

Final Group Project

Conestoga College
INFO8675 – 23W-Sec 2

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Introduction

Conestoga is a leader in polytechnic education and one of Ontario's fastest-growing colleges. The business Analysis team got data from the Ministry of Advanced Education and Skills Development College Enrolment Statistical Reporting system to figure out how to help Conestoga College recruit more international students and come up with some proposals based on data analysis.

Retrieving Data and Data Source

All the data from the Ministry of Advanced Education and Skills Development College Enrolment Statistical Reporting system: <https://data.ontario.ca/dataset/college-enrolment>.

In the data analysis model and process, **input variables** are:

- **Status:** type of student visa status (categorical: Student permit/ Student visa, SUM)
- **College:** college name (categorical: Algonquin College, Cambrian College, Canadore College, Centennial College, Collège Boréal, Conestoga College, Confederation College, Durham College, Fanshawe College, George Brown College, Georgian College, Humber College, La Cité Collégiale, Lambton College, Loyalist College, Mohawk College, Niagara College, Northern College, Sault College, Seneca College, Sheridan College, Sir Sandford Fleming College, St. Clair College, St. Lawrence College)
- **Country:** Country name (Categorical: INDIA, PHILIPPINES, CHINA, VIET NAM, KOREA SOUTH, PAKISTAN, UNITED STATES, JAMAICA, NIGERIA, IRAN, etc.)
- **Fall term headcount enrolment by student status in Canada and country of citizenship by the institution**(numeric)
- **Age:** age range (categorical: 0-17, 18-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60+)
- **Fall term headcount enrolment by student age** (numeric)
- **Credentials:** type of program credentials (categorical: Baccalaureate Degree, Ontario College Advanced Diploma, Ontario College Certificate, Ontario College Diploma, Ontario College Graduate Certificate)
- **Fall term headcount enrolment by credentials** (numeric)
- **Program:** name of the program (categorical: Advertising, Animation, Applied Electrical Motion and Control Management, Applied Energy Management, etc.)
- **Fall term headcount enrolment by the program** (numeric)

Predict variable (desired target):

- Y – The number of students who have a Student permit/ Student visa (international students) enroll in Conestoga.

Data Exploration

To address the question of how to help Conestoga College recruit more international students, the Business Analysis team designed those questions to figure it out.

Question 1: How many total students and international students studied in colleges? And what is the trend?

In Figure 1, we have created a bar chart to compare the number of total students studied in college and international students from 2012 to 2021.

International Students number increased every year and reached 90,471 in the 2020-2021 term. Even though all students number has decreased from 276,473 to 273,515 in the 2020-2021 term, international students' number has increased by 11%.

So the international study market is still increasing, and Conestoga College possible or not difficult to recruit more international students.

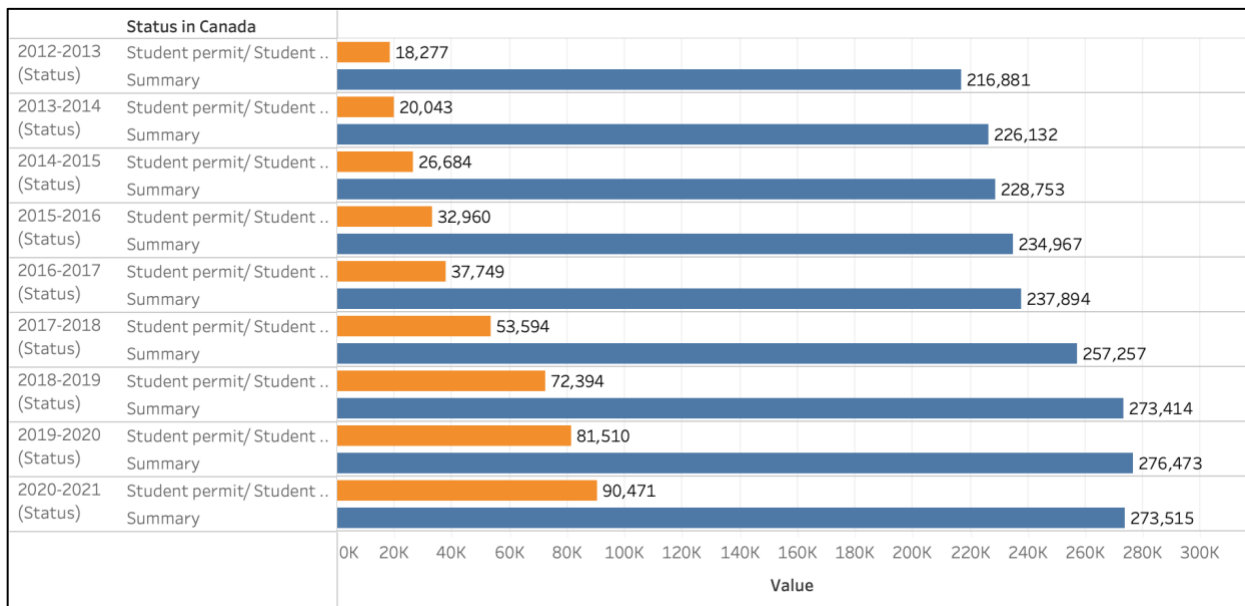


Figure 1

Question 2: How many international students enrolled in different colleges?

In Figure 2, the time series plot shows the different international students who studied in different colleges from 2012 to 2021.

In the last 9 years, the number of international students increased mostly in Conestoga and Seneca, and Centennial's decreased mostly. Compared with 2017-2018, International students in Conestoga have increased by 41%.

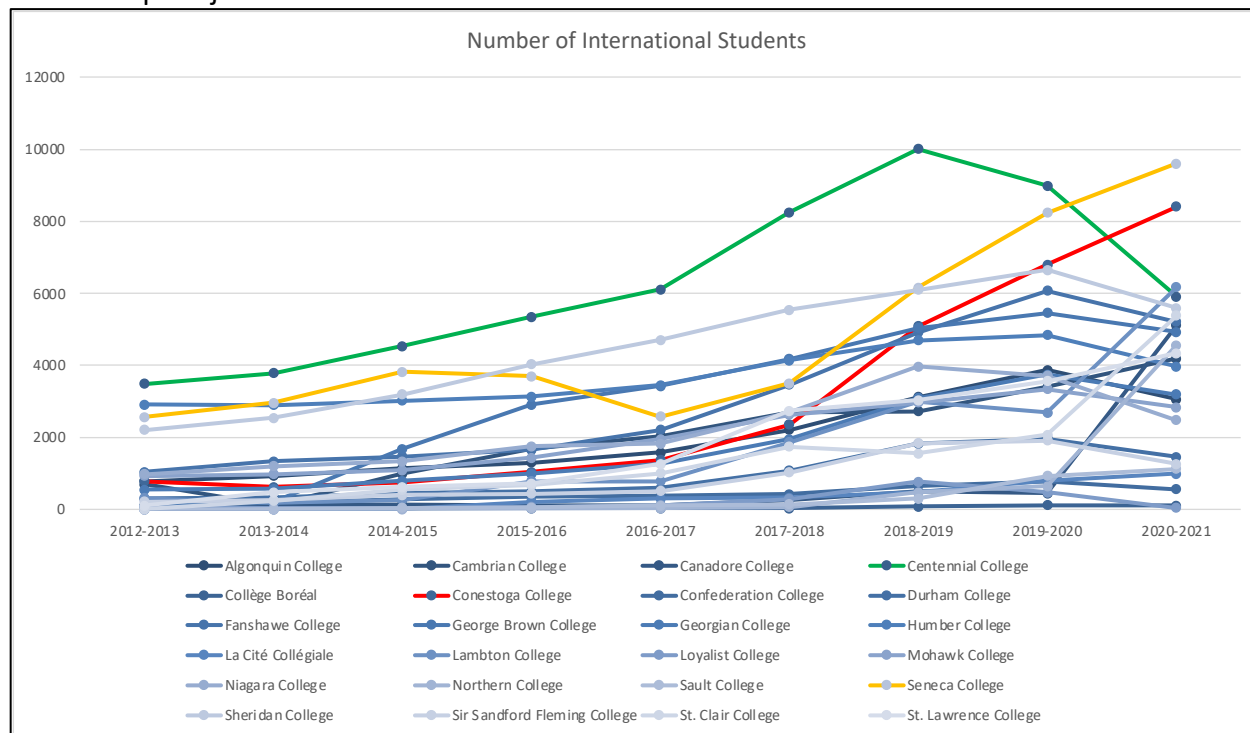


Figure 2

In Figure 3, we have created a column chart to show the rank of Conestoga College based on international students.

Conestoga has improved from 4th to 2nd so far. Seneca College is the benchmark in Canada's Education Area.

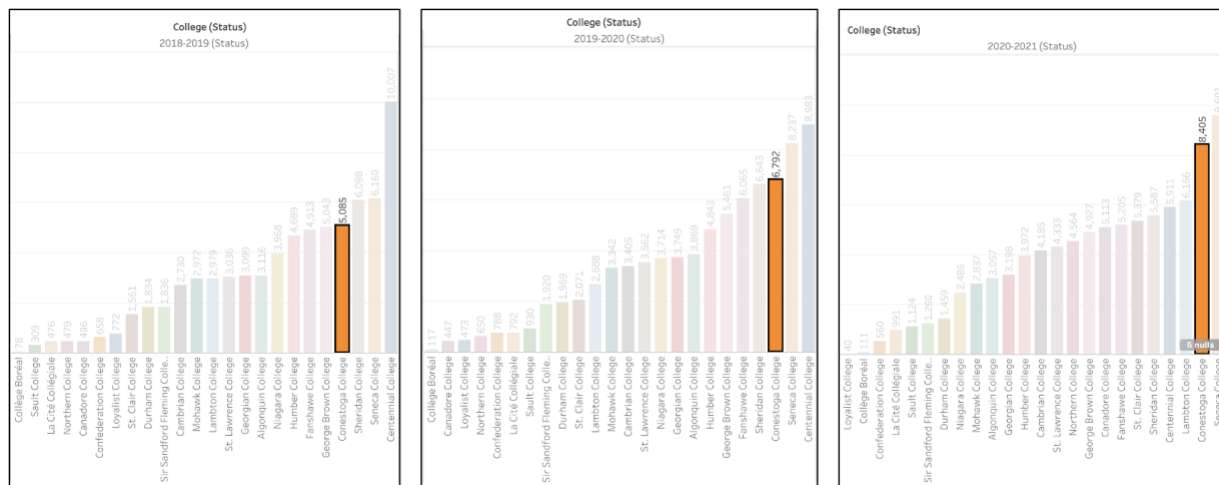


Figure 3

Question 3: Where are the main markets for colleges?

In Figure 4, we analyzed the number of international students in 2018-2021 and created a column chart to show the top markets for Canadian colleges.

It illustrates that the top 10 countries of international students are INDIA, the PHILIPPINES, CHINA, VIET NAM, KOREA SOUTH, PAKISTAN, UNITED STATES, JAMAICA, NIGERIA, and IRAN. And India is the top 1 market.

So, if Conestoga College wants to recruit more international students, it should focus on the top 10 countries first.

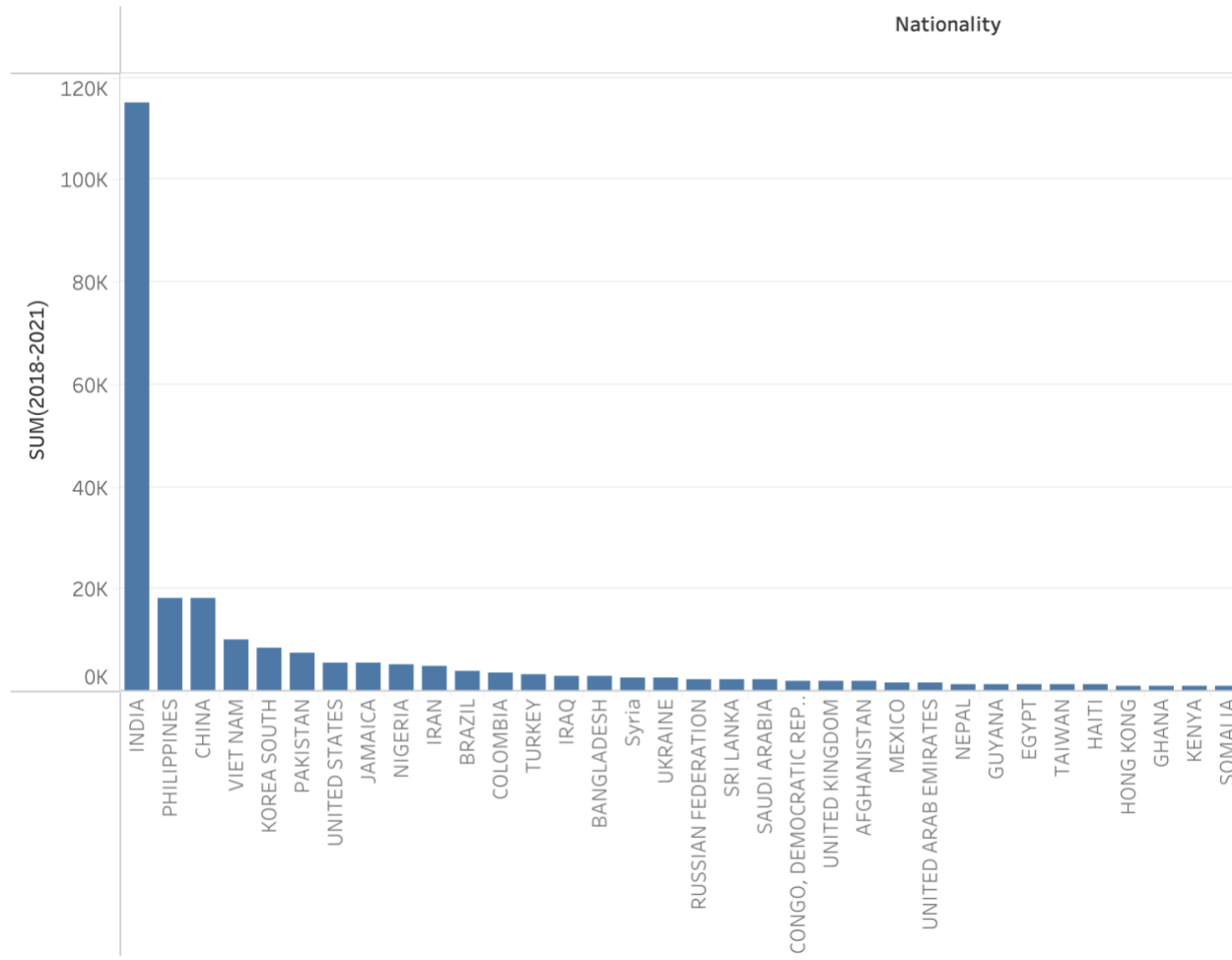


Figure 4

Question 4: What are the main countries that international students come from in Conestoga?

According to Figure 5 and Figure 6, the top 10 markets for Conestoga College are INDIA, CHINA, KOREA SOUTH, PHILIPPINES, TURKEY, VIET NAM, PAKISTAN, UNITED STATES, NIGERIA, and BRAZIL.

There are a few different from the top 10 markets for all colleges. And the main students come from India, accounting for 72%.

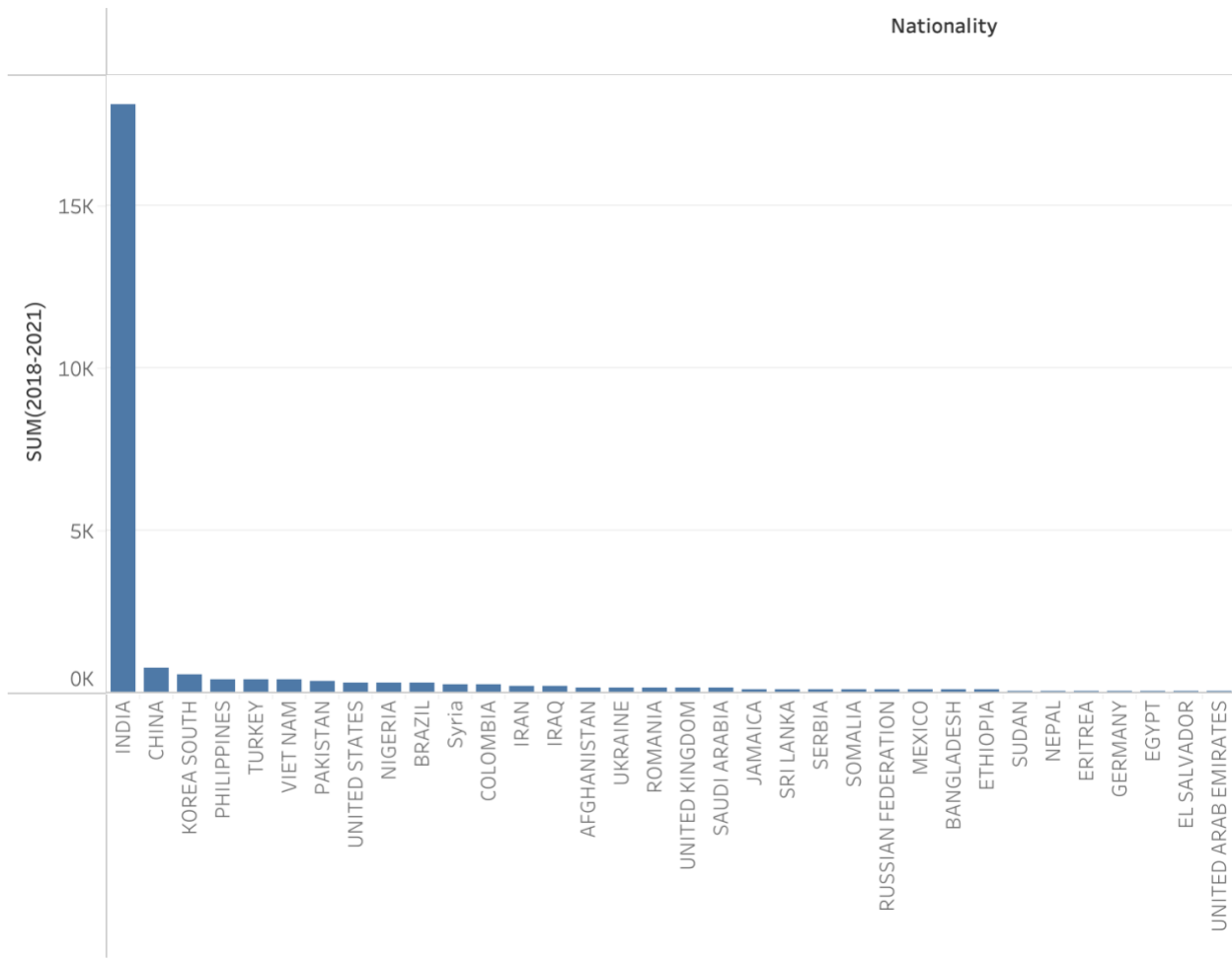


Figure 5

Conestoga-Country (3)

College (Co..

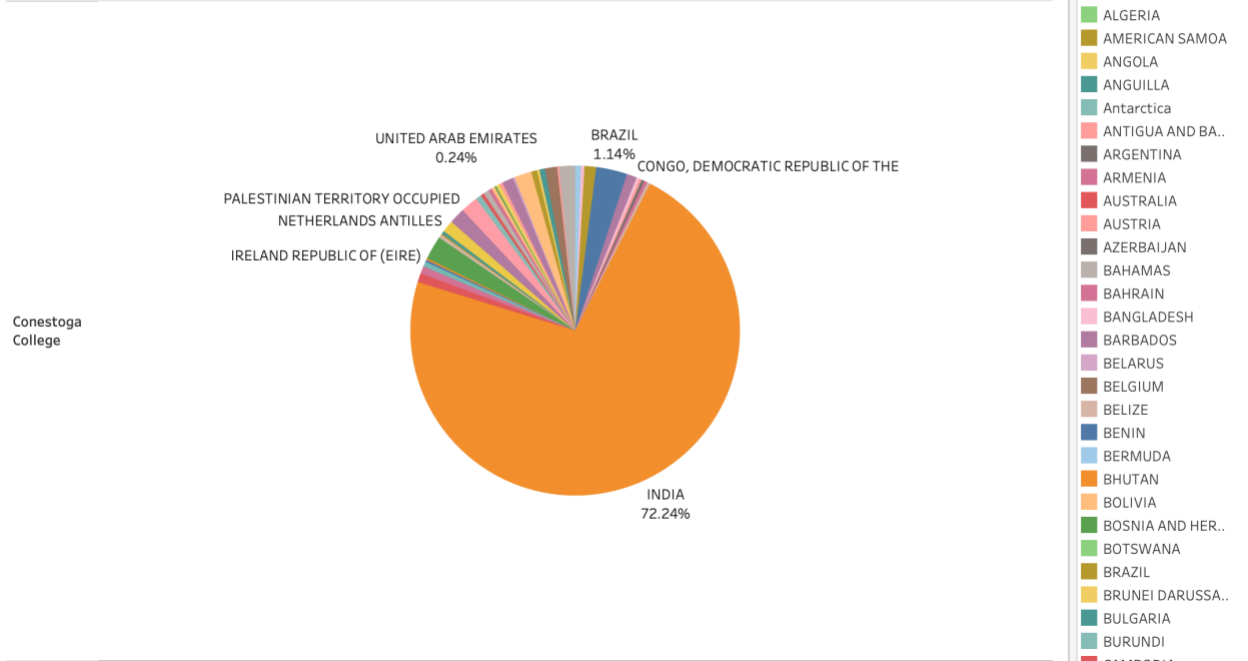


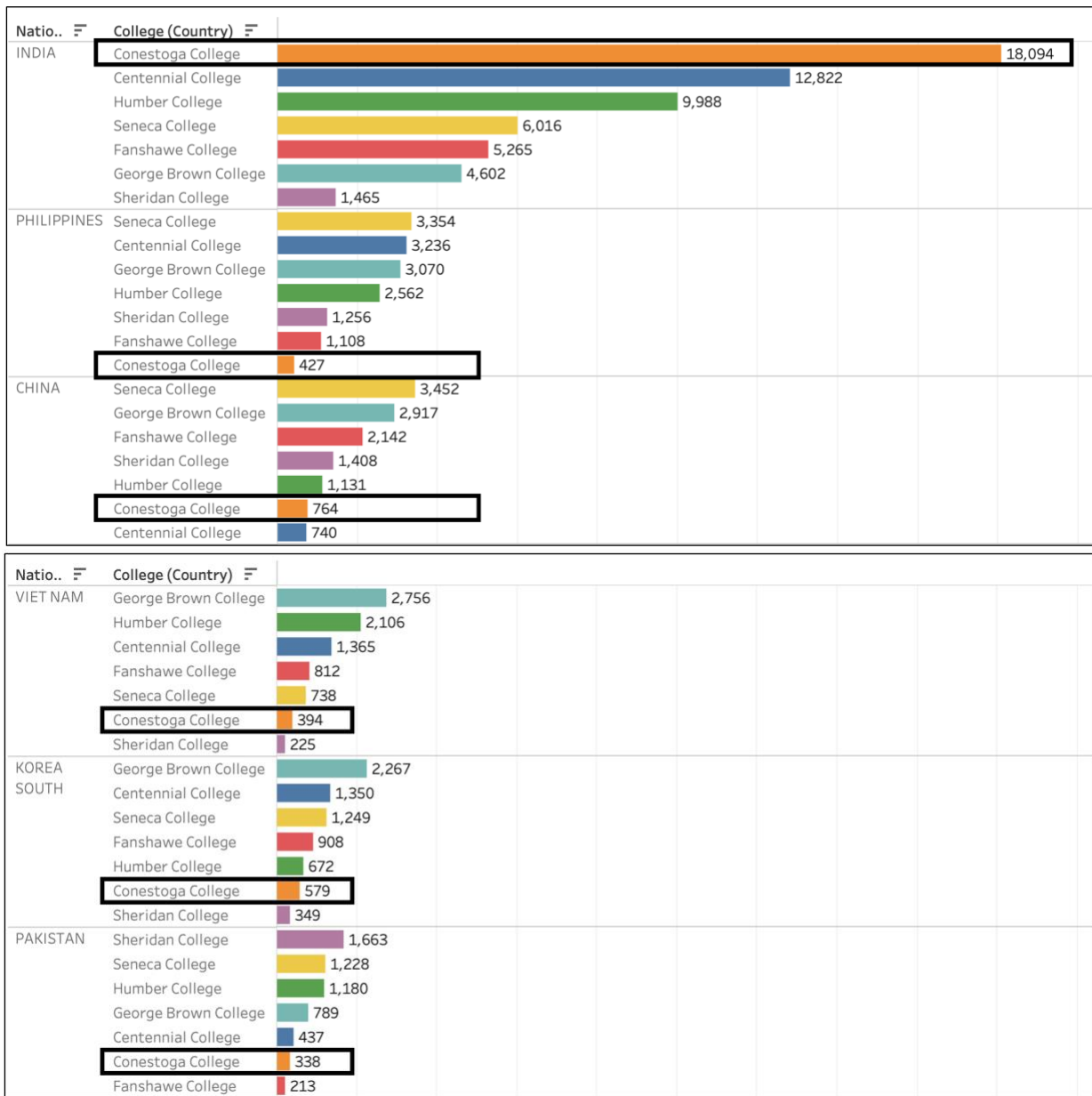
Figure 6

Question 5: Where are the largest potential markets for Conestoga College to recruit more international students?

In Figure 7, we have created bar charts to compare Conestoga College and the other 6 big colleges in Ontario (Centennial, Fanshawe, George Brown, Humber, Seneca, Sheridan), it shows Conestoga College had good success in India Market (No.1).

But compared with other colleges, Conestoga College recruits significantly fewer students in the other top market. It is only 12.7% of Seneca in the PHILIPPINES, 21.6% of Seneca in CHINA, and 14.3% of George Brown College in VIET NAM.

So, if Conestoga College wants to recruit more international students, Conestoga should do more marketing promotion in the rest of the countries.



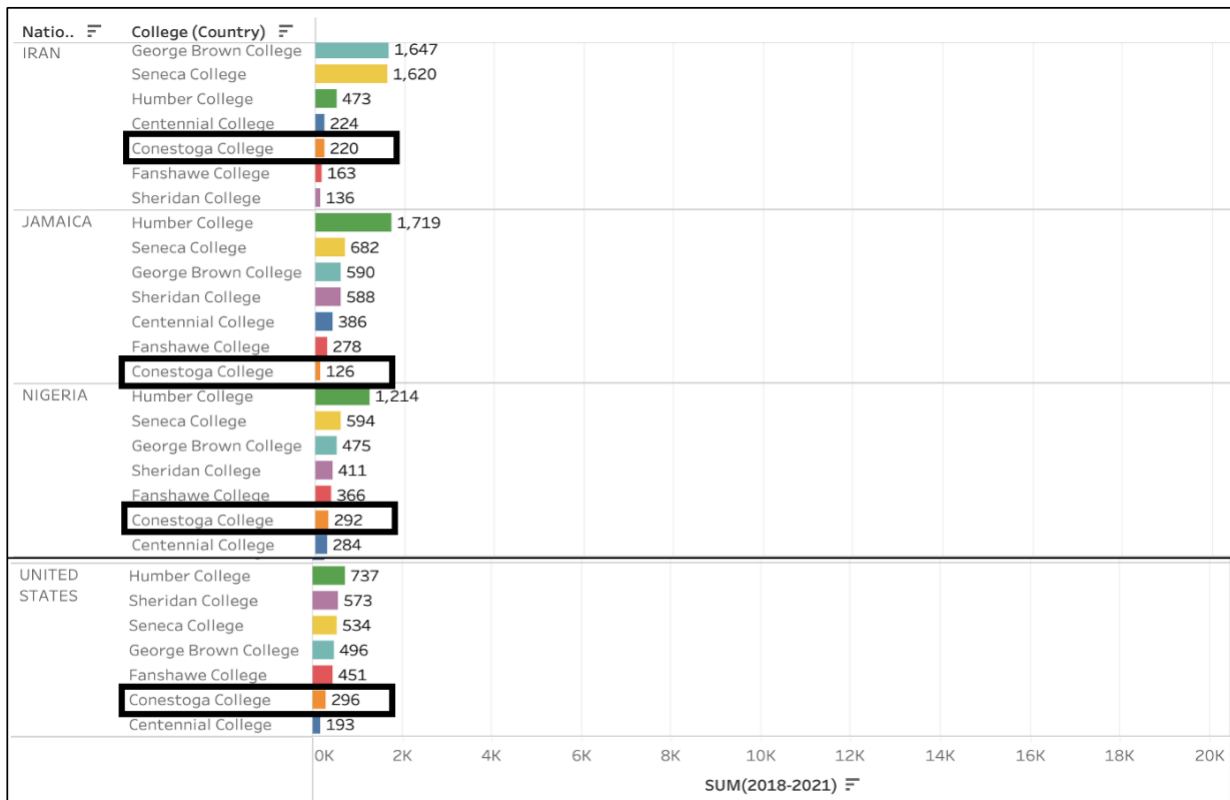


Figure 7

Question 6: Where is the main age range who will study in college?

In Figure 8, we created a bar chart to compare the number of students (not international students) in the different age ranges.

It illustrates that more students who are between 18 years old and 29 years old will study in college. They are the main target students for college.

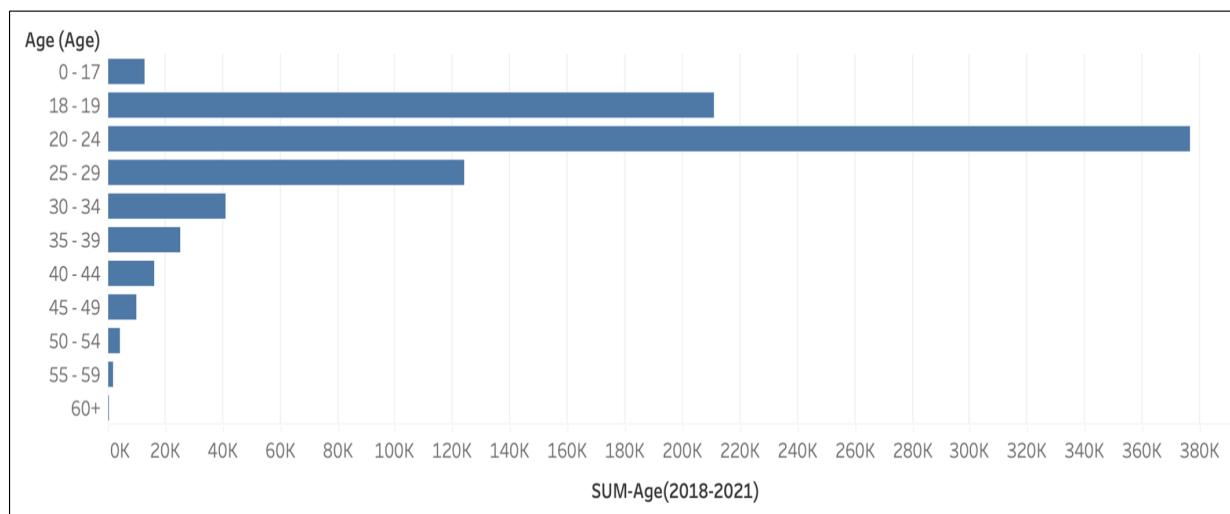


Figure 8

Question 7: What is the main age range who studied at Conestoga College? Are there any differences that should be a concern in marketing?

Figure 9 compares the student numbers in the main age range (18-19, 20-24, 25-29) and trends. The number of students who are 18-19 years old has decreased recently, and 20-24 years old students increased slower. So, we should pay more attention to younger students.

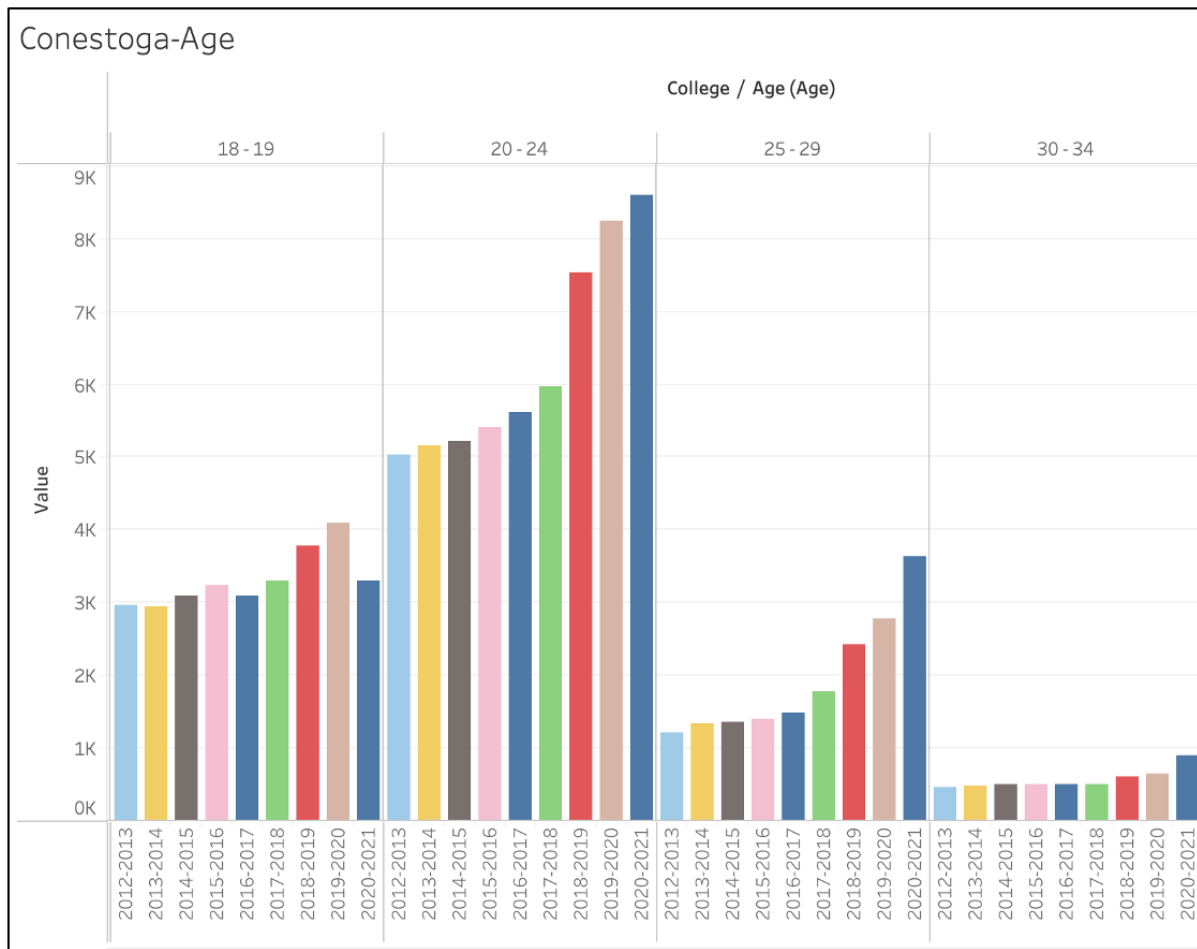


Figure 9

Recommendations

Based on the analysis carried out, below are a few recommendations for Conestoga College to consider implementing:

Short Term:

- Invest in paid advertising in the top market:
- PHILIPPINES, CHINA, VIET NAM, KOREA SOUTH, PAKISTAN, UNITED STATES, JAMAICA, NIGERIA, AND IRAN.

- Cooperate with more agents to recruit international students.

Long Term

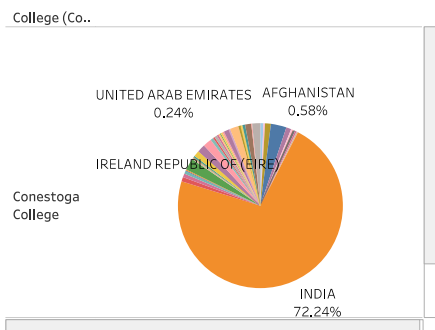
- Benchmark study with Seneca College to learn some good practices in international marketing.
- Summarize good practices in the Indian market and apply them to other countries.
- Digital Marketing:
 - Based on customer research in a different country, select different sale points.
 - Create more valuable content and promote it on social media.
 - Recruit more social media ambassadors and student ambassadors to interview more international students to share their study experience at Conestoga and their working status after graduation in Waterloo Region.
- Improve education quality and student service, and build word-of-mouth.

Dashboard

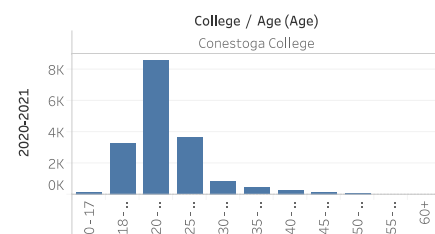
International student - Conestoga

College (Status)	2018-2019 (Status)	2019-2020 (Status)	2020-2021 (Status)
Conestoga College	30,769	33,881	35,290

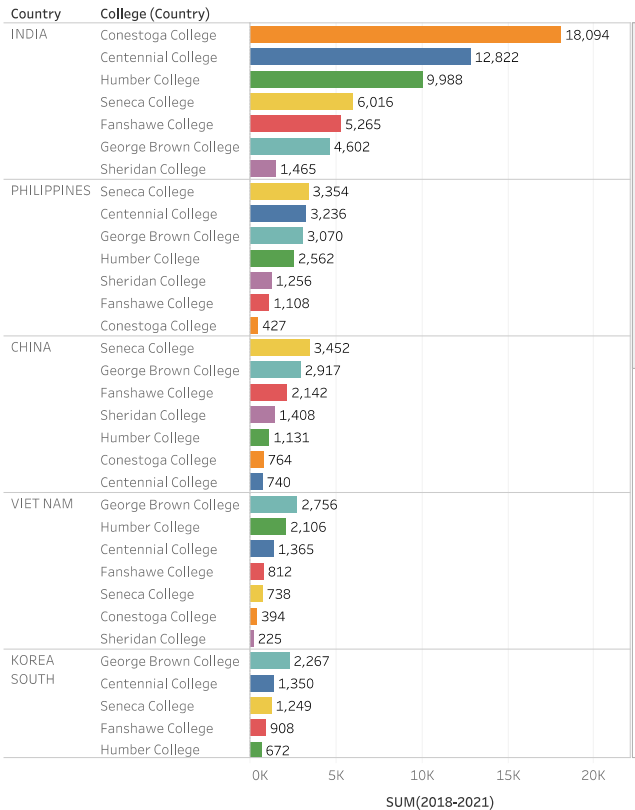
International Students' Nationality in Conestoga



Age Range Analysis in Conestoga



Top 10 Market Comparison



We have filtered data, deleted useless data and adjusted the data table format like Figure 10.

[illegible]

Figure 10

According to the problem statement, determine what data are useful in analysis and what data are a useless reduced number of variables in this way.

This analysis has not used all the data marked in blow Figure 11.

	A	B	D	E	F	G	H	I	J	K	L	M	N	O	P
	HC by Level Of Study														
	Headcount Full-Time Fall		2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021					
	Sir Sandford Fleming	1	3,372	3,456	3,408	3,458	3,918	3,893	4,052	2,575					
		2	2,131	2,072	2,061	1,968	2,015	2,536	2,035	2,135					
		3	338	294	272	247	243	250	231	215					
		Sir Sandford Fleming	5,841	5,822	5,741	5,673	6,176	6,679	6,318	4,925					
	St. Clair College	1	5,003	5,149	5,028	5,486	6,262	7,613	6,634	6,452					
		2	2,530	2,686	2,862	2,902	3,203	4,115	3,798	6,241					
		3	698	664	706	811	737	713	729	670					
		St. Clair College	8,231	8,499	8,596	9,199	10,202	12,441	11,161	13,363					
	St. Lawrence College	1	3,702	3,728	3,702	4,036	5,248	4,750	5,015	4,665					
		2	2,264	2,097	2,033	2,136	2,591	3,236	3,188	3,817					
		3	659	662	659	625	630	614	600	581					
		St. Lawrence College	6,802	6,668	6,591	7,008	8,682	8,795	9,014	9,228					
	Summary		226,132	228,753	234,967	237,894	257,257	273,414	276,473	273,515					
	- 1 -														
	Age	Campus	Credentials	Gender	Study Level	Tongue	Program	Status	Country	CIP					

Figure 11

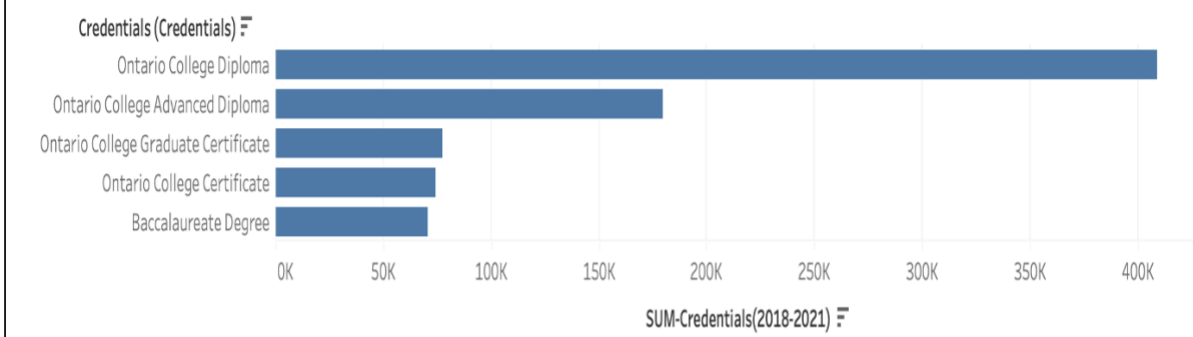
1. Based on the student number in 2020-2021, below are most popular programs in Conestoga College

Program (Program)	2018-2019 (Program)	2019-2020 (Program)	2020-2021 (Program)
Business	986	1,237	684
General Arts And Science	308	521	612
Health Care Administration and Service Management			560
Practical Nursing	462	459	485
Project Management	530	619	476
Information Technology Business Anaysis - Operations			405
Global Hospitality Management (Co-operative Education)			370
Early Childhood Education	321	318	340
Strategic Global Business Management			313
1423 Web Design and Development			310
Bachelor of Business Administration (Honours) - Account..	305	295	309
Business - Marketing	276	343	308
Global Business Management	398	422	289
Business - International Business			278
Computer Programming and Analysis		219	251
Software Engineering Technology	193	232	246
Bachelor of Business Administration (Honours) - Interna..	242	252	243
Business Administration - Accounting	255	261	235
Law And Security Administration	266	270	227
Enterprise Content Management			201
Pre-Health Sciences Pathway to Advanced Diplomas and ..	202	194	192
Business Administration - Supply Chain and Operations ..	203	237	192
1424 Applied Network Infrastructure and System Admin..			184
Construction Engineering Technology - Architecture	220	207	183
Health Office Administration	143	172	175
Business Administration	267	187	165
Applied Manufacturing Management			160
Process Quality Engineering	191	316	156
Electrical Engineering Technician - Industrial	161	165	154

Figure 12

2. Credentials Analysis: Because Conestoga has more Graduate Certificate programs and Baccalaureate Degree programs than other colleges, the students in those two credentials groups are more than average level.

Credentials



Conestoga-Credentials

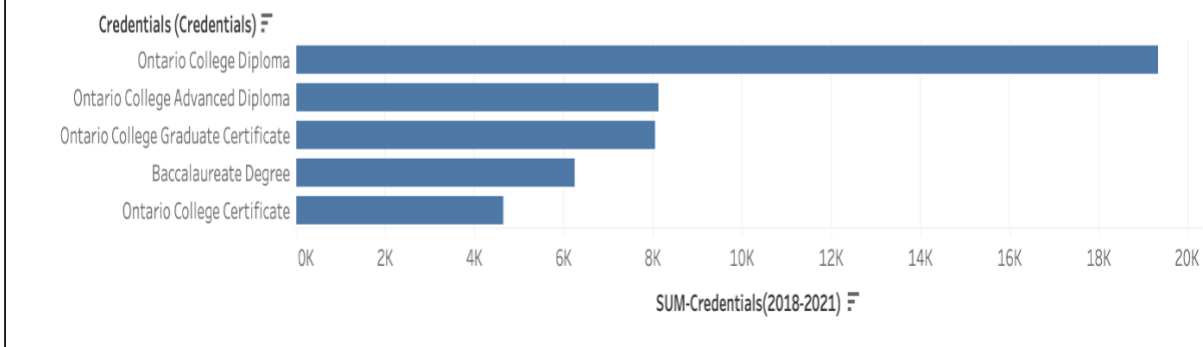


Figure 13