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April 8, 2016

Giuliana Villegas
Undergraduate Student Services Coordinator
UBC Department of Computer Science
2366 Main Mall
Vancouver, BC V6T 1Z4

Dear Ms. Villegas,

Please find attached my report investigating gender inclusivity in computer science at UBC. Formulating this report elucidated the complex issues surrounding gender inclusivity and promotion of equality regarding entry into the Computer Science Department. This research highlighted not only the facets involved in inclusivity, but also the extensive ongoing efforts of the department in encouraging equality.

Gender inclusivity is an important goal in all industries and computer science presents its own unique challenges and opportunities in this realm. To help fortify the department's already respectable inclusivity efforts among students, please accept this formal report investigating factors of student entry and inclusivity at the university level. Hopefully, this report will help further elucidate the complex issues of gendered imbalances in computer science at UBC.

Specifically, the report contains data gathered through UBC computer science-centric polling, as well as further qualitative analysis gathered via interviews and department event observations. The report concludes with an evaluation of the important facets involved in effective inclusivity and recommendations for further strengthening these areas and promoting gender equality in computer science at UBC.

Thank you for the opportunity to initiate this study and I appreciate your assistance in conducting research. Please contact me by email at wes.berry1@gmail.com with any questions or to discuss this research further

Best regards,

Wesley Berry

Raising Computer Scientists:
Gender Inclusivity in Computer Science at UBC

for
Giuliana Villegas, Undergraduate Student Services Coordinator
UBC Department of Computer Science
Vancouver, BC

by
Wesley Berry
English 301 Student

April 8, 2016

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Abstract

To analyze gender inclusivity and perspectives on computer science, a survey of (predominantly) UBC computer science students was initiated via social media, supplemented with in-person interviews and Women in Computer Science panel event observations from current and former UBC computer science students. This information was gathered from March 2016 – April 2016 and data generated from this research has been coded and analyzed for this report.

The results of this research indicate that exposure and encouragement in computer science, as well as promotions of equality in capabilities, strongly attribute to gender inclusiveness at the university level. In order to maximize inclusivity and increase female enrollment, the UBC Computer Science department might address these aspects specifically, continuing and enhancing current programs, while promoting new programs aimed at gender equality, inclusiveness, and mitigation to entry barriers.

Proposed recommendations include:

- Promoting exposure, interest, and knowledge in computer science before students reach university by hosting more targeted events
- Increasing emphasis on fun and creativity at pre-university workshops to support interest and learning
- Endorsing female computer science role models to a larger degree and highlighting a higher proportion of women in leading positions, thus underscoring the capabilities of women and subverting societal assumptions on traditional computer scientists among all genders
- Encouraging risk-taking and mitigating negative associations with "failure" and/or scenarios which do not result as expected

Introduction

A. Definitions and Background

According to Statistics Canada's 2011 National Household Survey (NHS), women made up 39% of university graduates aged 25 to 34 with a STEM degree and 66% of university graduates in other fields (Hango).

UBC's Computer Science Department numbers tell a similar story of underrepresentation. Females represented 27.8% of undergraduate UBC students enrolled in computer science-related degrees in 2014 ("Statistics"). Despite a steady rise since 2009, this percentage pales in comparison to the 54% of the total undergraduate population that was female in the same year (Farrar 9).

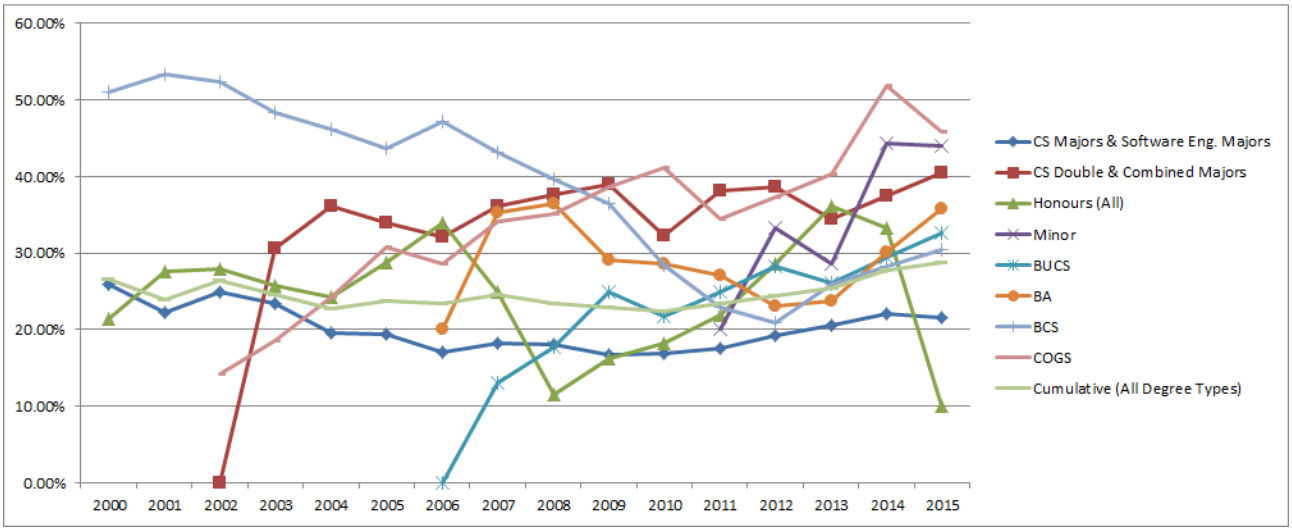

Figure 1: Percent UBC female enrollment by degree type ("Statistics")

Why the discrepancy? Women represent roughly half of the total student body, so the low ratio in CS is not a result of fewer females in the student pool overall. Moreover, the NHS showed that among STEM graduates aged 25 to 34, women represented 59% of those in science and technology fields, but only 30% of those who graduated from computer science and math programs (Hango).

Neither scientific interest nor total population discrepancies explain the gender gap in computer science at UBC, suggesting the influence of social and academic obstacles to entrance into the field. This report aims to elucidate such factors and identify ways to mitigate these obstacles, ultimately encouraging increased female enrollment in UBC's Computer Science Department.

Please see below for definitions used throughout this proposal.

CS: computer science

STEM: fields of science, technology, engineering, and math

Purpose

The purpose of this report is to aid the UBC Computer Science Department's inclusivity efforts by outlining specific themes and methods for encouraging female enrollment in the CS Department. Using quantitative and qualitative data, this study investigates factors promoting entrance into the computer science world. Notably, entrance is only one of many important factors to do with gender inclusivity in computer science, but is the first big necessity for launching an interest in the industry. Promoting pre-university interest, and thus encouraging entry into computer science, bypasses critical obstacles and presupposes careers in the field. Therefore, exploring entry is a critical step in understanding inclusivity and endorsing it efficiently.

B. Description of the Problem

Social and academic factors underscore obstacles to female entrance into UBC's computer science programs. Identifying these factors specifically, including common perspectives on CS at UBC and typical experiences in the realm, will

elucidate areas where UBC's Computer Science Department might promote increased female enrollment, as well as ways the CS Department is already successfully championing equal gender representation.

On a larger scale, the underrepresentation of women in UBC's CS Department perpetuates inequality in the industry. Increasing the number of girls enrolled inspires and empowers the next generation of female computer scientists, while shifting male-dominated traditions and perspectives in computer science and beyond. From a functional standpoint, each participant brings unique experiences and perspectives to the table, contributing to a more robust and thorough whole. The voice for female perspectives is not nearly loud enough and by aiming to enroll more girls in computer science, the department and industry will gain more comprehensive value, while pushing towards gender equality on a larger scale.

C. Methods of Inquiry

The primary sources of inquiry for this investigation include surveys and personal interviews with pre-university students, those currently enrolled in university, and university graduates. Primary data also includes observational data from a panel featuring UBC-grad women now working in the technology industry. These sources provide specific outlooks and experiences among relevant individuals, molding views on obstacles and encouragement for entrance into computer science. Secondary sources of inquiry include academic publications investigating female participation in male-dominated fields, as well as national and UBC-specific statistics on enrollment demographics. These secondary sources help provide

context, perspectives, and numerical data relevant to an exploration of gender representation in the sciences.

D. Limitations

A key limitation to this study is the ability to specifically access individuals who considered a degree in computer science, but chose a different path for some reason. As part of the survey structure, we can expect some such respondents. However, identifying a substantial cross-section of these individuals might further shed light on the features at play.

Another limitation—as with many studies—may relate to respondents' reluctances to share specific difficulties and/or opinions. Perhaps also rooted in social factors, individuals may not feel comfortable sharing certain experiences or perspectives, despite confidentiality in the data-gathering process.

E. Scope

This proposal focuses primarily on gender inclusivity in UBC's Computer Science Department, gathering information from past, present, and future students. In exploring this theme and potential recommendations for increased inclusivity, the proposal explores perspectives and experiences in the realm.

F. Conclusions

Reducing the gender gap in industry is not simply a noble pursuit, but rather a critically necessary step in computer science and society. Gender inclusivity supports progress by bringing more ideas and perspectives to the table, while supporting an overarching goal of gender equality across the board. Societies cannot effectively realize and alleviate constraints placed on certain demographics

without doing so across industries and computer science is no exception. A traditionally male-dominated profession, this gender gap in computer science festers and perpetuations without action.

By focusing on learning, inspiration, and empowerment, UBC's Computer Science Department enhances inclusiveness and encourages female enrollment, thus setting the stage for the next generation of female computer scientists. While the department currently supports programs to foster female interest, its resources and social positioning can further contribute to inclusiveness and enrollment, while helping turn the crank towards gender equality as a whole.

Collected Data

A. Survey and Interview Results

1. Definitions

Multiple-choice data: respondents asked to respond to a question or statement by choosing the most appropriate answer from a given set of choices.

Numeric rating data: respondents provided with statements and asked to rate their agreement with a given statement on a scale from one to five. One equates to a low level of agreement, three is neutral, and five indicates a high level of agreement.

Open-ended data: respondents given questions for which they may enter their own answers (not multiple choice).

2. Analysis Methods

The survey portion of this study gathers data on respondents' demographics, as well as quantitative data about feelings and knowledge surrounding the computer

science industry. This section is designed to analyze different attitudes relating to computer science and resource access. The survey also provides space for open-ended answers and comments, eliciting additional qualitative data. This qualitative data is coded for quantification.

The interview portion mainly gathers qualitative data regarding feelings about the computer science field, as well as data on spurring interests and inclusivity. Like the survey portion, the interviews provide opportunities for open-ended answers and comments, which are also categorized and coded for quantification.

It is worth noting here that a single open-ended answer from a survey or interview may hit on multiple different factors, thus qualifying it for inclusion in more than one category. This is due to the nature and structure of open-ended questions.

Event observations were obtained during a Women in Computer Science panel event organized by the UBC Computer Science Department on March 17, 2016. Composed of six female UBC computer science graduates, this panel answered questions and shared perspectives on experiences in the computer science industry at university and beyond. Their insights are grouped and analyzed herein, adding another layer to the investigation of inclusivity.

Thirty respondents provided survey data, including thirteen females, sixteen males, and one individual choosing not to identify with a gender. Because the number of male and female respondents is not equal, we equalize the data using averages, percentages, and overall counts. Doing so allows for meaningful comparisons and analysis across male and female responses.

3. Survey Response Similarities

Survey results show similar attitudes for much of the numeric rating data. Specifically, opinions on important success traits and responses about "fitting in" socially with one's peers returned comparable ratings for both genders. Notably, men and women agreed to a similar extent that women often experience more barriers than men in pursuing computer science careers.

4. Likelihood of Interest

Conversely, agreement with statements on the likelihood of computer science interest showed significant rating differences between males and females. As a whole, men tended to believe more in an equal likelihood of interest, while women disagreed more on this assertion. Specifically, among males, 13% more respondents indicated a level of agreement, with 44% of men indicating some level of agreement compared to 31% of women.

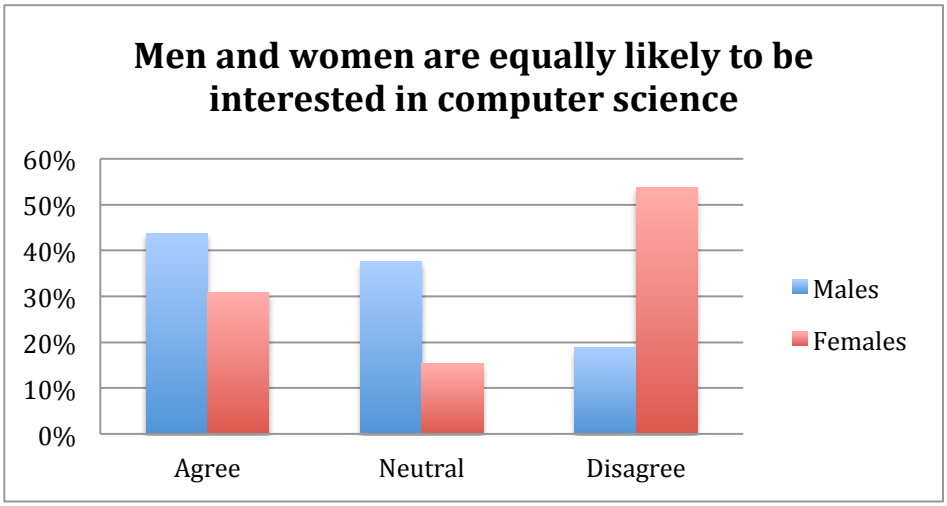

Figure 2: Agreement levels of male and female respondents with the statement "Men and women are equally likely to be interested in computer science"

5. University Promotion

Males and females also responded differently to the statement: "My university/school promotes computer science to men and women equally", with a

39% difference in agreement proportions between the two genders. In this, 77% of women agreed with the statement, compared to only 38% of men.

Qualitative responses from the surveys provide insight into this gendered divide. Many men suggested that their universities promoted computer science more to women, hence their disagreement or neutral stances on the statement.

Overall, more than half the total respondents agreed with the statement to some degree, while a quarter disagreed to some degree, and slightly less than a quarter remained neutral (Figure 3).

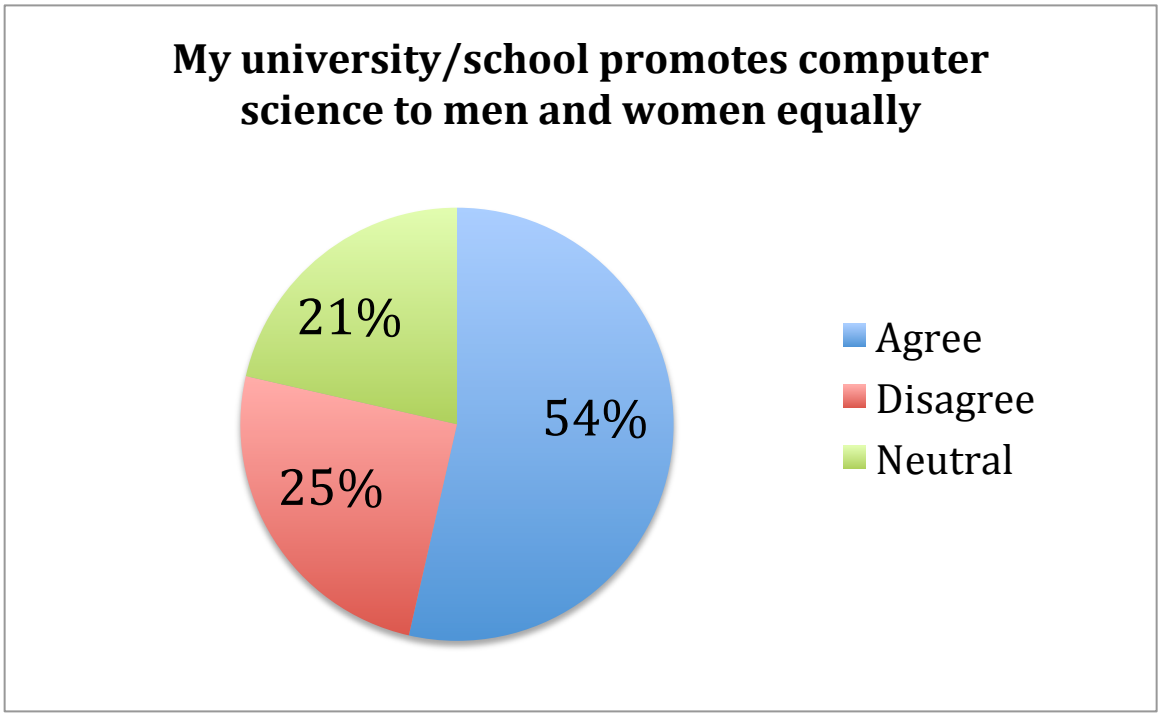

Figure 3: Percent of survey respondents who agree with the statement "My university/school promotes computer science to men and women equally"

6. Peer Comparison

In comparing themselves to peers, 25% of men felt less capable than their peers, 31% felt equally capable, and 44% felt more capable than their peers. Amongst

women, 15% felt they were less capable than their peers, 69% felt equally capable, and 15% felt more capable than their peers. This represents differences of 10% in responses of "less capable", 38% for "equally capable" responses, and 29% for responses of "more capable".

7. Qualitative Data

Qualitative research supplements the survey data. Common themes from open-ended questions included interest factors, the importance of exposure to computer science at an early age, and comparisons of capability between men and women. Within each of these, factors regarding role models, inclusivity, and support at school and home demonstrated a wide range of important facets.

All women interviewed indicated interest as a defining a factor in their career and university trajectories. This is especially interesting considering women's more neutral view of shared interest distributions.

In total, 65% of open-ended responses suggested exposure in school or at home as critical to fostering interest in computer science. Similarly, all female UBC computer science students interviewed mentioned exposure to coding prior to university. Respondents also touched on fostering senses of capability amongst girls.

Approximately 47% of open-ended responses listed capability as a relevant factor in promoting computer science and many suggested the importance of female role models in encouraging feelings of capability.

Approximately 35% of open-ended respondents suggested there was no issue and that UBC's computer science department was already fully inclusive, or that UBC promotes the field more to women than to men.

8. Interpretation of Results

In interviews, female respondents indicated interest was the primary factor influencing career and academic path decisions. While female survey respondents suggested men and women were not equally likely to be interested in computer science, both genders qualitatively and quantitatively highlighted processes of awareness as critical to fostering interest.

Specifically, survey and interview data suggests that the factors influencing interest and entry into computer science fall into two general categories: exposure and capability.

Exposure includes introduction to computer science subjects, opportunities, and resources before and during university. According to respondents, these exposure factors hinge on providing relevant lessons at school and hosting events in and/or outside of the classroom.

Capability covers the ability or belief of ability of an individual. Here, respondents suggested that both the opinions of others and the opinions of oneself govern views of capability, encouraging or discouraging computer science entry and inclusivity.

9. Notes and Considerations

Overall, more men responded than did women and the cross-section of individuals selected for study was heavily skewed towards UBC computer science students. Considering the scope of inquiry, this is a relevant cross-section. However, including more students outside computer science may endow greater understanding of societal factors and will be a consideration for future inquiries.

Furthermore, including more non-UBC students and a wider age range might provide even more insights into the overarching themes of gender inclusion.

B. Panel Observations

1. General

At UBC's Women in Computer Science career panel event, two themes came up repeatedly as contributing to the female panelists' successes in computer science: a willingness to take risks and the existence of strong support networks, both professionally and personally. The UBC CS-grad panelists ubiquitously pointed to these factors as contributing to their own trajectories and variously mentioned specific experiences where risk-taking and network support unequivocally contributed to their current positions.

2. Risk-Taking

One panelist explained how divergent, creative thinking and, specifically, a willingness to give a unique presentation at work aided her current position. Such insights from the panelists elucidate not only how important risk-taking is in the computer science industry, but also the apprehension in taking such risks, especially the first few times. One contributing factor to such risk aversion is a fear of failure. One panelist described her apprehension in switching from a pharmacy degree to computer science, eventually forcing herself to take the approach: "What's the worst that's going to happen?" After succeeding in computer science, she said this perspective began to permeate the rest of her life, contributing to her continued successes.

Thus, we see the critical importance of risk-taking and how experiences taking risks help to mitigate or alleviate natural fears of failure. Moreover, opportunities for trial and error without repercussions are important steps in growth. This is especially true in computer science, where trying a section of written code, compiling, debugging, re-coding, re-compiling, and debugging again are all part-and-parcel to the experience.

3. Support Systems

Likewise, many of the panelists highlighted human support systems, or lack thereof, as strongly affecting their successes in industry.

One panelist described the benefits of having computer scientist parents in supporting her learning and encouraging her progression in the industry. As she described it, having a mother CS role model prevented her from internalizing obstacles to a computer science career. "Mom was way better at logic than my dad."

According to the panelists, building support systems among professional peers also aids in success. This is especially true in the context of gender biases in the workplace. The panelists wholly described positive peer supporters as critical to their own sanities and to validation of their experiences facing gender biases.

As one panelist put it, having positive peer perspectives to consult when faced with subtle biases helped in assuring oneself, "'I'm not crazy. I'm not making this stuff up.' It can be very subtle."

Less subtly, another panelist described the experience of having a client ask her to check with a male co-worker as validation of her assessments. Having this male

coworker tell the client, "Whatever she said, I'm sure that's right" encouraged the panelist's continued progress and helped solidify her expertise to clients.

C. Investigation of Solutions

1. Solution Factor I: Exposure

There is much difficulty in chasing an interest one knows nothing about. Hence, exposure plays a direct role in interests and thus in determining career directions. According to respondents, this is especially true for girls, who traditionally may not see computer science as a fitting career path. Traditional societal views on computer scientists help define this assumption, with one interviewee suggesting that computer science jobs do not seem very social. Summing the general social attitudes towards the industry in once succinct sentence, she asserted, "It is what nerds do."

Thus, increasing interest may require combatting societal assumptions on "tradition" by providing examples of "non-traditional" computer scientists. Such exposure will help debunk these stereotypes.

Furthermore, the opportunity to see and meet female computer scientists complements the development of positive support systems. Increased exposure allows opportunities for network-building and mentorship amongst individuals with similar experiences. Providing these opportunities early and often gives future computer scientists a head start.

2. Solution Factor II: Capability

Despite interest, individuals are less likely to pursue paths they do not feel capable of chasing. Therefore, internal and external feelings on ability play major roles in promoting computer science trajectories.

An individual's own view of his or her potential in the computer science realm contributes to a pursuit in the industry. The survey data suggests women are less likely than men to see themselves as "more capable" than their peers when it comes to CS and this perspective may contribute to the gender gap.

Moreover, many respondents note a need for more females in visible positions of influence in computer science. Participants suggest that examples of successful female computer scientists might provide role models and mentors, increasing girls' feelings of capability and promoting entrance into computer science.

Others' views on an individual's capability also directly effect how the individual sees him or herself. Thus, external assumptions greatly influence an individual's perspectives on feasible career paths. In the case of women in computer science, respondents suggest that school, media, and the home are prime places for influencing feelings of capability. One respondent mentioned that her family was not sure she would be competitive with men in computer science. Similarly, a male participant suggested that a gender gap in media depictions prevents feelings of equality in ability from an early age.

Feelings of capability may also contribute to confidence and positive risk-taking behaviours in technical fields. An individual who is confident in his or her abilities is more likely to trust those abilities and try novel solutions in new situations. Moreover, confidence in capability promotes an individual to learn from failures and

keep trying in the future. This process reinforces confidence, while validating the individual's ability to contribute effectively and enhancing feelings of capability.

3. Other Factors of Interest

As noted above, more than a third of open-ended responses indicated there is no issue with inclusiveness and/or that females had more opportunities than males. Interestingly, an equal number of these responses came from men and women, with one woman noting, "Never is there an event to promote specifically males in computer science."

One male respondent who shared he sentiment declared, "UBC is doing great at generating female interest. I'd even go so far as to say I'm jealous we don't get to join events that give free food because we lack femaleness. I love free food."

The survey data shows an overall agreement on feelings of inclusiveness, with more than half of total survey participants agreeing with the statement that their universities promote computer science equally to men and women.

Conclusion

A. Summary of Findings

Survey and interview data suggest that interest plays the heaviest role in promoting entry into computer science. As a whole, men and women agree on the factors that contribute to success in the field, but feel differently about the likelihood of interest between men and women, the success of inclusion at the university level, and, as individuals, about their respective places amongst peers.

Moreover, comments and experiences from industry professionals suggest that positive risk-taking, coupled with strong support systems, characterize successful computer scientists.

As a whole, respondents feel that UBC is doing a positive job in encouraging female participation in CS, though there are areas that may be improved upon, both within the department and in the community at large.

B. Overall Interpretation of Results

Factors that influence interests and pursuance fall into two general categories: exposure and capability. Exposure includes increasing awareness of computer science subjects and resources, especially amongst pre-university students. This exposure not only provides opportunities in computer science, but also sources for networking and mentorship. Capability includes internal and external views on one's abilities, which contribute to confidence and constructive risk-taking.

Both exposure and feelings on capability can encourage computer science interests or hinder these trajectories. Positive, fun experiences within computer science allow interested parties to discover and follow their computer science passions. Lack of exposure prevents potentially interested individuals from realizing or connecting with their passions, while late exposure risks committal to other interests.

Demonstrating or encouraging feelings of capability promotes confidence and positive risk-taking, hence making individuals more likely to learn from failures and keep on trying. Additionally, demonstrating capability promotes feelings of equality among others, altering the way external parties perceive and treat individuals. On

the other side, not promoting capability, or worse, suggesting that females are less capable than males, promotes an attitude of gender division in abilities, perpetuating this dichotomous view within individuals themselves.

C. Recommendations for the Future

In order to promote female interest in computer science and thus enrollment in UBC's Computer Science Department, the department and other institutions can maximize exposure and promote feelings of equal capability, especially as girls approach university.

This multi-pronged approach requires support from parents, educators, and others, meaning the CS Department is somewhat limited in its ability to single-handedly maximize female enrollment. However, the department can still aid in fostering exposure and network-building, while promoting feelings of equal capability among all genders. These actions encourage interest, enhance skills, and help increase female enrollment.

To increase exposure, UBC's Computer Science Department might consider running a greater number of fun-focused computer science workshops for pre-university students. While the department currently supports some such events, adding more to the docket only increases opportunities for connection, networking, and mentorship. These events introduce more girls to computer science, while allowing those already interested to grow their passions. Hence, such events are prime opportunities to build connections and show girls that computer science can be fun and creative, while placing them on a level playing field with peers.

In running such events, the department may also want to focus on having more female students and professionals as "staff". This will expose all attendees to capable women, mitigating societal assumptions of "traditional" computer scientists. Furthermore, increasing the proportion of female role models allows opportunities for girls to connect with women who have succeeded in the realm, laying foundations for experience sharing.

To this end, including more female conference speakers, industry professionals, and academic presenters may help promote feelings of computer science capability amongst and toward girls. By highlighting a higher proportion of women in leading positions or as role models, individuals of all genders will internalize the idea that women are equally capable of success. Consequently, this will increase external and internal confidence in girls' abilities, promoting constructive risk-taking, mitigating fears of failure, and bringing fresh perspectives to industry keyboards.

By focusing on these factors, UBC will continue to promote inclusivity, easier entry, and higher female enrollment in the Computer Science Department. Moreover, by championing these aims, the department can further encourage gender inclusivity in the computer science industry and in society as a whole.

Appendix I: Survey Questionnaire

Please find the survey used in this report for gathering quantitative and qualitative data at the following web address: https://docs.google.com/forms/d/1n9mKGi-_GpdYv1juLwzNXR-x4NeIc_DOMBlWBHfuUKc/viewform. I administered this survey to peers via social media channels, predominantly targeting UBC students as respondents.

Appendix II: Summary of Survey Data

% of Total Respondents	Total	% of Female Respondents	Females	% of Male Respondents	Males			
83%	25	85%	11	81%	13	Yes	Do you believe your interests are similar to those of your colleagues/classmates?	
17%	5	15%	2	19%	3	No		
	4.13		4.08		4.13		Intelligence	Ratings: How important is each aspect to
	3.34		3.23		3.33		Approachability	
	3.67		3.77		3.56		Assertiveness	
	4.13		4.15		4.19		Mathematical and/or scientific reasoning abilities	
30%	9	15%	2	44%	7	More Capable	Regardless of your current areas of interest, when it comes to traits you believe are important to success in COMPUTER SCIENCE, how do you think you compare with your	
50%	15	69%	9	31%	5	Equally Capable		
20%	6	15%	2	25%	4	Less Capable		
	3.87		3.92		3.88		I have an understanding of the careers and opportunities available in computer science	Perspectives: Rate yourlevel of agreement with the given statements
	4.17		4.08		4.25		I am interested in computer science	
	4.40		4.31		4.44		I view computer science as creative	
	3.33		3.00		3.63		Men and women are equally likely to be interested in computer science	
	3.80		4.00		3.63		Women often experience more barriers than men in pursuing computer science	
	3.47		4.08		2.88		My university or school promotes computer science to men and women equally	
	30		13		16		Respondent count	
47%	14	46%	6	44%	7	Yes	Have you ever heard of UBC's TechTrek event?	
53%	16	54%	7	56%	9	No		

Appendix III: Interview Form

Respondent

Position/Occupation

Date:

Q. Why did/didn't you choose Computer Science?

Q. What things resonate with you when it comes to spurring your interest in a particular field?

Q. What are some obstacles to getting more girls interested in CS?

Q. Do you view Computer Science as a gender-inclusive industry? Why do you view it this way?

Q. Additional Comments:

Appendix IV: Respondent Comments from Interviews and Surveys

Q. How can the UBC Computer Science Department become more inclusive?

Male answers:
"Expand awareness of opportunities in computer science at a younger age"
"Educate young women that math isn't only for men, and it's just a misconception. It's just something society has instilled into us through media, culture etc."
"I think comp sci is very welcoming to all gender. I think the reason we do not have a lot of women in tech is because the early childhood stereotype. A lot of children, especially little girls where not given equal opportunity and exposure to technology, as a results, we do not have a lot of female interested in tech."
"Already on the right track with strong focus on recruiting women and providing women with exclusive resources and support groups. Keep ramping that up."
"Continue to support initiatives that reach out to women at a young age. Encourage current undergrad students to think about establishing work shops for high school or even elementary aged girls and show them that CS can be a fun and rewarding career. Continue to encourage, foster, and hire women into important positions in research and teaching."
"It can't"
"I think encouraging more focus on female role models would be a good idea."
"Oh we're fine at UBC. They basically outnumber us. "

Female answers:
"Making it an issue that everyone can be involved in; the burden should not be put on women to solve these embedded biases."
"More role models of different walks of life; meeting them through talks and events."
"Encorporate [sic] more ethics and 'bigger picture' in 1st and 2nd year. Expand and promote HCI and UX options."
"Networking events with women speakers, Info sessions to high schools with women representation
"introduce STEM early on in life, eg. elementary/middle school"

Q. Additional Comments

Male answers:
"There is a misconception by women who believe that men think they are better than women. This is in fact not what i believe, which contradicts their opinion and thereby making me a superior human. I am just joking it's still funny though."
"Having good gender representation in CS will be a uphill battle and effort has to extend from all levels from grassroots to federal. We will continue to need our culture and sensibilities to mature and evolve. I'm sure it will make us all better for it."

“UBC is doing great at generating female interest. I'd even go so far as to say I'm jealous we don't get to join events that give free food because we lack femaleness. I love free food.”

Female answers:
“UBC's promotion of Computer Science tends to be geared towards females or towards everyone. There is the FoWCS (Focus on Women in Computer Science group) which holds events and also runs workshops for younger girls to learn to code. Never is there an event to promote specifically males in computer science. I understand why this is the case, but I think that in this way, "No, UBC does not promote computer science equally to all genders-- it promotes it more to females or with everyone in mind" (to elaborate on one of the previous questions).

I have heard more stories about female colleagues in the work place who have felt discriminated against because of their gender than I would like to believe.

On campus, I have only witnessed one incidence (two classmates sitting next to me) of negative viewpoints based on gender stereotypes in computer science and have heard one more story second-hand. All other negative anecdotes I have heard have been off-campus.”

Appendix V: Women in Computer Science Panel Comments

Listing of panel comments, in no particular order:

"Feels magical to be in a room full of women in tech"
"We're used to being in the minority"
[Trying things and not being afraid to try things] cured me of my perfectionist tendencies"
"There is no such thing as bug-free code…you get used to incorporating feedback without feeling like 'I'm stupid, I'm horrible, there's something wrong with me'."
"I was in a group where the idea was, 'Computer science is a boy thing'"
"[To establish work-life balance, tell yourself,] 'At X o'clock, I'm going to stop working for the day.'"
Regarding gender biases: "I'm not crazy. I'm not making this stuff up. It can be very subtle."
"I cried in my classes" (note: while true, this was said lightheartedly. Another panelist agreed and everyone laughed)
"I've been able to take a leadership role quickly."
"[He said,] 'Let me tell you about recursion'…[I said,] 'I have my masters.'"
Regarding work-life balance: "If you don't have your health, nothing else matters."
"Don't get so caught up in a [single] coding language. What university teaches you is the concepts."
"You have to be willing to learn new languages"
"When you do have a strong opinion, say it"
"When you fall down and your hip hurts and you want to cry, you have to keep a big smile…this is what I do with clients."
"What's the worse that's going to happen? [This] permeated my entire life…hop in and get started"
"Still waiting for UBC to take back my computer science degree" (said as a joke)
"[After answering the client's question, he would say,] "'Why don't you check with Mike? I'll talk to Mike later'…[Mike told him,] 'Yeah, she's right.'"
"I really felt a part of this team and company"
Add a few different perspectives and get to solutions you wouldn't have even thought of that are even grander…blossoms that way"
"Both my parents were computer scientists…Mom was way better at logic than my dad. Dad was wise, but my mom had logic."
"I let her [an aggressive coworker] kind of take over me in a way…I let myself be taken advantage of"
"We all just kind of want to be heard. We all just kind of want to be recognized"
"[When a client doesn't want to hear they are wrong] I let the client talk themselves silly."

Appendix VI: Report Scope Progression

In investigating gender inclusiveness in UBC Computer Science Department, the initial goal of this report was to investigate inclusivity and enrollment in the department's annual TechTrek event, a fun-focused day of coding activities aimed at inspiring interest in computers science among pre-university students. This event is a key cog in the department's inclusivity efforts and is one of many efforts to encourage interest and increase gender balance in computer science at UBC.

After consulting with Jasmine Spencer, the teaching assistant for English 301, the need to expand this scope and reflect on wider inclusivity efforts became clear. Various aspects work together to influence inclusiveness, such that focusing on the underlying themes and coordinated effects is more relevant to a reflection on inclusivity in the Computer Science Department.

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