

# MARINE PEOPLE PARTNERSHIP

STUDENT INTENTIONS AND PERCEPTIONS SURVEY

REPORT OF FINDINGS, ANALYSIS AND RECOMMENDATIONS

Report prepared by the

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## Table of Contents

Executive Summary .....	6
Introduction .....	9
Impetus for the Study.....	9
Benchmarking the Current Study .....	10
Objectives of the Study .....	12
Background .....	13
<b>Survey Design</b> .....	13
<b>Pilot Study</b> .....	14
<b>Sample Group</b> .....	15
<b>Methodology</b> .....	15
<b>Data Analysis</b> .....	16
Sample Group Demographic Data .....	18
Gender.....	18
Grade.....	18
Participation by Board .....	19
Participation (%) of individuals within each school board .....	19
Did any of your parents or guardians go to College or University or do they go now? .....	20
Post-Secondary Pathway Intentions .....	22
After I finish high school I would like to; (pathway).....	22
I think the best ways to get information about my future goals and career are; .....	24
What job are you most interested in doing when you are older? .....	25
What subjects will help you to get your top choice of job?.....	26
Table 1: Top-Three Subjects Associated with each Job Group .....	27
What skills will help you to get your top choice of job? .....	28
Table 2: Top-Three Skills Associated with each Job Group.....	29
Interprovincial Mobility .....	30
After I finish high school I would like to; (mobility) .....	30
By gender .....	30
Oceans-Oriented Education and Careers .....	32
Types of Careers in the Marine Industry .....	32
Are you interested in a job in the marine industry? .....	33
If you're not interested in a job in the marine industry, explain why;.....	34

Curriculum Relevance .....	35
At school my teachers help us understand how the things we learn in math and science relate to real world jobs.....	35
Table 3: Showing responses of perceptions of relevance.....	36
Interest in Careers in Skilled Trades and Technology .....	37
Do you know someone who works in a skilled trade?.....	37
Are you interested in a job in a skilled trade? .....	37
By gender; .....	38
If no, explain why; (open-text responses) .....	38
Table 4: Reasons for indicating ‘no interest in a skilled trade’ with knowledge of someone who works in skilled trade variable.....	39
Perceptions of Skilled Trades .....	41
What statements do you believe to be True/False about skilled trades? .....	41
Table 5: Perceptions of Interest, importance, and opportunity (True/False) .....	41
Table 7: Perceptions of social desirability in terms of prestige, compensation, and approval .....	43
The Influence of Perceptions on Interest .....	44
Perceptions of Career Opportunities in Nova Scotia .....	46
Do you have family or friends who live in NS but work in another province? .....	46
Interprovincial Mobility .....	46
Which statements do you believe are true or false about jobs in Nova Scotia? .....	47
Career Consideration Drivers .....	50
What is important to me: First Three Responses .....	51
Urban vs Rural .....	52
Mobility Interests .....	53
Career Interests.....	54
Perceptions of Skilled Trades Roles .....	54
Jobs in NS .....	55
Open-text Responses .....	56
Insights & Recommendations.....	58
References.....	61
Appendix A: Letter to Teachers .....	63
Message to Teachers.....	63
Instructions for Implementation .....	63
Appendix B: Career Categories .....	65



## Executive Summary

In January of 2016, in partnership with the Department of Education and Early Childhood Development (EECD), a study was initiated involving students in grades 6-9 across the province of Nova Scotia. The Student Intentions and Perceptions survey was launched across English, French, and MK schools, and received 14,497 responses – a nearly 40% response rate.

Understanding the perceptions of marine-related and trades/technology careers among today's youth and understanding their intentions and influences will provide useful insights to inform recommendations for the design of future awareness/exposure building initiatives and career development programs to help us shift the dial on this workforce challenge.

It was hoped that surveying younger students (grades 6-9) would provide useful insights into understanding when and how their career perceptions are formed, which could signal optimal periods for targeting career counseling and awareness and exposure building programs.

The survey tool was comprised of 17 key questions that solicited responses to key constructs relating to awareness, intention, perceptions, and attitudes regarding careers in the region generally, and careers relating to the marine industry and skilled trades and technology roles specifically. The survey data provided insights into;

- the perceptions young people have of alternative education and career pathways
- how and when those perceptions are formed, and who has strongest influence over them
- young people's career and mobility intentions
- young people's perceptions of minimum requirements for jobs and education

This report provides a detailed analysis of the data, as well as a summary of insights and recommendations for career literacy interventions and programs aimed at the grade 6-9 cohort. Among the key findings of this study are;

- 42% of students responded that they intend to stay in Nova Scotia, while 31% intended to leave, and 27% did not know. If we combine those with the intention to leave, with even a fraction of those who weren't sure, we could potentially be facing the loss of a significant proportion of the region's youth – or at the very least, the disengagement of those youth from regional pathway exploration activities. The data suggests that the intention to leave is not as a result of a push from the region (i.e. due to poor economic conditions, and poor employment prospects), but rather is due to a pull to other regions (i.e. the allure of mobility itself)
- The question of mobility was addressed a second time towards the end of the survey to evaluate consistency of response. Both intention to leave and intention to stay in Nova Scotia decreased, while uncertainty increased significantly. The change effect was equally pronounced among urban and rural students. This indicates that the survey itself provoked students to think more

critically about their future options. It also demonstrated the malleability of youths' attitudes and intentions when they are given an opportunity to consider new information, ideas, and pathway. This in turn illustrates the potential positive influence of career literacy initiatives to broaden young people's exploration of career options.

- Responses demonstrated that students form strong early bias against certain education and career pathways, and a correspondingly strong bias towards a socially-endorsed academic pathway – even without a specific career/credential outcome in mind. This means that young people are narrowing down their options and disregarding those that don't align with their perceptions of valid, endorsed (by parents and peers) options.
- A significant proportion of participants expressed fear, lack of interest, or outright aversion to oceans as their reasons for not considering an ocean-related career. This needs to be addressed – especially in a province that is literally surrounded by oceans. This suggests a need for more experiential learning opportunities, in and out of school, that expose youth to oceans in safe, engaging, and adventurous way. There is an immediate need to replace fear of the oceans with curiosity, and reluctance of getting wet and dirty with the thrill of exploration and discovery.
- Only ~3% of Nova Scotian youth expressed an interest in pursuing an entrepreneurial pathway
- Interestingly, of the ~3% of students who did indicate an interest in entrepreneurship, only 8% of those (or 33 students) expressed an interest in opening a business that was skilled trades-related. This suggests that, while students have some awareness of this option, entrepreneurship is not the pull that draws students along a skilled trades career pathway
- It is important to recognize the value of both an informed yes and an informed no. A key outcome of any awareness and exposure program is to support students in making an informed decision about whether or not to pursue a particular pathway. Without some awareness, students are too often dismissing some career options without consideration, or defaulting to others, with similarly little information.

This report provides evidence based observations and recommendations for future career literacy programs and engagement initiatives. While the data captured in this report are interesting and informative in their own right, this study will also serve as a benchmark to evaluate the impact of awareness efforts going forward.



## Introduction

In light of insights gained from a national study examining workforce development in the greater marine industry<sup>1</sup>, it was imperative that we look deeper into the issues of career literacy among youth, as an essential but tenuous link in the human capital equation. The location of IORE within Nova Scotia made this region ideal for the pilot launch of a Student Intentions and Perceptions survey, which targeted the perceptions, beliefs and attitudes of youth in the province with regards to careers in NS generally, and careers related to the marine industry in particular.

Nova Scotia is witnessing several emerging and accelerating sectors across the marine industry, including shipbuilding, boat building, ocean technology, tidal energy, and fishing and aquaculture. Growth in these sectors are paralleled by demand for workers in skilled trades & technology roles, and in oceans-oriented professions and applied sciences to sustain the activity and growth of these sectors. This study provides some insights into the enthusiasm young Nova Scotians have for these regional careers. Interest and intention for careers in skilled trades and technology, as well as careers in the marine industry remain hampered by persistent bias, lack of awareness, and misinformation<sup>2</sup>, which in turn produces a recruitment challenge to employers and post-secondary education programs.

Encouraging youth in Nova Scotia to consider careers across the broad marine industry has a second key objective that is related to the economic and employment benefits of emerging sectors. The region can also benefit from stemming the out-migration trends that have characterized its history and present. The breadth and scope of marine-oriented careers across the region and across the sectors offers varied options to young people to pursue their dreams while remaining in the province. Improving young peoples' awareness and understanding of local career opportunities is an important ingredient in meeting these objectives for strengthening the regional economy. Understanding youth perceptions of marine-related careers, and understanding their intentions, drivers, and influences, will provide useful insights to inform recommendations for the design of future awareness-building initiatives aimed at alleviating the regional workforce challenge.

## Impetus for the Study

The Marine People Partnership (MPP) is an initiative arising from the value proposition for the National Shipbuilding Procurement Strategy (NSPS). This initiative has completed its initial research phase, and has presented a report to Industry Canada (Scully, 2015), outlining the challenges, needs and opportunities for strategic workforce development in the greater marine industry. This report identified several key priority areas that have particular relevance to workforce issues in Atlantic Canada. These include;

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<sup>1</sup> Scully, Sherry. (October 2015). The Marine People Partnership: The challenges, needs and opportunities for strategic workforce development in the greater marine industry. The Institute for Ocean Research Enterprise (IORE)

<sup>2</sup> Fenwick, 2006; Minister's Panel on Education, 2014; Tyler, 2013; Guest, Lotze, and Wallace, 2015; Scully, 2015

- Reversing the bias and stigma of the marine industry in particular, and of trades and technology roles in general
- Addressing gaps in learning and coaching in the mindset and skills of entrepreneurship
- The need for career literacy programs for young people and their parents
- Opportunities to develop additional exposure and awareness building programs with broader reach and focus
- Understanding the drivers and motivators of inter-provincial mobility that draw youth away from our region
- Understanding how perceptions are shaped by regional career opportunities and media coverage, and how this influences student intentions early in their education and career pathways

Understanding the perceptions of marine-related careers among today's youth, and understanding their intentions and influences, will provide useful insights to inform recommendations for the design of future awareness/exposure building initiatives to help us shift the dial on this workforce challenge.

## Benchmarking the Current Study

The survey study was modeled on a previous 2006 High School Graduate Intentions Survey<sup>3</sup>, which examined the post-secondary intentions of grade 12 students. The study captured young people's intention to pursue post-secondary education (college and University), or to enter into employment immediately, and it captured students' perceptions of key influencers (i.e., parents) in their post-graduation intentions. This study will provide a comparison point generally, however the current study has been expanded to capture data relating to student perceptions & intentions, motivation, and influence relating to careers within the marine industry specifically, and the broader STEM category generally. The current survey has also been modified to accommodate a younger and broader sample group (i.e., grades 6-9).

A recent report by the NS Department of Education and Early Childhood Education Enrollment by Board and School for 2014-2015 indicated that there is a growing problem with youth who do not pursue post-secondary education after grade 12. For example, 32% of NSCC and 22% of Maritime students who entered a university did not return after their first year. This report provides current and timely statistics concerning the transition successes and challenges of current cohorts following post-secondary education pathways. These statistics will form a benchmark for comparing intentions reports by younger cohorts of students.

This study also evaluates constructs relating to career literacy and career maturity, which refer to an individual's awareness of the myriad career options available to them, coupled with the ability to

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<sup>3</sup> Nova Scotia Department of Education, December 2006.

make informed, appropriate career choices. There is very little current extant literature on these constructs. The most relevant literature examined young peoples' awareness of what is required to make a career decision and the degree to which one's choices are both consistent and realistic over time<sup>4</sup>. A related recent study<sup>5</sup> of career education modules presented in elementary schools in Alberta did find that students who participated in integrated career education reported that it had helped them to learn more about themselves and about careers. More importantly, students reported a heightened interest in learning more about careers and about the broad possibilities for their futures. *"If students can imagine their futures and become excited about these possibilities, then they may feel more connected to their education, see the relevance of their education, and be more interested in learning how they can attain their future life and career goals."* (pp. 18-19)

Ocean Literacy, or age-appropriate knowledge of the ocean's science and commercial qualities, and awareness of ocean-related careers and jobs, is a key construct being examined in this study. There is very limited extant literature on this construct; however, one recent study<sup>6</sup> did examine ocean literacy levels of Nova Scotia students, and reported low levels of awareness and understanding. This report will provide some data for comparison.

This research study also examines student intentions towards STEM-related careers. A recent study by WISEatlantic<sup>7</sup> revealed that students have relatively poor awareness of the math and science requirements for STEM careers (or of the variety of STEM careers available to them). The analysis by Franz-Odendaal et al focused primarily on the career awareness and intentions of female students in Nova Scotia, but provides a point of comparison for this broader study.

The proposed research will also examine key influencers for young people. Industry reports have examined the influence of guidance counsellors<sup>8</sup> and parents<sup>9</sup>, and have shown that the career and education advice of career counsellors tends to be limited to traditional academic programs and options that may be more a reflection of the counsellors' preferences than the students'<sup>10</sup>. This finding was repeated in the report by Freeman, who noted, *'teachers and guidance counsellors have a bias toward University as the anticipated outcome of high school'*, which in turn attaches a stigma to other options that young people might want to pursue. This report also showed the influence of parents and proximal role models to inform the career choices of children through how they assign social value to choices, provide encouragement<sup>11</sup> or how they reinforce feelings of efficacy for a proposed choice<sup>12</sup>. These studies demonstrate how the messaging of valid or 'good' options

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<sup>4</sup> Crites, 1978; King, 1989; Ohler, Levinson, & Hays, 1996

<sup>5</sup> Welde, Bernes, Gunn, & Ross, 2016

<sup>6</sup> Guest, Lotze, & Wallace. *Youth and the sea: Ocean literacy in Nova Scotia, Canada*, 2015.

<sup>7</sup> Franz-Odendaal & Blotnicky, *Career choices and influencers in science, technology, engineering and math: An analysis of the Maritime provinces*, January 2014.

<sup>8</sup> Freeman, Myra. Ministers Panel on Education. *Disrupting the status quo: Nova Scotians Demand a Better Future for Every Student*, October 2014.

<sup>9</sup> Nova Scotia Department of Education. *2008 Follow-up Survey of 2006 Nova Scotia High School Graduates*, 2010.

<sup>10</sup> Scully, October 2015

<sup>11</sup> Leung, Wright, & Foster. *Perceived parental influence and adolescent post-secondary career plans*. High School Journal, 70, 1987.

<sup>12</sup> Bandura, Albert; Barbaranelli, Claudio; Caprara, Gian Vittoria; Pastorelli, Conchetta. *Self-efficacy beliefs as shapers of children's aspirations and career trajectories*. Child Development, 72(1), 2001.

communicated to children implicitly and explicitly throughout their lives. The current study also focuses on how and at what age these messages of validity (and stigma) begin to form and inform thoughts about children's futures.

## Objectives of the Study

Understanding the perceptions of marine-related careers among today's youth and understanding their intentions and influences will provide useful insights to inform recommendations for the design of future awareness/exposure building initiatives to help us shift the dial on this workforce challenge.

The data generated by this study will help to inform;

- Career literacy programs and coaching
- Career literacy programs relating specifically to interprovincial mobility
- Awareness and exposure building programs in grades 6-9
- Discussions and decisions regarding dual-credit and co-op programs in P-12
- Decisions regarding a common digital career literacy platform
- Preferred channels for accessing youth with career coaching
- Involvement of proximal role models in awareness and exposure programs
- Recruitment and retention strategies for post-secondary institutions (PSIs), apprenticeship programs, and employers (entry level) in NS
- Marketing and social messaging strategies to influence youth perceptions of career opportunities in NS
- Curriculum links with career opportunities (and skill relevance)

And will provide insights into;

- the perceptions young people have of alternative education and career pathways
- how and when those perceptions are formed, and who has strongest influence over them
- young people's career and mobility intentions
- young people's perceptions of minimum requirements for jobs and education

## Background

Recent research has shown that Nova Scotia youth are experiencing a major problem with transitions from secondary to post-secondary education or jobs. There is a growing problem with youth who do not pursue post-secondary education after grade 12, coupled with a growing trend of inter-provincial mobility and out-migration that results in a net loss to Nova Scotia of ~1,000 youth/year. High post-secondary attrition rates result in delays of entry into the workforce, and diminished productivity for those students as they invest time and money in programs into which they are transitioning poorly (and/or not completing). The outcomes of this study will be;

- to examine the perceptions and intentions of Nova Scotia school children to gain insights that will help us to support more secure and well-fitting transitions to post-secondary programs, especially those relating to emerging industries in the region
- to mitigate the out-migration of youth from our region by cultivating more optimistic perceptions of the breadth, scope and promise of career opportunities in the region

The data emerging from this survey could provide valuable insights into social perceptions of careers in trades & technology, engineering, ocean sciences and marine careers, and of factors that strongly influence the socialization and normalization of those perceptions. Surveying younger students (grades 6-9) may provide useful insights into understanding when and how those perceptions are formed, and may signal optimal periods for targeting career counseling and awareness and exposure building programs.

## Survey Design

This study was conducted using an online survey comprising 17 core questions (5 demographics, 12 construct related). The survey used a variety of question styles, including single response, multiple response, true/false, and open-text response. The survey was designed to assess several constructs relating to career intentions and perceptions for careers in the marine industry, including skilled trades, ocean research, entrepreneurship, and knowledge worker roles (i.e. engineering and architecture).

## Pilot Study

The survey was piloted on Tuesday, January 19<sup>th</sup> with a grade 6 class from a school in the Strait Regional School Board. Students independently completed the online survey in a classroom with 4 observers who answered questions as they arose, and made note of common questions and areas of difficulty. The objective of the pilot study was to evaluate;

- **readability** of the survey (i.e. could students understand what is being asked, are the questions accessible to the broad reading abilities of the sample group),
- **reliability** (are any questions ambiguous, do students interpret questions the same way, do the observers interpret responses similarly),
- **validity** (do the questions solicit the desired responses, do the questions tap into the target constructs),
- **time for completion** (what is the range for completion, what is the average completion time)

The pilot included 26 students who reflected a diverse cross-section of youth in Nova Scotia (i.e. African Nova Scotians, First Nations, students from rural and urban communities, immigrant students). The first students to complete survey did so at the 10 minute mark, most students were completed within 20 mins (all but 3), and all students completed within 25 minutes. This information informed the instructions to teachers that were distributed along with the survey link when the survey was launched.

Observers found consistency in the interpretation of questions and in the types of responses that emerged. Very minor adjustments were made to the survey (i.e. Nearly the entire class asked ‘why does it say ‘other’’ in the gender question, and thus it was decided to omit this third option as it posed an initial distraction as students settled into the survey. The final open-text question asked students to identify the job they would like to do when older. Several students were unsure of specific job titles, and chose instead to write descriptive narratives of their future desired role. This open text response box was extended to allow for more room for these descriptive responses.

The pilot data was kept, but was not amalgamated into the final survey data.

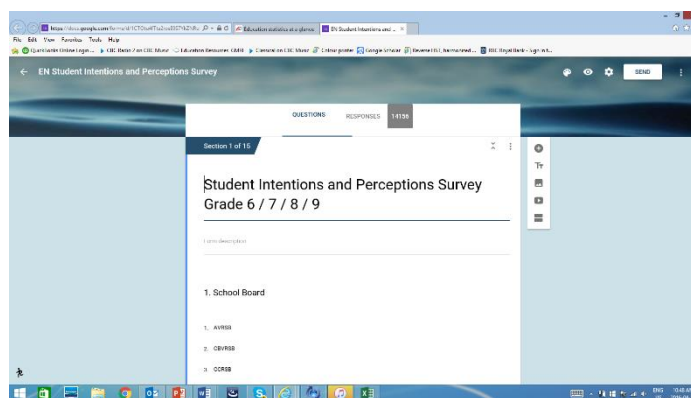
## Sample Group

This study will sample all students in grades 6-9 across the province of Nova Scotia, including French and English school boards, and First Nations community schools. Ideally, the sample will include a mix of rural and urban students.

Statistic validity required a minimum sample size of 3,700 students, with proportionate representation from mainland NS, Cape Breton, urban/rural, English/French, and First Nations community schools, and grade level. The desired sample size was calculated using the number of grade 6-9 students across NS (~36,075<sup>13</sup>), with a margin of error set at 2%, and confidence level of 99%. By the conclusion of the two-week survey period, 14, 497 students (nearly 40% of all grade 6-9 students across the province) had participated in the survey.

## Methodology

The study was launched through the NS Department of Education and Early Childhood Education (EECD) with the support of a Student Services contact from each school board, on Monday, January 25<sup>th</sup>, 2016, and closed on Friday, February 5<sup>th</sup>, 2016 at 4:30pm. Students were provided the link to the survey by the teacher, were given brief instructions for completion, and completed the survey during class time. The timestamp



accompanying each submission indicated that no surveys were conducted outside of school hours, implying that none were conducted without the support and instructions from the administering teacher. Survey responses were managed by an ICT consultant through a database hosted by EECD. Upon completion of the survey period, the data were transferred as an Excel spreadsheet to the principal investigator. At this point the data was only handled by the principal investigator and the PhD intern. All working data was stored on the secure laptops of these two investigators.

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<sup>13</sup> Figures provided by NS Department of Education and Early Childhood Education Enrollment by Board and School for 2014-2015.

French-language data was translated by the principal investigator and the intern, and then integrated into the English data. A primary analysis was then conducted that provided a summary and overview of each question in isolation. This was followed by a detailed analysis that examined predictive qualities and correlations between the variables.

Following the primary analysis, any identifying information was removed from the data (i.e. school name). It was agreed with the EECD that analysis and reporting would not occur below the regional board level, as some schools had so few participants that anonymity could not be guaranteed with more granular reporting.

## Data Analysis

The data was coded by the intern and the principal investigator, and was separately and simultaneously analyzed by the two investigators to evaluate variance/consistency in findings (validity). The data was then uploaded to IBM Watson Analytics to conduct the statistical analysis. A repeat of the analysis was conducted using SPSS to validate the analysis. A thematic analysis (for open-text responses) was conducted in Excel.

Open-text responses were analysed by pulling a random sample of 500 from the full sample group (a different random sample was pulled for each open-text response group). Responses were analysed for common themes and coded according to those themes. Generally, the top 5 (frequency) responses were reported, although other less-common responses were also examined if their low-response rates were noteworthy.

Validity of codes was established in two ways; by having the lead researcher and the secondary researcher code the same sets of responses independently and comparing the results, and by pulling a second smaller random sample of responses (100) and applying the same codes to see if they fit most of the responses, and to determine if roughly the same distribution of codes occurred. The results from these tests of validity showed 96% accuracy in coding between researchers, with a 2% tolerance, and unremarkable differences in distribution of codes between the first random sample (of 500) and the second (of 100). In cases where the agreement between the two analyses fell outside these parameters, the second investigator re-analyzed using a 500-response sample, and when this additional step was taken, the results then agreed within the uncertainty parameter.



# Demographic Data

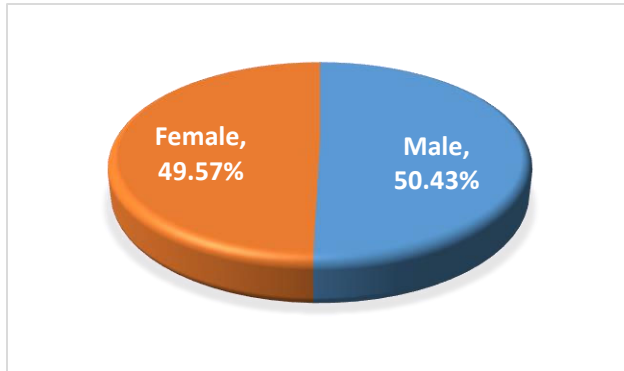
14, 497 students in grades 6-9 participated in the survey (nearly 40%)

The sample group reflected the population well, with representative participation by grade, gender, school board, region, and urban/rural community

Personal, potentially identifying demographic data was not solicited (i.e. race, religion, family structure)

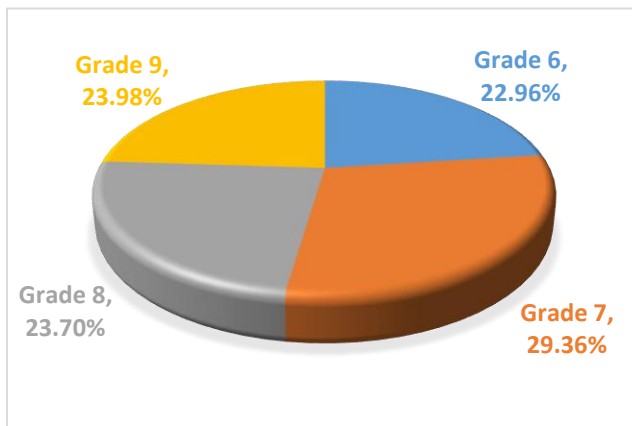
Demographic data is reported at the schoolboard/regional level only (i.e. not at the school level)

## Sample Group Demographic Data



### Gender

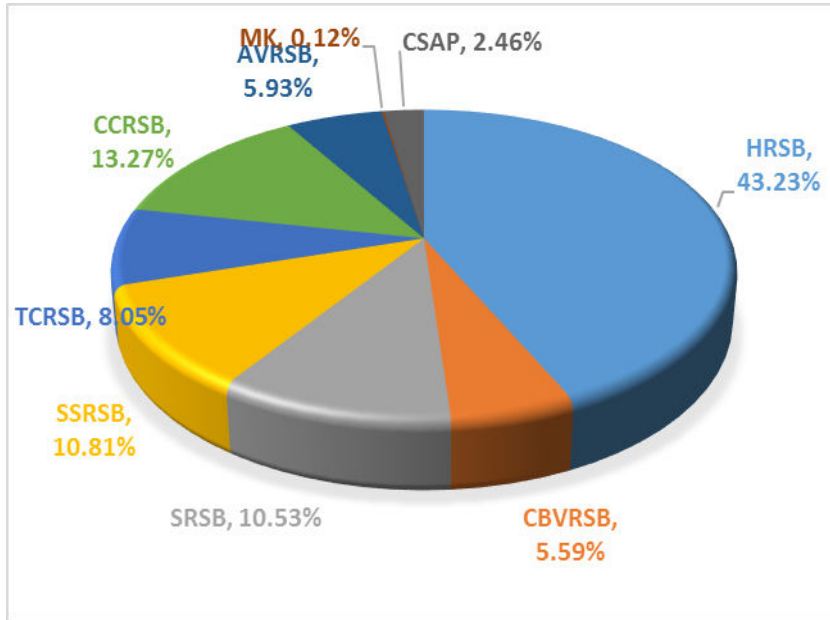
An equal number of males and females participated in the study.



### Grade

All four grades were well represented. It is important to note that grades 7s were proportionately more represented, representing nearly 1/3 of total responses. This is important to note when considering grade related correlations within the data. There can appear to be a significant difference in grade 7 responses that can be explained by the larger group sample size.

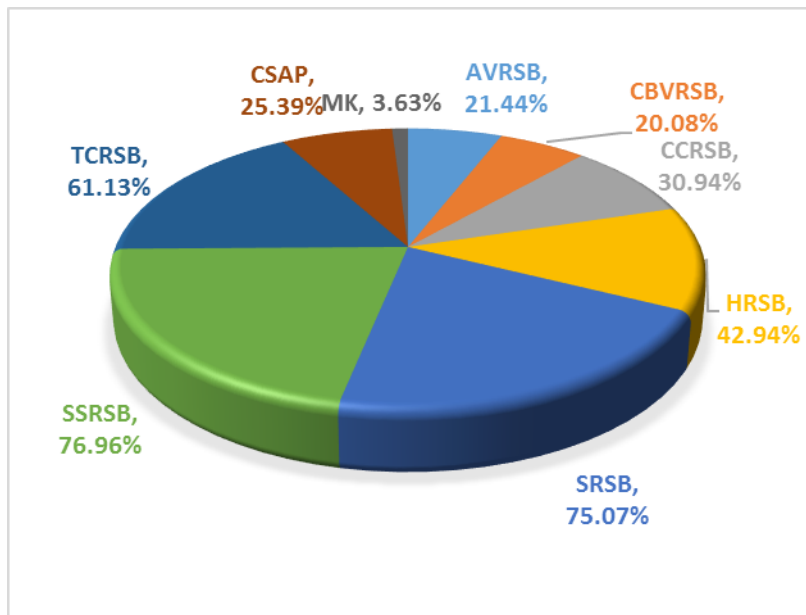
Participation by Board<sup>14</sup>



The total number of grade 6-9 students in NS, including English, French, and MK students, is NS (~36,075<sup>15</sup>). Participation by board, as a percentage of total participation demonstrates that all 8 regions were represented. Where the HRSB region was over-represented within the total sample due to its proportionately larger population, the Board's participation levels are reflective of the actual proportions within the broad sample.

Participation (%) of individuals within each school board

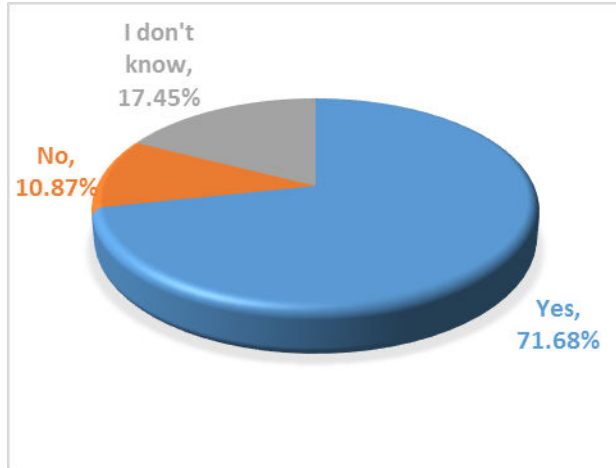
Percent participation of individuals as a function of the total potential participants within each board shows more balanced participation. A minimum response rate of 20% per board was set, and was met or exceeded by all regions except for MK schools (3.63%).



<sup>14</sup> As a percentage of Total Participation

<sup>15</sup> Figures provided by NS Department of Education and Early Childhood Education Enrollment by Board and School for 2014-2015.

Did any of your parents or guardians go to College or University or do they go now?



Research has shown that parents are powerful influencers in young peoples attitudes, biases, and choices about their future<sup>16</sup>. Research has also shown that parental participation in postsecondary education is a powerful predictor of student pursuit of the same<sup>17</sup>.

More than 82% (yes and no) of students showed an awareness of their own parents' education pathway, and this response rate did not vary significantly with gender or grades. Awareness is a strong predictor of career maturity<sup>18</sup>, and indicates

some level of discussion in the home about education pathways and options. This data will be analyzed to determine it's influence on youth education and career intentions, and on perceptions of career options and opportunitites.

The accuracy of the youths' awareness of parents education does come into question, as the 'yes' responses are significantly out of proportion with the ~46% reported by adults ages 25-64 in the National Household Survey 2011<sup>19</sup>. This might be explained by participation without completion in post-secondary education, or may reflect youth's idealistic view of their parents (i.e. where they lack confirmation, they assume their parents have completed some form of post-secondary education). This in turn demonstrates that perceptions of parents education levels is not a perfect proxy for true awareness, or for the assumption that the perceptions are informed by career/education discussions at home.

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<sup>16</sup> Bandura, Barbaranelli, Caprara, & Pastorelli, 2001; Bergen, 2006; Dietrich, 2013; Leung, Wright, & Foster, 1987; Young, Friesen, & Borycki, 1994

<sup>17</sup> Hango & de Brouker, 2007

<sup>18</sup> Carpenter, 1993; Welde, Bernes, Gunn, & Ross, 2016; Zimmer-Gembeck & Mortimer, 2006

<sup>19</sup> <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/Page.cfm?Lang=E&Geo1=PR&Code1=12&Data=Count&SearchText=Nova%20Scotia&SearchType=Begins&SearchPR=01&A1=All&B1=All&GeoLevel=PR&GeoCode=12>

# Data Analysis

Students form biases against particular career and education paths by grade 6

Attitudes and intentions are malleable and changeable with exposure, awareness and information

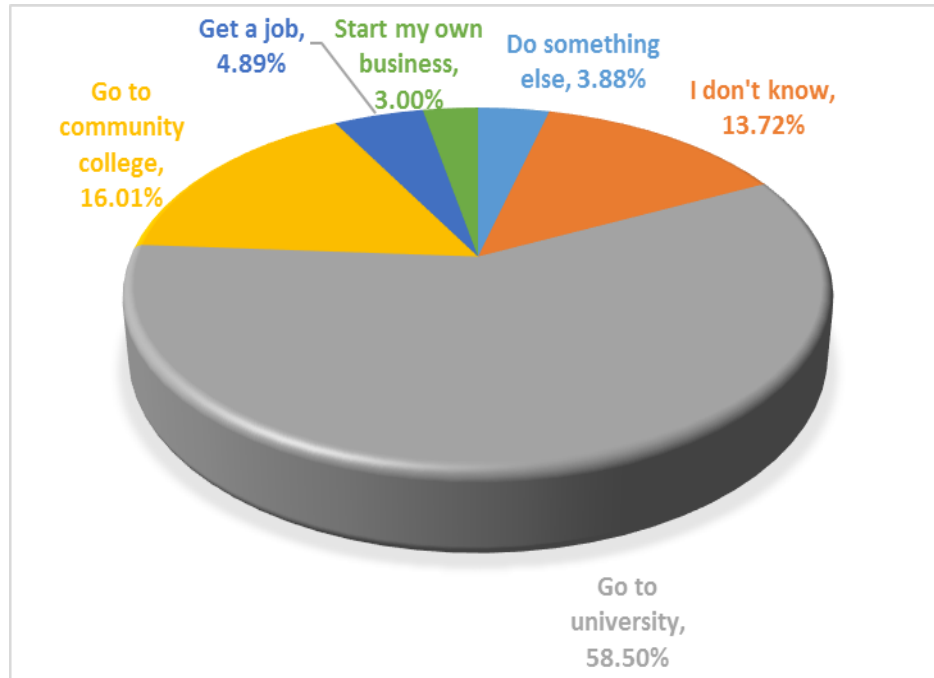
A third of Nova Scotian youth are express an intention to leave the region following high school

Pessimism in regional employment options is not the driver of mobility – normalization of a *mobility motive* is

The majority of regional youth are not interested in a career in the marine industry

## Post-Secondary Pathway Intentions

After I finish high school I would like to; (pathway)



More than  $\frac{3}{4}$  of students reported an interest in continuing with post-secondary education immediately following high-school. This is considerably higher than the present rate of tertiary attainment of 53% (among adults aged 25-64), according to the 2015 OECD report<sup>20</sup>, which shows a trend towards (expectations for) post-secondary education, or increased optimism among young people in their abilities to participate and persist in the tertiary system. Persistence in post-secondary, as reported by OECD do indicate that roughly 20% of combined first-year students in college/University do not remain in their programs beyond first year<sup>21</sup>, and thus the significant gap between actual attainment and expected attainment may be explained by persistence challenges.

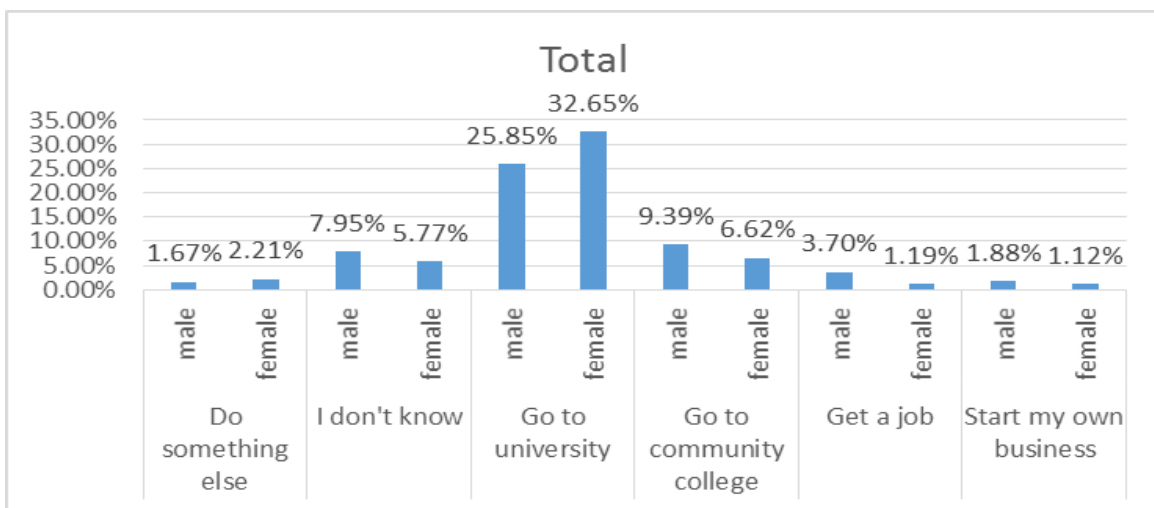
Higher reported intention may also reflect a growing preference for post-secondary education arising from the coaching and expectation-setting by parents. OECD found that 73% of students with higher education have a parent with higher education. Parental educational status was found to be a predictor of post-secondary intention in this survey as well. Among students who indicated that their parent/parents/guardian had gone or were presently attending a College or University, 58.59% also expressed this intention.

<sup>20</sup> Education at a glance 2015. (November 24, 2015). OECD Indicators.

<sup>21</sup> Andrew Parkin and Noel Baldwin. Persistence in Post-Secondary Education in Canada: The Latest Research. [http://www.yorku.ca/pathways/literature/Aspirations/090212\\_Persistence\\_EN.pdf](http://www.yorku.ca/pathways/literature/Aspirations/090212_Persistence_EN.pdf)

These data are consistent with the findings from a 2008 follow-up survey of Nova Scotia high school graduates, wherein 74% reported being engaged in some form of higher education<sup>22</sup>, and bodes well for a future where completing tertiary education is a key indicator of social success<sup>23</sup>.

Roughly one fourth of the students indicated that their educational pathway would likely end (or weren't sure) following high school, which is also consistent with OECD findings<sup>24</sup>. These students selected other options that included; get a job (5%), start a business (3%), and do something else (4%). An additional 14% of participants expressed that they weren't sure what pathway they would follow. It may be that this group of students hasn't considered life beyond public school yet (i.e. during the pilot session, several students commented that they had never discussed their future with anyone yet, and hadn't given it much thought). This demonstrates the opportunity to get young people thinking broadly about their pathways early in their educational careers, as research has shown that students who establish clear career goals are more likely to persist in their pursuit of tertiary education<sup>25</sup>. Early exposure to a broad range of career types provides greater opportunity for youth to establish a goal, and in turn, engage in both their education and, later, their work lives.



By gender;

Females were more likely to report planning to attend University, and slightly less likely to report planning to attend community college, or to be uncertain about their next steps. These gender differences are consistent with women's current (higher) rates of university participation<sup>26</sup>. There were no significant response differences by grade.

<sup>22</sup> (Nova Scotia Department of Education, 2010)

<sup>23</sup> (Finnie, 2012)

<sup>24</sup> OECD 2012. Grade Expectations: How Marks and Education Policies Shape Students' Ambitions, PISA OECD Publishing. PISA IN FOCUS. 2012/12 (December)

<sup>25</sup> Berger, Motte, & Junor, 2007

<sup>26</sup> Department of Finance, 2014; Hango and de Broucker, 2007

## I think the best ways to get information about my future goals and career are;

This question provided options from which students could select as many responses as they wished. The options included; career days at school, experience, teacher/principal, social media, media (tv, radio), internet, parents and other family members, friends, guidance counsellors, and pamphlets from school.

Other common responses captured in the open-text 'other' option included; cadets, books, interests, myself, coaches & mentors. Because these latter sources were offered by participants, but were not available options on the formal survey, their lower response rates don't necessarily reflect their perceived lack of importance.



Participant responses indicated that the top three preferred sources of information about future goals and careers are friends (45.56%), parents & other family members (19.10%), and social media and the internet (16.72%). Information sources that received the lowest responses from students included coaches & mentors (0.06%), teacher or principal (0.91%), career days at school (2.26%), guidance counsellors (4.8%), and pamphlets from school (5.4%). These low responses to more traditional sources of career information suggest that young people do not seek out and/or trust these sources, and instead rely on more proximal or self-directed sources of information. This may suggest that the roles of teachers and coaches have been limited (or perceived to be limited) to the communication of immediate subject content, and has largely withdrawn the (perceived) counseling role. This also reflects the general trend away from the reliance on the printed word, and a preference for (and relatively higher trust for) digital sources of information. These findings are consistent with the work by Holowiak-Urquhart and Taylor<sup>27</sup> and the public perception in Nova Scotia<sup>28</sup>.

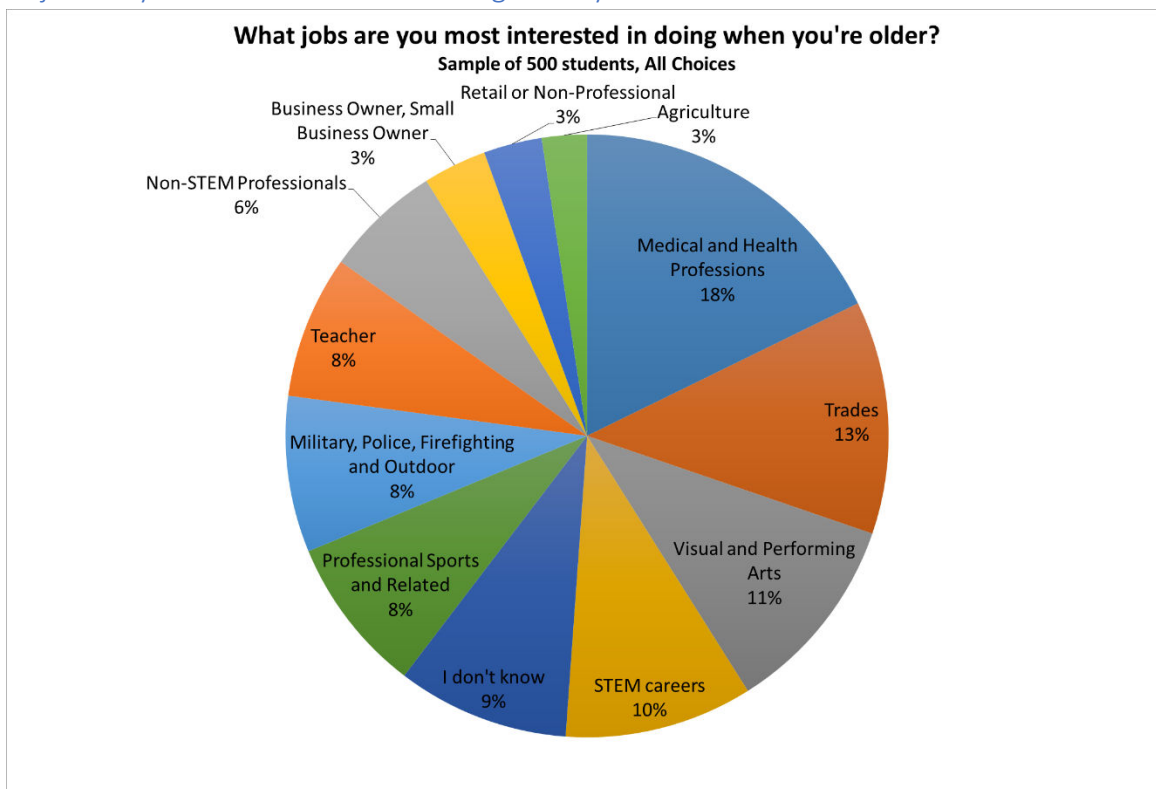
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<sup>27</sup> Holowiak-Urquhart & Taylor, 2005

<sup>28</sup> Minister's Panel on Education, 2014



What job are you most interested in doing when you are older?



A random sample of 500 was drawn from the full sample group to analyze the open-text responses to the question “*What jobs are you most interested in doing when you’re older?*” Responses were coded and grouped into similar themes.

Non-STEM professional roles include lawyers, accountants, bankers, architect, etc. Medical and Health professions included doctors, nurses, dentists, veterinarians, etc. STEM careers included engineers and scientists. Visual and performing arts included artists, ‘YouTuber’, actors, author, dancer, musicians, singers, and film makers. A wide variety of skilled trades were capture under ‘trades’, including welder, electrician, mechanic, hair dresser, and chef<sup>29</sup>.

The results, shown above illustrate a fairly broad range of traditional (i.e. doctor, lawyer, teacher) and a few non-traditional (Youtuber) careers. The results also revealed that some youth are still in the ‘dreaming big’ stage of their career maturity, with 8% focused on careers in professional sports, and 11% intent on careers in visual and performing arts. These responses reveal optimism driven by interest and talent, however discussions of dream careers is a necessary but insufficient part of career education.

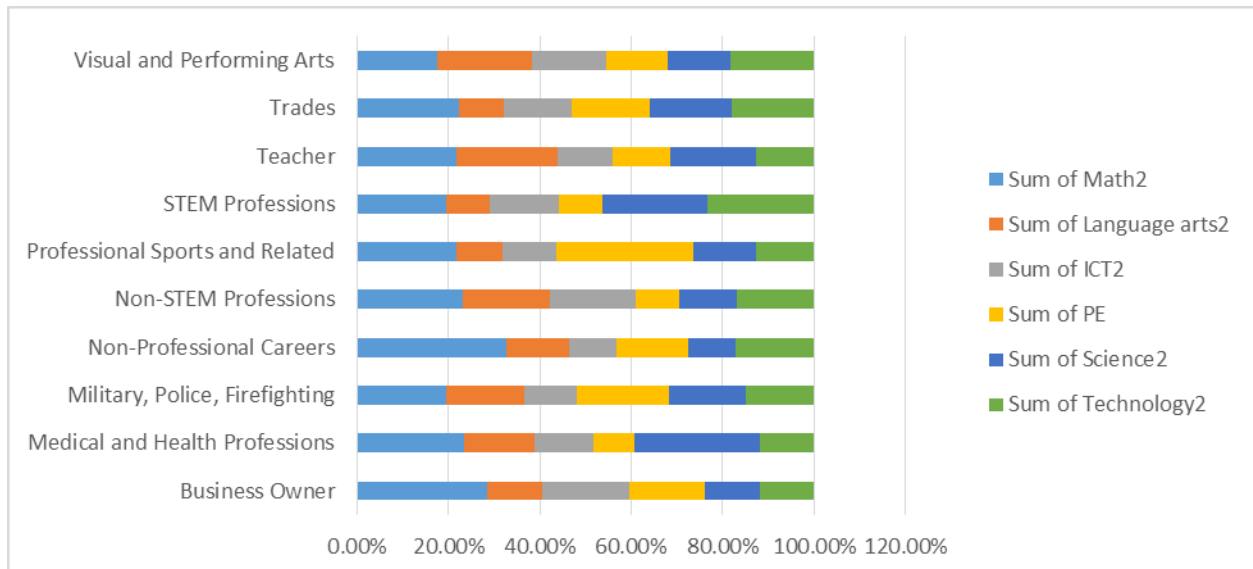
<sup>29</sup> See Appendix B: Career Categories for a summary of how student responses were coded by career category.

Only 3% of participants indicated that they had entrepreneurial intentions (i.e. small business owner), which was consistent with the earlier pathway intention question. This reinforces the need for more entrepreneurship education and exposure earlier on and throughout the full education pathway, to support more strategic (and successful) than serendipitous (and risky) entrepreneurship among emerging workforces across the region.

### What subjects will help you to get your top choice of job?

The notion of career maturity involves more than just the ability to choose a career goal. Previous studies have shown that the ability to understand the prerequisite qualifications and knowledge that are needed to pursue careers that are of interest<sup>30</sup>, and the ability to evaluate the likelihood of a goal in light of one’s individual competencies<sup>31</sup>, are also factors that contribute to career maturity. This latter factor is likely a stretch, and almost certainly an ego-deflating one for the cohort in question, however these abilities have been shown to begin to develop in early adolescence – between grades 5-9<sup>32</sup>.

Students were asked to identify which subjects would help them to get their desired job. This question, and the one that follows, provided insights into students’ awareness of subject relevance to careers, and of the importance of courses in opening education pathways. Consistency between career choices and relevant subjects and skills demonstrated awareness and career maturity for students.



<sup>30</sup> Hartung, Porfelli, & Vondracek, 2005

<sup>31</sup> Crites & Savickas, 1996

<sup>32</sup> Hartung, Porfelli, & Vondracek, 2005

This chart shows the percentage of responses for each subject (for the top six selected subjects), by career area. Subjects that received the highest frequency of responses overall were (in order); math, science, technology, and language arts. This suggests that young people are aware of the importance of core STEM courses across a wide range of careers, even those not directly STEM-related. These responses may also reflect learner effects or participant demand characteristics (i.e. providing the assumed desired response).

Language Arts was only the fourth-most frequent response, implying that students perceive it to be important, but not as important as the STEM areas. This is interesting in that responses to a later question revealed that “good communicator” was rated as a slightly more important skill than “problem solving” and significantly more important than “computer skills”. A possible explanation for the relatively low-ranking of Language Arts may be the perceived disconnect between the skills that are connoted by this subject area (i.e. literature studies, compositional structures, prose skills) versus the day-to-day communication skills that are employed in a workplace. This requires that students make the interpretive step to recognize the functional skills of language arts. Another possible explanation is that employment related language arts skills (i.e. verbal and oral communication) are perceived as a given for any pathway. And where a skill requirement is ubiquitous, it may seem unnecessary to specify.

Drama, art and music were identified as essential subject areas for visual and performing arts. These subjects were identified by less than 1% of students for each of the other career areas. A surprising data point was the relative importance that students assigned to PE. This result may be the red-flag in the data that indicates that students were selecting subject preferences rather than subjects relating to their career paths. To rule out this possibility, the data were then re-analysed by eliminating all but the first 3 (prioritized) choices for each student. Table 1 captures the data from the re-analysis, which provides insights into how the students prioritized their selections. This table of data shows more awareness of and alignment between knowledge competency requirements and identified career.

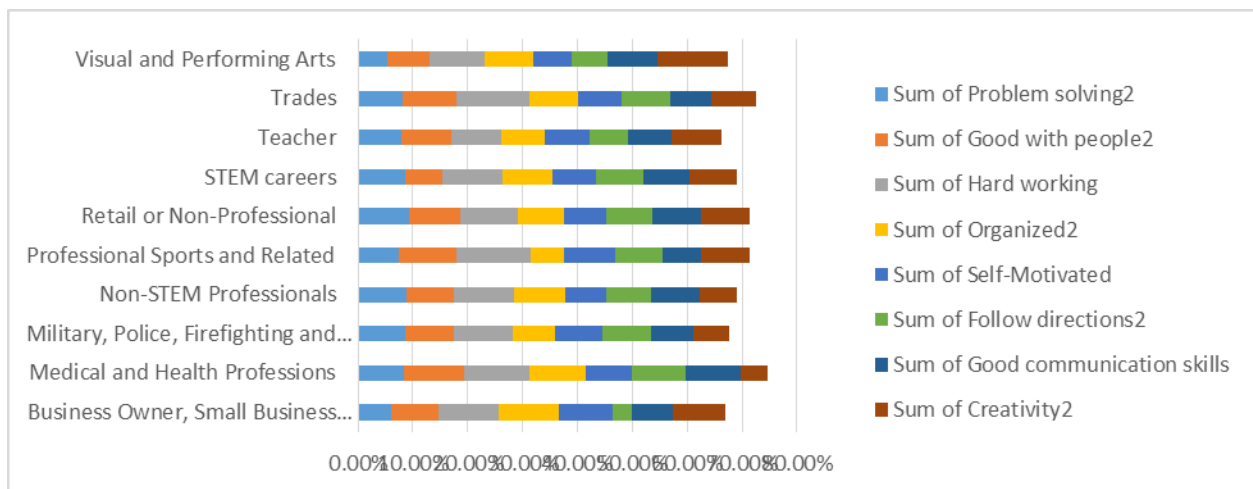
Table 1: Top-Three Subjects Associated with each Job Group

Job Descriptor	Top Three Subjects <sup>33</sup>
Medical and Health Professions	Science, Math, Language Arts
Non-STEM Professions	Math, Language Arts, ICT
Teacher	Language Arts, Math, Science
Professional Sports and Related	Physical Education, Math
STEM Professions	Technology, Science, Math
Trades	Math, Science, Technology
Non-Professional Careers	Math, Technology
Military, Police, Firefighting	Physical Education, Math, Language Arts, Science
Visual and Performing Arts	Language Arts, Technology, Math
Business Owner	Math, ICT, Physical Education

<sup>33</sup> Top 2 responses shown if a significant gap between 2<sup>nd</sup> and 3<sup>rd</sup> responses. Top 4 responses shown if third and fourth ranking responses are within 1% of each other.

What skills will help you to get your top choice of job?

Students were also asked to identify the skills (or competencies) that would help them to get that job. The chart below shows the top 8 skills selected by participants. The variation in response rates shows some awareness of relevant skills, though most students chose all of the 8 shown above, indicating some lack of awareness of what is most important. This may be the result of the question style that permitted students to tick all that applied, rather than requiring the thoughtful selection of the 3-4 most-important skills<sup>34</sup>. Like Table 1, Table 2 (following page) provides a summary of the data re-analysis to reveal the prioritized skill and competency selections.



The skills that had the highest frequency of responses were (in order from most); hardworking, good with people, organized, and good communication skills. The skills that received the lowest response overall were (in order, from least); inventive/innovative, structured, computer skills, and artistic. These responses demonstrate some awareness of the importance of 21<sup>st</sup> century competencies. The relatively low response rate for ‘computer skills’ might be explained by the same assumption of competency as identified above for language arts.

<sup>34</sup> If this survey tool is re-used, this modification to the question should be made.

Table 2: Top-Three Skills Associated with each Job Group

Job Descriptor	Top Three Skills (if a large gap between #2 and 3, no #3 is given)
Medical and Health Professions	Hardworking, Good with people, Organized
Non-STEM Professions	Hardworking, Organized, Problem solving, Good communicator
Teacher	Good with people, Hardworking, Creativity
Professional Sports and Related	Hardworking, Good with people, Leadership
STEM Professions	Hardworking, Organized, Creativity
Trades	Hardworking, Organized, Good with people, Follow directions
Non-Professional Careers	Hardworking, Problem solving, Good with people
Military, Police, Firefighting	Hardworking, Follow directions, Good with people
Visual and Performing Arts	Creativity, Hardworking, Good communicator
Business Owner	Computer skills, Organized, Hardworking

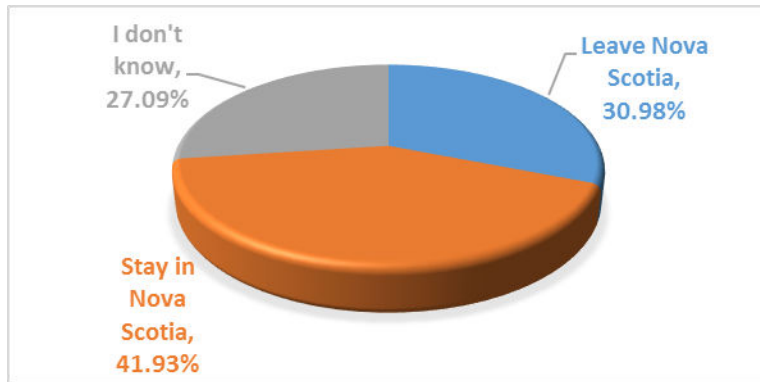
Overall, responses did show more awareness of specific skills that are relevant to each role (i.e. follow directions, good with people for military, police and firefighting; good with people and leadership for professional sports; organized, creativity for STEM professions). The descriptor ‘hardworking’ was identified as a priority skill for every job, and was the top priority for 7 out of 10 jobs<sup>35</sup>. This might reflect the messaging that youth hear at school and at home about the importance of work ethic. If we consider the second and third responses we find skills that are more directly aligned with the job group, showing more awareness. The prioritized selection of ‘hardworking’ may also show participant demand effects (i.e. providing the ‘right answer’).

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<sup>35</sup> This was not the result of primacy effect or order effects, as ‘hardworking’ did not occupy the first selection position (it was 8<sup>th</sup>). The sequence of common top 3 responses was not consistent with the sequence in which these options were presented to participants – which suggests that students read through the choices and went back and made their selections – there was no evidence of response bias due to order effects.

## Interprovincial Mobility

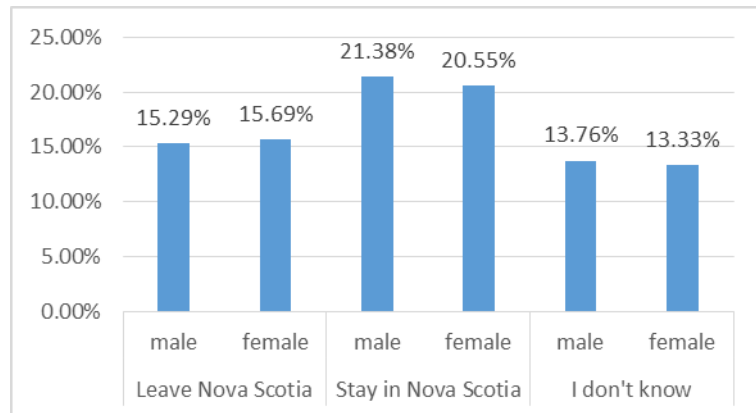
### After I finish high school I would like to; (mobility)



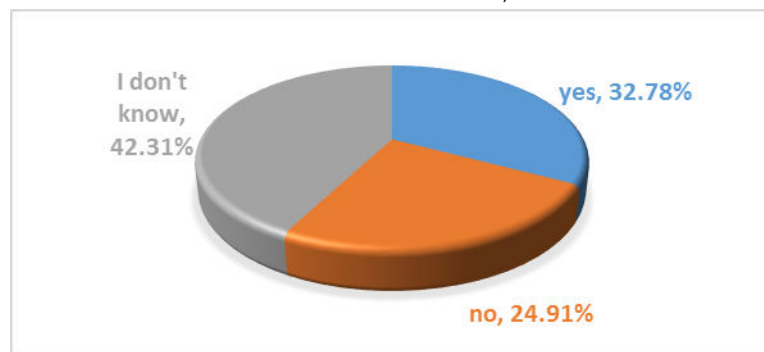
One third of youth in Nova Scotia are already considering leaving the province to study or work, and another third aren't sure. This can be a worrying result that needs to be analysed against further data regarding perceptions of careers and opportunities regionally to determine why they want to leave.

### By gender

There were no significant response differences by gender or grade, which is interesting and one might expect to see an increase in the desire to move (and gain locational independence) as students get older, but this effect wasn't evident in the responses.



A similar question was posed towards the end of the survey to evaluate consistency of responses. This question asked; “Do you plan to live and work in Nova Scotia when you're older?”. Affirmative responses indicating an interest in remaining in Nova Scotia declined from 41.93% to 32.78%, and intention to leave also declined from 30.98% to 24.91%, while uncertainty increased from 27.09% to 42.31%. This is a significant shift in responses that could have been due to several factors; including learning effects -a type of order effect (i.e. as they worked through the survey they developed more awareness of the factors they need to consider in making decisions about their future, or became more aware of the options available to them, which led to less certainty), response fatigue, or a perception of near future (i.e. after high school) and distant



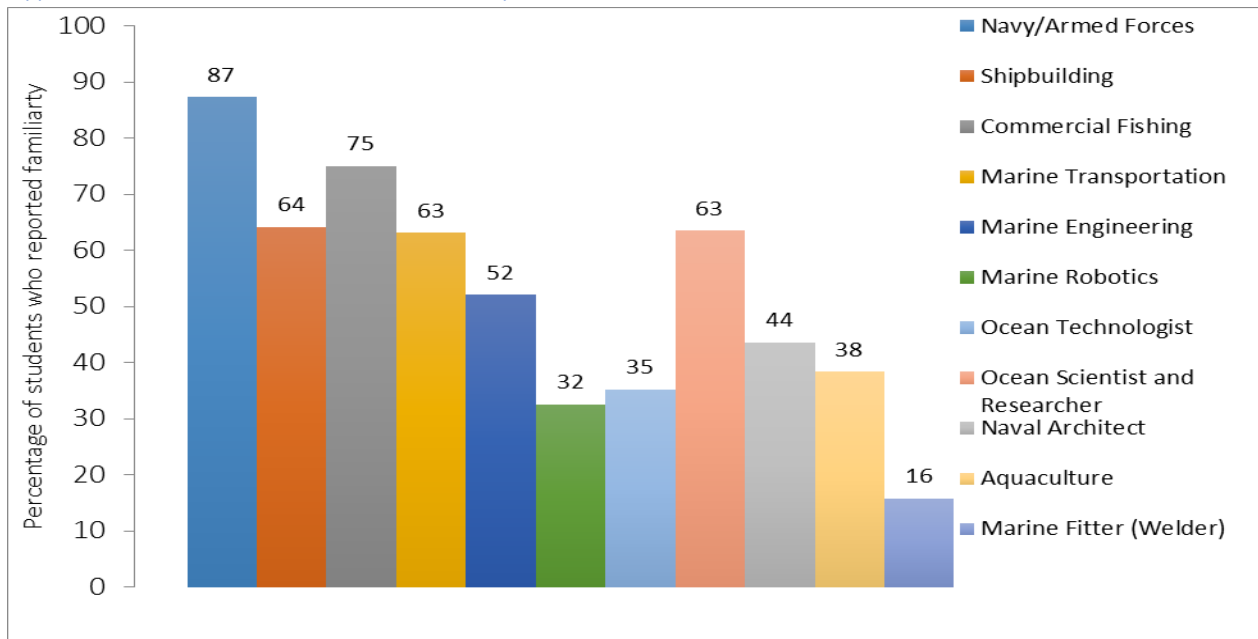
future (i.e. live and work when older). These possible learner effects of the survey can be considered a positive outcome of the survey, as it has prompted students to think more about their future options.

Among students who responded to the open-text question asking; “If you answered no to the above question, where do you plan to live?”, the majority of students indicated an intention to move elsewhere in Canada (50.49%), followed by international locations (28.16%), and USA (21.36%).

## Oceans-Oriented Education and Careers

In Nova Scotia there are many different kinds of jobs in the marine industry. Here are some examples. Tick the ones that you've heard of; (awareness)

### Types of Careers in the Marine Industry



This question was posed to serve two key objectives; primarily to assess participants' purported current awareness of ocean-oriented careers; and secondly, to ostensibly build some awareness of the scope and variety of ocean-oriented careers to prepare them to respond to the question that followed regarding interest in working in the marine industry.

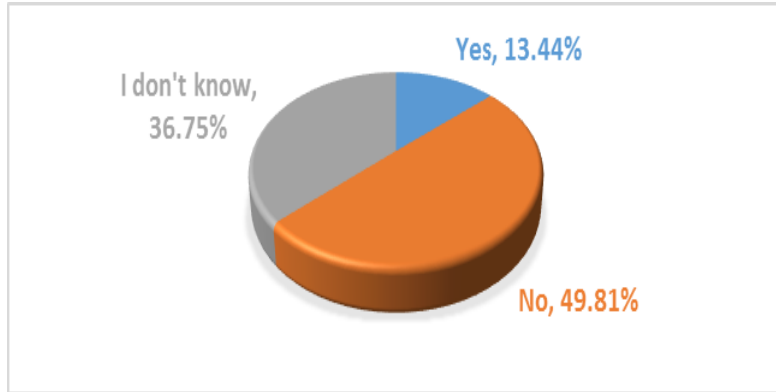
The survey results show better-than-anticipated awareness of careers in the marine industry generally, however given the regional profile of some careers, there was surprisingly lower awareness of shipbuilding (64%) and ocean scientist (63%). However, the results also showed a general lack of awareness of emerging regional sectors (i.e. ocean technology, marine robotics, marine engineering, tidal energy). This points to the opportunity for more curriculum links and awareness programs that expand teaching and learning beyond marine ecological concepts, to a broader range of oceans STEM topics and related careers and sectors<sup>36</sup>.

Grade and gender were not predictive variables for awareness of ocean oriented career types.

<sup>36</sup> It is important to note that vocabulary may have been a limiting factor in student responses (i.e. Naval architect, aquaculture, marine fitter are terms that may have been unfamiliar). Response rates may have been higher if descriptions had been used (i.e. ship designer, farming food from the ocean, underwater welder, shipping and ferries), however this would have increased the reading requirements for the question and may have in turn produced more response fatigue, resulting in equally low response rates.



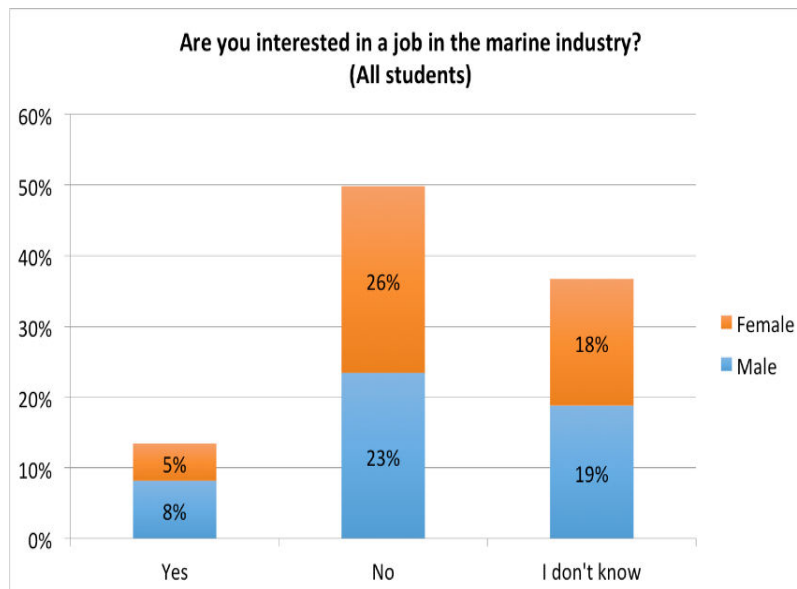
Are you interested in a job in the marine industry?



Responses show a significant lack of interest and intention to pursue careers in the marine industry. Based on previous question it is likely fair to suggest that students aren't aware of the broad range of career options available to them in the marine industry. It is notable that in a province surrounded by water, that half of students communicate no interest in a marine oriented career.

By gender

Boys were slightly more likely to express an interest in the marine industry, and females were slightly more likely to communicate a lack of interest. Most notably, nearly half of all participants provided a negative response. It is notable that 36% of students aren't sure. This response might have been derived from the previous question that broadened their awareness enough to consider the option (or not provide a negative response).

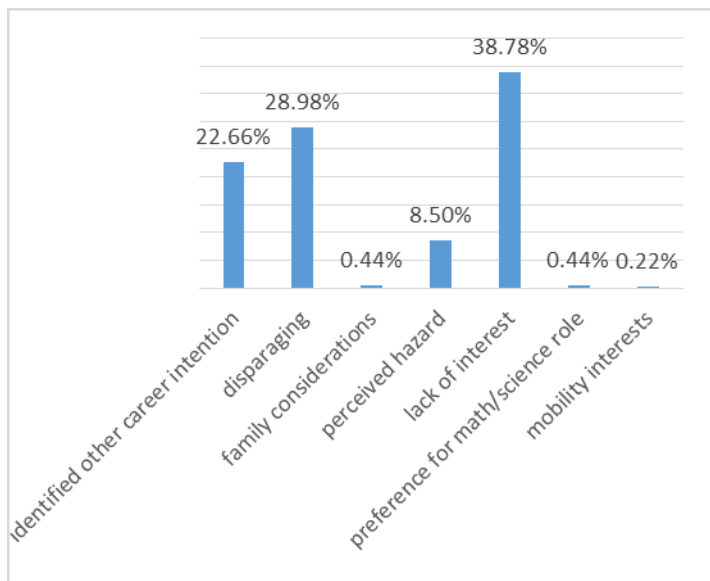


If you're not interested in a job in the marine industry, explain why;

Students were provided an opportunity to elaborate on their 'no' response with open-text. A random sample of 553 of these open-text responses were analysed for common themes. The most common response (38.78%) indicated a general lack of interest in the Marine Industry, regardless of the career area or sector.

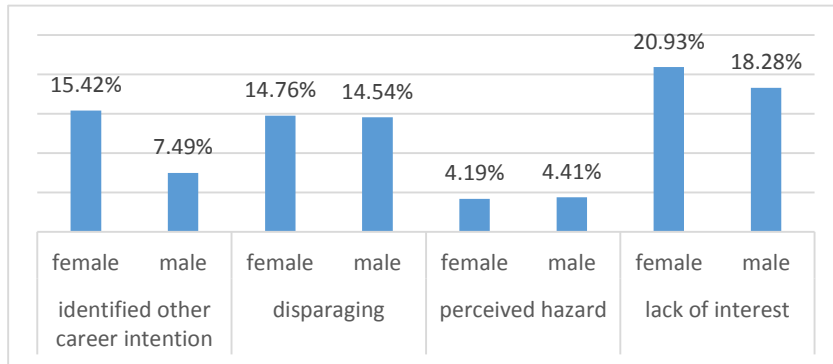
Some examples of responses coded as lack of interest include; *"Because I don't have enough interest in the sea and stuff that has to do with that job"* (grade 7 male); *Because I don't know anything about the marine industry"* (grade 9 female); *"because i don't have any interest in marine science"* (grade 7 female); *"because i dont find those types of jobs interesting enough."* (grade 7 female). Lack of interest responses included responses indicating a lack of awareness or knowledge of the industry or of careers in the industry. On a positive note, this group presents the most opportunity to develop interest through exposure programs and experiential learning and shift their thinking. These students were less likely to communicate a negative perception that is more difficult to overcome and remedy.

The second most common type of response was a disparaging response (28.98%) such as; *"I do not care about the ocean or anything that it inhabits it. If jobs in the marine industry is all Nova Scotia has to offer, then I won't be living here"* (grade 8 female); *"A large amount of my family has had a job related to the marine industry so I am aware that it would not be in my best interest to pursue one"* (grade 9 male); *"BECAUSE I CAN MAKE MORE MONEY ELSEWHERE!!!!"* (grade 7 male); *"Because I hate fishing and getting dirty"* (grade 7 male); *"Because I don't like being around the water where it's really cold"* (grade 6 male); *"Because I don't like many features of the sea, for example I don't like fish or swimming in water"* (grade 8 male).



When we combine disparaging responses with hazard responses (37.48%), the expressed perceptions of students of a dangerous or undesirable industry are nearly as common as lack of interest responses. (i.e. *because i dont like water its spooky* (grade 7 male) *"because i am afraid of boats and fish are gross"* (grade 9 female). These responses reflect attitudinal and bias challenges which are more difficult to correct and overcome.

The third most common response communicated a different career intention (22.66%), such as; “because i already have my plan set, i want to be a paleontologist and nothing else at this point, marine stuff just does not interest me, maybe if there where kawala bears involved but other then that, i'm sticking with paleontology” (grade 9 male). However, often these responses also reflected a general lack of awareness and understanding of the breadth and scope of ocean-oriented careers and of the skills and competencies associated with them. For example; “because i am interested more in jobs that involve math and science” (grade 8 female); “Because I would like to be an engineer when I grow up and I don't really like marine jobs in general” (grade 6 male). With more awareness and exposure to demonstrate



the breadth of options (i.e. marine-oriented math and science careers, engineering careers) this group of respondents could be more open to a marine oriented career.

If you combine the disparaging with the perceived hazard responses, then more than a

third of youth who provided an open-text response indicated that they either didn't like or were fearful of some aspect of the oceans. This demonstrates an important opportunity to provide more experiential oceans education broadly to all students, to allow students to develop more positive familiarities and relationships with the oceans around them, and to change the narrative and perceptions of oceans-related careers in Nova Scotia.

### Curriculum Relevance

Curriculum relevance is viewed as an important factor in development of awareness of workplace skills and competencies. The following question was asked to determined students' perceptions of awareness of why they are learning what they do, and of how it connects to future careers.

At school my teachers help us understand how the things we learn in math and science relate to real world jobs.

Positive responses (i.e. yes, sometimes) demonstrate that most Nova Scotian students feel their teachers are anchoring their learning in real-world relevance. However, there is still an opportunity to create stronger connections between curriculum content and real world skill and knowledge application.

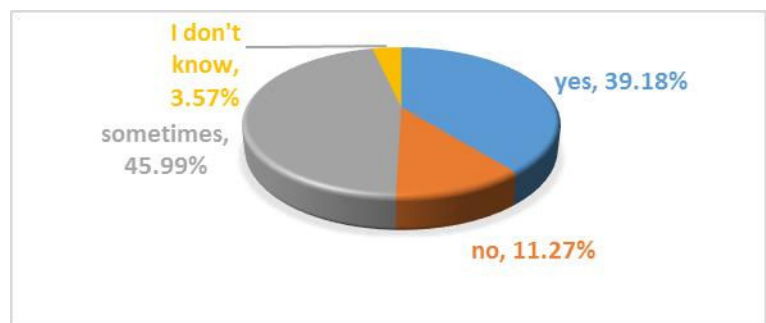
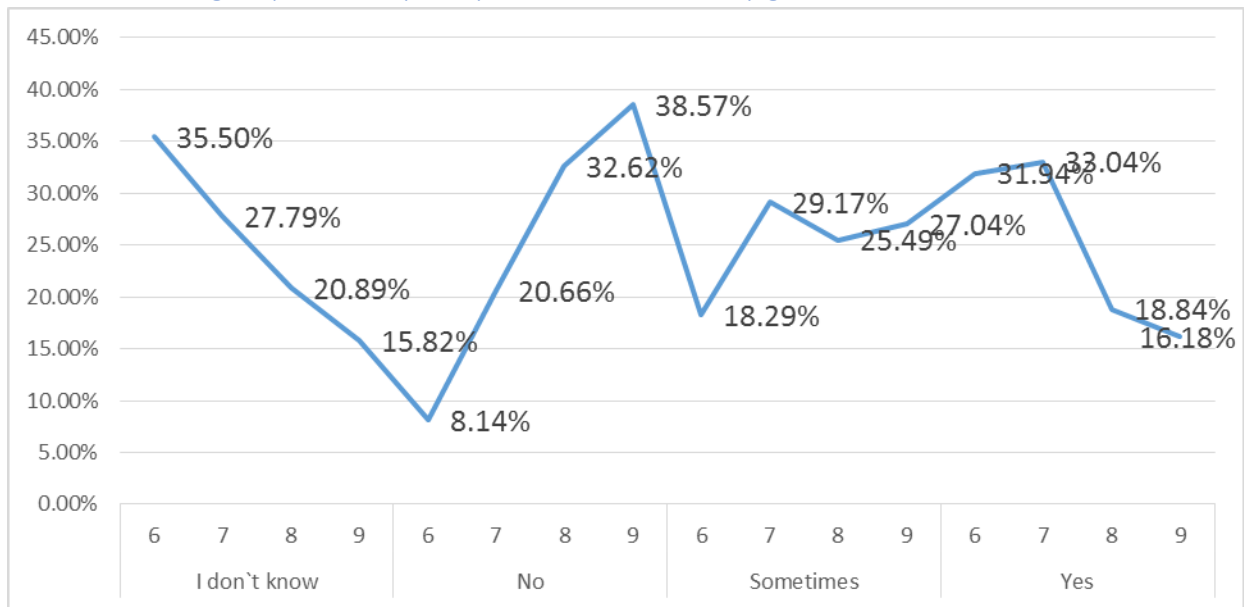


Table 3: Showing responses of perceptions of relevance by grade



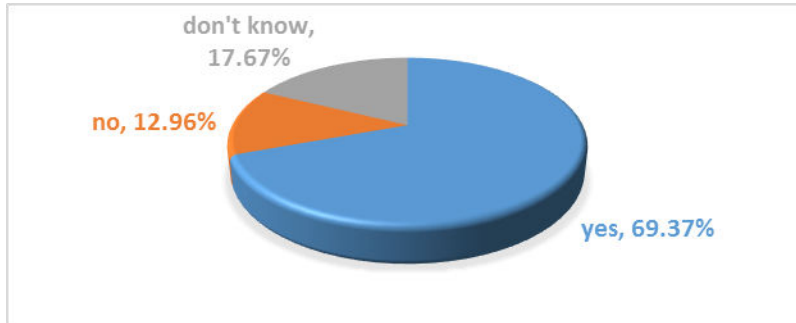
There were no significant response differences by gender, however there was a decline in positive responses (yes) and uncertain responses (I don't know), and a corresponding increase in negative (no) responses with older grades. This may be due to the tendency for the trust relationship to change for students as they get older (i.e. around grades 8-9)<sup>37</sup>. This finding is also consistent with research that shows that students become more disengaged from school around this same age<sup>38</sup>. This may also be due to the increasing complexity of subject matter between grades 6-9 that make the relevance less obvious, and that require more explicit statements of relevance from teachers to connect abstract concepts to real-world application.

<sup>37</sup> Henry, Knight, & Thornberry, 2012; Schosser, 1992

<sup>38</sup> Perry and Wallace, 2012

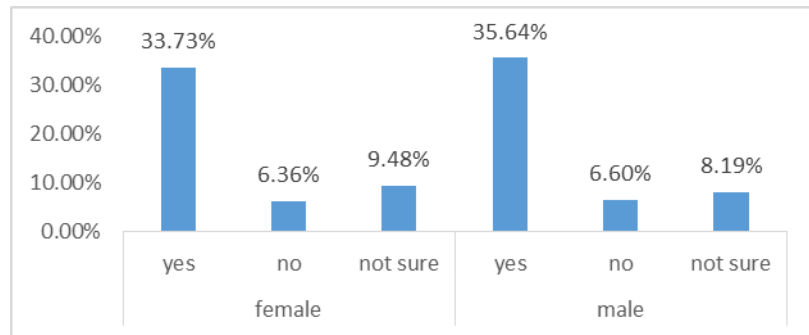
## Interest in Careers in Skilled Trades and Technology

Do you know someone who works in a skilled trade?

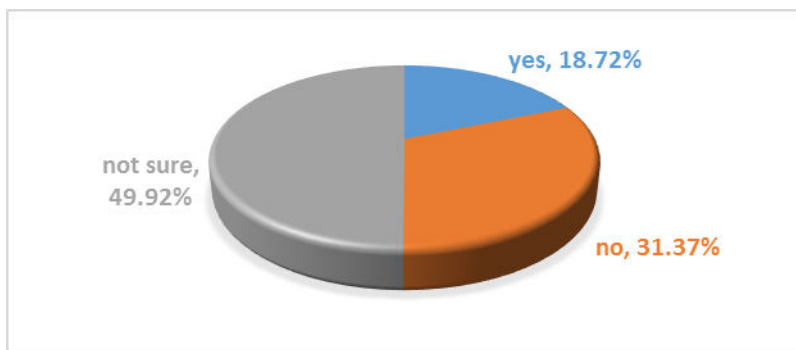


A significant proportion of respondents did indicate an awareness of someone who works in a skilled trade. There were no significant responses differences to this question by grade or gender. This question provided some insight into students' awareness of skilled trades roles,

which provides some context for students to evaluate their interest in participating in one of these jobs. The reported awareness level was higher than expected, suggesting that students might have provided an affirmative response with very distal knowledge of a skilled tradesperson (i.e. the person who fixed their sink) versus a proximal relationship (i.e. friend, relative or neighbour). This might inflate the 'awareness' scores, resulting in students who have 'heard of' skilled trades, but who don't possess enough awareness of the careers to provide an informed response to the questions below.

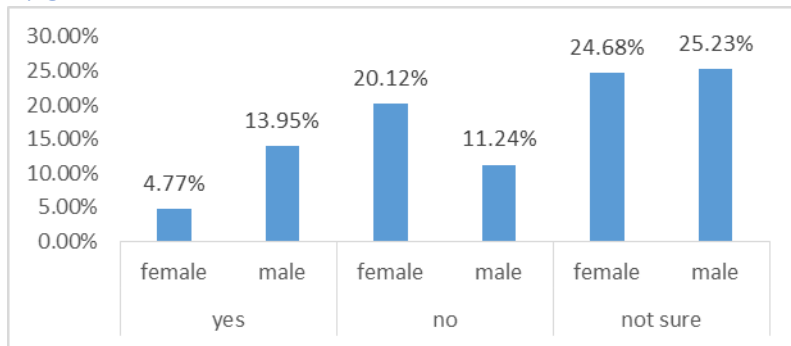


Are you interested in a job in a skilled trade?

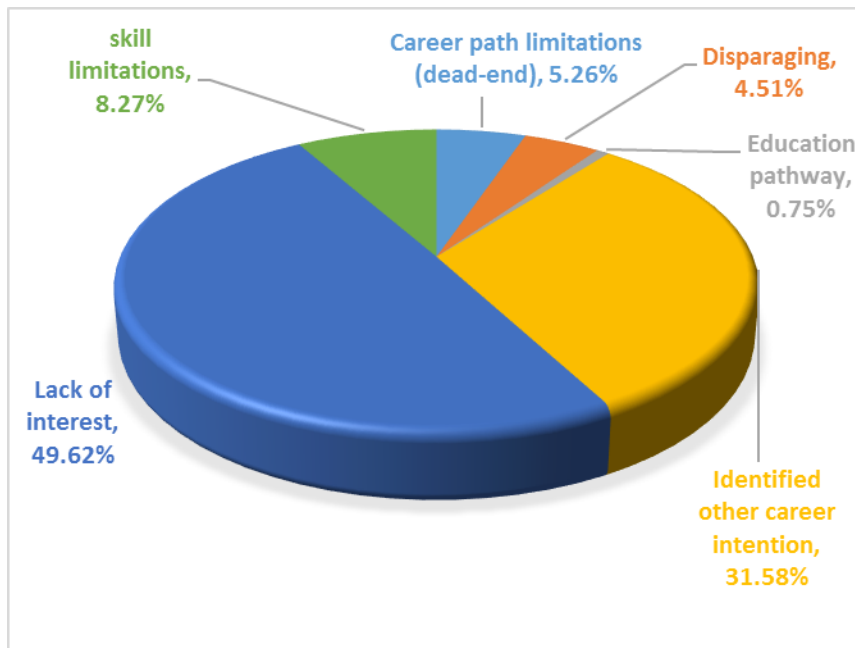


High levels of awareness of skilled trades roles were found to be correlated with interest in these jobs. For example, 17% of students who knew someone in a skilled trade said they were interested in a skilled trades job, whereas only 2% of students without role models, or who weren't sure, were interested.

By gender;



Females were more likely to report that they were not interested in a skilled trade, and males were more likely to report that they were interested, (uncertain responses were almost equal) which reflects and perpetuates the gender bias in skilled trades.



If no, explain why; (open-text responses)

Students who indicated they were not interested in a job in a skilled trade were provided an opportunity to elaborate on their decision with an open-text response. A random sample of 500 responses was pulled from the full sample, and these responses were coded according to common themes.

The most common themes emerging from the responses were; lack of interest responses 49.62%, such as *“I’m just not interested in that type of job”* (grade 6 girl), and identified other career intention (31.58%), for example, *“i would rather own a business that employs skilled traders”* (grade 9 male). Other responses indicated concern of skill limitations (8.27%), for example; *“I’m not good with fixing or building things”* (grade 7 male); *“I’m not comfortable using tools”* (grade 8 female).

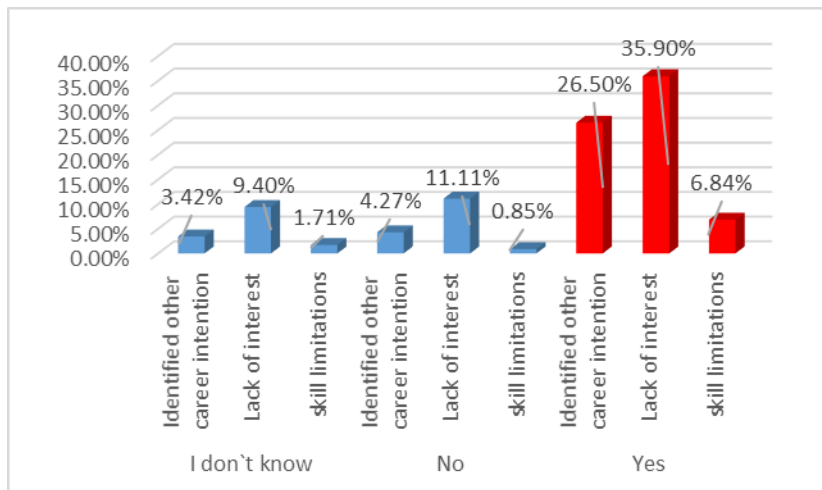
Other responses (5.26%) reflected concern over career path limitations, such as *“Most of those jobs don’t have the biggest incomes and closes your doors if you ever wanted a change in job. They seem boring to me also”* (grade 9 male); and, *“Because I’d like to have an everyday job, and some of those are not”*

(grade 8 female). The remaining responses were coded as disparaging (4.51%), for example; *“Because you’d be broke”* (grade 8 male); *“I plan on working more so with my mind* (grade 6 male); *“Because I would like an actual profession”* (grade 7 female), or reflected an interest purely in a different education pathway (0.75%), such as *“I just want to go to University and I don’t think those jobs need that,* (grade 6 female), *“I’m University metereal – so no thanks”* (grade 8 boy).

Given the prevailing stigma of skilled trades roles, it was expected that disparaging responses would be higher than reported. This result may suggest that lack of awareness has both limited young peoples’ views of their options, and sheltered them from the negative narrative regarding skilled trades careers. Where many young people are still in the dreaming phase of their career exploration, it may be that proximal others (friends and family) haven’t begun to actively influence them to dismiss certain options yet.

Another explanation for the low disparaging responses may be due to priming effect. The previous question asked participants if they knew someone who worked in a skilled trade. This question may have brought to mind a specific (and possibly proximal) someone (for almost 70% of respondents) when answering this question, and students may not have wanted to contribute a disparaging comment that would seem attributed to that someone. Participants may have preferred to respond ‘not interested’, as this response omitted any judgement of the career path (and of the someone in mind). In the following, a series of true/false questions provides more insight into the actual attitudes and stigma surrounding skilled trades roles.

Table 4: Reasons for indicating ‘no interest in a skilled trade’ with knowledge of someone who works in skilled trade variable



When these responses were examined along with the variable question *“do you know someone who works in a skilled trade”*, those who responded yes were more likely to elaborate on why they weren’t interested in a job in a skilled trade.

This indicates that awareness and familiarity with a skilled trades job is predictive of an informed 'no response' in the full sample (21% 'no') as compared with 10.03% of 'no' responses among students who did not know someone in a skilled trade or who weren't sure, combined. Familiarity was also found to be a predictor of affirmative responses to the question, "are you interested in a job in a skilled trade?". 16.57% of students who knew someone in a skilled trade said they were interested in a skilled trades job, whereas only 2.15% of students who did not have familiarity or who weren't sure, responded 'yes'.

It is important to recognize the value of both an informed yes and an informed no. A key outcome of any awareness and exposure program is to support students in making an informed decision about whether or not to pursue a particular pathway. Without some awareness, students are too often dismissing some career options without consideration, or defaulting to others, with similarly little information.



## Perceptions of Skilled Trades

To prompt more detailed data about students' perceptions of skilled trades, they answered the following true/false questions. Students were able to respond, true, false, or I don't know. The *I don't know* option was included to mitigate uncertainty being captured as an affirmative/negative response.

What statements do you believe to be True/False about skilled trades?

Table 5: Perceptions of Interest, importance, and opportunity (True/False)

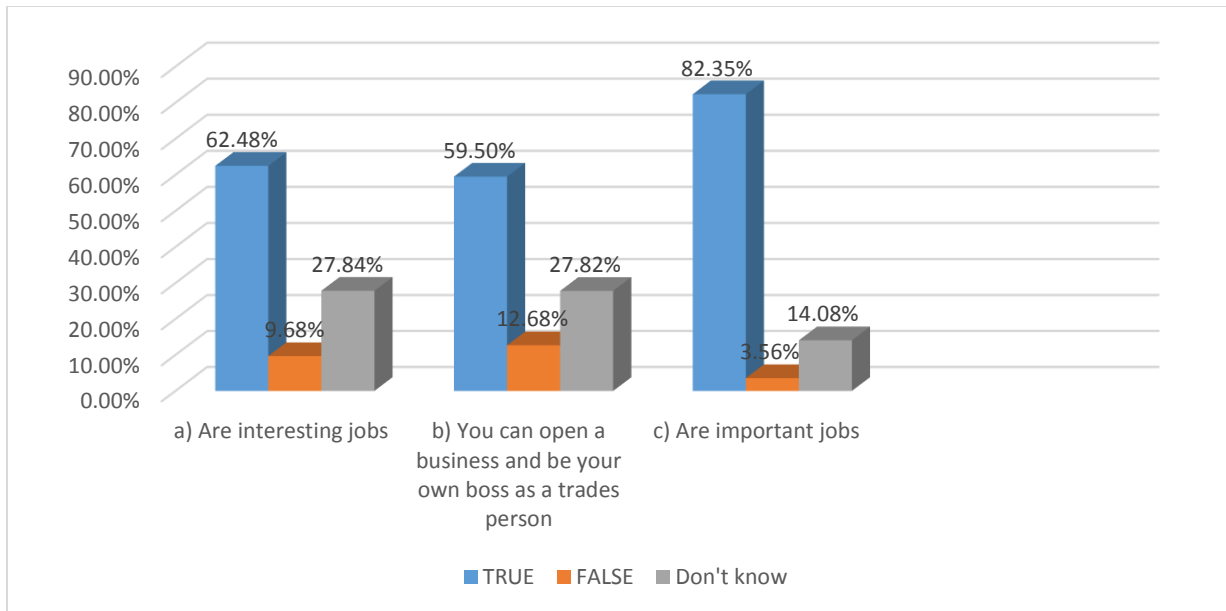


Table 5 shows responses to questions a, b, and c, which all received more positive responses, and less negative responses overall. These responses, in particular the 'no' responses, demonstrate that youth in the region have an overall positive impression of the social desirability of these roles, as reflected in their promise of interest, importance, and opportunity. It was also interesting to note that nearly 60% of students recognized the entrepreneurial opportunities associated with skilled trades roles. Interestingly, of the ~3% of students who did indicate an interest in entrepreneurship, only 8% of those (or 33 students) expressed an interest in opening a business that was skilled trades-related. This suggests that, while students have some awareness of this option, entrepreneurship is not the pull that draws students along a skilled trades career pathway.

Table 6: Perceptions of Cognitive Requirements for skilled trades jobs

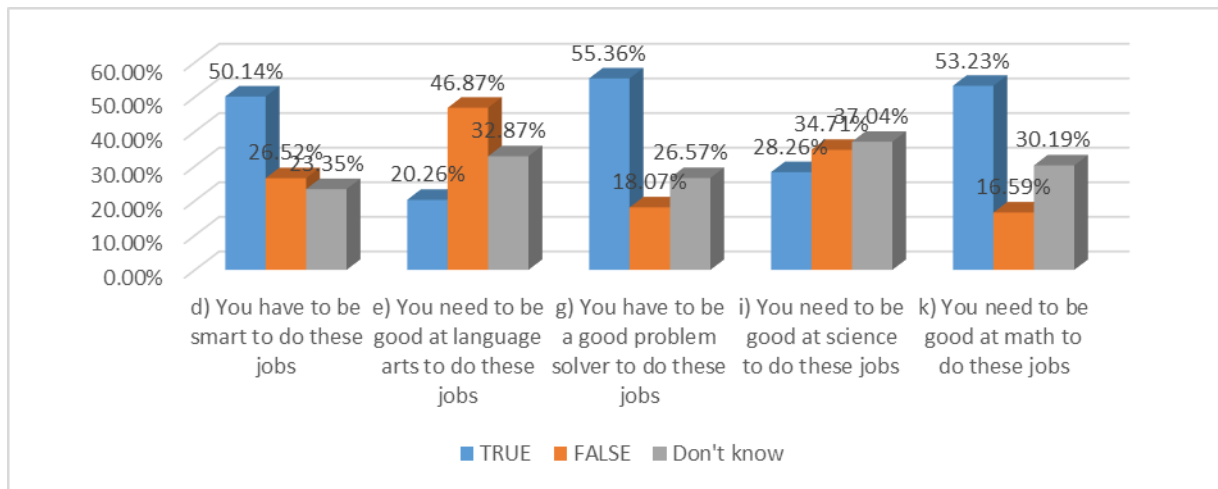


Table 6 shows responses to questions d, e, g, i, & k. These variables all received less positive (true) responses, and more negative (false) or uncertain (don't know) responses. These statements evaluated participants' perceptions of the cognitive requirements for skilled trades jobs, including the need for competency in language arts, math and science. A general statement about the requirement to 'be smart' was included to capture young peoples' perceptions of skilled trades jobs as generally the work of 'smart' people.

These responses are more consistent with the general stigma (anecdotal) that continues to linger around skilled trades roles. Broadly speaking, these roles tend to be perceived to require brawn over brain, and to require physical versus verbal interactions. These variables also relate to the social desirability of skilled trades roles, insofar as cognitive-oriented roles are socially privileged over physically-oriented ones (with the exception of professional sports). In light of the responses captured in these two tables it seems that while the majority of students perceived these roles to be interesting and important, they did not possess the cognitive affirmation to render them as as legitimate options for themselves.

Table 7: Perceptions of social desirability in terms of prestige, compensation, and approval

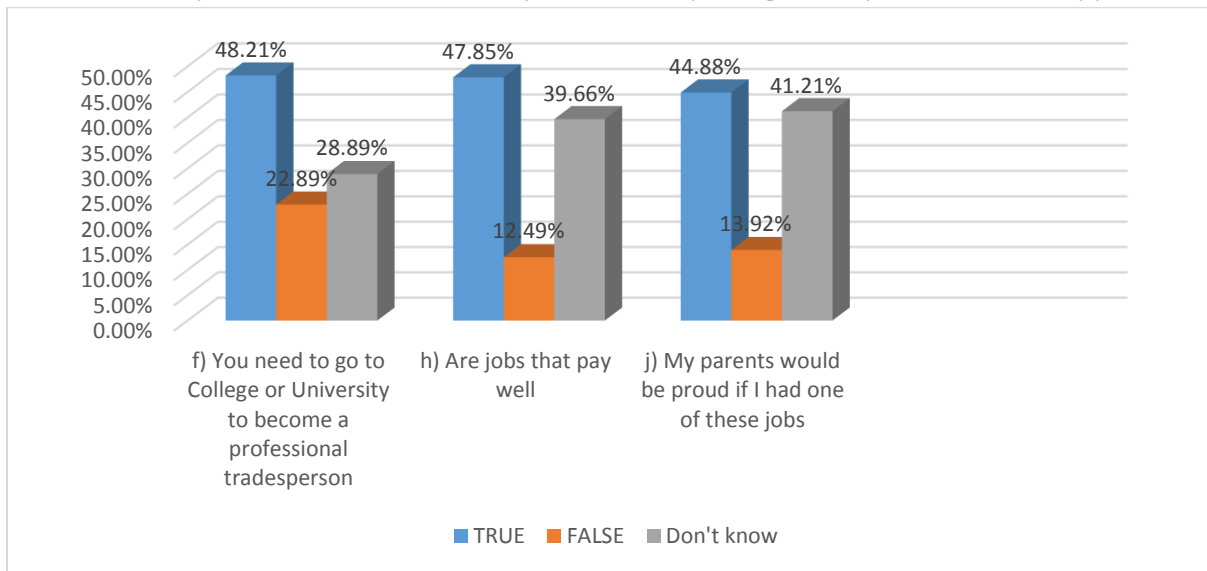
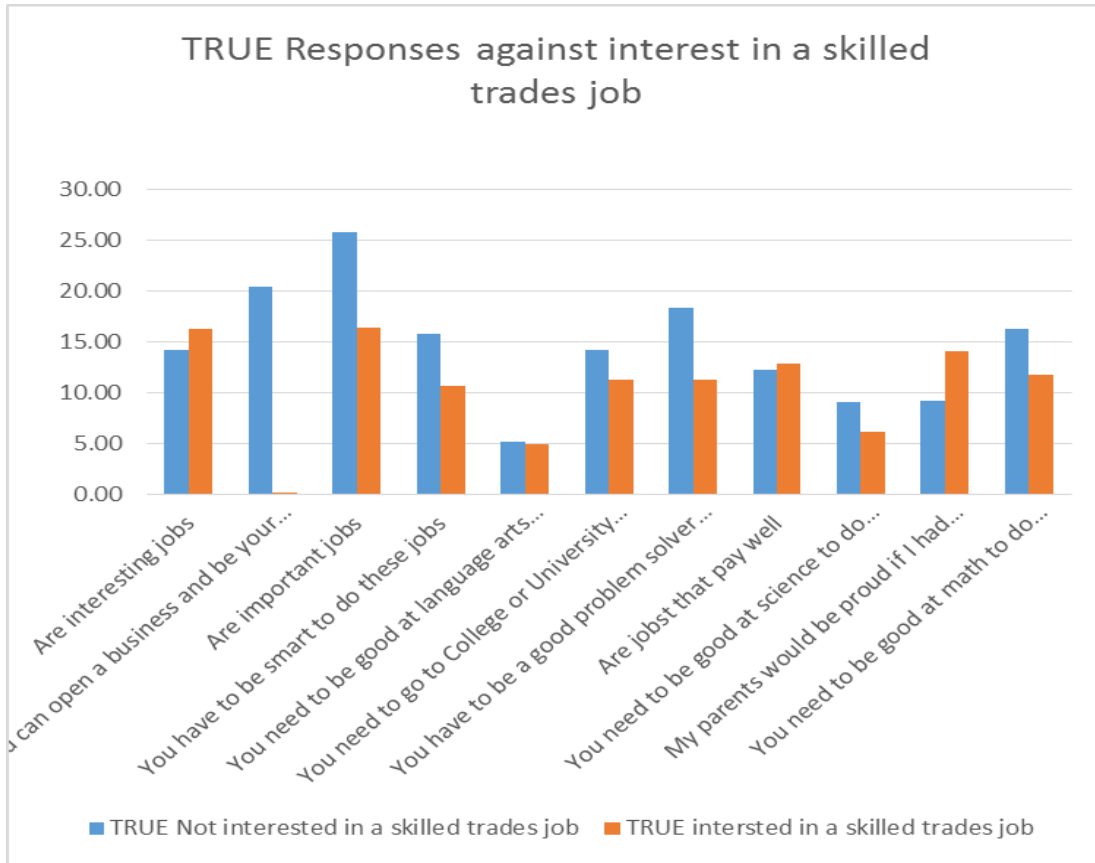


Table 7 shows responses to questions f, h, & J, which captured participants’ perceptions of the desirability of skilled trades jobs, relating to three key motivators; education pathway (prestige), money (compensation), and parental approval. These responses provide more insight into perceptual barriers to participation in skilled trades, and revealed strong stigma builders for these careers.

Educational pathway, compensation, and parental approval have already been established in this report as powerful influences of young people’s career perceptions and intentions. This data, in particular the ‘don’t know’ responses, do however point to opportunities to shift young peoples’ perceptions. Awareness and exposure programs aimed at all students will help to correct and inform educational pathway perceptions. Similar initiatives aimed at parents will help to inform this group of influencers, and hopefully lead to more validation of the skilled trades pathway. Perceptions of fair/good compensation are relative and individual, and thus more difficult to address. However, pairing awareness programs with current labour market information (that includes job availability and compensation) will help to provide more-informed perceptions among youth and their parents.

The Influence of Perceptions on Interest

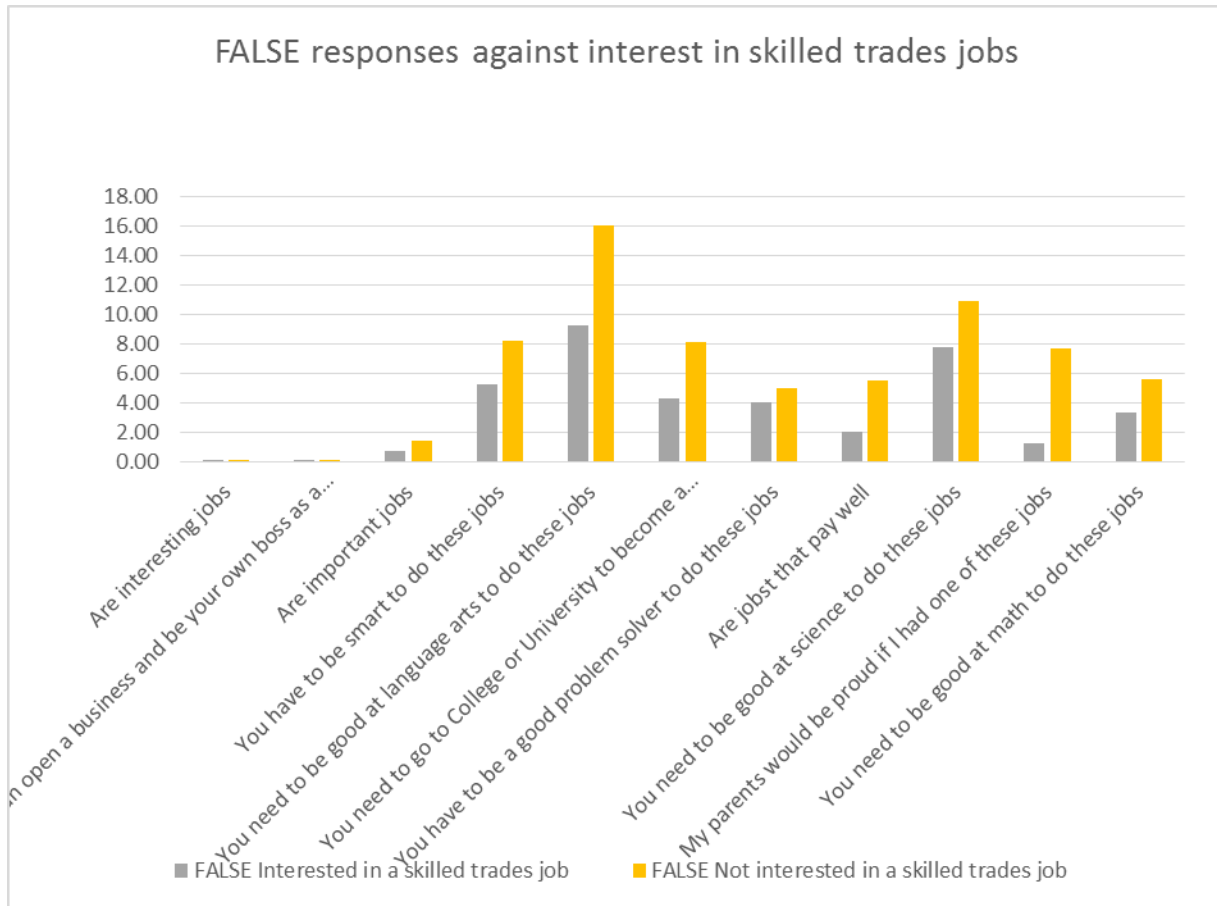
When we compared true and false responses (perceptions) against interest in a job in a skilled trade we found;



This data shows that students who are not interested in a skilled trades gave positive (TRUE) responses to the comments as frequently as (and often more so than) students who were interested in a skilled trades job. This suggests that it is not the negative perceptions of the job characteristics (that were presented to them) that dissuades them from these jobs. That is, it is not so much a negative perception of skilled trades careers that motivates the dismissal of this option, but rather the lack of interest – which itself seems to be due to lack of experiential awareness with these roles. Most youth seem to be telling us that these are good jobs – for someone else, but not for them. This may be due to the plan A academic default pathway which means that they haven’t given an alternative much thought. These results may also be due to the priming effect already mentioned.

What is notable is the second bar – ‘You can open a business and be your own boss’, which is almost absent for youth who are interested in a skilled trades role. This reinforces the point made earlier in this

report that students who are considering a skilled trades pathway are not thinking entrepreneurially, and this is not a driver for interest in these roles.



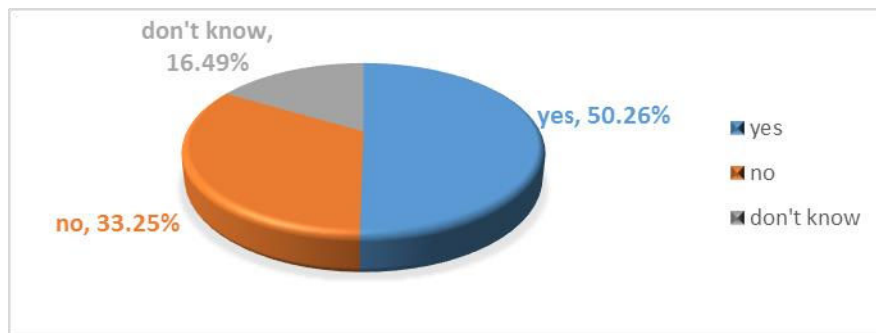
Conversely, those who were not interested in a skilled trade gave negative (FALSE) responses more often than those who were interested. This suggests that negative perceptions of skilled trades jobs do lead to lack of interest, but favorable perceptions do not necessarily lead to more interest. This is consistent with the findings from the open-text responses to the question “If you’re not interested in a career in skilled trades, explain why not”, where 49.62% expressed reasons relating simply to lack of interest.

Overall, the responses were more positive than expected. For students who did provide negative (false) responses, there were stronger perceptions that one did not need to be good at language arts or science to do these jobs. For some students who shared these perceptions, they were still interested in skilled trades jobs – despite, or perhaps because of these perceptions. Inasmuch as youths’ espoused interests (or lack thereof) are driven by awareness and experience, there is an opportunity to build more interest through awareness and exposure programs earlier on in students’ education.

## Perceptions of Career Opportunities in Nova Scotia

The pervasive belief in Nova Scotia is that the real or perceptual lack of opportunity in the region is the driver of out-migration of youth. This section addresses this assumption and draws out some critical insights into youths' actual perceptions of career opportunities in Nova Scotia.

Do you have family or friends who live in NS but work in another province?



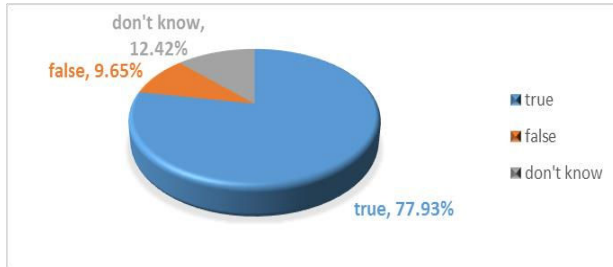
This question was posed to provide insights into the socialization and normalization of interprovincial mobility among participants. As expected, a considerable proportion (half) of Nova Scotian youth have proximal experience with this mobility option. Experience with the phenomenon of *leaving for work* is an important variable to understand insofar as it influences young peoples' own comfort levels or aspirations to consider the option. Familiarity helps to validate the choice of mobility, and elevate it in the minds of youth to not just a reasonable option, but possibly a primary one.

## Interprovincial Mobility

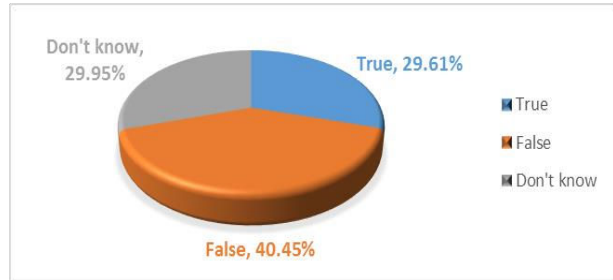
The driver of interprovincial mobility has historically been the absence of regional opportunity and employment coupled with myriad and lucrative opportunities in other provinces (i.e. out West). The assumption holds (anecdotally) that young people are predicting a push from the Nova Scotia region by the same economic limitations. The following group of questions challenge this assumption by soliciting young peoples' perceptions of their future employment options regionally.

Which statements do you believe are true or false about jobs in Nova Scotia?

a) There are good jobs in Nova Scotia;

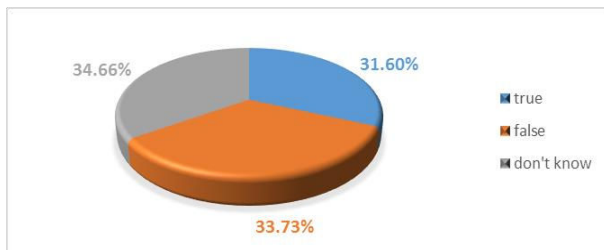


b) The best jobs are in the cities;

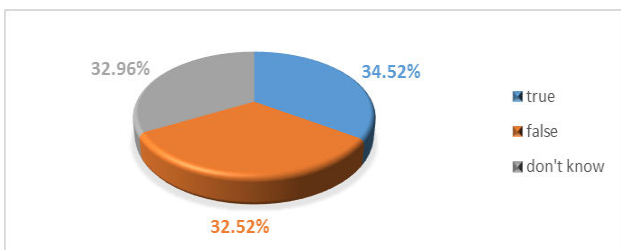


Both of these questions reveal significant optimism among our youth regarding career opportunities in their broad (NS) and regional environments. There is a slight inverse relationship between positive (true) responses and grade level, with a drop of 10% between grades 6-8, plateauing at that point. This may reflect the general disengagement that occurs in youth during this same period, and may not be a reflection of declining optimism in career options generally.

c) The best jobs are out west;



d) It will be easy to get a job when I'm older;



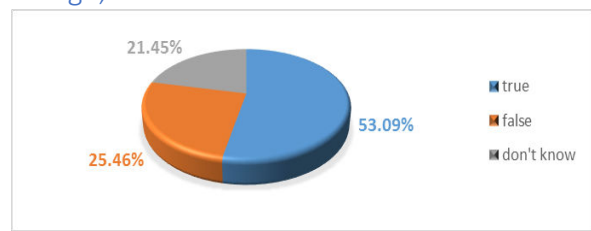
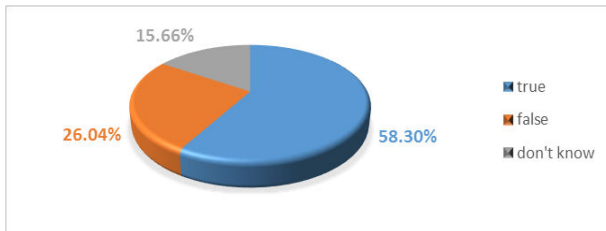
Responses to statement (c) were fairly equally divided, showing that youth in NS do not share the common regional assumption (anecdotal) that the best opportunities are to be found out west. These responses may be explained by variability in the perception of what constitutes the 'best' jobs, and may show that youth are able to evaluate some of the different aspects that comprise a good job. When this question was analyzed against the question asking *Do you have family or friends who live in NS but work in another province*, it was not shown to influence the responses (i.e. knowing someone who has been living here but working elsewhere, did not change their perceptions of there being best jobs out west<sup>39</sup>).

<sup>39</sup> It is important to note that this survey was completed in January 2016, during a significant period of decline in employment opportunities out west. It is highly likely that students would have been aware of this occurrence, and would have been exposed to dialogue about it from home or in the media. This awareness of the present decline in employment opportunities in the west may have factored into responses.

Surprisingly, students who identified an academic pathway after highschool were more likely to mark statement (c) as false, suggesting optimism in the range and locations of professional careers regionally.

Responses to statement (d) were similarly divided. Participants seem to be communicating optimism in the availability of good jobs regionally, but lack of confidence in their future ability to take advantage of those opportunities.

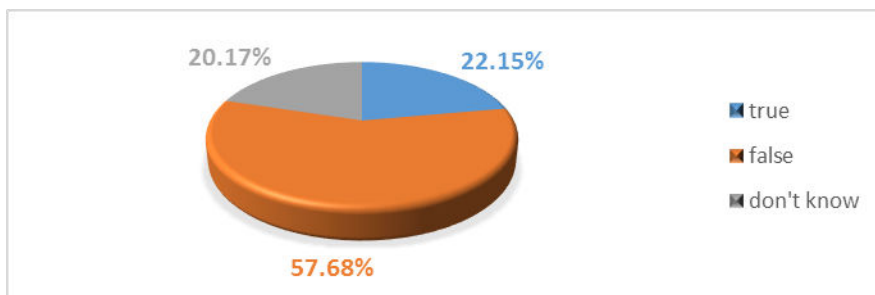
e) To get a good job I will need to go to University; f) To get a good job I will need to go to College;



The majority of students are in agreement that post-secondary education is a prerequisite for ‘good’ employment, although more than 40% disagree or are uncertain. This may again be attributable to mixed perceptions of what a ‘good job’ is. Alternatively, it may speak to the need for more deliberate career education to help students to understand the pathways to employment.

Not surprisingly, there is significant overlap between the students who indicated that they want to follow an academic pathway (specifically University) out of highschool, with those who believe that they require this pathway to get a good job. The overlap was considerably less-significant for college education, suggesting that many students believe that community college is an available pathway to employment, but not an essential one. This reinforces the importance of developing career maturity and an awareness of the link between academic requirements and employment in certificate/diploma-credentialed careers.

g) I can get a good job without finishing high school;



It is surprising to note that almost a quarter of students marked this question as true. When analysed against the question regarding pathway after highschool, it was found that 15% of students who do plan to go



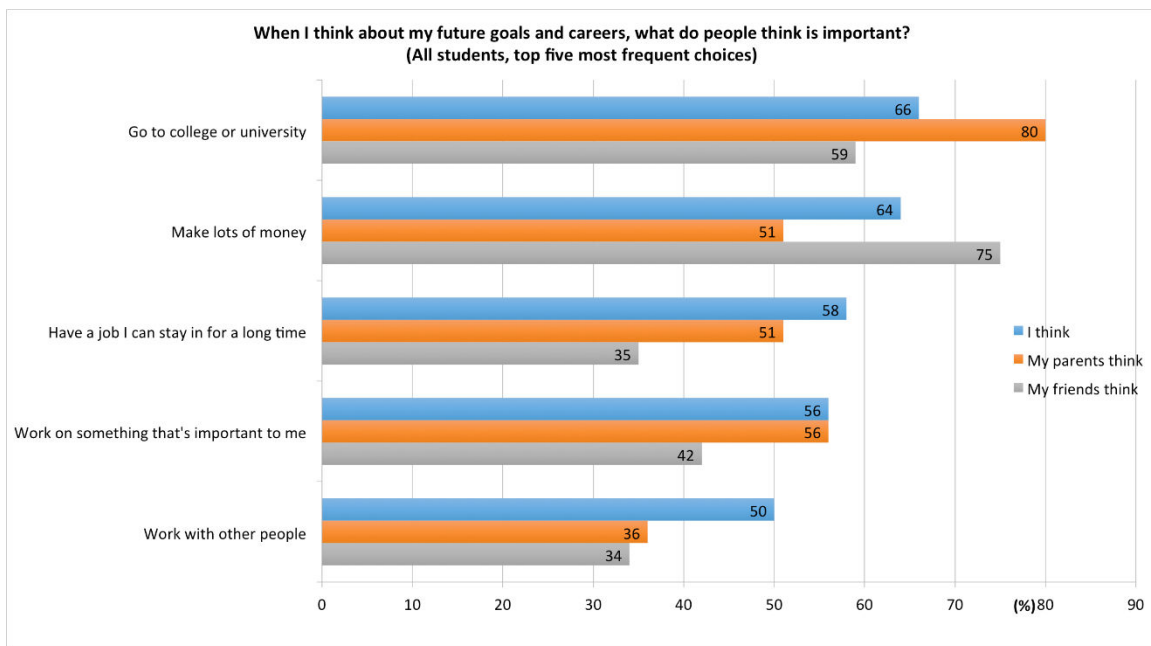
to College or University, marked this question as true. When combining true and don't know responses, we see that 40% of students believe it may be possible to get a good job without finishing high school. This may be due to different perceptions of what constitutes a 'good' job. These students may have siblings who are already employed in part-time jobs that they regard as 'good'. This may indicate the importance of more education about the type of lifestyle they wish to have when they are older, and the kind of job (income) they would require to support that. Furthermore, students may not have the financial acumen to understand the link between income and lifestyle.

Responses to these true/false questions indicate that youth perceptions of career opportunities in the region (as compared with other regions), generally, are more optimistic than expected. However, responses do indicate some concern about the future availability of jobs, as well as lack of awareness of the education requirements and pathways for future careers.

## Career Consideration Drivers

The following question was asked three times, first asking “*When I think about my future jobs, what is important to me is*”. The following two times it asked students to consider what their parents/guardians think is important, and what their friends think is important.

Compensation remains the primary incentive for career selection (when Education pathway is disregarded). It is also notable that the third most important factor was ‘*have a job I can stay in for a long time*’. It is interesting that youth in Nova Scotia are thinking about job security at such a young age, especially as this runs counter to the job-switching habits of the new generations that are reported in popular literature. This response may be an artefact of the ‘have not’ sentiment that is still pervasive across the region, and that is a common narrative in media and in the homes of Nova Scotians.

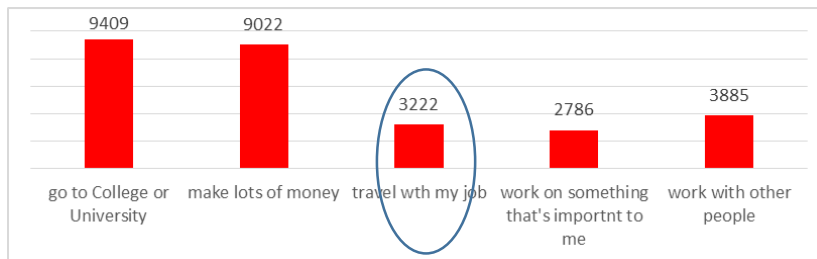


The third question that asked participants to consider what their peers regard as important functions as a projection question that helps to validate the responses of the individuals. As expected, there is significant alignment between *the important to me* and *important to my friends responses*, which serve as a proxy for individual perceptions. There is also consistency between the responses for the individual and beliefs of what is important to their parents, which demonstrates that young people are hearing the messages that parents communicate about value and importance. Where the parents’ rankings varied from ‘me’ and ‘friends’ was in the self-actualized response of *work on something that’s important to me*. Participants also ranked the importance of tertiary education to their parents significantly higher (80%) than the other two groups, suggesting that messages about post-secondary pathways are being reinforced at home.

Statements that received the lowest responses included; *get a job without needing advanced education*, *work/life balance* (open text), *help other people* (open text), *make enough to support my family* (open text), *be successful/get a good job* (open text), *stay with friends and work with them* (open text). Other statements that received lower response rates included; *have a job I like* (open text), *get a job right away*, *build and create things*, and *stay and work in NS*. It is important to note that the open text responses were not original options available for selection. These were coded from common open-text responses, which explains their relatively low frequencies. That these responses were offered by students frequently enough to require a code, however, is notable.

Most students selected numerous response options, and so to further analyse these responses, we examined only the first three selections to determine how students had prioritized their responses.

### What is important to me: First Three Responses

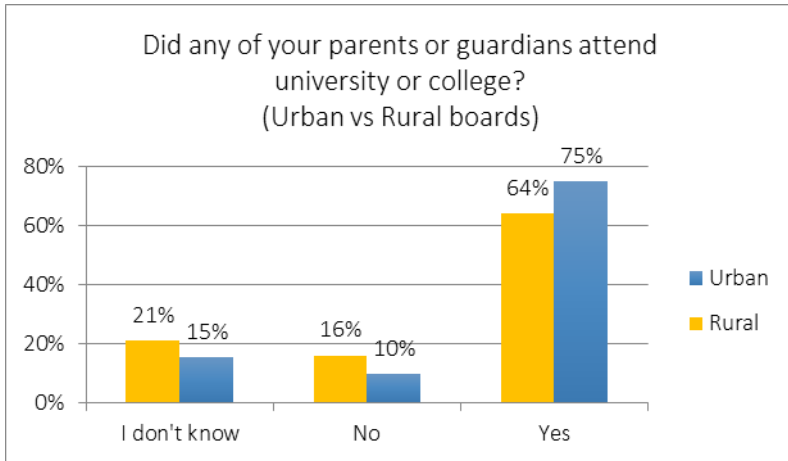


As expected there is a strong correlation between what participants want from their careers and their perceptions of what their friends and parents want, with the strongest correlation between 'myself' and 'friends'.

When we look at the top three prioritized responses, we see the emergence of the mobility variable. In third place for parents was 'work on something that's important to me'.

## Urban vs Rural

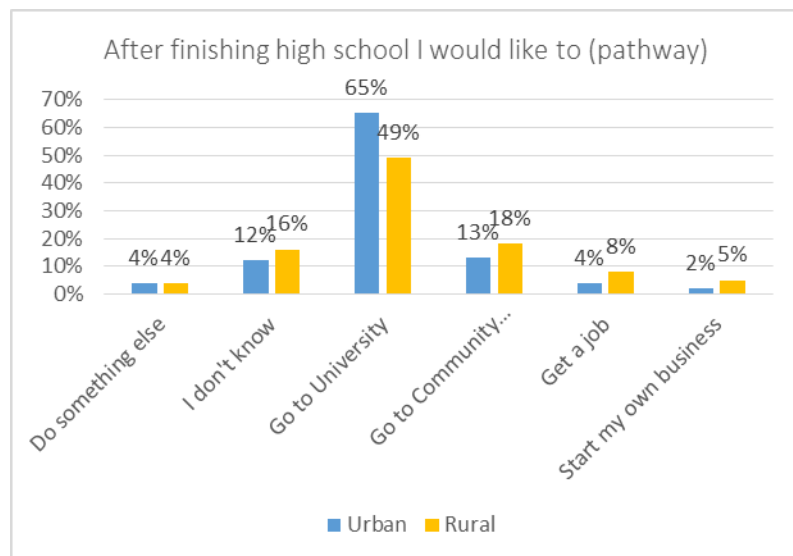
An analysis was conducted that compared urban versus rural responses. To do this, the results from 3 school boards were examined in detail. One predominantly urban school board (HRSB) was compared



with two predominantly rural school boards (TCRSB + CBVRSB). Variables that showed significant response differences (i.e. calculated as greater than 3%) are reported in this section.

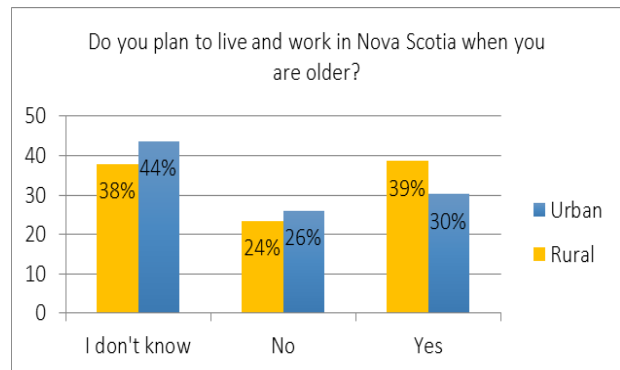
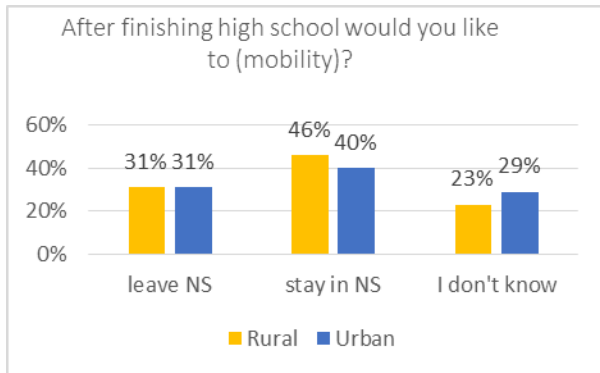
There was a significant difference in the reporting of parent education levels. This

was also consistent with the reporting of pathway intentions of students in rural versus urban locations. Urban students were significantly more likely to report that their parents have post-secondary education, and to express an interest in a University pathway. Rural students were more likely to express an interest in a community college pathway, or in an alternate option (i.e get a job, start own business). Rural students were slightly more likely to report an interest in entrepreneurship.

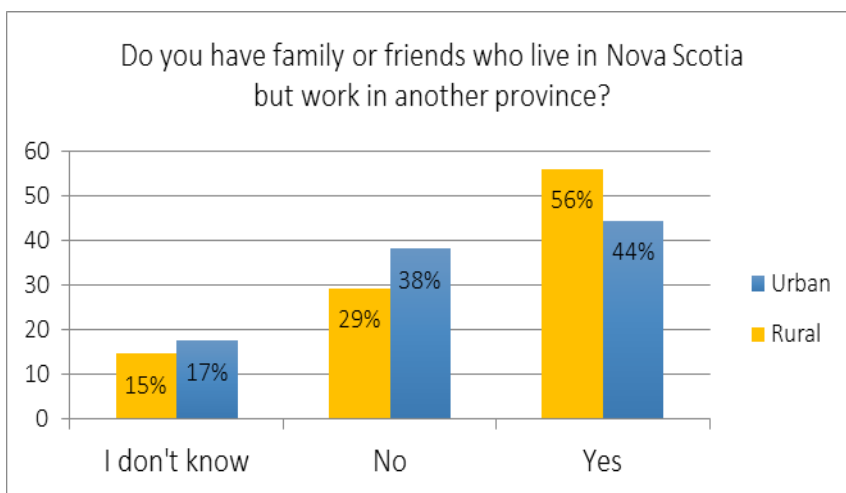


## Mobility Interests

Urban and rural youth showed equal intention to leave the region. Urban youth indicated a stronger desire to remain in NS, while rural youth expressed more uncertainty. It may be that urban students find mobility a less compelling option as they see more opportunities locally in urban setting. Rural kids might see fewer options within their own communities, but feel uncertain about where/how far they need to venture to access the good opportunities.

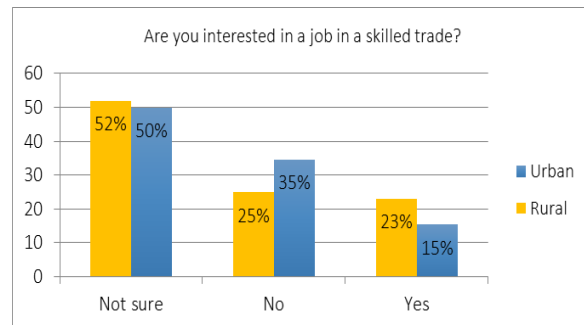
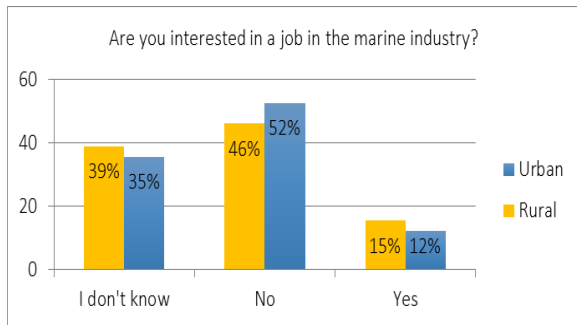


When this question is compared with responses to the second mobility question, we see a sharp decline in 'stay' responses for both (46%-39% rural; 40%-30% urban), and 'leave' responses also declined, while uncertainty rose sharply. This is consistent with the pattern that occurred with the amalgamated data, and suggests that while learning effect may have created uncertainty, this shift was equally pronounced for the urban and rural youth.



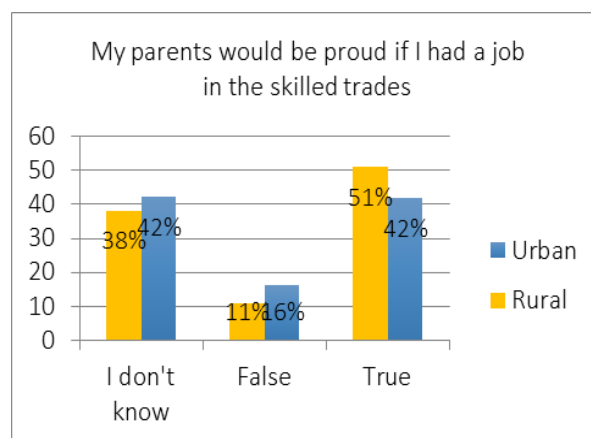
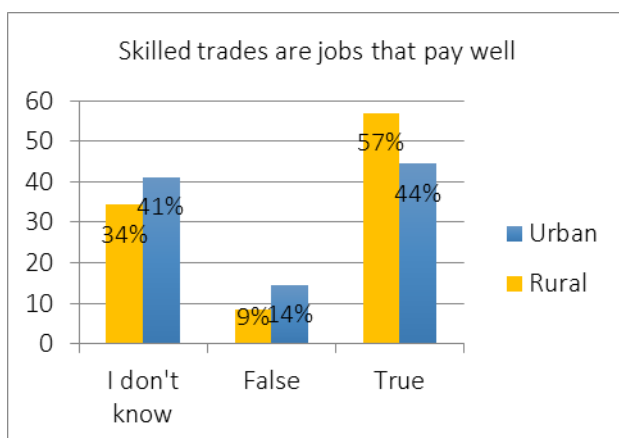
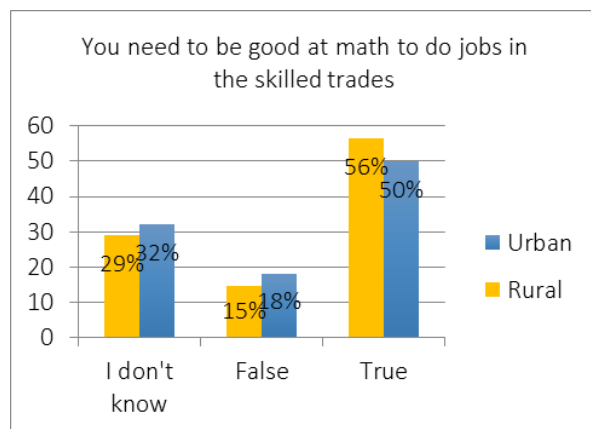
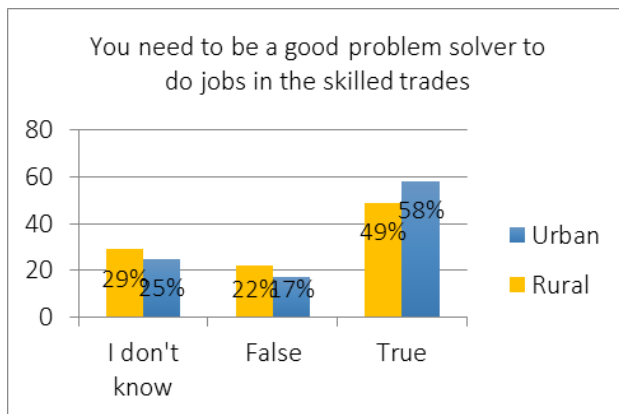
As expected, rural youth were significantly more likely to report awareness of a proximal role model (family or friend) who has relied on employment in another region, while maintaining residency locally. This speaks to the significant potential influence of the socialization and normalization of interprovincial mobility on the intentions of rural vs urban youth.

### Career Interests



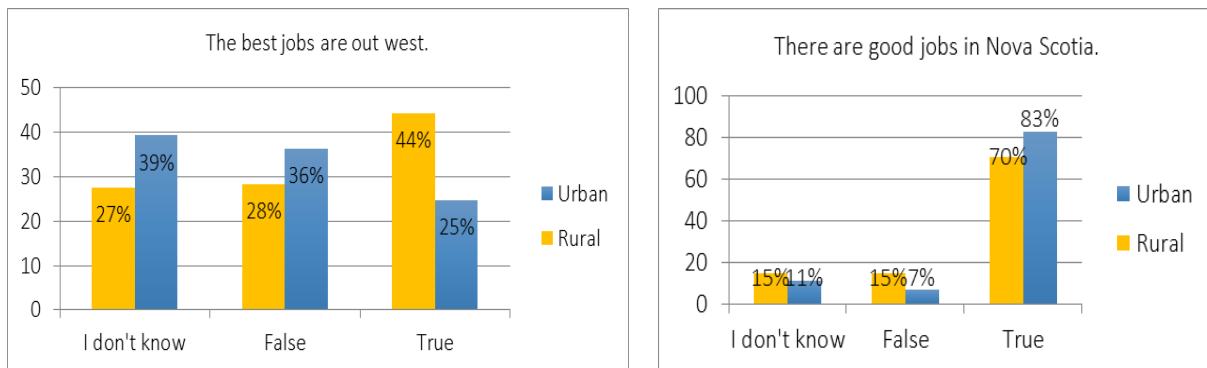
Significant differences were also found in the career interests of urban and rural students. Rural youth were slightly more likely to report an interest in marine-oriented careers, and significantly more likely to report an interest in skilled trades careers.

### Perceptions of Skilled Trades Roles



Four areas of perceptions of skilled trades showed significant response differences between urban and rural youth. Urban youth were more likely to perceive skilled trades roles as requiring problem solving competencies, but significantly less likely to perceive that these roles require competency in math. Rural youth were significantly more likely to report that skilled trades jobs pay well, and to believe that these roles would generate parental approval (pride), which, when combined with the ‘career interest’ responses, underscores the importance of parental influence on student career intentions.

### Jobs in NS



Rural students were significantly more likely to communicate the belief that the best jobs are out west. This correlates strongly with awareness of a proximal role model who has left the region (or is presently) to work in another province. Similarly, rural students are significantly less optimistic than their urban peers in the availability of good jobs in NS.

Students living in rural areas often have additional challenges to consider when making career-related decisions, including the limited range of careers that may be available in their home towns, and their social attachments to friends and family (Hektner, 1995). These social factors should not be underestimated in terms of importance to young adolescents.

## Open-text Responses

To analyse the open-text responses, 250 random responses were pulled from each the urban board and from the two rural boards. These 500 responses were analysed using the same codes as those used for the larger amalgamated sample. The distribution of responses was consistent with that from the amalgamated sample. There were few differences between the urban and rural responses, with a few exceptions;

In response to the question, *If you're not interested in a career in the marine industry, why not?*

- Urban students were significantly more likely to express 'lack of interest'
- Rural students were significantly more likely to provide a disparaging response or to indicate a different career intention

In response to the question, *If you're not interested in a career in the skilled trades, why not?*

- Urban students were significantly more likely to express a 'lack of interest' or a disparaging comment
- Rural students were more likely to indicate a different career intention

In response to the question, *If you do not plan to live and work in Nova Scotia when you are older, where do you plan to live?*

- Urban students were significantly more likely to identify locations in USA or Europe
- Rural students were significantly more likely to identify Western Canada as their place of choice



# Insights and Recommendations

Youth have a narrow perception of ocean-oriented career options in the region (i.e. fishing, Navy)

Lack of interest in ocean-related and trades/technology related careers is due to lack of awareness, exposure, and accurate information

There is strong evidence for the influence of parents and media in the bias youths form towards certain career pathways

In career literacy, an informed 'no' is as important as an informed 'yes'

There is a need for highly interactive career exposure programs well before grade 9

## Insights & Recommendations

A key insight from this study is the general and broad lack of awareness of Nova Scotian youth of marine oriented careers. Young people generally have a very narrow perception of career options in the marine industry, with awareness largely limited to traditional notions (i.e. fishing, Navy).

The data suggested that the lack of interest in marine industry careers is rooted in a broad lack of awareness of the range of available careers (i.e our youth are not sure what the 'marine industry' means beyond fishing and Navy), and in lack of positive exposure to the oceans, resulting in fear and apathy in place of stewardship and fascination. We need more oceans presence in our provincial curriculum, and more experiential programs and teaching to reconnect young people to the oceans (and other waterways), to build engagement and curiosity, and to connect with the broad range of opportunities that are locally available. We need optional exposure and awareness programs (extracurricular), as well as mandatory ones to ensure that we are reaching young people who might not have exposure through their own social networks, or for those who have not even considered the oceans an option worth exploring. We can't rely on voluntary extracurricular programs to reach all students. These opportunities will help to ensure that even if students decide that they aren't interested in a marine-oriented career, that at least it is an informed decision.

Similarly, responses generally showed a lack of awareness of skilled trades careers which is reported by youth as a lack of interest in these careers. There is a prevailing stigma against skilled trades pathways (i.e. prestige, approval, compensation) that students as young as grade 6 are conscious of. Additionally, students remain poorly informed about the myriad career pathways that emerge from a skilled trades credential, and about the high-tech/low-touch characteristics of many modern-day trades. More exposure and awareness programs are needed in the grades 6-9 cohort to erode the stigma and build fascination with the creative and problem solving contributions of skilled trades and technology roles.

A third key insight is that our youth form strong biases against certain careers or pathways from an early age (i.e. by grade 6). These biases are not always well-informed, but they influence and limit the options that youth consider as they progress through school and through their career exploration. Overall, youth in Nova Scotia communicated strong preferences against careers in skilled trades and marine oriented careers. Open text responses revealed that these preferences against were not well-informed. This is an important insight as it demonstrates that at an early age, young people are restricting rather than expanding the range of career options within their consideration. Just at a time when they should be looking more broadly, they are disregarding certain pathways, without having a chance to actually explore them. Even more noteworthy is the finding that the rationale being employed by youth to dismiss career and education options is often based on perceptions of social prestige and value (and associated peer and parent approval), and is not necessarily based on individual talents, skills and interests. This has relevance to exposure and awareness programs that rely on voluntary participation, as young people may not be engaging in the exploration activities they could, having already dismissed certain options. This, in turn,

points to the importance of mandatory awareness programs during these early years (i.e. prior to grade 10), before education choices are made that further restrict their pathway options.

We also see evidence of the bias-forming effects of negative narration (i.e. from parents, friends, media) on perceptions and career choices. Many students expressed an intention for a specific pathway (predominantly University-oriented), however these education intentions were not always consistent with their career intentions (i.e. I want to go to University, I want to be a travel agent), or the intention was expressed without an outcome in mind (i.e. I don't know what I want to do, but I know that I want to go to University). This shows a strong awareness of the prestige and social preference for University pathways, and is evidence of the academic default that many of our young people are socialized for.

This study reinforces the need for highly interactive career exposure programs well before grade 9. This recommendation is supported by research<sup>40</sup> that suggest that students as young as 10-12 years old will benefit from career education, and that by the age of 14, the potential negative aspects of certain careers begin to take hold. The consensus in the literature is that early exposure to a wide variety of career options is important<sup>41</sup>. Career education needs to advocate for many options that include the 'big dream' as well as more plausible options that are linked to the individual's skills, competencies, and interests. These programs need to be interactive and socially focused –and also need to be more adjectivally focused (instead of job title focused) to link to the compelling competencies and qualities of a career path (i.e. creative, problem solving, interactive, entrepreneurial, independent, etc.). And finally, we need to coach our young people on the types of skills and competencies they'd like to build to launch their career webs that can take them in numerous directions, versus coaching them towards a terminal or linear notion of career.

The data also provides insights into the most effective (i.e. trusted and accessible) modes for providing career counseling. Responses indicate that the traditional models of career counselors, guest speakers, or of one-on-one career counseling, are not trusted or valued. Today's young people value career exploration with an experiential versus informative focus. In addition to the importance of highly interactive career exposure programs well before grade 9, the data suggests that these programs need to be experienced in a social, peer education environment that utilizes technology channels.

This study also confirmed the researchers' hypothesis that mobility is not driven as much by pessimism in local opportunities as by a *mobility motive* itself (i.e. that mobility has become a motivator in itself). This means that our youth are not feeling pushed out of the region by lack of local opportunity, but rather that they are feeling pulled to other regions because mobility has become more normalized and interesting to a broader range of youth than in previous generations. It would seem that the trend has shifted from *leaving because we have to* – to *leaving because we want to*. This has considerable implications for post-

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<sup>40</sup> Hartung, Porfelli, and Vondracek (2005)

<sup>41</sup> Carpenter, 1993; Welde et al., 2016; Zimmer-Gembeck and Mortimer, 2006

secondary recruitment programs, and for youth employment programs. A course of action may be to find ways to provide opportunities for our youth to explore their mobility pursuits through more temporary experiences that won't ultimately lead to the shedding of our youth as they depart the k-12 system.

Finally, we see a need for different career coaching focus for urban and rural students. For both groups, we see that our youth do form strong biases/opinions regarding their education and career futures by an early age, but the study itself provides some evidence that these biases can be shifted with information – even if the shift is from uninformed certainty, to more informed uncertainty. Uncertainty is the open door to developing broader career awareness and maturity in the career exploration process.

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## Appendix A: Letter to Teachers

### Message to Teachers

As you know we have several initiatives underway aimed at preparing our young people for tomorrow's opportunities. To ensure that we are working from the most recent and relevant data about our young people, we will be implementing a survey of all students in grades 6-9 across the province. The ***Student Intentions and Perceptions Survey*** will solicit responses from our young people that will provide valuable insights into their perceptions of trades, technology, and marine-oriented careers, and of their career optimism. It will also provide some insights into their mobility intentions, and the drivers that influence their career and education choices.

In order for us to provide the most effective career literacy and awareness programs, it's important that we understand what our young people believe to be true, and that we understand what interests them and why.

We are asking for your support in launching this survey. Here is what we require from you;

- Introduce the survey to your students (**brief instructions for implementation are provided below, along with the survey link**)
- Between **January 25<sup>th</sup>-February 5<sup>th</sup>** provide time (~10-20 minutes) and resources (i.e. access to PC, laptop or other device) for each student to complete a survey independently (assistance may be provided to students with accommodations)

### Instructions for Implementation

- Provide survey link to students. This survey can be completed on a PC, laptop, or mobile device.

Before students begin, please provide the following instructions;

- Explain that this survey is asking them about their ideas and plans for their future career. Remind them that we are very interested in hearing about what **they** believe about different career options, and what they plan for themselves

- Ask them to read each question and instruction carefully, as some questions may sound the same
- The first questions ask them about their School Board and School name – please remind them of the full names. (If they don't see their school name, they have probably selected the wrong school board). Some school boards sound the same (i.e. SRSB, SSRSB), so please ask them to choose carefully
- Explain to students that it will likely take them 10-20 minutes to complete the survey, but they may take as much time as is reasonably needed
- Teachers may provide guidance re: clarifying questions or vocabulary, or pathway questions (i.e. *does a doctor need to go to University or College?*)
- During the pilot, the survey seemed to inspire discussion between and among students. It is fine if students discuss the questions and their choices, as this seemed to support comprehension and engagement, and did not seem to unduly influence responses
- If you have any technical challenges with the survey tool, please contact your Technology Integration Consultant for support



## Appendix B: Career Categories

Category	Examples
<b>Medical and health professions</b>	Doctor, surgeon, nurse, veterinarian, physiotherapist, psychiatrist, dentist, orthodontist
<b>Visual and performing arts</b>	Artist, actor, singer, YouTuber, musician, author, filmmaker
<b>Professional sports and related</b>	Professional athlete, coach of a professional team, agent for professional athletes, equipment manager
<b>Military, police, firefighting and outdoors</b>	Army, navy, marine corps, coast guard, police officer, firefighter, agent for Department of Natural Resources, forestry, logging, game warden
<b>Retail or non-professional</b>	Personal trainer, book publisher, waiter, pilot, flight attendant, cashier, anonymous buyer, snowmobile retail, car painter, truck driver
<b>STEM careers</b>	Scientist, engineer, marine biologist, computer programmer, technologist
<b>Trades</b>	Mechanic, carpenter, electrician, welder, construction, chef, baker, hairdresser, makeup artist
<b>Non-STEM professionals</b>	Lawyer, banker, architect, politician
<b>Business owner, small business owner</b>	Restaurant, mechanic, beauty salon, trades, bakery, retail