Labels And Low Student Engagement:

How Activity Categorization Impacts Students' Perception And Engagement Of Learning Activities

by

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ABSTRACT

LABELS AND LOW STUDENT ENGAGEMENT:

HOW ACTIVITY CATEGORIZATION IMPACTS STUDENTS' PERCEPTION AND ENGAGEMENT OF LEARNING ACTIVITIES

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Students' engagement with learning activities and the type of attributions they make about their performance in these learning activities play a key role in their educational experience and success. The current Ontario high school applied and academic course curriculum is associated with lower educational success for students enrolled in the applied courses. This study used data from 213 undergraduate students to assess participants' perception about the applied and academic courses and the impacts of applied/academic labels on students' engagement and their performance attributions. A within-group design repeated measure ANOVA comparing the means of difficulty-level ratings of applied and academic courses indicated that participants perceived applied courses to be significantly less difficult than academic courses. The study did not, however, find any significant impact of the applied/academic label on participants' engagement and attributions in online test activities labelled "applied" or "academic".

Key words: Engagement, attribution, applied, academic, activity labels, Ontario curriculum

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Table of Contents

List of Tables

Introduction

Students' engagement with learning activities is a key contributing factor in their academic success (Fredricks et al., 2004). High school students who are engaged with their learning activities find their school experience more rewarding, get better grades, graduate at a higher rate and are more likely to proceed to post-secondary institutions (see Marks, 2000; Finn & Voelkl, 1993). The current Ontario high school curriculum is failing to foster engagement in students enrolled in applied courses (Parekh, 2014). This study attempted to explore the factors contributing to lower engagement in students enrolled in applied courses.

The current Ontario high school curriculum has two major programs of studies: The Academic stream (abstract concept), which is intended for university bound students, and the applied stream (practical application courses), which is intended for students who may continue to colleges (M.O.E, 1999). The labelling of learning activities as "applied" versus "academic" can create categories that foster different stereotypes around the applied and academic courses. Student engagement and how they make attributions about their performance in these activities can then be impacted by the stereotypic views around the "applied" versus "academic" labels.

The goal of this project was to assess the stereotypic views around the province applied and academic labels and the impact of these activity labels on student engagement with that activity and the attributions they make about their performance in that activity. Specifically, this exploratory study examined how the "academic" and "applied" labels used in the present Ontario high school curriculum are perceived by students and how these activity labels impact student engagement and attributions made about school performance. It is proposed that the "academic" versus "applied" labels of high school teaching-learning activity are associated with different stereotypes. Students' stereotypic views about the applied/academic labels in turn influence their engagement with these activities as well as the attributions made about their

success in those activities (e.g., attributing high grade in applied course to course easiness versus attributing a high grade in academic course to internal talent).

Applied versus academic courses

The academic/applied course concept of the current Ontario high school curriculum was supposed to help students choose senior high school courses that suited their educational career and interests (Parekh, 2014). On paper, the only difference between the academic and applied courses is that academic courses have more university preparation content in the students' school work (e.g., more homework questions) (Parekh, 2014). The curriculum policy also on paper presents the applied and academic concept as a de-streaming model with students having flexibility to switch between the applied and the academic pathways (see Parekh, 2014; Pang, Kozlow & Rogers, 2012). In practice, however, the applied/academic courses are implemented as pathways based on course difficulty levels: That applied courses are easier than academic courses (see Parekh, 2014; Pang et al., 2012). For instance, grade 8 students who fail to meet the province grade 8 graduation requirements are automatically transferred into applied grade 9 courses (see Parekh, 2014; Pang et al., 2012).

The streaming of underperforming students into the applied course streams is based on the belief that the applied stream is easier and hence students who do not pass in their grade 8 classes should be able to do well in the applied stream (since it is easier) (Parekh, 2014). This assumption that poor performing students once in the applied stream will perform better is, however, not valid. Indeed, students enrolled in the applied courses are not meeting the supposedly easier applied course curriculum requirements (Parekh, 2014). For example, ministry data show that only 39.3% of high school students in applied courses (compared to 81.6% in academic courses) in the Toronto district school board earned the required course credits and graduated from high school in the required four-year period (Parekh, 2014). In

addition to poor graduation rates, applied high school students in Ontario have low post-secondary educational achievement as they have only 21% of college and 3% of university enrollment (Parekh, 2014). Data from the Education Quality and Accountability Office (EQAO), a provincial crown agency on the province education accountability, show that only 28 percent of grade 9 students in applied mathematics met the province mathematic skills standard compared to 83% of grade 9 students in academic mathematics (Cooke et al., 2017). EQAO also reports that only 44% of grade 10 students in applied English pass the province literacy test compared to 92% of academic grade 10 students. These data about program outcomes suggest that the current implementation of the applied/academic course concept is not helping applied students meet the province math and english literacy standards.

I argue that the current implementation of the applied/academic curriculum as a function of course difficulty (e.g., streaming of underperforming students into the applied courses) is inadvertently creating ideal conditions to categorize the teaching-learning activities and students of each stream: That academic is difficult and is for high achievers and applied is easy and is for underperforming students. This perpetuates an easiness stereotype about the applied label. I argue that this applied label easiness stereotype is negatively impacting applied student learning and educational experience. Thus, I propose that the mere labelling of a teaching-evaluative activity as academic vs. applied activates the stereotypes linked to the social categories created by the program as currently implemented, which in turn affects the engagement of students with the activity and the attributions they make about their performance on the activity. This label stereotype is context dependent and applies to only students who went to high school in Ontario.

Activities categories and student engagement

Engagement is a multidimensional construct that entails behavioural, emotional and cognitive components (Fredricks et al., 2004). Behavioural engagement refers to students' behavioural efforts such as amount of time spent on studying, asking questions in class and following class instructions/rules (see Finn & Voelkl, 1993; Fredricks et al., 2004; Klem & Connell, 2004; Skinner et al., 2008; Skinner & Belmont, 1993). Students' behavioural engagement in a learning task can be impacted by how they are cued about the difficulty level of the given task: students who expect the task to be difficult work harder and perform better than students who expect the task to be easy (see Foos, 1992; Sax & Reade, 1964).

In a study conducted by Foos (1992), half of the participants were told they would get a "fairly easy" exam and the other half were told they would get a "fairly difficult" exam. Half of each of these two groups were told they would get a multiple-choice exam while the other half were told they would get an essay exam. Participants who expected a difficult exam worked harder and performed better than those who expected an easy exam (Foos, 1992). A further analysis of the interaction between difficulty and expected format of the test (essay vs multiple-choice) showed participants who expected a difficult essay exam worked harder and performed better than all the other three groups. School surveys show that students believe essay exams to more difficult than multiple choice exams (Zeidner, 1987). The extra behavioural engagement and performance of the "difficult essay" group highlight the important role the perception of the difficulty/easiness level of an academic task can play in regards to students' behavioural engagement in these tasks (Foos, 1992). A similar study by Sax and Reade (1964) also showed that students performed better when expecting difficult exams than when expecting easy exams.

I propose that labels attached to a learning/evaluative activity can impact how students judge the difficult level of these activities. This difficulty level judgment can in turn influence how much behavioural engagement is expended for these activities. Specifically, if the applied label is perceived as easy and is also associated with underperforming students, an applied course might be less behaviourally engaging due to its easiness stereotype. An academic label might on the other hand might attract greater behavioural engagement because it suggests difficulty.

Emotional engagement refers to students' emotional reactions such as enthusiasm, pride, interest, enjoyment and excitement for learning, schoolwork or other entities such as teachers in a school setting (Fredricks et al., 2004; Skinner et al., 2008; Skinner & Belmont, 1993). Emotional engagement is quite malleable and evolves with variations with school tasks (Gutman & Schoon, 2018). Student who have positive emotional engagement with learning or school work tend to report higher educational achievement (Finn & Voelkl, 1993; Fredricks et al., 2004; Skinner et al., 2008; Skinner & Belmont, 1993).

I propose that labels attached to a learning activity and the stereotypes these labels activate can influence the emotional engagement of students with these learning activities. Specifically, if the applied label denotes easiness, it could generate less emotional engagement such as enthusiasm and excitement than the academic label which might have a connotation of academic rigorousness and difficulty. In addition to lower enthusiasm and excitement induced by the easiness stereotype, the applied label, because of its association with underperforming students, may also evoke a lower sense of pride. The academic label, on the other hand, because of its academic rigorousness may generate more enthusiasm and a greater sense of pride. The applied label due to its association with underperforming students and easiness stereotype may, therefore, fail to generate emotional engagement due to its easiness stereotype and its association with underperforming students. The rigorousness around the academic label,

might on the other hand be a symbol of pride and a source of enthusiasm and academic excitement.

Finally, *cognitive engagement* reflects students' mental effort such as strategy use, metacognition, meaningful processing and concentration in a given task (Fredricks et al., 2004; Wang et al., 2014; Zimmerman, 1990). When students are cognitively engaged with a given task, they go beyond the minimum requirements and employ thoughtful strategies and meaningful processing (Zimmerman, 1990). A cognitively engaging task evokes attempts to understand and compare complex ideas (Zimmerman, 1990).

I propose that the labels attached to learning activities and the interpretations triggered by these labels can influence the level of cognitive engagement activated by these activities. Specifically, the applied label easiness stereotype and its association with underperforming students, can make it appear as an activity that does not need the employment of any deep cognitive strategy approaches such as meaningful processing and concentration. In contrast, the academic label might be a symbol of academic rigor that requires the use of complex strategies and meaningful processing. That is, an applied activity, due to its easiness stereotype, might give the impression that a superficial cognitive engagement is sufficient while an academic activity might evoke deeper cognitive engagement that entails comparing activity content to already known ideas or concepts.

Activities categories and student school performance attributions

Humans tend to automatically engage in causal attributions ("why?") to establish the factors behind their success or failure in a given task (Weiner, 1979). For students, the attribution process is typically observed in terms of establishing the causes of their academic success and failures. Student causal attributions can be based on internal factors, such as ability and effort, or external factors, such as luck or task difficulty (Weiner, 1979). Internal

causes are associated with the characteristics of the person. On the other hand, external causes such us luck and task difficulty reflect external environmental factors (Weiner, 1979).

The type of causal attributions (external or interval) students make about their success or failure in a given task plays a key role in their motivation and achievement in that task (see Graham, 1991; Weiner, 1979). Ascribing success to internal causes like ability and effort has been shown to positively impact students' motivation and achievement in a given task (see Graham, 1991; Weiner, 1979). Attribution goes beyond ascribing a cause to an outcome; it creates a feedback loop that influences students efforts and sense of achievemeent in a given task (Bandura, 1989). When students attribute their success in a given task to internal factors like ability or effort, a positive feedback loop that leads to better achevement is established. For example, when a students attributes a high grade in a given course to their ability and/or effort, they get more motivated to expend more efforts and also feel more confident about their academic comptence.

The labels attached to activities and the stereotypes these labels activate can influene the kind of causal attributions students make about their performance in these activities. For example, if the "applied" label denotes easiness and is associated with underperforming students, then a high grade in an applied activity could be attributed to the course easiness and not to the student's effort or ability. In contrast, a high grade in an academic course could be ascribed to effort or ability because the label "academic" reflects academic rigourouenss. Thus, overall, the applied label, because of its association with easiness, could be more prone to triggering external attribution than the academic label. This "applied" label proness to external attributions could reduce its ability to ignite a positive feedback loop if students receive a high grade on applied activities.

Present study

This present study aims to examine the influence of labeling a teaching-learning activity as applied or as academic on students' perception of the activity, their engagement with the activity and the attributions they make about their performance on the activity. Specifically, this project examined participants' perception on applied/academic course difficulty levels. The study also assessed participants' behavioural, emotional and cognitive engagement levels with a given learning activity as a function of its label. The study also examined the internal and external attributions participants make about a high-level grade upon completing the evaluative activity as a function of the label placed on the activity.

Students stereotypic views arising from their perception and interpretations of the applied/academic labels form the premises on which the engagement and attributions arguments are built. The existence of this activity label stereotype is confirmed by asking participants to rate the applied/academic courses in Ontario high school curriculum context.

Hypotheses

- Hypothesis 1, participants will rate the Ontario high school curriculum applied courses as less difficult than academic courses.
- Hypothesis 2, participants will demonstrate more engagement (behavioural, emotional and cognitive) with the activity labelled "academic" than when it is labelled "applied". Participants in the control condition will have a neutral score lower than the academic but higher than applied conditions.
- Hypothesis 3, participants will make more external attributions in an "applied" labelled test activity (e.g., "My good grade may simply reflect that these questions were easier than most civic test questions") and more internal attributions in an "academic" labelled test activity (e.g., "I got a good grade because of my academic competence"), given a high test score.

Method

Participants

This study used a 3 activity labels (academic, applied, control) by 2 attribution (internal vs. external) mixed-subject experimental design, wherein activity label is a between- subjects factor and attribution is a within-subjects factor.

For hypothesis 1, (students' stereotypic views about the applied and the academic labels), there was no any independent variable manipulation and no power analysis was conducted for hypothesis 1.

Power analysis was performed to estimate the required sample size for the other two hypotheses (engagement and attribution). The analytical approach used for the power analysis was the Analysis of Variance (ANOVA) because it required the largest sample size. Common effect size (Cohen,1988) for engagement research are in the small to medium range (e.g., Burch et al., 2015) while for attribution research they are (Cohen, 1988) in the small range category (average being around 0.06 Cohen's d; e.g., Lefcourt et al., 1979).

Sensitivity power analysis[1]

A sensitivity power analysis using G*Power (Faul et al., 2007) was computed for hypothesis 2 and hypothesis 3. At 80% power with an alpha of .006 (.05/9) using one-way fixed effect ANOVA, hypothesis 2 could detect an effect size of .27. Hypothesis 3 had two measurements with correlations of -.186 (using repeated measures, within-between interactions) and could detect an effect size f of .16 at an alpha level of .05 and a power of 80%.

[1] There was an error in the apriori power analysis as its calculations were based on two conditions instead of three groups.

These power analyses indicate the study tests were sensitive to detect small to medium range effect size (Cohen, 1988).

Only participants who went to high school in Ontario were recruited in this study. All the participants were recruited through the University of Guelph Psychology Department undergraduate research participant pool using convenience sampling. They were compensated with course credit.

The study recruited 584 participants. The data for 363 participants with total study durations of less than 15 minutes (study was advertised as taking about 50 minutes based on pre-study trials) and six participants with total study duration of more than 90 minutes were deleted. Data for two participants who did not respond to any of the engagement and attribution measures were also deleted. The final sample size used was 213 participants. The study used data from these remaining 213 participants (*N*=213, *F*= 144, *M*=69*, Mean age*, 19.11). Except for four participants, the rest of the 213 participants whose data was used reported that they had been in the Ontario high school academic stream.

Procedure

The study was conducted online, using the university's Qualtrics system. Participants, upon navigating to the study page, were presented with study cover story (see Study Cover Story in appendix A). After providing consent, all participants completed demographic questions (see Demographic Questionnaire in appendix B) and 5- semantic differential items for each Ontario high school applied and academic courses (see semantic differential in appendix C). The semantic differentials for the applied and academic courses were presented in randomized order to participants in all three conditions before the manipulation.

All participants were then randomly assigned to conditions and asked to click an exam description icon that led them to one of three different exam type descriptions (See Exam description in appendix D): The applied and academic conditions participants were presented with a description of the exam activity in applied/academic terms and a neutral description for the control group. All participants got the same test questions generated by selecting questions from grade 10 ministry civic exam, only the exam label was manipulated. This civic exam was selected because it is less likely to be affected by participant characteristics. For example, selecting math questions could trigger stereotype threat among female participants (Keller, 2007). After reading the exam description, all participants were given an option to read Canada civic education exam preparation material to help them prepare for the test or proceed to the actual test by pressing “Start Test” icon. The time spent on the study material and whether a participant clicked on the study material were both used as measures of behavioural engagement. Upon pressing the “Start Test” icon, the test activity, an Ontario grade 10 civic exam of 12- multiple-choice questions started. A question specific resource link was inserted into each of the 12-multiple choice exam questions. Whether a participant clicked on each resource link and the time spent on each question were also some of the measures of behavioural engagement.

When they were done with the test, participants were presented with a manipulation check question about the type of exam (applied/academic/civic/do not remember) they had done (see question on exam type in appendix E). This was latter used to check if participants remembered which exam type, they had done. All participants were then presented with measures to assess their emotional and cognitive engagement about the test activity they had completed (see appendix F for emotional and Appendix G for cognitive measures)

All participants were then asked to press a “score feedback” icon to access their grades. Once they clicked on the score feedback button, they were presented with manipulated scores (presented as their actual scores) of the test activity with all participants in all the three conditions getting 92% (see score feedback display in appendix H). Participants were then asked to press a “score reflection” icon that led them to attribution measures about their high grade in the test activity (attribution measures –see appendix I) and the study session ended. Participants were then fully debriefed and given an exit questionnaire.

Materials and measures

Test materials [2] Using University of Guelph Qualtrics survey software, participants were presented with an examination activity drawing on standard high school assessments for topics that apply to both the academic and applied Ontario Grade 10 Civic Exam. Participants were randomly assigned to one of three conditions framed as, “academic”, “applied” or to a condition with no frame (i.e., control). A civic test activity was chosen as it does not have the gender stereotypes associated with languages and mathematics exams (Keller, 2007).

Applied/academic courses difficulty-level rating scale. A semantic differentials scale (see semantic differential in appendix C) of five actual items and two filler items were used to measure participants’ views/perception of the Ontario high school applied and academic courses difficulty levels on a 10-point scale. The two filler items unlike the actual five items did not refer to any effort or difficulty related characteristics of the applied/academic courses. The

[2] It was originally intended to insert one item from 5-items Conscientious Responders Scale (CRS, see Appendix J) (Marjanovic et al., 2014) into each of the measures. There was, however, an error in the number of CRS used and hence CRS items could not be used in the data cleaning process.

five semantic differential items had Cronbach's alpha of .847 and .841 for the applied and academic courses respectively. The scores for the five items were combined with a higher mean score denoting greater difficulty level perception.

Emotional engagement. Emotional engagement was measured using a 9-items (α=.938 for current study) emotional engagement subscale by Burch et al. (2015). Items were adapted for the present study. Specifically, the word "class" was replaced with civic exam and the tense of some verbs was changed from simple present to simple past. Participants were asked to rate the items using a 7-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7). A sample item for emotional engagement is "I felt enthused about the questions on this civic exam". The 9-items were combined to create an average value with a greater mean value denoting greater emotional engagement.

Cognitive engagement. Cognitive engagement was measured using 5 items from the cognitive engagement short form scale by Smiley and Anderson (2011); which is a 5-item measure specific subscale adapted from Greene and Miller's original 24-item cognitive engagement scale (Greene & Miller, 1996). The 5-items (α=.612 for current study compared to .57 in the original paper) were reworded (the words "cluster 2 assessments" were replaced with "civic exam" and the tense of some verbs got changed from simple present to simple past) to make them more relevant to this study. Participants were asked to rate the items using a 7-point Likert scale ranging from "strongly disagree" (1) to "strongly agree" (7). A sample item for cognitive engagement is "When approaching the questions on this civic exam, I planned out or organized my response prior to choosing my answer". The five-items were combined to create an average value. The greater the mean value the greater the cognitive engagement it denotes.

Behavioural engagement. Behavioural engagement was measured using various response times (in seconds) and behavioural actions. This is a common approach to assess behavioural engagement which has been previously used (see Fredricks et al., 2004). In this present study, seven variables were used to measure behavioural engagement:

1. The total amount of time (in seconds) participants spent on the study preparation instructions
2. Participants' choice to click or not click on the study preparation material
3. The total amount of time (in seconds) participants spent on the study preparation material
4. Combined decision scores (whether participants chose to click or not to click) on question specific resource statements (there was an extra information link embedded in every question).
5. Combined total time participants spent on question specific resource statements
6. Combined total time participants spent on the whole test questions
7. The actual total test scores of participants

Attributions about the causes of participants' performance was measured using 10 items adapted from the multidimensional multi-attribution causality scale (MMCS) (five each for external and internal) (Lefcourt et al., 1979). Participants were asked to rate each item using a 7-point Likert Scale ranging from "strongly disagree" (1) to "strongly agree" (7). A sample item for the five external attribution items (α=.571 for current study) is "My good civic exam grade may simply reflect that these questions were easier than most civic exams questions". An internal attribution (α=.825) example item is "I got a good grade on this civic exam because of my academic competence". The score values were combined for the five internal and five external items with greater mean values denoting either greater internal or external attributions.

Results

Manipulation check question; when participants completed the test activity and before they responded to the engagement and the attribution items, they were presented with a question checking if they could remember the type of test activity they had done (see question on exam type in appendix E). A Pearson Chi-square analysis of the responses of participants indicated that a significant number of participants correctly remembered the type of exams they had done, χ^2 (6, N = 213) = 114.45, p < .001, η^2 = .55. Specifically, 41.4% of the participants in the academic condition, 65.2% of participants in the applied and 73% of participants in the control condition correctly remembered the type of exam they had done. These percentages, though statistically significant, are quite low. In the academic condition, 13.5% and 5.8% of the participants misremembered their test type as civic (control) and as applied respectively. In the applied condition, 8.1% and 7.1% of participants incorrectly identified their test as civic and academic respectively while in the control condition, 21.7% and 32.9% misremembered their test as applied and academic respectively.

Data analysis

Before data analysis was done, SPSS statistical software was to clean and screen the data for outliers, normality and sphericity assumptions. The data of 363 participants were deleted because they had total study duration of less than 15 minutes. Ninety-five of these participants had zero time (they just clicked and exited the study). The data for two participants who did not respond to any survey items and six participants who spent more than 90 minutes on the study were also deleted. A Kruskal-Wallis H analysis was used when the normality assumption was not met for one variable and Pearson Chi-square analysis for one non-parametric variable. Greenhouse-Geisser corrections was used in the within-group design repeated measure ANOVA to balance type 1 and type 2 errors. All the seven behavioural

engagement variables are inter-related. A separate analysis was, however, conducted for each of the seven variables to check for any pattern.

Hypothesis 1 stated that Ontario high school applied courses are perceived to be less difficult than academic courses. Accordingly, a within-group design repeated measure Analysis of Variance (ANOVA) using Greenhouse-Geisser corrections was used to compare the means of difficulty-level ratings of applied and academic courses. Results suggested a significant main effect F (1, 212) =828.14, p <.0001, *partial* η^2 = .796. Specifically, participants perceived Ontario high school applied courses as less difficult (M=3.90) than Ontario high school academic courses (M= 7.61).

Hypothesis 2 predicted more behavioural, emotional and cognitive engagement in the "academic" labeled activity than in the "applied" and "control" activities. Seven between-subjects ANOVA for five of the behavioural and one each for the emotional and cognitive engagements were used. A between subject Pearson Chi-square analysis was used for participants' choice to click or not to click the prep material because this was a dichotomous variable. A Kruskal-Wallis H was used to analyze participants' choice to click or not to click the question-specific resource statements because data for this variable was not normally distributed.

Behavioural engagement: A between-subject factor One-Way ANOVA was used to compare the means of five of the seven different behavioural engagement measures: There was no significant main effect for the total amount of time (in seconds) participants spent on the study preparation instructions, F (2, 210) =.513, p =.599, *partial* η^2 = .005. That is, the average time participants in the academic condition (M=17.8), applied condition (M=12.4) and in the control condition (M=11.3) spent on the study preparation instructions did not vary significantly across the three conditions.

There was also no significant main effect for the total amount of time participants spent on study preparation material, F (2, 210) =.138, p =.801, *partial* η^2 = .002. Means for the total amount of time for the academic condition (M=77.81) applied condition (M=79.50) and the control (M=71.40) had no significant difference across the three conditions.

The analysis for participants' total amount of time spent on question specific resource statements also had no significant main effect, F (2, 210) =.60, p =.550, *partial* η^2 = .006. That is, total amount of time participants spent on the question specific resource statements did not significantly vary across the three conditions, academic (M=6.57) applied (M=5.34) and the control condition (M= 5.50).

A between subject One-Way ANOVA analysis also found no significant main effect for the total time participants spent on the 12 multiple choice questions, F (2, 210) =.298, p =.743, *partial* η^2 = .003. The total amount of time participants spent on the whole test questions did not significantly vary across the three conditions, academic (M=23.63 seconds), applied (M=25.73 seconds) and control (M=25.21 seconds[3]).

There was also no significant main effect for the total test scores of the participants, F (2, 210) =1.08, p =.342, *partial* η^2 = .01. Participants' test scores average in the academic (M=8.41), applied (M=8.04) and control (M=8.04) did not have any significant differences.

A between subject Pearson Chi-square analysis was used for participants' choice to click or not to click the test preparation material (this was a dichotomous variable) and there was no significant main effect, χ^2 (2, N = 213) = 4.17, p = .124, η^2 = .020. That is, the percentages of

[3] Yes, the total average time participants spent on the 12 questions was 25 seconds

participants who chose to click on the preparation material did not differ significantly by activity label, academic (65.7%), applied (52.2%) and control (50.0%).

A Kruskal-Wallis H test analysis showed no statistically significant difference in the mean ranks of the participants who chose to read the question-specific resources statements across the three conditions, H (2) = 1.74, p = .420, η^2 = .008 with a mean rank choice score of 114.44 for the academic activity, 105.29 for the applied activity and 101.56 for the control (civic) activity. A higher mean rank denotes that higher percentage of participants in that condition chose to use the question specific resource statements.

In summary, there were no statistically significant differences in any of the seven behavioural engagement variables (see Table 1 and 2 for a summary of engagement results). The results in five of the seven analysis are, however, in the directions of the study predictions: Participants in academic condition had higher means/percentages scores of behavioural engagements in five of the seven variables.

Table 1

Summary of behavioural, emotional and cognitive engagement means

Type of engagement	**Academic Condition**		**Applied Condition**		**Control Condition**	
A. Behavioural engagement	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
1. Preparation instruction time	17.89	20.79	12.40	11.98	11.30	20.79
2. preparation material time	77.81	66.65	79.48	91.27	71.40	46.42
3. Duration on question resources	6.57	11.18	5.34	4.20	5.50	3.92
4. Exam duration	23.63	18.97	25.73	15.48	25.21	15.55
5. Exam score	8.41	1.70	8.04	1.80	8.04	1.72
B. Emotional engagement	3.33	1.28	3.62	1.03	3.20	1.26
C. Cognitive engagement	4.13	0.68	4.05	0.63	3.94	0.76

Table 2

Summary of two of the seven behavioural engagements results

Behavioural engagement	**Academic Condition**	**Applied Condition**	**Control Condition**
1. Percentages for decision to read preparation material	65%	52%	50%
2. Mean ranks for decision to read question resources	114.44	105.29	101.56
Notes: Variables number 1 and 2 have percentage and mean ranks scores from Pearson Chi-square and Kruskal-Wallis H test analysis respectively.			

Emotional engagement: One-Way between subject ANOVA was used to compare emotional engagement means in the three activity conditions (academic, applied and neutrally labeled activity). There was no significant main effect across all the three conditions, F (2, 210) =2.52, p =.108, *partial* η^2 = .021. That is, participants' mean scores of their emotional engagement to the test activity, academic (M=3.33), applied (M=3.62) and control (M=3.20) did not differ by test activity label.

Cognitive engagement: A similar One-Way between subject ANOVA comparison of cognitive engagement means across the three activities conditions found no significant main effect, F (2, 210) =1.39, p =.252, *partial* η^2 = .01. Specifically, the cognitive engagement means scores of participants to the test activity, academic (M=4.13), applied (M=4.05) and control (M=3.94) did not differ by test activity labels.

Hypothesis 3 stated that participants will make more internal attributions in the "academic" activity than in the "applied" activity. A 3-label (applied, academic and control) by 2 attributions (internal vs. external) mixed ANOVA was conducted. The ANOVA using Greenhouse-Geisser corrections suggested significant attribution main effect, F (1, 210) =9.285,

p =.003, *partial* η^2 = .042. Specifically, participants were more likely to make external attributions (*M*=4.33) than internal attributions (*M*=3.00).

There was no significant main effect of activity labels, F (2, 210) =.205, p =.815, *partial* η^2 = .002. That is, participants' internal/external attributions of their test performance did not differ by activity conditions, academic (*M*=4.13) applied (*M*=4.17) and control (*M*=4.20). There was also no significant interaction, F (2, 210) =.623, p =.537, *partial* η^2 = .006. To explore any external/internal attributions differences in any direction, a pairwise within condition mean differences was conducted. This exploratory multiple comparison of within conditions mean differences showed that participants in the applied and control conditions were significantly more likely to make external attributions than internal attributions (see Table 2 for mean differences comparisons).

Table 3

Multiple within conditions comparisons of internal and external attributions means

Activity label	External attributions		Internal attributions	
	Mean	*SD*	*Mean*	*SD*
Academic	4.21[a]	.76	4.05[a]	1.07
Applied	4.37[a]	.86	3.98[b]	1.03
Control (Civic)	4.42[a]	.87	3.98[b]	1.40
Notes: Means with different superscripts in the same row are different at the p<.05 level				

Discussion

The overall research question that categorization of learning courses as applied or academic in the current Ontario high school curriculum creates different stereotypic views about

the applied and academic labels was supported. Specifically, participants perceived applied courses to be significantly less difficult than academic courses. This result is congruent with other research findings on the applied and academic course concept (see Parekh, 2014; Pang et al., 2012). The result that the applied and academic label is being perceived as a measure of course difficulty goes against the original purpose of the applied and academic curriculum: The original purpose of the applied/academic course concept was about career choice and was not meant to create streaming pathways based on course difficulty level (M.O.E, 1999).

The province curriculum policy presents the applied and academic concept as de-streaming model that is about student career choice (M.O.E, 1999). The implementation of the concept, however, denotes two different education pathways based on course difficulty (Parekh, 2014). For instance, students who do not do well in their primary school classes are automatically enrolled in high school applied courses (see Parekh, 2014; Pang et al., 2012). The rating of applied courses as almost twice less difficult than academic courses in this study could, therefore, be a reflection of how the curriculum is being implemented. That is, participants' perception of applied courses as easier than academic courses, though it might contradict the original purpose of the curriculum, is quite predictable, given the current implementation of the curriculum.

This stereotype that the applied course stream is easier could have unexpected impacts on the intended curriculum outcomes. This study examined two potential impacts of this applied label easiness stereotypes: Student engagement with learning activities and the attributions they make about their performance (grades) in these activities.

Student engagement

The hypothesis that students would have more engagement (behavioural, emotional and cognitive) in the "academic" labelled activity than in the "applied" labelled activity was not

supported. Specifically, the total amount of time (in seconds) participants in the academic condition spent on study preparation material instruction did not significantly differ from that of the applied and control conditions participants. Similarly, the means of total amount of time participants in academic condition spent on study preparation material did not significantly vary from that of the applied and control conditions participants. There were also no significant variations in the means of the total amount of time participants spent on the question specific resource and on the whole twelve-test questions across activity labels. The average test scores of the participants did not also significantly vary across activity labels.

The percentage of participants who chose to read the exam preparation material did not also significantly differ by activity conditions. Similarly, the mean ranks for the participants who chose to click on question-specific resource statements had no significant variations across activity labels.

Behavioural engagement (effort, amount of time spent on activity, following instructions, using available resources) of students increases when a reasonably high level of difficulty is perceived in an activity (Foos, 1992). The study predicted the easiness stereotype of the applied label would evoke less behavioural engagement in participants in the “applied” condition than those in the “academic” condition. Behavioural engagement was assessed on seven different measures and though the results of five of these seven measures were in the direction of the study prediction none had significant difference.

Social settings influence the degree and the type of behaviour people engage with (e.g., Hogg & Reid, 2006). For example, members of a group are more likely to engage in the prototypical behaviours of the group in the presence of the group members than when they are alone (e.g., Hogg & Reid, 2006). Behavioural engagement has quite visible components (e.g., asking questions, following class instruction). The lack of behavioural engagement differences

in the applied, academic and control conditions in this online study could partially suggest that the applied/academic label stereotype is dependent on the platforms of learning activities such as school social settings.

In the presence of peers and teachers, a student in an applied course might deliberately avoid asking clarification questions (the equivalent of clicking on resource options in this study) and not follow class instructions to protect their self-image. Displaying higher behavioural engagement with an activity that is perceived to be easy, might lead to negative interpretations about the academic ability of the student. A student in the applied course in the actual school setting might, therefore, use their lower behavioural engagement to explain why they are in an "easy" applied course (I am in applied course because I am careless about school and not because I am stupid).

In contrast, the academic label might evoke more behavioural engagement in the school social community because of the positive connotations attached to its rigorousness attributes. Unlike the applied course, asking questions in an academic class might be given an interpretation of higher cognitive abilities to deeply understand complex materials (I am asking questions about these supposedly difficult materials because I have strong academic competence to critic and analyze these difficult ideas/material).

This online study was removed from this school social context. It is, therefore, possible that participants genuinely approached the "applied", "academic" and neutrally (control) labelled activities with the same degree of behavioural engagement. More research studies comparing the influence of different learning platforms (online, anonymous online and traditional class settings) might provide important insight on the relationship between learning platforms and learning activities stereotypes in regard to student behavioural engagement.

The emotional results, similar to the behavioural engagement results did not also significantly vary across conditions. Specifically, the emotional engagement of participants in the academic condition did not significantly differ from the emotional engagement demonstrated by participants in the applied or control conditions. The study predicted that the rigorousness associated with the academic label would elicit more emotional engagement than the applied label that is associated with easiness. Participant did confirm a rigorousness perception and easiness stereotype for the academic and applied labels respectively. Their self-reported emotional engagement results in this study, however, appears not to be influenced by the difficulty levels associated with these labels.

People use accessibility and the salience of meaningful reference points to make sense of themselves (e.g., Abrams et al., 1990). This study emotional engagement attributes (e.g., enthusiasm, excitement, pride) might not be as physically visible as those of behavioural engagement, but they could also be social setting dependent. The emotional engagement attached to the easy/difficult categorization of the applied/academic courses could be moderated by the constant accessibility and the salient existence of the applied/academic classes in the same school settings. In other words, awareness of applied/easy stereotypes could be more vivid and hence more emotionally engaging when it is in constant comparative view. The exam questions on this online study had the labels applied/academic conspicuously appear above each of the twelve questions. This constant appearance of the activity label could act as a reminder of the label but, could not provide a meaningful applied/academic comparative reference point. It is, therefore, worth exploring how the accessibility of comparative reference points in different learning platforms moderate the influence of learning activity-related stereotypes. Would the applied/academic label evoke a different degree of emotional engagement if the participants in this study were in actual school setting?

The results for cognitive engagement similar to the behavioural and emotional engagement did not also support the study prediction that there would be more cognitive engagement in the academic condition than in the applied condition. Specifically, the cognitive engagement reported by participants in the academic condition did not significantly vary from cognitive engagement of participants in the applied and control conditions.

Students show more cognitive engagement (meaningful processing, concentration, strategy use, metacognition and comparing of complex ideas) in tasks that require meaningful concentrations (Zimmerman, 1990). The study predicted that the rigorousness associated with the academic label would induce more cognitive engagement in the academic condition than in the applied condition. The results, however, did not support this prediction despite participants confirming the existence of a rigorousness perception for the academic label.

Cognitive engagement, in addition to being context dependent (that teachers, classroom environment play a role on students' cognitive engagement) is also dependent on some aspects of behavioural engagement (Smiley & Anderson, 2011). For instance, a student needs to spend time (which is one of the effort measures of behaviour) to engage in a deep analysis and comparison of ideas in a given task. This inter-dependence between behavioural and cognitive engagement is mentioned but not completely clarified in the literature (Smiley & Anderson, 2011). The pattern of results observed in this study (both behavioural and cognitive engagements results, though they were in the direction of the study predictions, were not significant), might also suggest that behavioural and cognitive engagement might be inter-dependent. More research on the relationship between the two variables might help in their accurate measurements.

Attributions

The hypothesis that participants in the academic condition will make more internal attributions than participants in the applied condition was also not supported. That is, the internal/external attributions participants made about their manipulated 92% test score did not vary by condition label. The kind of attribution (external or internal) students make about their school performance impacts how they evaluate their academic/learning experience (Bandura, 1989). When a student ascribes high grades to internal attributes (effort/ability), a positive feedback loop that positively impacts the student's effort/ability is initated (Bandura, 1989). The study predicted that a hight test score in an academic activity would be attributed to an internal cause due to the academic label rigorousness stereotype while the same high score in an applied activity would be attributed to an external cause due to the applied label easiness stereotype. Participants rated the academic courses as almost twice more difficult than the applied courses. The attributions they made about their manipulated high test score (92%) was, however, not significantly different acorss test activity labels.

People make attributions (internal or external) in an evaluative education setting to seek a meaningful explanation for an observed outcome (Graham, 1991). This study was advertised as a pilot study about new changes to Ontario high school curriculum. It is possible that this study description inadventently diminished the need for any meaningful evaluative feedback at the personal level. The study description might have introduced doubts into the validity and reliability of study test activity in terms of assessing participants' abilities. That is, it could be argued that participants did not have any reason to engage in meaningful attempts to assign particular causality to their test score because they did not believe the pilot test score was a reliable reflection of their abilities. The same study advertised with a more stable description might evoke a stronger urge to make meaninful attributions about the study test score.

The lack of external/internal attributions difference in this study conditions could also suggest that the online platform of the study setting could have played a role. In other words, attributions about a high grade in an applied/academic courses could be influenced by the setttings in which the attribution is evoked. For example, in an actual school setting, if a student gets 92% in an applied English test, it is possible that the student would attribute it to course easiness. It is also possible that the student could attribute the 92% grade to their internal attributes (effort/ability). It might, however, become more difficult for the same student to make any internal attributions about their 92% in the presence of their peers who are all making external attribution (this applied test was easy) about a similar score in the same test.

This study examined external/internal attributions about only a manipulated high score. It is worth exploring how attribution about low/failing score would compare to this study results. Depending on whether ability is considered a stable trait or malleable trait (see Fisher & Oyserman, 2017 for fixed and growth mindsets), a lack of external attribution about low grade for applied label could have more negative impact on student's perception of their abilities than a lack of external attribution about high grade would have.

There was no significant difference in participants' external/internal attributions by activity labels. To check if there was any attribution difference in any direction, the results of within condition internal/external attribution mean differences were compared. This exploratory multiple comparison of within conditions mean differences suggested that participants in the applied and control conditions were significantly more likely to ascribe their 92% test scores to external attributions than internal attributions (see Table 2 for within condition mean differences). This external attribution significance was however missing in the academic within condition comparison. This was not part of the study prediction, but the existence of significantly

more external within condition attributions in the applied and control condition might be worth exploring further.

The applied and academic course curriculum and its stereotypes

The current applied/academic concept is associated with a host of issues among them being students in the applied courses having lower credit accumulation rates and lower performance in standard tests than students in academic courses (see Cooke et al., 2017; Parekh, 2014). This study attempted to explain this lower educational achievement by exploring the impact of activity label stereotypes on student engagement and their performance attributions. This study results do not suggest any significant influence of activity labels stereotypes on students' engagement and their performance attributions at least in an online setting. The study, however, confirms the existence of difficulty-level stereotypes around the applied/academic course concept and this could have a number of unexpected negative impacts on the province applied students' educational success

Firstly, this applied/academic difficult level stereotype contravenes the original purpose of the applied/academic course concept curriculum policy: One of the original key objectives of the applied/academic concept was to de-stream the school system and provide high school students with more opportunities to take courses that aligned with their interest and career aspirations. Data from the Toronto district school board, however, show that the majority of students enrolled in grade 9 applied courses never switch to academic courses in their later grades (Parekh, 2014). It is worth examining if students' perception of the applied course easiness is hindering their selection of different courses (academic) in their senior grades. In other words, are applied students self-categorizing themselves along the applied easiness label and feel academically threatened (I am applied student and cannot do academic course) to switch to academic courses in the senior grades?

The original plan for applied/academic course was that students interested in hands-on programs would enroll in applied courses and would later on continue onto colleges to advance their careers. This career-driven post-secondary pathway is, however, not the current observed pattern. Post-secondary admission for applied high school students is ,low with only 21% of college and 3% of university enrollment respectively (Parekh, 2014). Given the results of this study, it is possible to argue that the lower post-secondary admissions for the applied students is due to the applied course choice being driven by course easiness and not by career interests.

Stereotypes and learning activities

The concept of stereotype from group/individual perspective is well documented: There is considerable research literature on stereotype presentation, formation, maintenance, application and change from the group/individual perspectives (see Hilton & von Hippel, 1996; Tajfel, 1982). There is, however, limited research literature on stereotype from an activity perspective in general and activity stereotype in education setting in particular. For example, gender stereotypes and racial stereotypes are well documented (e.g. Gordon, 2015; Keller, 2007) but there is less understanding about how curriculum communication and implementation generate different stereotypic views about learning activities. A deeper understanding of learning activity stereotypes and their influence on student learning experience could, therefore, provide better alternatives in finding solutions to curriculum challenges and educational inequalities.

Limitations and future directions

There are a few limitations to this study depending on how the results are interpreted in relation to the study platform. For instance, if this online study results should be comparable to actual school setting (this was the argument for this study), then the unconditional awarding of credits and the online platform of the test activity can be considered as limitations. The

unconditional awarding of course credit and the online platform, (thought these are standard practices), might have impacted the general basic activity investment/stake of the participants. For instance, participants on average spent about 25 seconds on all the twelve-multiple choice test questions. The data for 363 was also deleted for having less than a total study time of 15 minutes. Participants did not also do well in the manipulation check question about the type of test activity they had done: Even though the test type label (academic/applied/civic) conspicuously appeared on every question, considerable number of participants could not correctly remember which test type they had done. It is, therefore, worth asking if the study platform is reasonably comparable to general school settings in terms of participants' baseline stake in the test activities. The same study advertised as an assessment of university students' memory of high school materials in an actual lab setting with participants disclosing their manipulated test scores at the end of the study might address the low stake issue arising from the online platform.

Another limitation to this study, specifically about the cognitive engagement results, involves problems in measuring cognitive engagement (Smiley & Anderson, 2011). Cognitive engagement is an evolving concept in its theoretical construct (e.g., how much of cognitive engagement is motivation or behavioural engagement) and its psychometric tools have not yet reached their most robust levels (Smiley & Anderson, 2011). The cognitive engagement items used in this study had low Cronbach's alpha both in their original and current study (even though they are considered the better items for activity engagement). More research efforts in the both cognitive engagement construct definition and its measurement tools could help with accurate measurement of student cognitive engagement with their learning activities.

Given the errors in the apriori analyses, another limitation in these results is that the study had a relatively low power. There was also a typo (grade instead of a grade) in one of the

attribution items. A confusion from this typo might have impacted the reliability of the attribution measure items.

Conclusion

The current Ontario high school applied, and academic course concept is associated with lower educational success for students enrolled in the applied courses. The results of this study showed a difficulty-level stereotype (applied is easy and academic is rigorous) for the applied/academic labels. The study assessed the impact of this label stereotypes on students' engagement and their performance attribution in activities labelled "applied" or "academic". The results of this online study, (contrary to the study predictions), did not find any significant impact of activity label on participants' engagement and attributions about their test scores. The interpretation of this study results should take into consideration how the study online platform might have influenced participants' reaction to the activity label stereotypes in this study. Consideration should also be given to how participants' low stake in the study might have influenced their engagement with the study materials. More research understanding of the impact of activity stereotypes in different learning platforms is recommended.

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Appendix A: Cover story: Civic, Democracy the Canadian Context

This is a pilot study for some new changes to the Ontario high school curriculum. You will be presented with a civic exam of 12 multiple-choice questions drawn from Ontario high school grade 10 civic curriculum. Ontario high school curriculum has two major programs of studies: Academic courses (abstract concept) and applied courses (practical application courses).

To prepare for this exam, you have the option to read and study an exam preparation material (it is labelled “exam preparation material”) before you start the exam. There is also a resource link embedded into each of the 12 multiple choice questions. Your will have access to your exam score before the end of the study session.

Before you start the exam, you will be asked to respond to some demographic questions. You will also be asked to rate Ontario high school applied and academic courses.

Your participation in this civic exam is purely for this research study and is in no way connected to your name or any of your university records.

Appendix B: Demographic Questionnaire

Below you will find boxes and questions. Please fill the boxes and answer the questions to describe yourself.

What is your current year of study? ☐ First Year ☐ Second Year ☐ Third Year☐ Fourth Year

Where did you attend high school? ☐ Ontario ☐ Other Parts of Canada ☐ Outside of Canada

If you attended high school in Ontario, what stream (program of studies) were you enrolled? ☐ Academic ☐ Applied ☐ Fast Forward ☐ Don't remember

Sex: ☐ Female ☐ Male ☐ Other (please specify) _____

Age: _____ years

Status in Canada: ☐ Citizen ☐ Permanent resident ☐ Refugee ☐ International Student

☐ Other (please specify) _____

Were you born in Canada? ☐ Yes ☐ No

If ***No*****:** How old were you when you arrived? _____

If ***No*****:** Where were you born? _____

Race: People sometimes identify themselves by **"race"** and/or colour. We should point out that there is no evidence of clear biological distinctions between "racial" groups. From our perspective, such divisions are a question of culture (i.e., learned) and not of biology. Please check the group(s) that you believe best describe the group with which you most identify. Examples of heritage groups are provided.

☐ Aboriginal/First Nations/Métis
☐ Black/Africa/Caribbean
☐ East Asian (Japanese, Vietnamese, etc.)
☐ Latin American (Costa Rican, Brazilian, Columbian, etc.)
☐ Middle Eastern (Saudi Arabian, Iranian, Egyptian, etc.)
☐ South Asian (East Indian, Sri Lankan, etc.)
☐ White/European
☐ Other (please specify) _____

Think of this latter as representing where people stand in their communities. People define community in different ways. Please define it in whatever way is most meaningful to you. At the top of the latter are the people who have the highest standing in their community. At the bottom of the latter are the people who have the lowest standing in their community. Where would you place yourself on this ladder?

Please indicate the number of the rung where you think you stand at this time in your life, relative to other people in your community.

Appendix C: Semantic differentials

Ontario high school curriculum has two major programs of studies: applied courses and academic courses. The series of differential scales below present an adjective on one side and an opposing adjective on the other side. Please use the scale below to rate applied courses in the current Ontario high school curriculum

Looking at the scale below, please select the position on the scale that indicates how strongly you believe the word is true for **Applied Courses** compared to academic courses in the current Ontario high school curriculum

Adjective											*Adjective*
Difficult	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Easy**
Expensive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Cheap**
Complex	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Simple**
Rigorous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Undemanding**
Fun	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Dull**
Known	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Unknown**
Effortful	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**light**

Ontario high school curriculum has two major programs of studies: applied courses and academic courses. The series of differential scales below present an adjective on one side and an opposing adjective on the other side. Please use the scale below to rate academic courses in the current Ontario high school curriculum

Looking at the scale below, please select the position on the scale that indicates how strongly you believe the word is true for **Academic Courses** compared to applied courses in the current Ontario high school curriculum.

Adjective											*Adjective*
Difficult	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Easy**
Expensive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Cheap**
Complex	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Simple**
Rigorous	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Undemanding**
Fun	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Dull**
Known	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Unknown**
Effortful	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**light**

Appendix D: Exam type description

Applied group: You have been assigned an applied civic exam. It is based on Ontario high school grade 10 applied civic course. There is exam study resource before your start the exam. You also have resource/support note for every question.

All the questions on this **Applied** civic exam are based on grade 10 **Applied** civic course.

Academic group: You have been as assigned an academic civic exam. It is based on Ontario high school grade 10 academic civic course. There is exam study resource before your start the exam. You also have resource/support note for every question.

All the questions on this **Academic** civic exam are based on grade 10 **Academic** civic course.

Control group: You have been as assigned a civic exam. It is based on Ontario high school grade 10 civic course. There is exam study resource before your start the exam. You also have resource/support note for every question.

All the questions on this civic exam are based on grade 10 civic course.

Appendix E: Question on exam type

You have done a 12-multiple choice questions exam. What type of exam was this?

☐ Grade 10 Applied Civic exam ☐ Grade 10 Academic civic exam ☐ Grade 10 Civic Exam
☐ I do not remember

Appendix F: Emotional engagement measure

Please read each statement below as carefully as possible and choose one of the words to the right of each statement to indicate your degree of agreement or disagreement. There are no right or wrong answers.

1. I felt enthused about the questions on this civic exam
2. This civic exam questions made me feel excited.
3. This civic exam questions caused me to feel energized.
4. The questions covered in this civic exam fascinated me.
5. Doing this civic exam was enjoyable.
6. Choose the first option—" strongly disagree"—in answering this question.
7. The experience I had doing this civic exam made me feel good.
8. This civic exam questions fascinated me.
9. I like the questions covered in this civic exam
10. I felt proud doing and completing this civic exam

Appendix G: Cognitive engagement measure

Please read each statement below as carefully as possible and choose one of the words to the right of each statement to indicate your degree of agreement or disagreement. There are no right or wrong answers

1. When approaching the questions on this civic exam, I planned out or organized my response prior to choosing my answer
2. When preparing to answer a question on this civic exam, I stopped to reflect on my experience with the text presented
3. Please answer this question by choosing option number two, “disagree.”
4. When experiencing the questions presented in this civic exam, I considered issues related to civic education in Canada.
5. When answering the questions on this civic exam, I considered how those reviewing the answers would want me to respond
6. When answering the questions on this civic exam, I looked for clues of how to respond within the test itself.

Appendix H: Score feedback display

Applied group: Congratulations! You got 92% in your applied civic exam

Academic group: Congratulations! You got 92% in your academic civic exam

Control Group: Congratulations! You got 92% in your civic exam

Appendix I: Attribution measure

1. My good civic exam grade may simply reflect that these questions were easier than most civic exams questions.
2. I received a good grade on this civic exam because I worked hard on this test.
3. I feel that my good grade on this civic exam was to a considerable extent on chance factors, such as having the right questions show up on this test.
4. I got a good grade on this civic exam because of my academic competence.
5. Sometimes my success on tests depends on some luck.
6. In response to this question, please choose option number three, “slightly disagree.”
7. The most important ingredient in getting good grade on this civic exam is my academic ability
8. I feel that I have to consider myself lucky for the good grades I got on this civic exam
9. In my case, the good grade received on this civic exam is the direct result of my efforts.
10. I feel that my good grade on this civic exam reflect directly on my academic ability
11. I got good grade on this civic exam test only because the questions were easy to understand

Appendix J: Conscientious Responders Scale (CRS)

1. To answer this question, please choose option number four, “neither agree nor disagree.”
2. Choose the first option— “strongly disagree”—in answering this question.
3. To respond to this question, please choose option number five, “slightly agree.”
4. Please answer this question by choosing option number two, “disagree.”
5. In response to this question, please choose option number three, “slightly disagree.”