but did not indicate awareness of their own role in teaching reading strategies. Essentially, “if they did not think or feel they had to do it, then they did not do it” (Harreveld et al., 2008, p. 116). Allman (2006) found in a survey of British Columbian secondary teachers’ perceptions of subject area reading that the teachers had little awareness of the range of instructional strategies available for literacy instruction at the secondary level.

Organizational patterns in secondary schools have remained stable for decades (May, 2007). Courses are divided into subject area departments, with department heads providing leadership within each department. Teachers in departments are seen as specializing in that subject and as such, teachers and departments have some autonomy to implement strategies as each sees fit. These organizational factors make it difficult to implement changes needed for literacy across the curriculum.

### **Ministry of Education Policies**

After a change in Ontario’s government in 1995, an adversarial relationship developed between teachers and the Ministry of Education (Mulhern, 2007; Palmer, 1998). The teachers’ perception was that the government was singling out teachers (Mulhern, 2007). Indeed, 126,000 teachers went on strike for two weeks in the fall of 1997 to protest the implementation of Bill 160, the Education Quality Improvement Act (Palmer, 1998). The Bill transferred control of many aspects of education from locally elected school boards to the Ontario Ministry of Education. The Bill affected working conditions and teacher unions lost control over preparation time and class sizes. This past context has resulted in many teachers having a negative perception of the Ministry of Education’s policies and initiatives.

In Ontario, the students who entered grade 9 in 1999-2000 were the first cohort of students required to write the Ontario Secondary School Literacy Test (OSSLT). For every year thereafter, students have been required to pass the OSSLT to obtain a secondary school diploma (Ontario Ministry of Education and Training, 1999). If students are unsuccessful on their first attempt at writing the literacy test, they may re-attempt the test. In 2003, the Ontario Ministry of Education implemented the Ontario Secondary School Literacy Course (OLC). If a student had

not passed the OSSLT, the course could be used to fulfill the literacy requirement for graduation. It was designed to support students in developing their reading and writing skills, and to provide them with an alternate method of demonstrating those skills (Ontario Ministry of Education and Training, 2003).

The OSSLT is similar to high-stakes tests in other jurisdictions such as the province of Alberta. To achieve a high school diploma in Alberta, students must pass the Grade 12 departmental English exam, which requires competence in reading and writing skills. Most of the jurisdictions in the United States have high-stakes testing, for example Rhode Island, which uses the New England Common Assessment Program (Kern, 2013).

As a high-stakes test, the OSSLT has a long term effect on the lives of students (Nezavdal, 2003). Results are often published in local papers and schools with strong results may even post those on their message boards. Because of this, there is pressure both on students to succeed and on teachers to help students succeed. The Ontario Ministry of Education and Training (2007) and school boards have implemented literacy-related professional development activities to provide extensive, targeted professional development for secondary teachers (Levin, Glaze, & Fullan, 2008; Ricci, 2004). These activities, whether mandatory or optional, may impact teachers' practices and perspectives on literacy-related professional development.

Professional development, as defined by Guskey (2000), are processes and activities that assist educators in building their knowledge and skills, which may in turn improve student learning. Literacy-related professional development as a subset of professional development should reflect current features found in the professional development literature.

In 2007, Ontario's Ministry of Education and Training published a report with recommendations for teacher professional development, with these features (a) coherent, (b) attentive to adult learning styles, (c) goal-oriented, (d) sustainable, and (e) evidence-informed. However, as Belzer (2005) and Syed (2008) indicated, professional development systems struggle with meeting the specific needs of individual teachers.

### **Characteristics of Effective Professional Development**

Researchers have examined many different features of professional development to determine those that make it most effective (Desimone, 2009; Desimone, Smith, & Phillips, 2007; Van Keer & Verhaeghe, 2005). The following sections focus on three broad features of professional development that make a difference (a) content, (b) form, and (c) duration.

**Content.** Content in relation to professional development activities refers to what is being learned. The same content could be learned in multiple ways. Internationally conducted studies indicated that content affected teacher participation in professional development (Garet, Porter, Desimone, Birman, & Yoon, 2001; Jeanpierre, Oberhauser, & Freeman, 2005). The content of professional development may motivate teachers to attend professional development activities when they are about teaching strategies (Karagiorgi & Symeou, 2007). For example, English and Science teachers feel different instructional strategies benefit students in their discipline and so may prefer different content in literacy-related professional development (Fisher & Frey, 2008). Moreover, Van Eekelen, Vermunt, and Boshuizen (2006) found that the content of professional development activities affected teacher engagement.

**Form.** Form is the *shape* that the activity takes (Engstrom & Danielson, 2006). Guskey (2000) cited seven major models of professional development (a) training, (b) observation or assessment, (c) involvement in a development or improvement process, (d) study groups, (e)

inquiry or action research, (f) individually guided activities, and (g) mentoring. The effectiveness of different forms of professional development varies, with some forms resulting in higher teacher ratings of effectiveness and in higher student achievement (Engstrom & Danielson, 2006; Garet et al., 2001; Penuel, Fishman, Yamaguchi, & Gallagher, 2007).

Teachers have preferences for specific forms of professional development (Boyle, Lamprianou, & Boyle, 2005; Garet et al., 2001). Teachers of all subject areas prefer observation of colleagues; English and Science teachers prefer study groups while English, Math, and Science teachers prefer mentoring (Boyle et al., 2005; Bryant, Linan-Thompson, Ugel, Hamff, & Hougen, 2001).

**Duration.** Duration refers to time span or contact hours. Time span is the hours, days, and weeks over which the professional development takes place, and contact hours are the total amount of contact time spent in the professional development activity. Time span and contact hours are both positively correlated with measures of quality of professional development (Boyle et al., 2005; Garet et al., 2001).

Guskey and Yoon (2009) stated that in recent times, workshops have been disparaged as being ineffective, particularly those of short duration. However, Yoon, Duncan, Lee, Scarloss, and Shapley (2007) reviewed over 1,300 studies and determined that of the nine studies that were sufficiently rigorous to warrant further examination, those that confirmed a positive relationship between the length of the professional development activity and its effect on student learning were workshops of short duration or summer institutes. Not surprisingly, as university researchers more frequently carry out research on educational topics, the majority of the research on professional development and teacher preferences has been carried out with American teachers. This is a reflection of the larger U. S. population (308 million), as of 2011 there are 2,870 universities, and reflecting Canada's population (34 million), as of 2012 there are 98 universities.

## **Research Problem**

With the emphasis on literacy-related professional development by educational authorities and limited Canadian research, there is a need to explore the professional development preferences of Canadian secondary school teachers. Therefore, this study sought answers to the following questions:

- If secondary teachers perceive that some literacy-related professional development could help them as teachers, what duration, form, and content would they most prefer?
- Do teachers differ in their preference of literacy-related professional development?

## **Method**

### **Participants**

All secondary teachers in one Eastern Ontario school board were invited to participate. There is a military base within the board's catchment area, as well as a reserve that busses students to schools in the board area. Anonymous surveys were distributed to all secondary teachers. Completed surveys were collected over the course of three months. Each of the eight secondary schools had at least some participants, but the numbers varied widely by school. From the 450

teachers in the board, 100 teachers returned surveys, which was a 22% response rate.

### **Procedure**

The initial round of surveys was distributed in late October, 2010. A follow-up distribution was done later in the school year to the schools with a request for participation if the survey had not already been completed.

### **Instrument**

The school board's research committee and the secondary literacy co-coordinator reviewed the survey. Several teachers also read the survey and provided feedback to assist in further refining the survey items. The survey included questions about what subjects, course types, and grade levels the participants were teaching at the time of survey completion.

One item required participants to indicate the preferred number of total hours of professional development (total duration) by selecting from a checklist of six potential responses. Another item gathered information about the preferred form of literacy-related professional development. Participants were asked to rate each of the 13 forms of professional development according to a 5-point rating scale of preference, from *strongly preferred* to *strongly not preferred*. An option of *no preference* was included. An open-ended follow-up question prompted participants to indicate why they had rated forms of professional development highly in the preceding question.

Teachers were asked to select one course they were teaching at the time, and to answer two open-ended questions about literacy-related professional development preferences in relation to that particular course: *For the specific course listed above, describe an area you struggle with in supporting the literacy needs of your students*. This question was open-ended to avoid leading participants.

Lastly, one open-ended question allowed participants to provide additional information that they deemed relevant. The prompt, *I prefer literacy-related professional development when it...*, further allowed participants to indicate their preference literacy-related professional development.

## **Results**

### **Teaching Situations**

Data analysis provided an overview of the backgrounds of participants. Of the 100 participants, 94 responded to the item requesting the number of full years of teaching experience. The mean number of years of teaching experience was 13.5 years. Teachers were asked to indicate each subject area in which the teacher was teaching at least one course during the semester. Most teachers taught in more than one subject area in the semester ( $n = 61$ ).

Data were analyzed by subject-area groupings for comparisons. Participants were placed in subject-area groupings if they taught at least one course in that subject-area grouping. English teachers were grouped alone ( $n = 23$ ). Teachers of Social Sciences and Humanities (Civics and Careers, Family Studies (except Foods), Geography, History, and Social Sciences) formed another grouping ( $n = 42$ ). The third grouping included teachers of Science, Biology, Chemistry,

Physics, Environmental Sciences, Math, Trades, and Foods ( $n = 26$ ). Although the Ministry of Education includes Foods courses in the Family Studies curriculum, both Foods teachers identified it as a technology course and respecting this perspective, Foods was placed in the Technology grouping. Some teachers were in more than one subject-area grouping. For example, a teacher of Science and English, was counted in the Science, Math, and Technology grouping and also in the English grouping. Some teachers, including teachers who taught in more than three subject areas, did not fit into any of the subject-area groupings ( $n = 28$ ). Examples of courses that did not fit into any of the subject-area groupings included courses in the Arts, Business, Computer Studies, Co-operative Education, French, Guidance (except Careers which is a half-credit normally paired with Civics), Health and Physical Education, Learning Strategies, Native Studies, and Student Success.

Participants were asked to indicate all of the course types they were teaching at the time of completing the survey. In Ontario, many different course types lead to Ministry credits. Locally Developed (grades 9 and 10) and Workplace (grades 11 and 12) course types are meant to prepare students for attaining a job in the workplace after secondary school. These courses are referred to as being in the Workplace pathway. Applied (grades 9 and 10) and College Preparation (grades 11 and 12) course types are meant to prepare students for the College pathway. Academic (grades 9 and 10) and University Preparation (grades 11 and 12) course types are meant to prepare students for the University pathway. Open course types are taken by students in Workplace, College, and University pathways. This means that students from all three pathways will be in the same Open course. As well, there are University and College course types that enrol students from both the University and College pathways. In the participating school board, at the time of data collection, there were also several pathways for students with Special Education needs. Students in these course types do not earn Ministry credits.

## Duration

**Analysis of all responses.** Teachers were asked to indicate their preferred total number of contact hours for literacy-related professional development. Ninety-seven participants responded to this item. The 14.4% of teachers who did not want any literacy-related professional development were removed from the data and analysis was based on the 85.6% of teachers who wanted literacy-related professional development (see Figure 1).

**Analysis by subject area.** Comparisons by subject-area groupings were also made for duration-related data (see Figure 2). In total, 89 responses were categorized into at least one of the three subject-area groupings. Some teachers taught subjects from two subject-area groupings and these results were counted in both of those subject-area groupings. For all subject-area groupings, the most preferred duration was 1 to 5 hours of literacy-related professional development. The preference for no hours of literacy-related professional development was selected by 19.2% of Science, Math, and Technology teachers, compared to only 4.5% of English teachers.

## Form

Teachers were asked to rate 13 forms of professional development according to their degree of preference for each form on a 5-point Likert-type scale. Of the 100 participants, 98 responded to this question by rating at least one of the forms. Responses were first analyzed as a whole and

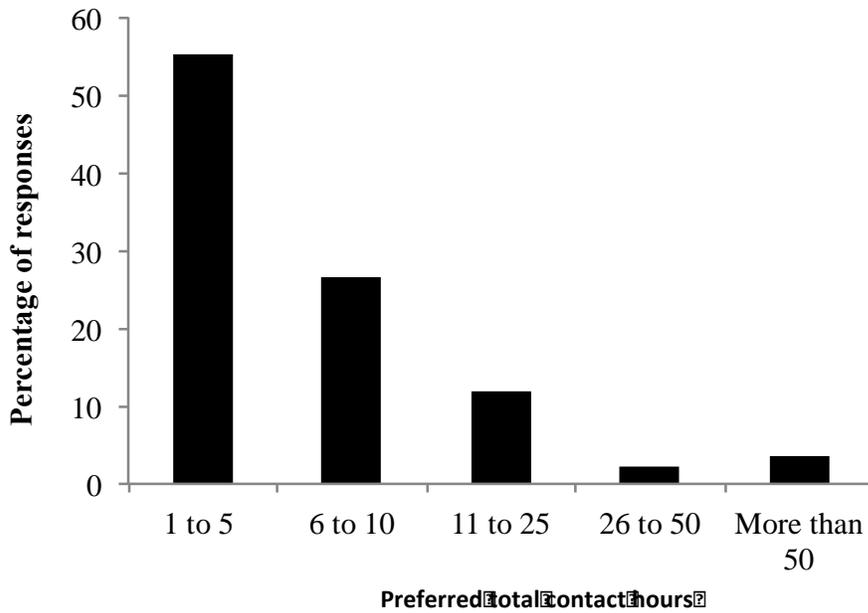


Figure 1. Preferred total contact hours for literacy-related professional development activities.

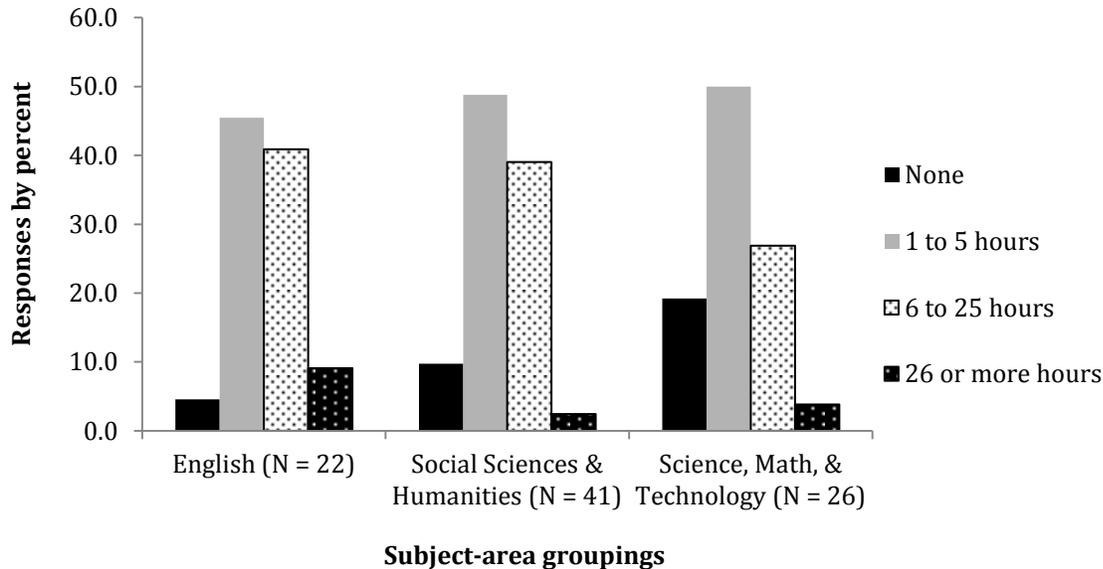


Figure 2. Preferred total contact hours for literacy-related professional development activities by subject-area groupings.

then by subject-area groupings. Mean preference ratings were calculated by adding all of the responses rated 1, 2, 3, or 4 in the scale, and dividing by the total number of responses for each form (see Table 1). Ratings of 0 (no preference) were not included in this calculation. Sharing practice, mentoring, observation of colleagues, and collaborative lesson development, had the

highest average rankings. The lowest ranked form of professional development was the online short course.

**Analysis by subject area.** Due to some teachers not responding to every item, the number of responses for some forms is lower than the sample size (see Table 2). Sharing practice had the

Table 1

*Mean Ratings of Teachers' Preferences for Literacy-Related Professional Development*

Form	<i>M</i>	<i>SD</i>	<i>n</i>
Sharing practice	3.1	0.84	96
Mentoring	2.8	0.90	95
Observation of colleagues	2.8	0.89	95
Collaborative lesson development	2.8	0.89	95
Independent reading	2.7	0.93	95
Onsite workshop	2.7	0.88	95
Professional learning community	2.5	0.87	92
Action research or inquiry	2.4	0.90	98
Book club	2.3	0.94	97
Workshop at board office	2.2	0.89	98
Teacher moderation	2.2	0.77	86
Board sponsored presentations	2.1	0.85	95
Online short course	1.8	0.76	95

Note: *N* = 98

Table 2

*Percentage of Positive Responses (Ratings of Preferred and Highly Preferred) for Form of Professional Development*

Form	English ( <i>n</i> = 22)	Social Sciences and Humanities ( <i>n</i> = 42)	Science, Math, and Technology ( <i>n</i> = 26)
Action research or inquiry	50	54	35
Board sponsored presentations	55	34	12
Book club	73	45	19
Collaborative lesson development	71	63	62
Independent reading	57	61	50
Mentoring	57	58	50
Observation of colleagues	50	71	65
Online short course	5	18	8
Onsite workshop	55	68	46
Professional learning community	71	53	27
Sharing practice	86	80	65
Teacher moderation	43	28	25
Workshop at board office	64	49	19

highest number of positive ratings by all subject-area groupings. Collaborative lesson development ranked in the top three for all subject-area groupings. Across all three subject-area groupings, online short courses had the lowest percentage of positive ratings.

**Teachers’ explanations for preferences.** After rating the 13 forms of professional development, participants were asked: *For the form that you prefer the most, please explain why.* Of the 100 participants, 91 provided 103 responses. Responses were coded into 12 categories that emerged from the data (see Figure 3). This included a category *Other* for responses that did not form a single category.

The most common reason for rating forms highly was a preference for professional development that resulted in practical strategies (27.2%). Teachers who indicated that practicality in professional development was important stated “Mentoring/sharing of resources—practical and [I] can see how strategies are implemented.” Teachers also equated practicality with strategies that work in classrooms, “Observation of colleagues—provides practical ideas that work.”

Another common reason for rating forms highly was the opportunity for collaboration with colleagues (23.3%). Teachers valued learning from colleagues in their disciplines; a Science teacher wrote, “Any form where a colleague with expertise is supporting me. Those are the best ways to generate ideas and really see what is practical and achievable in the classroom.” One teacher of the Arts and Family Studies pointed to a lack of time for collaboration, “It’s nice to have time with other teachers to talk and share. We don’t get enough of this time now that P.A. [Professional Activity] days are so heavily structured.” While a Science and Math teacher wrote, “Observation of colleagues—generates insights and ideas. Serves [as] a good starting point for a Professional Learning Community and/or for more development. Generally not offered.”

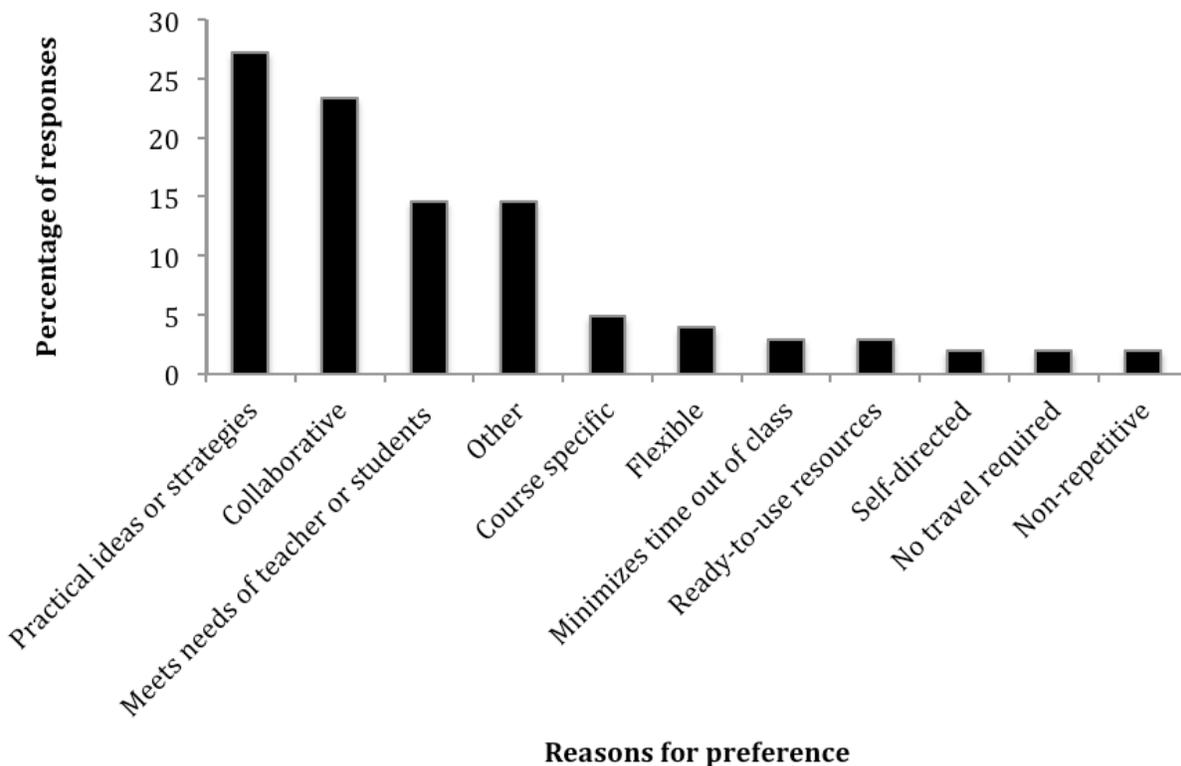


Figure 3. Reasons for form of professional development preference by percentage.

Teachers preferred forms of professional development that meets their needs or the needs of their students (14.6%). One teacher claimed, “Independent reading allows us to choose topics or strategies to research that suit our personal styles or strengths.” Another pointed to the positive benefits of mentoring allowing for individualization, “[a mentor] can speak to you about your needs, wants, desires for your classes.” One teacher did not rate any of the forms of professional development, but wrote a long response. It echoed the importance of individualization in the professional development process:

There is no opportunity to increase one’s expertise and teachers seem to be required to repeat the entire training at a “basic-to-medium” level rather than being able to review past learning and improve beyond that. The one-size-fits-all model is frustrating and tedious and wastes the time and energy of those who actually have already mastered varying levels of competence.

## Content

Participants were prompted for the course code for one class they were teaching with literacy-related instructional needs. Of the 100 participants, 84 teachers provided some form of response but only 63 provided full course codes, which include subject area, grade, and pathway, for this item. The course type chosen by teachers most frequently as having literacy-related instructional needs were Open (see Table 3). The most frequently mentioned pathway was the College pathway, which was composed of all Applied and College Preparation course types.

Participants were also asked to indicate an area in relation to their chosen course in which they would like literacy-related professional development. Responses were examined for themes, six of which emerged (a) reading, (b) differentiation, (c) writing, (d) other, (e) special education, and (f) motivation.

**Analysis of all responses.** The most common theme was reading (37.6%; see Figure 4). This theme included responses such as reading comprehension, understanding word problems, reading to be able to answer questions, following written instructions, reading graphical text, and reading for a purpose.

Differentiation of literacy instruction emerged as another common theme, composing 27.1% of the responses. This included responses indicating teachers had difficulty teaching students with a wide range of reading abilities and difficulty finding texts to meet a wide variety of needs. This was supported by a Civics and Careers teacher who indicated she/he struggles with, “...finding tasks that are challenging and serve to develop literacy skills across all ability levels

Table 3

### *Literacy-Related Instructional Needs by Pathway*

Course type	Percent of total responses
Open	36
Applied and College	22
Locally Developed and Workplace	16
Special Education	15
Academic and University	9
University/College	2

Note:  $n = 81$

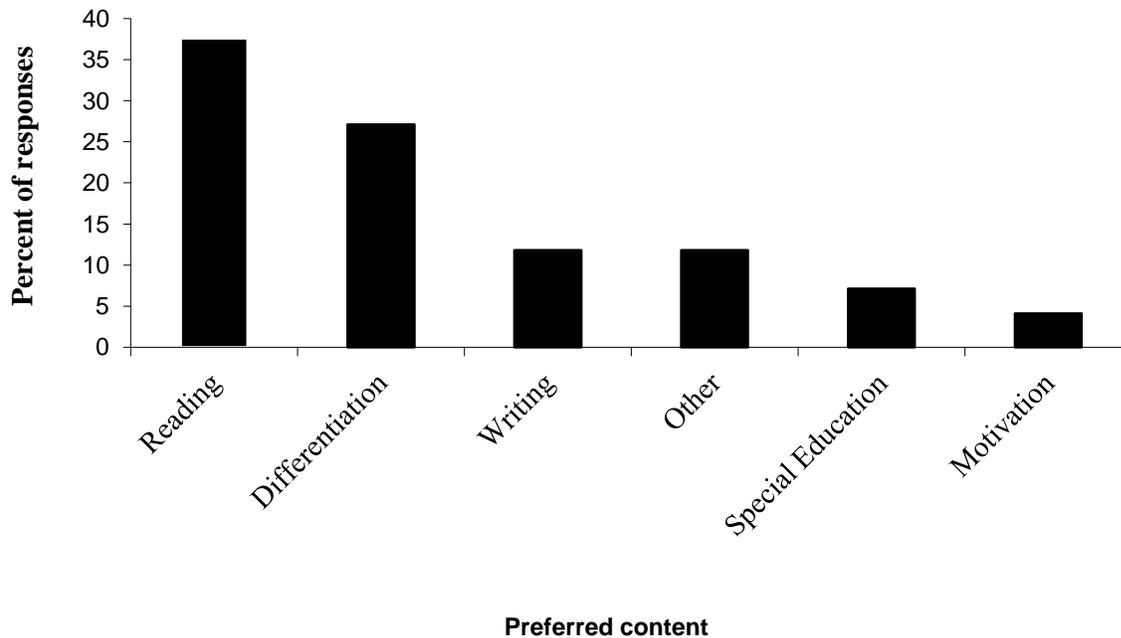


Figure 4. Preferred content of professional development

found in an open class.” This was echoed by a Health and Physical Education teacher who wrote, “open level course...such a wide variety of abilities.”

Writing was a smaller category (11.8%), but within the theme, teachers named specific skills on which they would like professional development, and these varied widely. A teacher of a grade eleven Social Sciences and Humanities course listed all of the following, teaching footnoting, relating opinion and evidence, and the necessity of a strong conclusion, as being areas of need.

Responses related to special education, such as assessing non-verbal students and learning how to use assistive technology, composed 7.1% of the total responses. One teacher discussed issues with developing oral language skills, “I have difficulties conversing with my non-communicative students. I need more strategies to engage them and assess their learning.”

The theme with the least number of responses was motivation (4.1%). Teachers who indicated a preference for professional development on motivation said they wanted strategies on motivating students to read voluntarily and to write full answers. Responses that did not emerge as a category were grouped into a category *other* (11.8%). A few teachers indicated areas outside of their control, such as “lack of time when students are at [work] placement.” Other examples of responses in this category included cursive writing and using online literature databases.

**Analysis by pathways.** Differences did emerge between pathways. For Workplace (53.8%) and Open course types (41.4%), the highest percentage of responses related to reading. A teacher of a tenth grade Locally Developed course stated, “Many students simply have no reading comprehension. They can read a passage repeatedly and still not comprehend.” For the Applied and College Preparation course types, only 29.4% of the responses related to reading, compared to 35.5% of the responses that were related to differentiation.

Differentiation was the second most commonly cited area of preference for professional development for teachers of Open course types (31.0%). Teachers of Open type courses also cited a difficulty in meeting the wide variety of abilities inherent in their classrooms, “Where do you start when the needs in the class are so varied?” Writing instruction was cited by 11.8% of teachers of Applied and College Preparation course types and 13.8% of teachers of Open courses as a professional development preference.

**Analysis by subject area.** Patterns did emerge in specific subject areas. Teachers cited Civics and Careers and Health and Physical Education as being courses with literacy-related instructional needs, in which the differentiation of instruction for the wide variety of ability levels as being problematic. Four teachers identified Math as having literacy-related instructional needs, and three of the teachers indicated that reading to understand word problems was an area of instructional need. A teacher of eleventh grade Workplace Math wrote, “In Math, especially this everyday, workplace math, I find my students have difficulties ascertaining what is being asked of them especially with word problems. They seem to have difficulty sorting through the written lesson part with examples in combination with the numeracy requirements of each task.”

**Open-ended response**

Teachers responded to the open-ended prompt, *I prefer literacy-related professional development when it...* Responses to this item were categorized according to whether teacher preferences related to the form of professional development or content of professional development. While English teachers and Social Sciences and Humanities teachers had a similar percentage of their responses related to form and content, a higher number of Science, Math, and Technology teachers gave responses that related to the content of professional development (60.7%) rather than the form (25.0%; see Table 4).

**Discussion**

While the majority of teachers preferred at least some literacy-related professional development, the open-ended questions illustrated that reasons for not wanting any literacy-related professional development varied. Some teachers felt organized professional development would not result in meaningful learning; this was also found by Knight (2000) who stated that some teachers reject literacy-related professional development because they felt it lacked learning that can be applied in classrooms. Fullan (2007) argued that the premise that professional development will necessarily lead to instructional changes is flawed; while Alton-Lee (2011) has argued that it may actually have a negative effect on student learning.

Table 4

*Percentage of Responses to Preferences for Literacy-Related Professional Development*

	English (n = 27)	Social Sciences and Humanities (n = 51)	Science, Math, and Technology (n = 28)
Form	37	43	25
Content	44	45	61
Other	19	12	14

Note: N = 118

School boards along with the Ministry of Education share responsibility for professional development. More meaningful literacy-related professional development might occur if teacher consultation was part of the process. Teachers' needs may be better met through a more fully informed provision of choice or through respectful pre-assessments. Fully informed provision of choice means that teachers would receive sufficient information about the professional development activity to determine whether the activity would benefit their learning. Indeed, providing teachers with detailed information about topics to be covered in professional development sessions is a step that would support teachers in choosing more meaningful professional development activities across school board jurisdictions. A request for potential participants to respond to a few questions about their perspective on the content to be covered has the potential to provide professional developers with the information necessary to facilitate more meaningful learning opportunities. The lack of consultation of teachers as to the content, form, and duration of professional development may be interpreted by teachers as a disregard for them as professionals. Professional development is something that is done to them rather than something in which they collaborate as professionals.

Moreover, the teachers surveyed made a compelling point: teacher engagement would be greater if literacy-related professional development was differentiated by discipline as well as through a progression in terms of knowledge and skill levels. Recent research suggested that teachers of different disciplines have different instructional needs (Kuhara et al., 2009). Professional development providers also need to consider the evolving individual needs of teachers and to find a way to differentiate professional development content through offering opportunities to deepen knowledge, as argued by Grossman and Thompson (2004), within a framework that acknowledges differences in needs between teachers of various disciplines (Alton-Lee, 2011; Burch & Spillane, 2005; Feiman-Nemser, 2001).

### **Form: Collaboration**

Teachers expressed varying degrees of preference for the forms of professional development listed in the survey. These results are similar to previous research that teachers' preferences for the form of professional development varied by subject area (Boyle et al., 2005), and that attitudes toward professional development varied by subject area (Torff & Byrnes, 2011).

A key structural feature of the four most highly rated forms of professional development (sharing practice, mentoring, observation of colleagues, and collaborative lesson development) is teacher collaboration. The open-ended responses to why teachers rated forms of professional development highly provided insight into the reasons that collaborative forms of professional development were preferred. By far, the most common responses were (a) practicality, (b) collaboration, and (c) meets the needs of teachers and students. Teachers claimed that working with colleagues gave them the opportunity to learn practical teaching strategies, those that work in classrooms. Sharing practice, mentoring, observation of colleagues, and collaborative lesson development all provide teachers with the time to talk with colleagues about specific problems in their practice. When teachers have the time to share with colleagues within their schools, they can discuss student needs that are specific to their classes (Erickson, Minnes Brandes, Mitchell, & Mitchell, 2005; Garet et al., 2001; Margolis, 2008).

Recent models of professional development have moved to a more collaborative approach through the use of inquiry. Expanding collaborative learning approaches has the potential to improve teacher attitudes towards literacy-related professional development. Sharing practice,

mentoring, observation of colleagues, and collaborative lesson development are all forms of professional development, which could be interwoven within an inquiry model to better meet the needs of teachers and students. With Ontario's increasingly diverse population in mind and an increasing awareness of the diversity of needs in Ontario, a school-based collaborative inquiry model would assist teachers in meeting needs particular to individual schools and students. This could be of particular importance in better meeting the needs of diverse students, including First Nations, Métis, Inuit, and English as a Second Language learners.

### **Content: Meeting a Variety of Needs**

Open-type courses were by far the most commonly listed as ones in which teachers identified a need. The diverse literacy abilities in Open-type courses, which serve students from many pathways was a particular challenge to teachers. Implementation of aspects of differentiating instruction may be one way to meet the needs of diverse learners. Teachers' concerns about meeting a wide variety of literacy needs suggests that they would be responsive to professional development that enabled them to differentiate their literacy instruction.

Meeting this need would be no small challenge for professional development providers. School boards must recognize and value the importance of strong leadership in literacy. Individuals in support positions need to have a strong background in meeting the needs of a wide variety of learners. Demonstrated experience in meeting the needs of ESL learners, First Nations, Métis, and Inuit learners, and students with special needs within the context of inclusive classrooms such as Open-type classes and classes for all pathways, is critical. Using an inquiry-based model instead of a traditional top-down professional development model necessitates that professional development leaders are individuals with strong backgrounds in literacy and the ability to support colleagues in diverse teaching situations. Strong interpersonal skills are essential so that they can work collaboratively in fostering inquiry-based literacy-related professional development among a school team. The Ministry of Education and School Board Administrators at all levels have a role in ensuring that literacy-related professional development meets the needs of all teachers.

### **Trends in Math, Science, and Technology Responses**

Compared to other subject area groupings, a higher number of Science, Math, and Technology teachers wanted no literacy-related professional development and of those who wanted professional development, a lower number wanted professional development of longer durations. In addition, Science, Math, and Technology teachers also tended to rate the various forms of professional development included in the survey less positively than teachers in other subject-area groupings. A variety of reasons could account for this result. Teachers of Science, Math, and Technology may prefer professional development in areas other than literacy, such as numeracy. They may have experienced previous literacy-related professional development that did not address specific literacies essential in their fields (Jewett, 2013; Shanahan & Shanahan, 2008; Siebert & Draper, 2008), or previous professional developers may have promoted questionable teaching practices (Siebert & Draper, 2008).

Numeracy, as was pointed out by one teacher of Technology, plays a fundamental role in the subject areas of Science, Math, and Technology. Because all of the questions in the survey related specifically to literacy, including the form question, it could simply be that Science,

Math, and Technology teachers would prefer professional development in areas other than literacy. Thus, teachers of Science, Math, and Technology may prefer some forms of professional development but rated them low because they are not interested in participating in literacy-related professional development.

Messages to subject area teachers about literacy tend to neglect, de-emphasize, or misrepresent the literacies used in Math (Jewett, 2013; Shanahan & Shanahan 2008; Siebert & Draper, 2008). Siebert and Draper (2008) examined documents written to support teachers in implementing subject area literacy strategies. In these documents, the terms reading and writing tended to refer to traditional print material in the form of continuous prose. However, Math teachers, in addition to words, use many other symbol systems to communicate meaning, such as graphs, diagrams, tables, and algebraic symbols. They need to be able to support students in reading and writing these forms of texts. Teachers of Science and Technology also use graphs, diagrams, tables, and symbols to represent concepts in their respective disciplines. For example, teachers of Science use a variety of symbols to represent atomic structure and students are required to use the Periodic Table as a symbol system. It could be that teachers of Math, Science, and Technology would respond more positively to literacy-related professional development if the content more closely reflected the multitudes of literacies essential in those fields.

Shanahan and Shanahan (2008) found that Math, Chemistry, and History teachers used different comprehension strategies for making sense of texts in their respective disciplines; math teachers used re-reading and close reading, chemistry teachers used transforming information from one form to another (diagrams to visualizations to formulae, etc.), and history teachers tended to focus on the author's purpose. Mathematicians need to read math texts closely, paying attention to every word in order to comprehend those texts. Scientists need to be able to picture experiments and results visually while they are reading in order to fully comprehend authentic science texts. Understanding an author's purpose provides historians with a key tool needed to evaluate texts in that discipline. Notably, secondary teachers in each of these disciplines supported reading instruction strategies that encouraged students to think about texts in ways commensurate with the reading strategies actually necessary to comprehend in each of these disciplines (Shanahan & Shanahan, 2008). One could speculate that the literacy-related professional development that the Math, Science, and Technology teachers in this study encountered previously did not provide such discipline-specific learning.

Moreover, some Math teachers have been encouraged to incorporate the reading of fictional novels, with math content, into their practice (Siebert & Draper, 2008). Siebert and Draper noted that there is usually little math content in these fiction texts, they tend to lack substance in regard to meeting course expectations and do not adequately support students in developing their ability to read and write mathematically. This sends the message that Math literacy is related to reading and writing traditional prose instead of focusing on a broader definition of Math literacy, which might include the role that symbol systems play in math literacy.

It could be that teachers of English have had more positive prior experiences in literacy-related professional development. Professional development presenters in literacy tend to be teachers of English, and it could be that they can provide stronger professional development for English teachers than for teachers in other subject areas. Teachers of Science, Math, and Technology may have encountered workshop experiences that did not meet their needs in sessions facilitated by an English teacher.

## Limitations

One limitation of the study is the lack of triangulation. Obtaining interview data would have provided a stronger evidence base. The validity of the survey was a possible limitation; to minimize this, the survey's structure and content was based upon existing research. Additionally, the survey was tested on several teacher volunteers, who provided feedback that improved the clarity of some survey items. The self-selection of participants may have been a limitation; as those who participated may have been more interested in literacy-related professional development than teachers who chose not to participate. Participation rates varied between subject areas and thus, less data were gathered from teachers in certain subject areas.

The population sampled was the population of secondary teachers in one school board in Ontario. Care must be taken when applying the findings of this research in other contexts. This research was cross-sectional and was a snapshot of the self-perceived literacy needs of teachers at the time of survey completion.

## Conclusion

Teachers of different subject areas and pathways had varying preferences for form, content, and duration of professional development. Designers of professional development would be well advised to take into account the needs of teachers of different disciplines when creating professional development opportunities. It may be the case that the 14.4% of the teachers who stated they did not want any literacy-related professional development and who were not included in the data analysis, is another indication that too frequently literacy-related professional development is generic. Teacher consultation offers a means of incorporating teachers' existing knowledge and interests into professional development planning.

Given that teachers preferred collaboration with other teachers to any other form of professional development establishing this as the core principle in designing literacy-related professional development opportunities for teachers has the potential to enhance teachers' participation, satisfaction, and engagement in learning. Teacher participation and engagement in focussed professional development that meets their needs is more likely to lead to their implementation of instructional practices that enhance student learning.

## Acknowledgements

We would like to thank the participating School Board, and the teachers involved in the study.

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