Long-Term Impacts and Outcomes of International Experiential Learning Programs

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Abstract

In North America, there has been an increase in the availability of International Experiential Learning (IEL) programs but not much research has been done on the long-term impacts or outcomes of these programs.

- This study aims to analyze the impact that these programs had on individuals in the following four dimensions:
  1. *Education and Career Trajectory (*edu)
  2. *Personal Impact and Self-Perception (*per)
  3. *Knowledge and Skills (*kno)
  4. *Civic Engagement* (civ)
- Our findings show that the quality of questionnaire is moderate. For the course-based students, high response value in one of the dimensions is also correlated with values in other dimensions.

Introduction

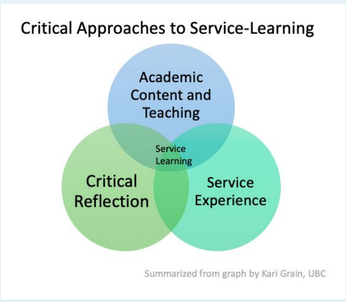
- The Office of Regional and International Community Engagement (ORICE) is interested in the long-term impacts of International Experiential Learning and Global Seminar programs on participants.
- Across many institutions in North America, the availability, importance and demand for these programs is increasing, but there is limited research on the long-term impacts of these programs on the students.
- A questionnaire contains questions (on a Likert scale) designed to measure growth in one of the dimensions mentioned above. The following report explores how these responses are distributed and analyzes the competency of the survey in collecting the information the client is interested in.
- The project aims to better understand how alumni is affected these experiential learning opportunities in their current perspectives and to what degree it factored into their future education, career and activism choices.

The client has three major interests:

- How are the quality of the responses and how are the responses distributed?
- How well is the survey measuring the factors(dimensions) that it was designed to assess?
- How are the variables in the survey clustered within and between dimensions?

We are aiming to answer in following perspectives:

- Use data visualization to show how the responses are distributed.
- Assess the survey quality by finding out if every question is measuring its own dimension, as well as whether the four dimensions could well describe the questionnaire.



Methods

- Confirmatory Factor Analysis (CFA) is performed to learn how well the responses measure the four dimensions.
- CFA is a special form of factor analysis that is most commonly used in social research.
- The main purpose of CFA is to determine whether the data fits a hypothesized measurement model where the researcher has control of the number of dimensions and which variables fall under which dimension.
- There are 18 variables (questions) and 107 independent responses which can be used after data cleaning to fit and evaluate the model. One concern is that the sample size does not meet the minimum requirement (200) of doing CFA which could somewhat affect the accuracy of this analysis.

Results

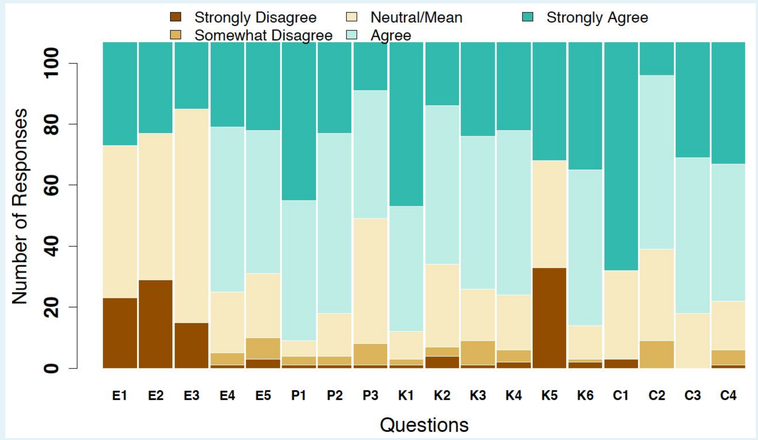


Figure 1: A plot for the mean responses to the combined questions. The x axis contains questions referring to the dimensions: Education and Career Trajectory (E), Personal Impact and Self-Perception (P), Knowledge and Skills (K), and Civic Engagement (C). The y axis are combined average number of responses corresponding to each Likert question. The three-level Likert scale are mapped into five-level scale by taking mean and round into corresponding levels. Our data visualization with original distribution is in the Shiny App.

Confirmatory Factor Analysis

- The fit indices are used to evaluate how well the model explains the data which can be used as a way to assess the quality of the questionnaire.
- Three major fit indices: CFI (Comparative Fit Index), TLI (Tucker-Lewis Index) and RMSEA (Root Mean Square Error of Approximation).
- In *Table 1*, our model CFI(0.914) and RMSEA (0.061) fall in the acceptable range. TLI(0.894) is also close to a good fit.

Fit Indics	Fitted Value	Standard	Threshold for Good Fit
CFI	0.914	Higher is better.	> 0.90
TLI	0.898	Higher is better.	> 0.90
RMSEA	0.061	Lower is better.	< 0.05

Table 1 : Fit Indices

- *edu* - Education and Career Trajectory
- *per* - Personal Impact and self-perception
- *kno* - Knowledge and Skills
- *civ* - Civic Engagement
- Factor loadings indicate how strong is the correlation between each question and the dimension (latent factor) it belongs to.
- Based on the pre-knowledge that each question should only measure one dimension, the factor loading should be closed to 1 according to our hypothesis.
- A loading that is greater than 0.7 (or around 0.7) could be considered as statistically significant.
- As shown in *Table 2*, most factor loadings could not meet the requirement to be statistically significant.

Latent Factor	Indicator	Loadings
edu	QE1	0.222
edu	QE2	0.447
edu	QE3	0.301
edu	QE4	0.275
edu	QE5	0.692
per	QP1	0.230
per	QP2	0.362
per	QP3	0.201
kno	QK1	0.581
kno	QK2	0.663
kno	QK3	0.440
kno	QK4	0.589
kno	QK5	0.620
kno	QK6	0.646
civ	QC1	0.345
civ	QC2	0.475
civ	QC3	0.350
civ	QC4	0.570

Table 2 : Factor Loadings

Correlation Analysis

- Most dimensions are highly positively correlated with each other. The survey measures the growth of an individual in four dimensions, so the high positive correlation means that individuals who show growth in one dimension also show growth in other dimensions.
- As shown in *Table 3*, most correlations between dimensions fall in the range 0.65 - 0.97.
- Dimensions *Personal Impact and Self-Perception* and *Civic Engagement* have the highest correlation of 0.97, while *Education and Career Trajectory* and *Civic Engagement* have the lowest correlation of 0.657.
- There exists an extremely strong relationship between *Personal Impact and Self-Perception* and *Civic Engagement*.

Factor 1	Factor 2	Correlation
edu	per	0.787
edu	kno	0.900
edu	civ	0.657
per	kno	0.815
per	civ	0.970
kno	civ	0.778

Table 3 : Factor Correlations

Conclusion

From our findings, the model statistics (CFI, TLI and, RMSEA) from running the CFA analysis are also not high enough for the model to be considered a good fit. This suggests that there could potentially be a better model to explain the data. The factor loadings also suggest that a few of the questions are associated with the underlying dimension, but a majority of the variables have a weak association with their respective dimension. Therefore, the quality of questionnaire is moderate, but some questions need to be reviewed.

Acknowledgements

- Our client, Tamara Baldwin for giving us the opportunity work with real data in a professional setting.
- Teacher assistant, David Kepplinger, the STAT 550 students, Cecilia Leon and Lucy Mosquera, the professors Gabriela Cohen Freue and instructors Sara Mostafavi as well as Estella Qi for their generous support in this project.