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ONLINE STUDENT UNDERGRADUATE RESEARCH FESTIVAL
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Using Six Sigma to Improve the Transfer Student Process at Carroll College

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Six Sigma DMAIC Methodology

章程 (Charter) 定义了项目和重点。

流程图 (Process Map) 识别 Xs。

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C&E (Cause and Effect) 减少 Xs 通过与 Ys 的相关性。

KJ 分析可能会突出某些 Xs。

FMEA 确定 X 变量的失败原因。

多变量 (Multi-vari) 统计允许 Y 和关键 Xs 的关联。

DOE (Design of Experiments) 识别关键 Xs 和它们对 Y 的敏感性。

控制计划 (Control Plans) 为关键 Xs：保持成果。

$Y (Carroll Transfer) = f(x_1, x_2, x_3, x_4, ..., x_n)$

$Y = f(x_7, x_{22}, x_{57})$
Define

Strategic Goal or Business “Y”: Allow Admission and New Student Services staff to be able to process more quickly and efficiently

Problem Statement or Project “Y”: Carroll College wants to increase the number of transfer students from 50-60 a year to 100 a year without increasing admission staff

Increase in number of transfer students who enroll at Carroll College
Define

Understanding the baseline:
The process is from the time Admission staff gets a prospective students’ inquiry → the student submits an application → the application is evaluated for admission → the transcript is evaluated for transfer credits and incomplete credits → the student is enrolled in Carroll College
Define
Admissions Process

Admissions Office
- Inquiries
- Applications
- Credit Transfer Worksheet

SLATE

Academic Advising
- Final Registration
- Advisor Assignments
- Final Matriculation

Registrar

Charter Process Map
Measure

I-MR Chart of TR INQUIRIES, ..., EAS TR DEPOSITS
Measure

Communication issues
Awareness

Info
Transfer Credit Issues
Time Commitments
Financial Burdens
Emotional Hurdles

Deployment
Housing Issues
Cost
Not the right Program

Don’t know what credits will transfer
Fear associated with age
Measure

1. High cost of tuition
2. Direct Communication
3. Time Issues caused by job
4. Time Issues caused by kids
5. Fear due to age
6. Fear of “fitting in”
7. Lack of knowledge of Carroll’s reputation
8. Lack of knowledge of Carroll’s pedigree
9. Coordination with two year institutions
10. Don’t know how long it will take to graduate
11. Transfers don’t know about Carroll

The numbering is done from highest to lowest score so the number 1, high cost of tuition, is the aspect that is the most important in the C&E

C&E Pareto Chart

Cut off point
Analyze

1. Cost of tuition too high for students financial standing
2. Family/parenting challenges
3. Fear due to age
4. Fear of fitting in
5. Employment challenges (part time only)
6. Lack of knowledge of Carroll’s pedigree
7. Transfers don’t know about Carroll
8. Employment challenges (can’t attend)
9. Communicating directly (student)
10. Coordination with two year institutions
11. Lack of knowledge of Carroll’s reputation
12. Don’t know how long it will take to graduate
13. Communicating directly (Carroll)

The numbering is done from highest to lowest score so the number 1, cost of tuition too high for students financial standing, is the aspect that is the most important in the FMEA.
Analyze

Chi-Square Test for Association: MAJOR2, Worksheet columns

Rows: MAJOR2  Columns: Worksheet columns

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<thead>
<tr>
<th>Transfers</th>
<th>A/AC</th>
<th>(other) Codes</th>
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<th>All</th>
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<td>130 147</td>
<td>14.21</td>
<td>132.19</td>
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<td>Transfers</td>
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<td>110 111</td>
<td>11.19</td>
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<tr>
<td>All</td>
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Cell Contents Count

Expected count

Chi-Square Test

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<tr>
<td>Likelihood Ratio</td>
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Chi-Square Test for Association: Region, Worksheet columns

Rows: Region  Columns: Worksheet columns

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<td>Out State</td>
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<td>145</td>
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Cell Contents Count

Expected count

Chi-Square Test

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<tr>
<td>Likelihood Ratio</td>
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Relationship to Successful Transfer

Gender: No
Major: No
Region: Yes

Working Hypotheses

Ho: There is no correlation between Gender / Major / Region and matriculation
Ha: There is a correlation between Gender / Major / Region and matriculation
1. Cost of tuition too high for students financial standing: offer more scholarships to those who are financially struggling.

2. Family/parenting challenges: Offer more online options so those who have these issues can get their degree on their own time.

3. Fear due to age: Change people's perceptions on what the “typical Carroll College student” looks like.

4. Fear of fitting in: Really advertise all the different groups we have at Carroll College (i.e. outdoor club, athletics, and feedback from veterans and Older Than Average (OTA) students and alumni)
Control

Google Forum for the future

Target transfer students to figure out why they chose a different school

Final control plans will determine the operating procedures and process to control the vital X variables that drive the Y outcome in order to sustain the gains.
We found that there are correlations we can use to optimize the marketing process to increase the interest, inquiries, applications, and eventual matriculations to Carroll College.

\[ Y (Carroll\ Transfer) = f (x_1, x_2, x_3, x_4, \ldots, x_n) \]

\[ Y = f (X1: TBD, X2: TBD) \]
Acknowledgements

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