

From Applied to Applause

**An OSSTF sponsored study
on improving success for
Applied level students**



by Fabrizio Antonelli
from the Ontario Institute of
Studies in Education at the
University of Toronto (OISE/UT)



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student success in Applied level courses

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Ontario Secondary School Teachers' Federation
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Background and Acknowledgements

Ever since the introduction of the new secondary curriculum in 1999, OSSTF has been concerned that students taking Applied level courses are at risk of failing to graduate. In a special feature in the newsletter *OSSTF Update* in January 1999, the lack of a distinction between Academic and Applied courses and the failure to provide for “basic level” students was prominently noted. Concerns about Applied level courses and students at risk continued to mount as each year of the new curriculum unfolded. Our fears were verified by Dr. Alan King in his double cohort study of 2002, referenced in this report. The OSSTF annual meeting in 2003 decided to take action on behalf of our students and approved a research project that would not only identify specific reasons for the problems faced by Applied level students, but would also suggest solutions.

A project team was assembled. It included OSSTF staff members Rosemary Clark and Doug Little, under the direction of Vice Presidents Ken Coran and Sherry Rosner. We hired a researcher, doctoral candidate Fabrizio Antonelli of the Ontario Institute for Studies in Education, University of Toronto (OISE/UT). An advisory board of Dr. David Livingstone, director of the Centre for the Study of Education and Work at OISE/UT; Dr. Robert Macmillan of the University of Western Ontario; and Dr. Harry Smaller of York University met to provide direction to the research design and develop the survey instrument. OSSTF would like to thank the advisory board for their invaluable advice and expert guidance. Krystina Faria input the survey data, Tanya La Rush and Linda French provided secretarial assistance, Rosemary Clark edited the manuscript, and Ronda Earle designed the cover. OSSTF is especially grateful to our researcher Fabrizio Antonelli for his thorough research and insight into the problems faced by students and educators alike.

The project collected both quantitative and qualitative data. A questionnaire was administered to a large sample of the OSSTF membership, including teachers who teach Applied level classes, and support staff members who provide services as social workers, psychologists, attendance counsellors and educational assistants. In addition, key subject areas were identified and specific suggestions requested for curriculum changes needed in core academic subjects at the Grade 9 and 10 Applied level.

Curriculum leaders in three compulsory subject areas accepted our challenge: English, mathematics and history. The following members participated in the writing of these reports: Mike Bowman and Jack MacFadden (history); Noel Lim and Tamar Stein (English), and Gord Doctorow, Marsha Melnik, Susan Hudson, and Peter Wei (mathematics). OSSTF gratefully acknowledges the effort and thoughtfulness of these members who so ably synthesized the feelings of classroom teachers across this province into recommendations that hopefully, can be put into effect in a revitalized curriculum that will ensure success for all students in Ontario.

Rhonda Kimberley-Young, President, OSSTF

PART A: Results of the Membership Survey

Introduction

“If I knew, I could make a fortune.”

R153: Response of Full-time Teacher, 22 Years Experience to question asking for solutions to increase student success rate in the Applied stream.

The success rate for Grade 9 and 10 students has dropped drastically in recent years. More specifically, students in the Applied stream have failed to achieve the same level of success with the new curriculum compared with students in the academic stream (King, 2002). Once again, the controversial topic of “streaming”, or “tracking” as Americans refer to it, has surfaced in Ontario with no easy answers to the problem on the horizon. It is unclear, however, as to whether “streaming” is the culprit for the high failure rates among Applied students or if it is the way that the tracks are organized and supported that poses obstacles to student success in the Applied stream. This paper will present findings pointing to the latter argument, citing current classroom compositions, class sizes and a lack of support mechanisms for teachers and students as the primary reasons for high failure rates in the Applied stream.

Dr. Alan King’s studies (2002; 2004) highlight the problems of current stream placements in secondary schools. It is unclear from the studies, however, what the culprits might be for high failure rates in the Applied stream. It is reported in Ontario that roughly 65% of Applied students will not have completed 16 credits by the end of Grade 10 (King, 2002, vi). As well, failure rates in Applied classes are far greater than in Academic classes – especially in mathematics and science. In fact, King found that nearly 60% of Grade 10 students in Applied mathematics during the year of his study obtained a mark of 59% or less (King, 2002, vi). For many students in the Applied stream, high failure rates present difficulties in their academic career; for example graduating in four years or taking courses of interest, such as cooperative education (King, 2002, viii). Classes that students fail often have to be repeated, reducing the number of elective courses they can take, or prohibiting students from enrolling in other courses because of a lack of prerequisite credits. These problems affect both their academic careers in high school and their careers after graduation.

This study builds upon Dr. Alan King’s studies (2002, 2004). OSSTF asked a selection of teachers, Educational Assistants (EA) and Professional Student Services Personnel (PSSP) members in Ontario’s public secondary schools their views on why Applied students are having problems with the new curriculum. It was hoped that through their experiences in the classroom, these front-line educators would provide solutions that not only benefit students, but also those who work in education. This paper will only attempt to assess teacher attitudes on the topic with the intention of presenting these findings as possible grounds for school reforms. It is the intention of this study to present the findings as an indicator of the struggles that teachers face when teaching in the Applied stream and not to claim the results as universal to the teaching profession. It is hoped that understanding the obstacles faced by teachers can lead to reforms in

the curriculum and the school practices surrounding the delivery of the Applied curriculum.

Organization of the Study

In the spring of 2004, separate questionnaires were designed for this study by the advisory board for teachers and support staff members. These are attached as Appendix 1 (Teacher Survey) and Appendix 2 (EA/PSSP Survey).

It was decided to sample 2100 OSSTF members, approximately 1600 teachers and approximately 500 support staff members from EA and PSSP units. Instead of mailing individual surveys to a random membership sample, it was decided to send them out in groups with a covering explanatory memo to the president of the bargaining unit concerned. Each president was personally telephoned to urge them to promote the project and ask members to complete the surveys and return them to the OSSTF local office for forwarding to provincial office. It was anticipated that each local president would select appropriate schools to be given the teacher survey, and appropriate ways of distributing the survey to PSSP or EA members who work with secondary students. The surveys were sent out in late April, 2004 with a return date set for the end of May, although returns were accepted into the summer.

District and Name	# teacher surveys sent	# EA/PSSP surveys sent
1 - Ontario North East	100	
6A – Thunder Bay	50	50
9 – Greater Essex	100	80
11 – Thames Valley	100	40
12 – Toronto	200	100
13 – Durham	100	
16 – York Region	300	
17 – Simcoe	100	
18 – Upper Grand		70
19 – Peel	200	
21 – Hamilton Wentworth	100	30
22 – Niagara	100	
23 – Grand Erie		20
24 – Waterloo	100	
25 – Ottawa Carleton	100	90
26 – Upper Canada		20
29 – Hastings Prince Edward	100	
Total surveys sent	1650	500

The data set for teachers contained a sample size of 784. Of the 784 teacher respondents, 43.3% were male and 55.7% were female with an average teaching experience of 13.61 years. This is consistent with the gender and experience profile of the OSSTF teacher membership. A large portion of respondents were full-time teachers (83.2%) with most working in either an academic (47.2%) or composite (47.9%) school and in a semestered system (95.9%). The school locations varied with 21.2% located in inner cities, 16.9% located in metropolitan areas, 18.0% located in the suburban areas, 33.6% located in smaller cities or large towns, and 10.3% located in rural areas.

The data set of returns from the PSSP survey had a sample size ($N = 98$) - too small to perform any significant analysis regarding obstacles to Applied level learning. Many did not feel able to complete the survey because they did not specifically work with Applied Grade 9 or 10 students in early 2004. The results from this survey including written comments, however, will appear in this paper. Instead of combining the two data sets, we felt it would be best to compare some of the obstacle rankings and written comments with those of teachers. Rather than ignore the results of the EA/PSSP survey, analysis of the data should provide some interesting comparisons and provide some direction for improving Applied student performance.

Obstacles to Student Success

Thematically, this paper is organized around some of the issues facing teachers, educational workers and students in Applied level classrooms. A list of 25 potential obstacles to student success were presented to respondents who were given the opportunity to rate the significance of each obstacle to their daily teaching experiences and with student learning. Teachers and PSSP members rated each obstacle using a five-point scale. A score of five indicated a “severe obstacle” to learning in the Applied stream while a score of one indicated that the factor was “not an obstacle at all.” As well, respondents were allowed to provide in written form what they believed were key solutions for increasing student success in the Applied stream. The obstacles were then rated based upon their mean scores and coupled with respondents’ written comments to determine the categories for discussion. Selected written comments and proposed solutions are included in each section of this report.

Table 1
Obstacle Rankings For Teacher Respondents

Obstacle	N	Mean	SD
Behavioural Issues	736	4.17	.913
Different Learning Levels Combined in Class	716	4.03	1.120
Class Size Too Large	727	4.01	1.223
Lack of Parental Support	728	3.91	1.004
Lack of Prep For Students in Lower Grades	704	3.71	1.164
Too Many Expectations in Course	719	3.65	1.183
Peer Pressure	727	3.51	1.060
Courses Not Relevant	716	3.47	1.182
Availability of School Resources	730	3.42	1.243
Suitability of School Resources	730	3.30	1.209
Lack of Support Staff	710	3.29	1.329
Lack of Preparation Time for Teachers	723	3.29	1.274
Applied Courses Too Difficult	685	3.28	1.244
Curriculum Does Not Allow for Different Learning Styles	711	3.17	1.195
Student of Family Poverty	708	3.16	1.056
Lack of Professional Support Staff	593	3.03	1.256
Time Restraints of Class/Course	722	2.95	1.305
Assessment Policy	704	2.84	1.264
Not Enough Learning Levels in Grade 9 and 10	668	2.83	1.306
Not Enough Leeway for Teachers to Assess	705	2.80	1.244
Lack of Support From Community	678	2.76	1.178
Too Many Compulsory Courses	688	2.66	1.290
Language Barriers With Students	691	2.63	1.372
Too Much Streaming	669	2.53	1.266
School in Remote Location	405	1.78	1.137

Table 2
Obstacle Rankings For EA/PSSP Respondents

Obstacle	N	Mean	SD
Behavioural Issues	66	4.29	.973
Different Learning Levels Combined in Class	64	4.20	1.057
Lack of Support Staff	65	4.06	1.197
Class Size Too Large	64	3.92	1.186
Lack of Professional Support Staff	59	3.83	1.117
Not Enough Learning Levels in Grade 9 and 10	57	3.77	1.102
Peer Pressure	63	3.75	1.047
Applied Courses Too Difficult	59	3.69	1.133
Lack of Parental Support	67	3.67	1.036
Suitability of School Resources	66	3.65	1.074
Curriculum Does Not Allow for Different Learning Styles	61	3.62	1.113
Availability of School Resources	65	3.62	1.208
Lack of Prep For Students in Lower Grades	56	3.61	1.289
Too Many Expectations in Course	57	3.51	1.104
Courses Not Relevant	60	3.47	1.096
Not Enough Leeway for Teachers to Assess	53	3.38	1.004
Too Much Streaming	55	3.33	1.233
Assessment Policy	55	3.16	1.102
Too Many Compulsory Courses	58	3.10	1.087
Time Restraints of Class/Course	62	3.10	1.082
Student of Family Poverty	63	3.10	1.058
Lack of Preparation Time for Teachers	57	2.91	1.286
Lack of Support From Community	62	2.74	1.144
Language Barriers With Students	58	2.33	1.316
School in Remote Location	39	2.00	1.051

The categories are listed as follows in descending order of respondents' mean scores on the rating scale mentioned above: Behavioural Issues; Combined Learning Levels; Class Size; Lack of Support; Lack of Preparation for Students in Lower Grades; Problems With Curriculum; and Lack of Resources. Each category will be discussed individually followed with a discussion of the relationship each obstacle has to one another and possible solutions to the problems raised by respondents.

Behavioural Issues

Teachers and PSSP members cited behavioural issues as the biggest obstacle to teaching in the Applied stream. The behavioural issues raised by respondents in their written responses ranged from isolated outbursts in the classroom caused by boredom to systemic and chronic behavioural issues brought about by incorrect student placement, lack of support from administration, and the high number of identified or "at risk" students placed in Applied classrooms. It is important to note here that many of the respondents linked the behavioural problems they experienced with students to some other problem in the classroom. For example, one respondent linked the behavioural problems she faced in the Applied stream with large class sizes:

"The cap for an Applied class should be 20 students. These students typically need more one-on-one and this is virtually impossible in a large classroom where a tremendous amount of time needs to be spent on policing the classroom."

R340: Part-time teacher, 13 years experience.

It seems like the problem with this Applied classroom is linked to the difficulty of keeping control of a large classroom.

What could be compounding the problem is that many teachers reported Applied students need more individual time with the teacher to complete the assigned work. Larger classroom sizes without extra support from EAs could lead to more students becoming frustrated with the work and not receiving the help they desire. In this situation it becomes clear that some students may become disruptive causing problems for the teacher who must now spend even more time “policing the classroom” and less time with students on an individual basis.

This is just one example of the many ways teachers linked behavioural issues with other issues in the classroom. Rarely did teachers cite students in the Applied stream to be behavioural problems through some sort of inherent quality. **Because of this, I must caution that the high ranking of “Behavioural Issues” as a potential learning obstacle may in fact be a symptom rather than a cause of poor student performance in the Applied stream.** In other words, it could be that the behavioural problems might diminish if the other obstacles facing Applied students are addressed. I will, therefore, proceed with caution on the topic of behavioural issues in the Applied stream and encourage the reader to do likewise.

The study of ability “streaming” often involves an examination of the stigmatizing problems faced by students in lower academic levels. For example, Kubitschek and Hallinan (1998) performed a study of students’ friendships and streaming. Not surprisingly, the authors concluded that stream placement played a large role in determining the friendships students developed. Factors like propinquity, similarity, and status, were key determinants for establishing friendships in high school (Kubitschek and Hallinan, 1998, 14). A student on a school sports team, for example, would have proximity with other teammates during practice and games, would share a similar interest (the sport they are playing), and a similar status level in the school. Similarly, lower learning level students experience propinquity, similarity, and status to friends from the same academic stream (Kubitschek and Hallinan, 1998, 14).

The fear that exists when low-achieving academic students identify with one another is that the status level they obtain within the school is one that is demoralizing and alienating. “Pupils in low streams tend to be labelled as slow or difficult and these descriptions can become self-fulfilling propheciesLow ability classes tend to be characterized by more angry, hostile interactions” (Ireson et al., 1999, 2). It could be argued that the behavioural problems students and teachers experience within the Applied classroom could be a product of a stigmatization that leaves students frustrated and playing out the disruptive role that is expected of them. This study will not probe the causes of behavioural problems within the classroom, instead it will simply report on the way behavioural issues affect the way teachers teach and students learn.

As mentioned earlier, respondents were given a list of 25 potential obstacles to Applied level student learning. Respondents were asked to rate the obstacle on a five point scale with a response of five indicating a “severe obstacle” and one indicating that the factor was “not an obstacle at all.” If we use mean scores to rank the obstacles,

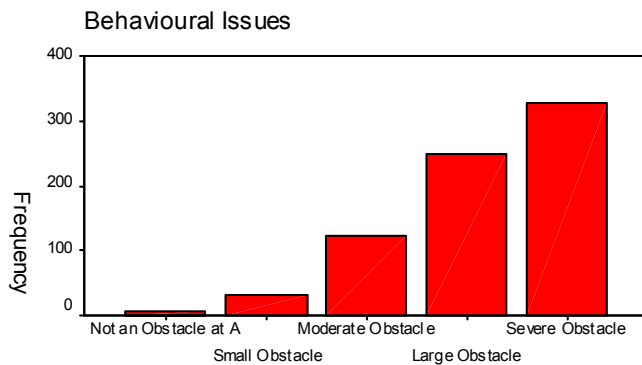
respondents rated “behavioural issues” as the number one obstacle to student learning in the Applied stream.

Table 3
Teacher Response to Behavioural Issues as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	6	.8	.8
<i>Small Obstacle</i>	32	4.3	5.2
<i>Moderate Obstacle</i>	123	16.7	21.9
<i>Large Obstacle</i>	247	33.6	55.4
<i>Severe Obstacle</i>	328	44.6	100.0
Total	736	100.0	

Chart 1

Obstacle Frequency Chart



The results above indicate that 44.6% of respondents believe that behavioural issues are a severe obstacle to Applied level learning. If we combine the values of those who responded with either a four or five to form one group who view behavioural issues as an obstacle, treat those respondents who selected three on the question as being undecided on the issue, and those who selected one or two as a group that feels behavioural issues are not an obstacle, we see a striking difference between groups. Seventy-eight percent of respondents selected either four or five on the question of behavioural issues being an obstruction to learning in the Applied stream, while only 5.1% of respondents did not think that behavioural issues were a problem.

The teachers’ written responses on increasing student success in the Applied stream support the numeric data. Some of the responses were as follows:

“...bad behaviour of some drastically reduces the learning that can occur in a class.”

R128: Full-time teacher, 29 years experience

“Small classes in which behavioural students cannot influence the true Applied students.”

R135: Full-time teacher, three years experience

“There needs to be more support from administration regarding class sizes and behavioural problems. It is a shame that a few students can destroy a positive learning environment for the entire class, perhaps smaller class sizes is the key.”

R241: Full-time teacher, 17 years experience

“A large number of Grade 9 and 10 Applied students do not have a plan, therefore they fall into the social scene and do not worry about wasting time. As they waste time, they do not complete assignments, get further behind, they develop a ‘give-up mindset.’ They then become discipline problems and become very good at being very bad.”

R253: Guidance teacher, 36 years experience

Most of the respondents tied the poor behaviour to other factors in the school or classroom. As mentioned earlier, most of the respondents did not see poor behaviour within the classroom as a product of something inherent within the student, however, respondents did express some concern that students with behavioural problems would disturb the learning process or provide a poor role model for other students. Many respondents believed that an increase in support from administration and EAs could help alleviate behavioural problems in the classroom. As well, respondents cited problems with class size and class composition as factors contributing to poor behaviour and poor student performance in the Applied stream. As mentioned earlier, the behavioural issues teachers face in the classroom appear to be a symptom of poor performance in the Applied stream rather than a root cause. Thus, it would be prudent if we switch our attention from behavioural issues to some of the other obstacles mentioned by respondents to Applied level learning.

Combined Learning Levels

After a brief review of the literature, it appears that streaming is counterproductive for students in lower academic streams (Curtis, Livingstone, and Smaller, 1992; Hallinan, 1994, 1999, 2000; Ireson, et. al., 1999; Ansalone, 2003). Although certainly not an exhaustive review of the literature, for the most part, articles pointing out the merits of streaming point out benefits only to higher achieving academic students (Zimmer, 2003), and to teachers with respect to the organization of the classroom and the delivery of course material (Rosenbaum, 2000). Most studies fail to produce evidence showing streaming as a benefit to the academic performance of lower achieving students. For the most part, the literature portrays the practice of streaming as both counterproductive to student achievement and as a potential cause for reproducing social inequities (Curtis, Livingstone, and Smaller, 1992; Lucas and Berends, 2002; Ansalone, 2003). The literature also points to the problem of negative peer socialization placing low achieving students at risk for developing poor classroom and study habits (Kubitschek and Hallinan, 1998).

It is not the intent of this study to examine the potential that streaming has for perpetuating social inequities, however, it is important to keep in mind that streaming in secondary schools produces the possibility for students to be streamed along socioeconomic or racial lines to the detriment of working class students and students of visible minorities (Curtis, Livingstone, and Smaller, 1992; Lucas, 2001; Lucas and Berends, 2002; Ansalone, 2003).

Keeping all this in mind, however, OSSTF respondents rated “combined learning levels” as a major obstacle to Applied level learning. This is consistent with previous OSSTF membership surveys on the issue of streaming. For example, in the *Impact 2000* study (OSSTF, 2000) that surveyed 1400 members on the impact of the new secondary education reforms, 54% identified the return to streaming as a positive initiative. Similarly, in 1994-95, OSSTF surveyed 2900 teachers who had taught destreamed classes in 1993-94, and 84% strongly disagreed that destreaming allowed them to give more individual attention to students. (OSSTF, 1995).

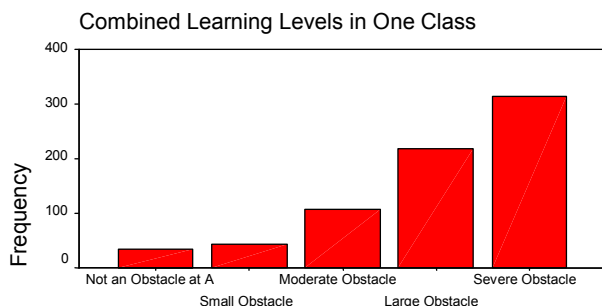
Over 43% of *Applied to Applause* respondents felt that having different learning levels within the classroom posed a severe obstacle to Applied level learning (see table below). What are worthy of investigation are the forms the combined class takes and the supports within the classroom that make learning possible.

Table 4
Teacher Response to Different Learning Levels Combined in Class as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	34	4.7	4.7
<i>Small Obstacle</i>	43	6.0	10.8
<i>Moderate Obstacle</i>	107	14.9	25.7
<i>Large Obstacle</i>	219	30.6	56.3
<i>Severe Obstacle</i>	313	43.7	100.0
Total	716	100.0	

Chart 2

Obstacle Frequency Chart



Teachers, for the most part, reported difficulty teaching classes comprised of students from different learning levels. If a teacher is working alone or is dealing with a large number of students, it becomes difficult to address the needs of each student especially if students are operating on different academic levels. If the teacher teaches at the level

of the higher achieving students, the lower-level students become frustrated with the difficult tasks at hand. Conversely, if the teacher attempts to teach at the level of the lower achieving students, the higher-level students become bored with the material and tend to lose interest in the task at hand. What often takes place is that teachers will teach to an “imaginary average” pupil (Ireson, et al., 1999) or will teach down the middle of the class – teach to the average ability of the classroom (Rosenbaum, 2000). The problem with these approaches is that students at the extremes of the academic spectrum become frustrated with the level of instruction. This was a common concern raised by respondents when asked to provide a solution to the problems facing Applied level students.

“Too many learning difficulties in a large class impede students’ success and learning.”

R203: Part-time teacher, 1 year experience

“Having students taking appropriate courses. The Applied course in Grade 9 math is fine if Applied level students only took the course. Many students from elementary schools with severely modified programs are taking Grade 9 math. They are really functioning at about a Grade 6 level! Having classes combined with students who have no desire of coping in the course leads to a poor classroom-learning atmosphere.”

R349: Full-time teacher, 33 years experience

“I think there is a need for a third stream earlier on. Later it is Workplace, College, University (+Open) but the Applied is too much all together. Applied students go to Workplace mostly, but many want to go to College programs and later switch back and do poorly. It is impossible to cover College preparation type Applied curriculum with mixed classes in 9 and 10.”

R478: Part-time teacher, 16 years experience

“I am in a class of 34. There can be 10 repeaters and six or eight identified students - too many students at too many levels for one teacher with impossible expectations.”

R489: Full-time teacher, 26 years experience

It is clear that respondents were not happy with teaching classes with combined learning levels, however, it must be noted that, similar to teaching a class with behavioural issues, the combined learning level obstacle was often tied to another obstacle. For example, Respondent 489’s comment above connects the difficulty of teaching a combined level class to class size. Often respondents tied the obstacle of combined learning levels with class size and a lack of educational support.

This may explain why respondents rated “Not Enough Learning Levels at the Grade 9 and 10 Level” 19th on a list of 25 potential obstacles. Only 13.5% of respondents feel “not enough learning levels” to be a severe obstacle compared to 19.5% of respondents who did not think that it was an obstacle at all. On the whole, without class size and educational support issues being addressed, respondents may feel that increasing the streaming at the Grade 9 and 10 level will not solve the problems associated with teaching varied learning levels within the Applied stream. It could be argued, therefore,

that the survey reveals that teachers are not necessarily calling for an increase in streaming to ease the task of teaching combined level classrooms. Instead, it seems that respondents are asking for an increase in educational support to assist teachers in the classroom, or a decrease in the total number of students within the Applied classroom.

Class Size

As mentioned earlier, class size has an effect on many variables. The teacher and EA/PSSP written responses point to large class sizes exacerbating behavioural issues with students and the problems associated with teaching mixed ability classrooms. Larger classrooms present teachers with classroom management problems and a greater chance for wide variations in student abilities, while depriving teachers of the opportunity to work on an individual basis with students who need the extra attention and time. In the Applied level these problems are magnified. Students who are frustrated with difficult tasks or simply require more individual help with assignments tend to become behavioural issues if the desired one-on-one help is not available. As well, respondents cited the problem that too many “at risk” or “behavioural” students are placed in Applied classrooms simply because no other place exists for these students. Too many students with behavioural issues in a classroom without a professional support staff member to assist the teacher, can lead to a disruptive classroom learning environment making it difficult for others in the classroom to complete the tasks at hand.

“These kids need three times the teacher time as regular students. A class of 23 kids is way too large. The kids do not get my help when they need it because they have to wait until I answer six questions before theirs.”

R613: Occasional teacher, six years experience

“Actually hold to the classroom size guidelines! Give me a chance to work with each kid one-on-one. Twenty-eight to 30 (where the 4C class sizes start) is too big to have an impact.”

R638: Full-time teacher, four years experience

“Class size was large in Grades 9 and 10; hence a large number of repeaters and IEP students, consequently giving daily attention was very limited. Behavioral issues could have been addressed with more effectiveness if the class sizes were reduced. With a large number it becomes more of a survival issue. The Grade 11 workplace was much better because of having only 10 students. Individual help was more easily done and the working environment much more conducive to working and learning.

R704: Full-time teacher, 29 years experience

The final comment aptly summarizes the frustrations that many teachers experience with large class sizes. As mentioned earlier, many respondents tied the obstacle of large class sizes to many other teaching obstacles. Also, in the written response portion of the survey where respondents were asked to identify obstacles to teaching Applied level students, class size would appear either on its own or as the first obstacle mentioned. Often, respondents would simply write the words “class size” with no further explanation, feeling that it would be inherently understood by the reader.

The Relationship Between Class Size and Student Success

For this portion of the study we were able to investigate the relationship between classroom size and student performance. Only teachers were asked to provide statistical information on average class size and pass rates for Grade 9 and 10 Applied, Academic, and Open level classrooms. PSSP and EA member responses were not included in this portion of the analysis simply because they are normally not responsible for marking student performance, nor are they necessarily assigned to a specific set of classes. Thus, it would be impossible to arrive at an average classroom size and pass rate for PSSP members.

The average classroom size variable for each teacher and learning level was calculated by dividing the total number of students for each respondent in each learning stream at the Grade 9 and 10 level by the number of classes each respondent taught in the three learning levels. The pass rate for each respondent was calculated by dividing the number of students expected to pass at each learning level by the total number of students the respondents taught in each learning stream and multiplying that number by 100. At this point it must be stated that the pass rate for each teacher at each learning level is only an estimate and not an exact percentage. Because the surveys were completed prior to the conclusion of the school year, teachers had to guess at the number of students that would pass the course and could not provide a precise number. As well, the data does not include those students who were removed from the roll prior to the administration of the survey. Thus, it is quite possible that the pass rates are conservative in their estimates.

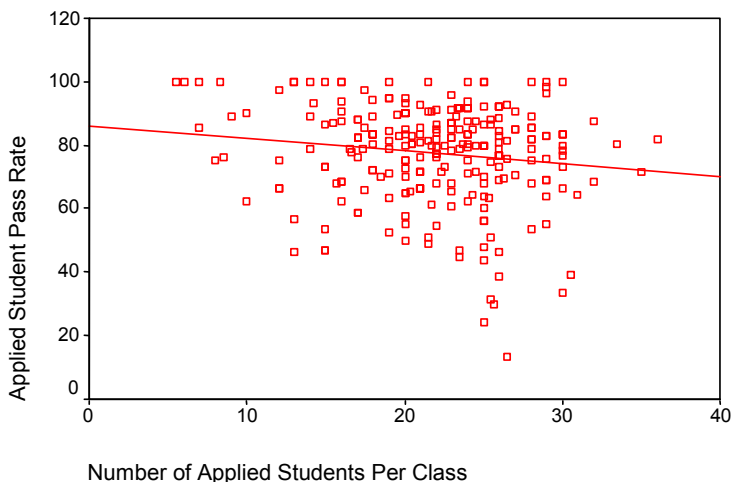
For each learning level, a regression analysis was performed looking at the effects of class size on pass rates. The Applied stream had an average class size of 21.89 students and an average pass rate (average number of students who will pass the course) of 77.38%. There appears to be a significant, although only slight, correlation between a respondent’s average Applied class size and the respondent’s reported Applied pass rate. **As the respondent’s Applied class size increases the respondent’s Applied pass rate declines.** The relationship was not strong with an r value of .142, thus, only 2% of the variance in Applied pass rates can be explained by the average Applied classroom size. The regression equation for predicting the respondent’s pass rate for Applied students is:

$$\text{Predicted Applied Pass Rate} = 86.22 + \text{Applied Class Size} (-0.40)$$

The 95% confidence interval for the slope, -.758 to -.049, does not contain the value of zero and can, therefore, be determined statistically significant at the .05 level.

Regression Line - Applied Student Pass Rate

and Average Number of Applied Students



If we include the location of the school as a variable, we see that the location where the teacher instructs Applied students also has an effect on the respondent’s pass rate. The “location” variable was recoded into a dummy variable of schools located in the metropolitan areas or inner cities and schools from suburban, small towns or cities, rural, or remote areas. Thirty-five percent of respondents were from either metropolitan area or inner city schools, while 65% of respondents were from suburban, small towns or cities, rural, or remote areas. The new regression equation for predicting Applied pass rates for the respondents is:

$$\text{Predicted Applied Pass Rate} = 84.31 + \text{Applied Class Size} (-0.46) + \text{Location of School} (4.75)$$

The 95% confidence interval for the Applied class size slope, -0.81 to -0.10, and the location of the school slope, 0.70 and 8.80, do not contain the value of zero and can, therefore, be determined statistically significant at the .05 level. The strength of this relationship was stronger than the original relationship, which did not include location as a factor, accounting for 4.1% of the variation in Applied pass rate scores.

The regression equations point to class size as having an effect on the pass rates for Applied level students. Increasing class size for Applied level teachers seems to increase the predicted failure rate score for the respondent. For example, a teacher with an average Applied classroom of 25 students could expect a pass rate of 72.81% (18.12 students passing) in an urban centre, and 77.56% (19.39 students passing) if they were teaching that class in a suburban or rural setting. Although Applied class size combined with the location of the school accounts for only 4% of the variance in predicted Applied pass rates, the relationship is statistically significant and worthy of further investigation. If the testimonies of respondents are accurate, a large Applied class, especially in a big city, presents challenges to learning that are not present in other learning streams. It may be prudent, therefore, to keep classroom sizes in the Applied stream to lower

numbers where teachers can work closely with students who may require more one-on-one learning opportunities.

The data analysis of the Open level pass rates with relation to class size was found to be insignificant at the .05 level. The average Open student pass rate was 88.97% while the average class size was 23.02 students per class. A linear regression analysis was performed to evaluate the predicted Open student pass rate. The insignificant relationship $F(1, 198) = 1.32, p = .25$ between the Open student pass rate and average Open class size indicates that for these respondents, class size did not seem to impact upon student performance in the Open stream. Caution must be taken, however, when interpreting these results as the sample size was small ($n = 199$) and specific subjects were not identified for analysis. Most Open courses are in subjects such as physical education and the arts. Further research should be conducted to determine if the Open stream is able to operate successfully with comparatively larger classroom sizes to that of the Applied stream.

The Academic stream produced similar results to the Open stream regarding the relationship between classroom size and pass rates. The average Academic pass rate was 89.37% while the average class size was 25.14 students per class. The relationship between Academic class size and Academic pass rates was found to be insignificant $F(1,241) = .33, p = .57$.

Although these results need further investigation, there appears to be evidence demonstrating that class size is currently an important issue for Applied level learning. It can be argued that Applied classroom sizes, albeit smaller than both the Open and Academic streams, should be lowered further to increase student success.

When other factors (years of experience, type and organization of the school, and number of identified students) were examined for correlations with pass rates of all streams, there appeared to be no statistically significant relationships. The sample size for some of these was so small, especially with respect to the number of identified students, that no significant relationship could be found.

Table 5
Teacher Response to Class Size as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
Not At All An Obstacle	47	6.5	6.5
<i>Small Obstacle</i>	55	7.6	14.0
<i>Moderate Obstacle</i>	92	12.7	26.7
<i>Large Obstacle</i>	182	25.0	51.7
<i>Severe Obstacle</i>	351	48.3	100.0
Total	727	100.0	

The table above indicates that 48.3% view large class sizes as a severe obstacle to Applied learning. The percentage increases to 73.3% if we combine the final two choices into a grouping of respondents who expressed some concern over classroom

size. Once again, it must be stressed that large class sizes seem to impact upon other obstacles like behavioural issues and mixed learning levels. It could be possible to lessen the severity of the previously mentioned obstacles simply by reducing class size at the Applied level. Further investigation is needed to establish data that could recommend class size caps for the Applied stream.

Lack of Support

The “Lack of Support” category could be divided into two subtopics – a lack of support staff and a lack of parental support. First, let us examine the respondents’ reaction to the perceived lack of support staff at the Applied level. The respondents who viewed the lack of support staff as either an “obstacle” or “severe obstacle” totaled 47.2%. The table below does not provide the same convincing numbers that existed in the previous categories, yet the written responses pointed to a lack of support staff as a significant obstacle to Applied level learning.

A lack of support staff has already been introduced in the previous three categories. Just like large class sizes, a lack of support staff can compound the “behavioural issues” and “combined learning levels” obstacles. As mentioned earlier, support staff personnel have the ability to help remedy behavioural issues in the classroom simply because they reduce the instructor to student ratio. As well, the expertise that support workers bring to the classroom assists teachers with students who suffer from learning disabilities that make it difficult to stay focused on the topic at hand (Spinelli, 1998). This affords teachers time to work on an individual basis with other students, or deliver the lesson to the rest of the class. Simply put, the support worker provides an “extra set of hands” in the classroom, something that is desperately needed when class sizes become too large, too diverse, and too demanding on a single teacher.

The table below presents the percentages of respondents who viewed a lack of support staff as an obstacle to Applied level learning.

Table 6
Teacher Response to a Lack of Support Staff as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	95	13.4	13.4
<i>Small Obstacle</i>	104	14.6	28.0
<i>Moderate Obstacle</i>	176	24.8	52.8
<i>Large Obstacle</i>	171	24.1	76.9
<i>Severe Obstacle</i>	164	23.1	100.0
Total	710	100.0	

The percentages are considerably smaller than previous categories with only 23.1% of respondents viewing a lack of support staff as a severe obstacle to Applied learning. Although the table percentages appear low, the written comments from respondents point towards a lack of support staff as being an key obstacle for Applied level learning.

“...extra help in the classroom helps students get more one-on-one attention and keep students on task.”

R213: Full-time teacher, three years experience

“An increase in EA support for the Applied stream would be beneficial, allowing students more individual help.”

EA R35: Educational Assistant, eight years experience

“Too many identified students in one classroom, with too many needs and not enough EAs to work with them.”

EA R43: Educational Assistant, six years experience

“More support staff and smaller class sizes to deal with the individual needs of students. Regardless of special education assessments, accommodations, IEPs etc.; without staffing and teacher opportunity to implement these strategies, they are effectively useless. There is no point in having professionals spend time and effort developing programs if there is no one to implement them!”

PSSP R55: PSSP professional, 11 years experience

Respondents viewed a lack of support staff impacting negatively upon the teacher-student ratio, and the quality of instruction Applied students received. An increase in support staff would afford educators an opportunity to work closely with students and provide opportunities for students struggling with curriculum individual help.

Teachers expressed concern over the lack of parental support for Applied level students. Specifics dealing with the reasons for the perceived lack of support were not given by respondents nor could they be obtained from the data. Although there is no way to measure in this particular study, the degree to which parents support their children in the Applied stream, understanding some of the concerns of teachers and educational workers in this area could provide some insight for further investigation.

Table 7

Teacher Response to a Lack of Parental Support as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	16	2.2	2.2
<i>Small Obstacle</i>	49	6.7	8.9
<i>Moderate Obstacle</i>	159	21.8	30.8
<i>Large Obstacle</i>	264	36.3	67.0
<i>Severe Obstacle</i>	240	33.0	100.0
Total	728	100.0	

The table above demonstrates that 33.0% of respondents viewed a lack of parental support as a severe obstacle to Applied level learning. If we combine the final two options to form a single “obstacle” percentage, we can conclude that 69.3% of respondents believe a lack of parental support to be an obstacle to Applied level learning.

“I think this starts at home, before they ever get to high school. For example, parents assigning household chores with expectations of doing a good, consistent job. Parents should expect the most and the best that their child can do.”

PSSP R22: Educational Assistant 18 years experience

“Parental support that is productive and which fosters rather than impedes student achievement is important. “

R63: Full-time teacher, 21 years experience

“More parental involvement in younger grades to encourage better work habits and social skills.”

R128: Full-time teacher, 29 years experience

“Parents who are able to supervise and enforce ‘homework time’.”

R269: Full-time teacher, five years experience

There appears to be a pattern with respondents’ comments on this issue. Most of the respondents who cited a lack of parental involvement as an obstacle to Applied learning assumed that the parents of Applied level students were not instilling a proper work ethic in their children. Three of the four written responses above mention that parents must make a better effort to instill better work habits in their children. Whether or not this is a valid claim is outside the scope of this paper. Until the subject is further investigated, one must assume that the respondents arrived at their conclusions through their experiences working with parents of Applied level students.

Lack of Preparation for Students in Lower Grades

Respondents viewed preparation in elementary grades as an obstacle to student success in Applied classes. Primarily, respondents felt that students were advanced through lower grades without achieving expected standards. Respondents also felt that students were then placed in inappropriate streams at the secondary level and went further, citing that the Applied stream is viewed as a “dumping ground” for students who do not meet the requirements for the course. Effectively, the Applied stream acts as a repository for a student population with a wide range in academic ability. Respondents felt that the Applied stream was simply used as an alternative placement track that would suit the needs of all students who were unable to meet the requirements of the Academic stream.

“Students need to be equipped to succeed in Grade 9 that is: know how to read, know multiplication tables etc. Students should not pass unless they have successfully met the expectations; e.g. cannot read in Grade 1 - stay behind and become a successful reader.”

R337: Full-time teacher, 26 years experience

“More support at lower grade levels. Students are being pushed through without adequate learning.”

R363: Full-time teacher, one year experience

“Students are coming to us from public school thinking that they do not have to hand in assignments to pass. We are having difficulty getting assignments completed and handed in.”

R521: Full-time teacher, 21 years experience

“Students should be allowed to fail in the lower grades.”

R313: Full-time teacher, three years experience

“It is apparent that students are not appropriately placed in courses when entering secondary school. If a student comes from elementary and is ill prepared for the expectations of the Applied level courses due to learning/behavioural difficulties, they have no option but to be placed in the Applied level course. As a consequence, my experience is that these students become demoralized as a result of not succeeding.”

R721: Full-time teacher, three years experience

The table below indicates that 60.9% of respondents felt that a lack of preparation for students in lower grades was either a “severe obstacle” or “obstacle” to Applied level learning.

Table 8
Teacher Response to a Lack of Preparation for Students in Lower Grades as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	34	4.8	4.8
<i>Small Obstacle</i>	81	11.5	16.3
<i>Moderate Obstacle</i>	160	22.7	39.1
<i>Large Obstacle</i>	208	29.5	68.6
<i>Severe Obstacle</i>	221	31.4	100.0
Total	704	100.0	

Once again, it is outside the scope of this paper to determine if the written comments above are accurate. They were simply presented as a sampling of respondent viewpoints on the topic of student preparation in lower grades. It is possible that related factors are at play such as students placed in inappropriate programs because a particular secondary school does not offer or promote the locally developed “Essentials” curriculum for lower-level students, or because parental or peer pressure impacted on program choices of students. In any case, further investigation is required to test the validity and accuracy of the teacher comments about lack of preparation. If the comments are deemed accurate and there is in fact a preparation problem in lower grades, recommendations for reforms to the elementary level could be formulated to remedy the problems faced by secondary teachers in the Applied level.

Curriculum Problems

This section on curriculum problems will look primarily at the content and expectations of Applied courses. Many of the respondents who cited problems with the content and expectations in the curriculum felt that Applied courses were either too difficult or not applicable to the needs of Applied students. Forty-six percent of teachers deemed the difficulty of Applied courses to be an obstacle to learning, while 58.4% believed that too many expectations in the Applied courses posed a problem in the Applied stream. Respondents felt a curriculum that promoted more hands-on or practical learning would benefit Applied students.

“Hands-on tech courses or vocational courses that count towards apprenticeship hours.”

R108: Full-time teacher, eight years experience

“More courses that suit their needs: less academic more workplace. Courses that are geared towards getting a job.”

R112: Full-time teacher, 19 years experience

“Many of my students do not find school relevant to their lives. They find the course material boring and I often struggle to engage the students’ interests.”

R200: Full-time teacher, five years experience

“The Grade 10 English applied course, according to the profile, is a simplified version of the Academic course. These students do not have the same goals as Academic students and the courses discourage them because they are not relevant to them and too hard.”

R276: Full-time teacher, seven years experience

“Start over. Eliminate heavy academic bias in favour of a curriculum that actually respects the abilities and needs of Applied level students. Right now, the curriculum does not really reflect who our students are!”

R379: Full-time teacher, nine years experience

“The students need to be interested in what they are learning. They hate reading and writing and if they have to do this in English class, it should be a novel/play relevant to their life (e.g. Melville Boys - the students love this play). I know that we cannot make everything exciting and extremely relevant, but I think we can learn what is important to them and try to make the curriculum more interesting.”

R510: Full-time teacher, four years experience

The comments above point to three specific curriculum problems with the Applied curriculum. The first is that the courses are far too advanced for the average Applied level student. Often, respondents would express concern over both the difficulty and the amount of material to cover. Teachers believed that it was difficult, sometimes impossible, to cover all the material in the specified amount of time. In order to complete the required subject material, some respondents felt that large portions of the curriculum would have to be glossed over or even ignored.

The second problem surrounding curriculum content is the way Applied students are expected to learn the material. Respondents felt the courses were simply “watered down” versions of Academic courses and did not account for the different ways Applied students learn. Many respondents called for a curriculum that is relevant to the students, and more opportunity for Applied students to learn through hands-on activities. As it stands now, teachers and PSSP members consider Applied courses to be geared too much towards academics and not towards practicality and job placement.

The final problem respondents cited with the Applied curriculum deals with expected outcomes for courses. Teachers were given the opportunity to rank in importance four desired goals for Applied courses: “Workplace Preparation,” “Life Skills Preparation,” “Personal Development,” and “Post-Secondary Preparation” (See Appendix 3).

Interestingly, teachers rated “Life Skills Preparation” and “Workplace Preparation” number one and two respectively as the most important goals for Applied level courses. Over one-third of teachers felt that developing life skills should be the primary concern for Applied courses, while 28.8% believed workplace preparation to be the most important objective for the Applied stream. Conversely, only 15.4% of teacher respondents felt that post-secondary preparation should be the primary goal of Applied courses. These numbers could reflect the frustration that Applied teachers have with the heavy academic content of the Applied curriculum and the lack of practical, relevant learning opportunities for Applied students.

Lack of Resources

The “Lack of Resources” category can be divided into two sub topics – the suitability and availability of the resource. In terms of suitability, 46.4% of teacher respondents believed that the poor suitability of resources posed an obstacle to student learning at the Applied level.

Table 9
Teacher Response to Suitability of Resources as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	67	9.2	9.2
<i>Small Obstacle</i>	120	16.4	25.6
<i>Moderate Obstacle</i>	204	27.9	53.6
<i>Large Obstacle</i>	204	27.9	81.5
<i>Severe Obstacle</i>	135	18.5	100.0
Total	730	100.0	

Respondents mentioned that some of the textbooks they used were too advanced for the Applied stream. In some instances, it was noted by respondents that the same textbook was used for both the Academic and Applied levels. This presents a problem for Applied students because multi-level texts are often geared toward Academic learners. The reading level and assignments from the text are often too difficult for Applied students making it a challenge for teachers to use the text.

“The curriculum needs to be examined thoroughly and a different textbook should be suggested by the Board. My students are stressed and find this course to be beyond their capabilities. Something simpler would be preferable.”

R10: Full-time teacher, three years experience

“At least in math obtain relevant workbooks so each student can go at their own pace but must complete a set amount of work to go on to the next workbook and pass.”

R106: Full-time teacher, 10 years experience

“The students would be more successful if they were supplied with lesson/workbooks where they could see some worked examples and do homework questions in the space provided. This would give them more structure.”

R154: Full-time teacher, 16 years experience

“In English, for example, texts that have mature themes but expressed in simple language e.g. *Macbeth* in simple English. I used it several times and each time students were very proud to be doing Shakespeare. Students like to feel that they are reading material like other students read but at a level of language they can master. I do not believe that this is ‘dumbing down.’”

R166: Full-time teacher, 28 years experience

“In previous years, when I taught Applied courses, I felt the main barrier was the guidelines combined with the Ministry required textbook for Grade 9 Applied and did not give a truly Applied student a chance to do well. For many, it even meant not getting a credit for the materials were too difficult; and the course too fast.”

R250: Full-time teacher, 18 years experience

“Provide lower level textbooks for Applied (not using same texts as in geography).”

R707: Full-time teacher, 29 years experience

There needs to be a move towards producing suitable resources for Applied level students. According to the written responses from teachers, many find that they must adapt Academic textbooks and guidebooks to Applied level students. This approach seems to fall short of providing resources that can be easily and effectively used by teachers and students. Instead, it would better suit the needs of educators and students if resource materials were developed with Applied learning styles and levels in mind.

The availability of school resources seems more to do with funding problems than with anything else. Roughly 53% of respondents believed that the availability of school resources posed an obstacle to Applied student learning.

Table 10

Teacher Response to a Lack of Available School Resources as an Obstacle

Response	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
<i>Not At All An Obstacle</i>	63	8.6	8.6
<i>Small Obstacle</i>	120	16.4	25.1
<i>Moderate Obstacle</i>	161	22.1	47.1
<i>Large Obstacle</i>	221	30.3	77.4
<i>Severe Obstacle</i>	165	22.6	100.0
Total	730	100.0	

From reading the respondents’ written comments, there appears to be a shortage of quality resources in the Applied stream. As mentioned earlier in this paper, respondents believe Applied students generally learn in a different way to Academic students, citing a need for more “hands-on” learning in the Applied classroom.

“Computer time has been essential in a workplace classroom. Having more accessible computers would assist teachers in attaining the students’ interest.”

R428: Full-time teacher, 10 years experience

“More funding for resources so we can provide variety e.g. presenters, workshops, kits, computers, other hands-on resources.”

R476: Full-time teacher, seven years experience

“More access to suitable resources (media and print), as well as more money for excursions/field trips – hands-on experiences.”

R486: Full-time teacher, six years experience

Clearly, the availability of Applied level resources is tied in with funding concerns. There needs to be an effort made by this government to amend the funding formula and provide incentives to textbook publishers so that school boards can support Applied students with appropriate resources. Some respondents believed that a partnership could be established with local businesses where a co-op program could suit the needs of the school and the business. Students are provided with an environment for practical, hands-on learning while business and industry benefit by developing, for the future, a more experienced and knowledgeable worker. This is but one idea for solving the resource problems most schools face in Ontario. Future studies need to examine the ways various levels of government, business, and communities can work in partnership with schools to provide the necessary resources for Applied level students to learn in more relevant and practical ways.

Conclusion

This study revealed some of the limitations of the Applied stream. Respondents cite behavioural issues, combined learning levels, class size, a lack of support, a lack of preparation for students in lower grades, problems with the curriculum and lack of resources as the primary obstacles to Applied level learning.

The key issue that seems to tie many of these obstacles together is the issue of large class sizes. A statistically significant correlation between Applied class size and Applied pass rates demonstrates that as class sizes increase, pass rates diminish, especially in large cities. This relationship was found only at the Applied level indicating that class size is a more pressing issue in the Applied stream. Respondents often reported the difficulty of teaching large classrooms at the Applied level. Often the presence of diverse learning levels within a single classroom makes it difficult for teachers to address the needs of all students. Also, large class sizes make it difficult for teachers to work individually with students, something respondents feel is necessary for Applied student success. Both teachers and support staff members point out that behavioural problems arise when students become frustrated with difficult course material. If class sizes are not decreased, respondents felt that more student support personnel must be provided to provide individualized help and reduce the behavioural problems that teachers note in Applied level classes. Although the exact optimal size of class was not explored, it should be noted that respondents had average class sizes less than 22, yet still strongly called for smaller classes. It is therefore reasonable to assume that an optimal maximum size would be 20 or less.

Recommendation 1

Class sizes in Grades 9 and 10 Applied level courses need to be smaller. The funding formula and class size regulations should be amended to guarantee class sizes less than 20 for these courses.

What also needs to be addressed in the Applied stream is the suitability of the curriculum. Many of the respondents felt that the curriculum was too advanced and did not meet the needs of Applied learners. What needs to be introduced is a more practical and relevant curriculum that allows Applied students a more “hands-on” approach to learning. Students must be able to engage with course material that is of relevance to their lives and presents practical options for life after high school. While the recent increase in the number of locally developed “Essentials” courses that can count as compulsory credits will help, it will still not solve the entire problems of combined level classes, inappropriate program choices made by students and parents, lack of preparation and unsuitable curriculum that this study identifies.

Recommendation 2

The current schedule for secondary courses to be reviewed by 2010 needs to be revised. All Applied level courses should be reviewed and rewritten immediately. Recommendations for three core subjects are included as Part B of this study.

Finally, funding is inadequate to allow schools a chance to provide the necessary conditions for student success. The finding that pass rates decline in large urban centres means that attention should be paid to improving the Learning Opportunities Grant. Appropriate resource material in the classroom, including suitable textbooks and computers, as well as increased opportunities for students to learn outside the classroom are needed for Applied students to experience more practical and relevant learning.

Recommendation 3

The school funding formula must be revised to improve funding for measures aimed at increasing student success before the end of Grade 10, including targeted funding for textbooks, student support personnel and funding for other necessary resources.

This paper presents a list of obstacles teachers, educational workers and students face within the Applied classroom, and quotes some suggestions respondents made for improvements. The high failure rates in the Applied stream point towards a need for reform that can no longer be ignored. It is imperative that we listen to those who work closely with the curriculum and experience on a daily basis its shortcomings and faults, and implement their recommendations for Applied student success.

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Appendix 1. From Applied to Applause: OSSTF Teacher Survey

As you know, the Applied level curriculum in Grades 9 and 10 is under criticism for not meeting the needs of many of our students. Please assist OSSTF in identifying specific learning obstacles that need to be addressed and making specific recommendations to help these students succeed.

1. Job category – please check one

- Full-time classroom Teacher Occasional Teacher
 Part-time classroom Teacher Guidance/Library/non-traditional classroom

2. Gender – please check one

- Male Female

3. Years of experience in education (include this year as one year) _____

4. In what type of school do you presently work?

- Academic Secondary School Composite Secondary School
 Technical, Commercial or Vocational Secondary School Other

5. Where is your school located?

- Inner city Metropolitan area Suburban
 Smaller city or large town Rural Remote

6. How is your school program organized?

- Semestered Partially semestered Not semestered

7. If you are a classroom teacher, please complete the following chart for all of your classes this year, including classes from first semester if applicable. Indicate multi-grade/multi-level courses on separate lines but with an *.

Grade	Learning Level: Applied Academic Open University (U/C) College Workplace Essentials	Subject	Total Number of Students	Number of “Identified” or “At Risk” Students	Number of Students currently passing course	Indicate with check if current course is a subject in your area of specialization, and an x if it is not.
e.g. 11	Workplace	English	23	6	20	x

8. A number of potential obstacles to student success in Grades 9 and 10 Applied level courses are listed below, grouped into three categories.

Please rate the relevance of each potential learning obstacle to only the Applied level students you have taught since the program was introduced. Circle the appropriate number below using a scale of 1 to 5 where 5 means it is or has been a severe obstacle to success for these students, and 1 means it is not an obstacle at all.

If you are a teacher of guidance or library, have another non-classroom assignment or have not taught Applied level, please fill out the survey but indicate your status here

Part A: Social or External Factors						
1. Lack of parental support for students	1	2	3	4	5	N/A
2. Student or family poverty	1	2	3	4	5	N/A
3. Lack of support from community	1	2	3	4	5	N/A
4. Language barriers with students	1	2	3	4	5	N/A
5. Peer pressure	1	2	3	4	5	N/A
6. Behavioural issues	1	2	3	4	5	N/A
7. School in rural or remote community	1	2	3	4	5	N/A

Part B. Organizational Issues at the School or Board Level						
8. Class Sizes too large	1	2	3	4	5	N/A
9. Availability of School resources (computers, textbooks, etc.)	1	2	3	4	5	N/A
10. Suitability of School resources	1	2	3	4	5	N/A
11. Lack of support staff (education assistants)	1	2	3	4	5	N/A
12. Lack of professional student support (eg. PSSP members)	1	2	3	4	5	N/A
13. Time restraints of class/course	1	2	3	4	5	N/A
14. Lack of preparation time for teachers	1	2	3	4	5	N/A
15. Different learning levels combined in same class	1	2	3	4	5	N/A

Part C. Curriculum and Assessment Policy Issues						
16. Applied Grade 9/10 courses are too difficult	1	2	3	4	5	N/A
17. There are too many expectations in the courses	1	2	3	4	5	N/A
18. Courses not relevant or interesting to Applied students	1	2	3	4	5	N/A
19. Curriculum does not allow for different learning styles	1	2	3	4	5	N/A
20. Lack of preparation for students in lower grades	1	2	3	4	5	N/A
21. Too Much Streaming	1	2	3	4	5	N/A
22. Too many compulsory courses	1	2	3	4	5	N/A
23. Assessment policy (e.g. over reliance on exams)	1	2	3	4	5	N/A
24. Not enough leeway for teachers to assess students	1	2	3	4	5	N/A
25. Not enough learning levels at grade 9 and 10 levels	1	2	3	4	5	N/A
26. Other (please specify)	1	2	3	4	5	N/A

9. Have you had additional training beyond your basic teacher preservice program that has helped you meet the needs of Applied level students:

Yes – Additional qualifications courses Yes – workshops or PD programs Yes –
 Learned from colleagues or through self-study No –

10. Please rank the following goals for Applied level courses, with the most important ranked as #1, and the least important as #4.

Workplace preparation Post-secondary preparation
Life skills preparation Personal development

11. In the space below, indicate in your view what is the key solution for increasing student success in the Applied stream.

Appendix 2. From Applied to Applause: OSSTF Survey for PSSP/EA Members Who Work With Secondary Students

As you know, the Applied level curriculum in Grades 9 and 10 is under criticism for not meeting the needs of many of our students. Please assist OSSTF in identifying specific learning obstacles that need to be addressed and making specific recommendations to help these students succeed.

1. Job category – please check one. For the purposes of this survey, we are interviewing only those members who work with secondary students.

- Social Worker/Attendance Counsellor Psychologist
 Psychometrist Other PSSP member Educational Assistant

2. Gender – please check one Male Female

3. Which of the following best describes your workplace location?

- Attached to one secondary school Work out of two secondary schools
 Itinerant See clients at my office

4. Which of the following best describes your school or primarily work location?

- Inner city Metropolitan area Suburban
 Smaller city or large town Rural Remote

5. Years of experience in education (count this year as year one) _____

6. Thinking only of the students you have worked with this school year who are enrolled primarily in Grades 9 and 10, please complete the following chart.

Total # of Students in Grades 9 and 10	# Identified (IPRC's or IEP)	# Taking Primarily Applied Courses	# Taking Primarily Essential Skills Courses	# Taking Primarily Academic Courses	Don't Know or N/A

How many students do you currently work with who are enrolled primarily in Grades 11 and 12? _____

8. Have you had additional training beyond your initial training that has helped you meet the needs of Applied level students:

- Yes – Additional qualifications courses Yes – workshops or PD programs
 Yes – Learned from colleagues or through self-study No –

9. Please rank the following goals for Applied level courses, with the most important ranked as #1, and the least important as #4.

- Workplace preparation Post-secondary preparation
 Life skills preparation Personal development

10. A number of potential obstacles to student success in Grades 9 and 10 Applied level courses are listed below, grouped into three categories.

Please rate the relevance of each potential learning obstacle to only the Applied level students you have worked with since these courses were introduced. Circle the appropriate number below using a scale of 1 to 5 where 5 means it is or has been a severe obstacle to success for these students, and 1 means it is not an obstacle at all.

Part A: Social or External Factors						
1. Lack of parental support for students	1	2	3	4	5	N/A
2. Student or family poverty	1	2	3	4	5	N/A
3. Lack of support from community	1	2	3	4	5	N/A
4. Language barriers with students	1	2	3	4	5	N/A
5. Peer pressure	1	2	3	4	5	N/A
6. Behavioural issues	1	2	3	4	5	N/A
7. School in rural or remote community	1	2	3	4	5	N/A

Part B. Organizational Issues at the School or Board Level						
8. Class Sizes too large	1	2	3	4	5	N/A
9. Availability of School resources (computers, textbooks, etc.)	1	2	3	4	5	N/A
10. Suitability of School resources	1	2	3	4	5	N/A
11. Lack of support staff (education assistants)	1	2	3	4	5	N/A
12. Lack of professional student support (eg. PSSP members)	1	2	3	4	5	N/A
13. Time restraints of class/course	1	2	3	4	5	N/A
14. Lack of preparation time for teachers	1	2	3	4	5	N/A
15. Different learning levels combined in same class	1	2	3	4	5	N/A

Part C. Curriculum and Assessment Policy Issues						
16. Applied Grade 9/10 courses are too difficult	1	2	3	4	5	N/A
17. There are too many expectations in the courses	1	2	3	4	5	N/A
18. Courses not relevant or interesting to Applied students	1	2	3	4	5	N/A
19. Curriculum does not allow for different learning styles	1	2	3	4	5	N/A
20. Lack of preparation for students in lower grades	1	2	3	4	5	N/A
21. Too Much Streaming	1	2	3	4	5	N/A
22. Too many compulsory courses	1	2	3	4	5	N/A
23. Assessment policy (e.g. over reliance on exams)	1	2	3	4	5	N/A
24. Not enough leeway for teachers to assess students	1	2	3	4	5	N/A
25. Not enough learning levels at grade 9 and 10 levels	1	2	3	4	5	N/A
26. Other (please specify)	1	2	3	4	5	N/A

11. In the space below, indicate in your view what is the key solution for increasing student success in the Applied stream.

Appendix 3. Goals of Applied Level Courses

Survey respondents ranked goals as indicated below. The terms were not defined.

Table 1
*Goal Ranks for Applied Level Courses
Workplace Preparation*

Rank of Goal	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
1	206	28.7	28.7
2	238	33.1	61.8
3	216	30.0	91.8
4	59	8.2	100
Total	719	100	

Table 2
*Goal Ranks for Applied Level Courses
Life Skills Preparation*

Rank of Goal	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
1	255	35.4	35.5
2	225	31.3	66.8
3	169	23.5	90.3
4	70	9.7	100
Total	719	100	

Table 3
*Goal Ranks for Applied Level Courses
Personal Development*

Rank of Goal	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
1	147	20.4	20.4
2	185	25.7	46.2
3	239	33.2	79.4
4	148	20.6	100
Total	719	100	

Table 4
*Goal Ranks for Applied Level Courses
Post-Secondary Preparation*

Rank of Goal	Frequency (f)	Valid Percent (%)	Cumulative Percent (c%)
1	111	15.4	15.4
2	71	9.9	25.3
3	95	13.2	38.5
4	442	61.5	100
Total	719	100	

PART B: SPECIFIC SUBJECT RECOMMENDATIONS

OSSTF asked representatives of subject associations in several compulsory subjects to provide us with comments and specific recommendations for changes to the Applied level courses in Grades 9 and 10 that would increase student success. Here are the recommendations of three teams of teachers, based on their own and colleagues' expertise with these courses.

OSSTF urges the Ministry of Education to speed up their decade-long plans for curriculum review. The Grade 9 and 10 Applied level courses must be revised immediately, and we offer the following specific recommendations to improve student success.

English

In the “unpacking” of the English Grades 9 and 10 Applied level Ontario curriculum, a major concern of English teachers is the dichotomy presented in terms of the marked similarity with the Academic level and the needs and capabilities of Applied level students. In this respect, the main problem of the Grades 9 and 10 Applied level English curriculum is the fact that the course descriptors, overall and specific expectations of both levels are identical to the Academic Level in relationship to the four strands. As a result, the pressure to empower similar skills to both the Academic and Applied level students negate any opportunity to develop and reinforce much needed literacy skills in the Applied level classroom.

Examined within the framework of the **profile** of the “typical” Applied level student, the practicality of unpacking the curriculum is highly problematic and may account for the difficulty and lack of success experienced by the Applied level students. It is not enough to temper the language of the curriculum from Academic to Applied and expect this to be enough to teachers of the Applied level students while the overall and specific expectations are the same.

Literature Studies and Reading/ Writing Strands

The difference between the Intermediate Academic and the Applied level English courses is marginal and, when examined closely, is evident in seven areas:

- Use of lower order verbs
- Suggested genres of narrative and informational texts
- Suggested strategies for gathering information and generating ideas
- Suggested performance tasks to demonstrate the acquired skills
- Knowledge of the elements of the genres
- Knowledge of stylistic devices
- Knowledge of design elements of texts

The following chart will illustrate these marginal differences in these areas:

Areas	Academic	Applied
Use of lower order verbs	Higher order verbs such as: <ul style="list-style-type: none"> • study and interpret • investigate and create • collecting and assessing information • exploring human experiences and values • present • compare • assess • summarize • preview • ensure logical continuity 	Lower order verbs such as: <ul style="list-style-type: none"> • describe • identify • write • plan and deliver • record • search • produce • respond • reread • design • ensure continuity
Suggested genres of narrative and informational texts	More emphasis on the following: <ul style="list-style-type: none"> • texts from contemporary and historical periods • essays • Shakespeare plays • opinion pieces 	More emphasis on the following: <ul style="list-style-type: none"> • newspaper and magazine articles • brochures • reports
Suggested strategies for gathering information and generating ideas	More emphasis on the following: <ul style="list-style-type: none"> • self-questioning to monitor comprehension • create key questions about the text • reread to clarify • explore human experiences • developing opinions and interpretations • use specific evidence • analyze information • use explicit information and implicit ideas • use relevant, significant, and explicit information • select quotations 	More emphasis on the following: <ul style="list-style-type: none"> • restate information • reread to check • extending personal knowledge • developing generalizations • use specific references • make inferences • suggest underlying causes

Suggested performance tasks to demonstrate the acquired skills	More emphasis on the following: <ul style="list-style-type: none"> • supported opinion essays • children’s storybooks • reviews • poems • myths • formal letters • advertisements • short stories • scripts 	More emphasis on the following: <ul style="list-style-type: none"> • personal narratives • reports • dialogues • letters • short stories • instructions • summary paragraphs
Knowledge of the elements of the genres	More emphasis on the following: <ul style="list-style-type: none"> • character portrayal • dramatic structure • dramatic purpose • dramatic irony • monologues • point of view • essay structure 	More emphasis on the following: <ul style="list-style-type: none"> • character development and revelation • dialogue • the 5Ws, headlines, leads, titles, subtitles, photographs
Knowledge of elements of style and stylistic devices	More emphasis on the following: <ul style="list-style-type: none"> • diction and syntax • archaic diction • tone • hyperbole • oxymoron • symbol • allusion 	More emphasis on the following: <ul style="list-style-type: none"> • identifying images that appeal to the senses • words and phrases
Knowledge of design elements of texts	More emphasis on the following: <ul style="list-style-type: none"> • fonts and typefaces • charts and graphs • typography and layout 	More emphasis on the following: <ul style="list-style-type: none"> • pictures • colour

Language Strand:

The repository of language is quite limited for the Applied level student. This is evident in writing which often results in “minimalist” submissions. This lack of language acquisition is further magnified in attempts at oral communication which results in even greater embarrassment for students in these classes. Thus, to ask students in Applied level classes to dabble in etymological activities in terms of language acquisition is quite a “tall” order. It is an ordeal to have personal and voluntary reading a part of the routine of the daily classroom with students in Applied level classes, much less transcend to the

aesthetic level of language appreciation. It is an accomplishment to foster an understanding of the structures and conventions of the language and an achievement to generate an awareness of audience and purpose.

Media Strand:

This is perhaps the most practical component of the Applied level strands where the accommodations in terms of the assessment tasks are appropriate but ironic that the expectations are identical to the Academic level.

Recommendations for Changes to Grade 9 and 10 Applied English courses:

- The lower language used in the descriptors of the overall and specific expectations seem to imply that Applied students cannot think. They are, therefore, relegated to simple tasks of reading and repeating what they have read. The expectations and tasks contained in this program need to be more applied – that is, more practical, more useful and more relevant. Students need the opportunity to be involved in tasks that require more higher level critical thinking rather than being asked to use a different form to just spit back what they have read.
- Embed grammar, revision, editing throughout course.
- Ask students to attempt more cross - curricular examples of writing, and make them explicit – for example, have them assess a science report and determine how it differs from a history report or news report.
- Students should not only select and use reading strategies, but should be explicitly aware of them (metacognition).
- They should also have to learn how to ask questions and answer these unasked questions while reading as the academics have to – the Applied level students are asked only to use graphic organizers and then re-read.
- Elements of style - comparing informal and formal levels of language use should be more of an emphasis - not just an example.
- Historical and cultural influences are discussed in the Academic, but not in the Applied - these students might like this as a hook.
- Applied students need to revise their ideas, not just their writing convention– although this is implied in this expectation; it needs to be explicitly stated.
- Some of the assessments in the Academic program may be successful in the Applied and should be referred to. It seems that the Applied assessments are

limited to projects and skill based tasks – their assessments need to be more relevant to students and more practical.

- Academic students are asked to read a biography, write a fictitious news report, make a speech about the person, while Applied are asked to explain irony. The Academic tasks seem far better suited to the Applied students who need these relevant and meaningful tasks to maintain interest.
- Some Academic tasks are also better suited to the Applied student - for example, academics are asked to re-write from another character's POV, while Applied are asked to explain the limited point of view as it is used to create suspense.
- To ask the Applied level student to "revise the written work, collaboratively and independently" and to "edit and proofread" is VERY idealistic, to say the least. Even the "better" students in the Applied level Grade 9 and 10 struggle with the conventions of standard Canadian English. Even more idealistic is the assumption that the Applied level student is able to produce writing of some significant length and then the expectation that he or she can unify images, emotions and sensations in their writing. To compound this with the expectation that an Applied level student is able to offer constructive criticism to peers when he/she is struggling with self-editing further increases the frustration of both teacher and student.
- Do **not** use the phrase "final draft." This contradicts the newer emphasis on writing process as an ongoing and never-ending circle. "Final" implies that the process ends at the same time, where students need to see that even drafts can be re-worked. Our portfolio and "repeated rehearsal" statements support this, and the expectations should match.
- Add the following to the Applied overall "writing" expectation:

"...and demonstrate which organizational technique is best for each individual student, and that this may change according to the form of writing."

Students may find one organizer works better for them than another, but need to see that they may need to try a new or different organizer when attempting a different form of writing.

Unpacking the Curriculum - Some Considerations for Program and Planning:

- Class size – limit class size to 20 as the need for individualized instruction is so crucial considering the diversity of intelligences in these classes.
- Who should be in the class - what are some guidelines to determine students are appropriately placed? It shouldn't be just behavior or ESL students.

- Number of sections/teachers – schools need to be provided with more funding to accommodate the needs of these students. They are the “at risk” students and in order to address the individual learning styles, there must be a higher ratio of teachers to students.
- Who should teach it? Unfortunately, given the financial crunch of numbers and funding, these are the students who are treated unfairly in terms of teacher training, awareness of the need of these students and proper professional development to deal with the social baggage encountered in these classes.
- More teacher training - these kids are different!
- Selling Applied and Essentials to parents/ the public – educate the public so as to eliminate course labelling.
- Resources designed specifically for level and funding to purchase them.
- OSSLT- why are they writing the same test with the same restrictions? Can we modify the test to relate to their skills? If not, then why are the skills and performance tasks necessary for success in this test not included in the descriptors of the Applied level specific expectations?
- How wide a gap is there between the Essentials and Applied classes? This needs to be clearly defined.

Report prepared by Noel Lim, Communications Head/ Coordinator of Secondary Teachers of English in Peel, Fletcher's Meadow Secondary School; and Tamar Stein

History

Introduction

A common theme from all of the feedback to the latest version of the Grade 10 Applied history course is that it is still too rigorous for the students and does not meet the needs or capabilities of Applied level learners.

The Applied level history course remains content laden and its configuration is too similar to the Grade 10 Academic level history course. Attempts at revision reflected in the latest version of the course show minor changes, but these are cosmetic in nature and still, by and large, do not address the learning needs of the students. The latest version (2004) of the Applied history course uses lower order verbs, which by themselves, do not really help students or teachers deal with the significant amount of course content. Also, there are still far too many expectations to be taught (over 80). Many teachers and consultants, in their feedback, have stated that there must be some serious consideration of what exactly a student in the Applied class can and should do. Simply changing to lower order verbs does not address the real challenges of this course and explains, in part, why many students in Applied level history have been unsuccessful.

The Applied level history student does not need to address entire historical periods in great detail, but rather focus on the highlights and contributions of historically important people and events from the 20th century. More application-type verbs and fewer content expectations can provide students with a more realistic chance to demonstrate what they have learned. Using current events can generate discussion and connect students to the things that are relevant to their lives.

Greater emphasis on cross-curricular literacy skills and the crucial importance of learning skills in completing these assignments should also be encouraged as these will provide a firm foundation for success in Grade 11 and beyond. Links to literacy and the Applied history course offer the student greater opportunities to develop and reinforce literacy skills.

The use of the library, primary sources, films, videos and technology should be encouraged in teaching the Applied history student. The use of a variety of resources provides opportunities for critical thinking, problem solving and debate. History becomes a living, dynamic process of inquiry, not a static consumption of meaningless or irrelevant information. If we do not encourage students to use the school libraries and computer labs, they tend to avoid these facilities and consequently, fail to develop the crucial research and computer literacy skills needed for success in the future.

The need for change in the Applied history course should begin by establishing a reasonable profile of the Applied level student. This profile need not be prescriptive or monolithic but would be a work in progress. The focus of this profile should not only include academic data, but should also recognize social, behavioral and affective considerations. Perhaps we need to build the new Applied history course around the literacy and critical thinking needs of the Applied students rather than to focus exclusively on the acquisition of historical content.

The destination(s) and acquisition of crucial exit skills of the Applied history students need to complement and extend the chances for success in the working world. The new Applied course must address the needs of the Applied student from the inside out rather than trying to fit the student to the course expectations. Applied level learners need to be challenged, need a lot of individual, positive coaching and support and a chance to shine.

The guidelines for the new course recommended by the authors then will be based on the author's own research and the feedback data from many teachers across the province. The historical period from 1914 to the present is vast and challenging for many students. In some cases, some history teachers have concentrated too heavily on the period of history from 1914 to 1950 and not given the rest of the course a great deal of time, thus, neglecting more recent postwar Canadian history. Perhaps the Applied course in history should feature highlights of the major historical eras and not try to cover all this content in such great detail. Concerns about the scope and magnitude of the Applied level history course will need to be dealt with before we can begin to design a course that will better serve Applied learners.

The Applied course also lacks a textbook written to meet the literacy needs and language register of many of the students.

Recommendations for Changes to Grade 10 Applied History

- Giving more careful consideration of what exactly a student in an Applied history class can do including language register, literacy levels, skill gaps, uneven exposure to skills related to history and social science at the elementary levels - creation of a profile of the Applied student.
- More "hands-on" activities and less description/repetition of isolated facts, e.g., map/globe activities.
- More emphasis on making sure Applied students acquire skills relevant to their immediate destinations (in Grade 11) and long term (post-secondary - work related) pathways.
- Frequent chances to demonstrate their knowledge and skills in other ways other than simply by describing - students should be engaged by simulations of challenging real world situations and by creating viable real world products e.g., media works/current events based case studies.
- Some changes are required to allow the Applied history to have well designed end products and culminating performance tasks that are both more flexible and meaningful and which help them to help make connections between historic and relevant contemporary issues including making deep personal connections to the content e.g., reflective journals/diaries.
- Greater emphasis on and use of current events and critical thinking exercises around issues that can help the Applied students see the connections between the past and the present, life then and now—the misguided assumption that Applied level students

cannot do higher level thinking is outmoded - these students become engaged in the program precisely from these kinds of challenging activities—essential questions from enduring understandings could and should be used often to provide focus for each lesson.

- Keep expectations for curriculum and behaviour high, but achievable for all students.
- Teachers must have clear ideas about what is essential course content, then build a course around enduring understandings and essential questions.
- Build all course units around issue-based essential questions for focus - this could be helped by a streamlining of Ministry expectations.
- Teachers must have highly developed classroom management strategies and procedures that promote student success and accountability as well as teacher reflection on best practices.
- Explicit teaching and modeling of all skills relevant to the course and to functional literacy.
- Embedding and explicit teaching in the course of the before, during and after reading skills and writing text forms relevant to the EQAO Literacy Test which measures functional literacy outside school.
- Continued use of diagnostic, formative and summative assessments for all units and clear communication of these to the students at the start and throughout the course.
- A lot of one-on-one support and coaching for the final evaluation of the course.
- Greater use of differentiated instructional strategies to reach all learners (learning styles and multiple intelligences).
- Greater use of a wide variety of high quality resources inside and outside of the classroom.
- Greater use of proven instructional strategies to assist students with mastering forms of attack for reading, writing and oral communication.
- Greater use of proven instructional strategies that foster critical, creative and analytical thinking skills.
- Greater use of library resource centre and computer labs to develop research, inquiry, media literacy, time management and learning skills.
- Greater use of graphic organizers of all kinds (especially for boys) and visual aids for teaching, research process and written work.

- Strike a balance between the use of primary and secondary sources (media, computer, mapping skills, technology, textbooks and videos) - no over reliance upon one type of resource.
- Use of a few (six or seven) guiding key concepts/strands of history to provide common themes for common reference to and to reinforce content in long-term memory for students (i.e., change, cause and effect, historical significance, empathy, human Agency).
- More opportunities in the classroom for meaningful reflection (individual, partners, or small group) on what students are learning and how it relates to them.
- Students need to be encouraged and taught explicitly how to be more proactive in their learning. For example, as educators we need to teach and monitor effective learning skills and not assume that our Applied students already have this knowledge.
- The Applied student needs to be told the relevance of what they are learning and why they are learning it (for both content and skills) on a regular basis throughout the course.
- We need to observe our students and discuss their ideas about how they might begin an assignment and involve them more in assessment and evaluation (involving them more often in the design of assessment and evaluation tools: rubric, checklist, check brick, identifying criteria, performance scale, self-evaluation inventory).
- Encourage Applied students to take a greater part in the learning process and show them how they can contribute to their own success by using a variety of different types of assessment: teacher, peer, self, small group.
- Frequent updates about student progress including oral, written, informal and formal feedback on assignments and learning skills e.g., student/teacher conferencing.
- More opportunities for students to see and use exemplars, samples of students work and to redo assignments that miss key expectations or criteria for success.
- Creative projects that are research or historically based/grounded and connected to important or essential course content.
- Less content in greater depth with an emphasis upon skill acquisition including learning skills.
- Greater teacher flexibility with timelines and deadlines, more negotiation of these, more information up front at the beginning about which are negotiable and which are not.

- More emphasis on the development of note-taking skills as a basic building block for knowledge/understanding and fact/opinion/argument as a basic building block for thinking/inquiry.
- Use of student notes or assignment portfolio during formal tests.
- Ongoing one-on-one conferencing with Applied learners helps them to focus on the assignment and provide the teacher with valuable coaching opportunities to ensure success in the assignment.

Conclusion

The Grade 10 Applied student is a learner of a different kind, and, as such, needs to be treated differently in order for this student to be treated fairly and equitably by both the curriculum and the teachers of the curriculum. Perhaps an entirely new set of expectations should be created for the Applied history course based on what skills these students will need and what courses are available for them to take at the grade eleven level.

“The art of teaching is the art of assisting discovery.” – Mark Van Doren

“Coverage is the enemy of understanding” – Howard Gardner

By: Jack MacFadden, President, Ontario History and Social Studies Teachers' Association (OHASSTA) and Mike Bowman Director, OHASSTA.

Mathematics

This brief review of the Grades 9 and 10 Applied mathematics curricula was precipitated by the widespread perception, particularly among Ontario mathematics teachers, that an alarming proportion of students enrolled in these courses are failing. Moreover, it appears that the Applied mathematics curriculum is not meeting the students' needs in terms of either their learning styles or useful destination paths.

Learning Styles and Destination Pathways

Although the Grade 9 and 10 Applied mathematics courses are purported to lead to college-destination courses, in practice they rarely do.

For example, one route is to Grade 11 Mathematics of Finance, but there are no other high school finance or business math courses at the Grade 12 college-destination level. Grade 12 college courses are either apprenticeship math or technical math. Community colleges overwhelmingly prefer students entering technical fields to have at least a Grade 11 functions course credit. In effect, Applied students are being dead-ended as far as most technical community college programs go.

For those students who merely wish to obtain their three mathematics credits, they can choose to proceed through Grade 9 and 10 Essentials courses followed by an 11 workplace math course. However, not all schools offer the Essentials courses. Alternately, students could choose to proceed through 9 and 10 Applied to 11 workplace. Very few students who are weak in mathematics are capable of achieving this pathway.

It is desirable to provide a wider set of options for Applied mathematics students than these. This would entail revamping the 9 and 10 Applied curriculum in certain ways, which will be described later on.

- (1) One possible college destination pathway could be 9 Applied—10 Applied —11 Mathematics of Finance —12 Business Mathematics. This should allow the students to proceed to a business/finance program at the college level.
- (2) Another possible college destination pathway could be 9 Applied —10 Applied —11 Technology Mathematics —12 Technology Mathematics. The Grade 11 and 12 maths would have to be at a high enough level to be useful in skilled trades or technician courses without including the abstract, theoretical components of the Grade 11 Functions or Grade 11 Functions and Relations course.

Of course, such proposals would require that the high schools and community colleges develop a strong communications liaison and ongoing consultations.

Overview of Grades 9 and 10 Applied Mathematics Courses

The high failure rates in 9 and 10 Applied have various causes. It may be owing to the fact that many of the students taking these courses function at too low a skill level and should instead be taking Essentials mathematics courses. Yet, Essentials or locally-developed courses are often not offered. Furthermore, the curriculum for the Grade 10 Essentials mathematics has only very recently been defined. In addition, parents and students are often reluctant to enrol in Essentials math because of a stigma attached to it.

Other reasons pertain to the style and content. The courses are too content-heavy. The pace for covering the materials is too great for the students. There are too many concepts that are presented in an abstract manner, inappropriate for Applied mathematics. Applied students need concrete and “hands-on” activities to provide them with vivid experiences in mathematics. The content should be practical and focused on applications. These are considered part of the purported goals of the Applied Mathematics curriculum, but they are thwarted by the excessive content and pace. In the following discussion, specific proposals are offered as to how to revamp the curriculum guidelines that would match these goals and provide the basis for useful and meaningful destination pathways.

Recommendations for Changes to the Grade 9 Applied Mathematics Course

The first and most obvious need is to reduce the content. A “hands-on” approach requires that teachers be provided with exemplary materials at both the level of the textbook publishers and the Ministry of Education. The activities should be purposeful and meaningful. While skill development is important, there should be no return to tedious drill.

1. Number Sense and Algebra

Students should develop mental mathematics skills in the form of estimation of calculations for understanding the reasonableness of a solution. This type of reasoning should be emphasized throughout curriculum topics including having students communicate explanations for their estimates.

Work on integers should be lessened but there should be enough taught/learned to support the students’ capability of calculating values for tables for graphing, for finding slopes, for simplifying simple equations and for some polynomials.

Manipulation of equations should be minimized: to include solving simple linear equations with integral coefficients and to exclude equations which employ fractional coefficients.

Linear graphs as a topic should be taught with narrative-based interpretations, with the concept of slope taught as a rate concept, with a focus on graphing and eliminating sketching, with non-manipulation of equations, with emphasis on the visual, and with graphing in the first quadrant (i.e., minimizing dealing with negative integers). Piece-wise, continuous linear graphs should be taught without resorting to equations. It would

be of great benefit for the students to be provided with graphing calculators to perform explorations of linear functions.

Finally, there should be lots of emphasis on applications (concrete) of ratio and proportion.

2. Relationships

Too little time is allocated for explorations. The curriculum should be expanded to allow for many experiences with relationships between variables. The line of best fit topic should allow for plenty of activities on extrapolation and interpolation of data points.

- Analytic Geometry. Remove the analytic approach to perpendicular lines. Provide only a light treatment of the $y = mx + b$ form. Make time for experimenting with different scales for the axes when plotting points so that students can develop experience with choosing optimal scales to represent their linear functions on graphs. The use of graphing calculators with their built-in Window function would be especially advantageous in developing vivid experiences for the students through experimentation.
- Measurement and Geometry. Remove manipulation of formulas to isolate a variable. Remove investigating geometric relationships.

Recommendations for Changes to the Grade 10 Applied Mathematics Curriculum

Here again there should be a lessening of content and provision for practical experiences.

Remove quadratic functions and quadratic equations from this curriculum. Redirect the teaching of these topics to a new Grade 11 technical mathematics course. The freed-up content for the 10 Applied can then be replaced with content that was removed from the Grade 9 Applied course.

In the area of interpreting systems of linear equations, the applications should be vivid and interesting. Remove linear systems with fractional coefficients. Remove manipulation of formulas to isolate a variable. In the section on manipulating algebraic expressions, remove transforming the linear form $y = mx + b$ to $Ax + By + C = 0$, but leave the reverse transformation.

Concluding Thoughts

Necessary curriculum changes to provide useful pathways for students and to better match content and activities to students' needs are only part of the solution. Teachers and students need material supports to scaffold these changes. For example, it should be mandated that exams must include practical problems including demonstrations with materials. Textbook publishers should be required to provide excellent examples of hands-on learning activities and explorations to assist teachers and students alike. To

ensure that real changes take place, there needs to be a professional development program put into place to assist teachers in redesigning their activities for these courses so that they can effectively assist their students.

Teachers will need the right kinds of equipment and materials for their classrooms in order to be effective. Graphing calculators can provide an excellent basis for explorations, and combined with sensors, such as rangers, they can provide a basis for fruitful experiments in mathematical ideas.

The redesign of the Grade 9 and 10 Applied courses must start with destination pathways. That is why we have suggested that a broader revamping of the college destination mathematics curriculum needs to take place in close consultation with college professors and administrators. Applied students have the right to expect that the recommended high school curriculum will really take them into a college program and not just a dead-end of three mathematics credits.

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