

Case Study

The FLIP Side of Segmentation

Flip Segmentation Analysis



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CONTENTS

1. Remarks of the data getting and its relevant quality

1.1 Variable's classification

1.2 Data quality

1.3 Improvement of the questionnaire

2. Cluster analysis

2.1 The number of clusters

2.2 Cluster names

3. Discriminant analysis

4. Recommend

Appendix

1. Remarks of the data getting and its relevant quality

1.1 Variable's classification

Before applying a clustering procedure to aggregate customers of FLIP into segments and tag them with descriptors variables, the initial effort needs to be made is to define the results gained from the questionnaire constructed by Vikram and his team in order to divided them into either the segmentation data or the description data. To be specific, the questionnaire is composed of both descriptor and bases questions while it fails to sperate and place these two kinds of questions in order correctly. In this case, each question is considered individually for whether it is relevant to the strategic goals pursued by the firm toward its target customers or it is tried to describe the characteristics of segments, and the certain classification of these questions is defined as the list below where D1-7 are the first part questions about the respondent details and Q1-10 are the questions in the second section to test their purpose of attending courses provided by FLIP.

	Questions listed in the questionnaire	
Bases	Q1-Q6	Q10
Descriptors	D1-D7	Q7-Q9

Groupworks adding: in the report drafted by my group, the segmentation bases and descriptors are simply defined based on the different sections designed by the questionnaire; however, it may be not accurate as the questions asking in the second section such as how often the respondent attends to a career counselling or a workshop tend not to be the segmentation variables as they are not able to form the basis of segmentation but being more productively used to describe each segment upon the respondents' previous behaviors. In addition, with the variable classification listed above, the specific segmentation and discriminant variables are described as below.

Segmentation vriables	Discriminant variables
Q1: Resume value	D1: B-School reputation
Q2: Working placement	D2: Total work experiences
Q3: Practical insights	D3: Relevent work experiences
Q4: Job switching	D4: Major
Q5: Convenience	D5: Minor
Q6: Price sensitivity	D6: Undergraduate degree
Q10: E-learning preference	D7: Percentile in class
	Q7: Finance workshops attendance
	Q8: Career counselling attendance
	Q9: Participantation in contests

1.2 Data quality

When considering the data quality, the quality of the questionnaire should be analyzed as it is the origin where the data comes from. With the variable classification discussed above, the first issue of this questionnaire is its confusion and disorganization of questions, which may lead to the problem for FLIP to generate a wrong segmentation analysis with the unproper separation of descriptor and bases questions.

Furthermore, there is a wording issue for Vikram and his team when drafting their

questionnaire, as the rating scales used like “never, rarely, sometimes, mostly, and always” are too subjective to reach a standard among different respondents. Additionally, once capturing the data, these described words will cause a confusion for actually which level of frequency is referred.

Trade-off questions have also been ignored in this questionnaire, and respondents can not find a place to rank orders for the important items which they care more than others. If the questionnaire can contain a ranking question at the end of this survey allowing respondents to allocate points to the base variables they have answered, the results obtained by FLIP will be more constructive indeed.

Groupworks adding: the ineffective and unexpected observations generated from D1-7 due to the respondents' own words for the answer have been mentioned in the report. Besides, the issue regarding the inadequate separation of questions should be detected simultaneously along with the classification issue when implementing the clustering analysis of segmentation variables.

1.3 Improvement of the questionnaire

- As for the questions D1-7 where respondents are required to answer with their own words, an answer bar should be involved instead. For example, it can ask the respondents to choose their length of work experiences as 0.5, 1, 1.5, 2, 3 etc.
- Add a ranking question to see what respondents care more.
- To standardize the answer generated from the questionnaire and avoid the wording confusion, answers in Q1-10 can be converted to the number to represent the level. For example, a number scale of 1 to 5 can be introduced as explaining the respondents' choice from 1 being strongly disagree to 5 being strongly agree, and this change will improve the questionnaire to be more reading friendly and interpreting the results easier as well.
- Moreover, to avoid the subjective concern of words “never, rarely, mostly etc.” that have been discussed above, the question itself can be changed to be more numerically statistic. For instance, rather than leaving a room for respondents to place their own judgements toward these words, the question can ask “how many dates on average for you to attend job talks sessions in a month?” with the answers provided as “less than 1”, “1-3”, “3-5”, and “more than 5”.

2. Cluster analysis

2.1 The number of clusters

To determine the number of clusters, several choices have been experimented starting from 6 clusters to 2 clusters, and the 6-cluster measurement has been chosen because it is the best fit representing the appropriate segments for FLIP to focus without the much loss of information. Explicitly, 6 clusters make the distinguishment and relationship between the segment 4 and 6 more clear based on its different in the practical insights, care about convenience, and price sensitivity which are able to define them separately as forward thinkers and hardworking but money motivated customers (Appendix 1). Although it may argue that this method is too detailed to help the firm to focus on its target, the same shapes and no variation in distance values shown in its dendrogram

suggest that this 6-cluster method makes segmentation without the loss of information and the relationships among clusters are perfectly shown which allows FLIP to learn more about its customers and then decide which particular groups needed to focus. On the contrary, the widely different segments are found in the 2-cluster method with a high value shown in the scree plot, where the high within-cluster heterogeneity has been ignored (Appendix 2). The 4-cluster method, however, shows a big jump happened in the segment 4 in its dendrogram indicating that a distant group has being merged (Appendix 3).

2.2 Cluster names

According to the segment description (Appendix 1), the highest and lowest values of each base are highlighted to be the main characteristics of a specific segment, and other segmentation variables that are statistically away from the average value will assist to define the group name of respondents. The analysis and naming process are listed as below, along with the stress highlighting for the target groups that FLIP may need to pay more attention regarding the courses and certifications it provides.

	Low values	Characteristics	High values	Characteristics
Segment 1	Resume showcase/Campus placement	→ not a job seeker in campus or someone who care about the certificant	Practical insight/Job switching/e-Learning/Price	→ Prefer online; care about money but consider the insights what the course can bring them more important
Segment 2	Resume showcase/Price/Practical insights	→ not willing to spend money and not think much for the further insights	Campus placement	→ more likely the customers from the campus who are urgent to find their first job
Segment 3	Job switching/e-Learning	→ customers with the stable working status	Price	→ highly price sensitive
Segment 4	Price	→ low price sensitivity, and with the high values of this segment, it may mean that they are willing to spend money for those they think is worth	Resume showcase/Campus placement/e-Learning	→ care a lot about the campus placement as well as resume value, it is the customers who already have a working place but seek for the further development
Segment 5	e-Learning	→ don't want much e-Learning experience	Resume showcase/Job switching	→ the highest score in job switching and the second highest score in resume showcase make this group of respondents seem as job motivated people
Segment 6	Practical insights/Convenience	→ care less about the working atmosphere and insights	Campus placement/e-Learning	→ more likely the customers from the campus who want to learn more

	Name	FLIP focus (Courses)	FLIP focus (Certification)
segment 1	Realistic and online preferred	√	
segment 2	Young population valuing the present		√
segment 3	Stable working situation and price motivated	√	
segment 4	Future thinkers	√	√
segment 5	Career motivated		√
segment 6	Hard working and easy be influenced by others	√	√

Groupworks adding: in the group's report, only three significant base variables are tested which lead to the limitation of this segmentation analysis. Instead of naming each segment with the base name which appears to have a highest score in this segment, it tends to be better if combining all base variables to determine a name for the specific segment. As for the segment 1 containing high price sensitivity and low care towards the resume, it could be the price-motivated works with the immediate focus, and segment 2 could be the career-motivated job seekers as a high value of resume showcase and a low value of price sensitive are detected in this segment.

3. Discriminant analysis

The re-running analysis result is shown in Appendix 4, and the segment size is shown in Appendix 5. By reviewing the discriminant variable chart, the three points need to be emphasized and analyzed to support the target groups treated by FLIP that has been slightly discussed in the former part. These three crucial points are the working experiences, the attendance for participating into finance workshops and career counselling, and the major specialization.

- As for the working experiences, the total working experience and the relevant work experience will be considered concurrently, where the segment 1 has the highest score for both. Besides, they also have the lowest score for attending career meetings, implying this group of respondents have everything regarding their works and business on track to being successful. In this case, FLIP will have less opportunity for this group of customers with the fundamental courses provided, and it should not be a good idea for the firm to make investment to gain the customers from this group as it will not be beneficial.
- The basic mission of FLIP is to offer online courses and certificates which may help students to improve their capability for obtaining a successful career in the region of finance, and it should be important to focus on those who have attended to career events or finance workshops before and even hold a high possibility to do so in the future. When taking into account with this kind of customers, it is noticeable that the segment 5 has the highest score of attending the career event as 3.43, which means this group of students seems to be confused of their future career and the courses offered by FLIP may be a good choice for them to either broadening their knowledge in a specific professional region or extending their views to another area of study. Similarly, the segment 3 owns the highest score in the financial workshops with a moderate score in the career counseling aspect, and FLIP should take this group of respondents into its consideration of the target market as well due to their high level of interest in the financial job seeking.
- Lastly, it is the major specialization, where the segment 6 has the lowest score of 0.25. Although this group of customer has the smallest size as only 8% of total population, FLIP should not ignore them as this group of consumers tends to be the easiest potential market to grasp due to the high benefits that they can obtain from the courses for five different specializations offered by the firm.

Therefore, the segmentation, descriptors, and the target market recommending for FLIP are then slightly changed comparing to the one generated above, and the result is listed below.

	Name	Descriptor	FLIP focus (Courses)	FLIP focus (Certification)
segment 1	Realistic and online preferred	On track		
segment 2	Young population valuing the present	Moderate organized		√
segment 3	Stable working situation and price motivated	Workshop oriented	√	
segment 4	Future thinkers	Active people	√	√
segment 5	Career motivated	Career confused	√	√
segment 6	Hard working and easy be influenced by others	Major confused	√	√

4. Recommend

The first recommend for FLIP is to improve its questionnaire to gain more accurate data for its market segmentation, and several ideas for how to develop has been discussed in the first section above. Second, regarding with the discriminant variables, it suggests that

the firm should focus on the customers who are future thinkers and promote its products to them with the mission that these online programs do help them to develop. Furthermore, FLIP is recommended to make investment in its certification services among customers belonging to the career motivated group and hard-working group, as both groups of people are care more about their resume showcases. Furthermore, to gain as much market as the firm can and seize a chance to extend its potential market towards people who are realistic and present valued, FLIP can divide its courses into two parts which are fundamental programs and advanced ones. By implementing this strategy, customers can choose the course that is the most suitable for them and the specific market can be more target treated.

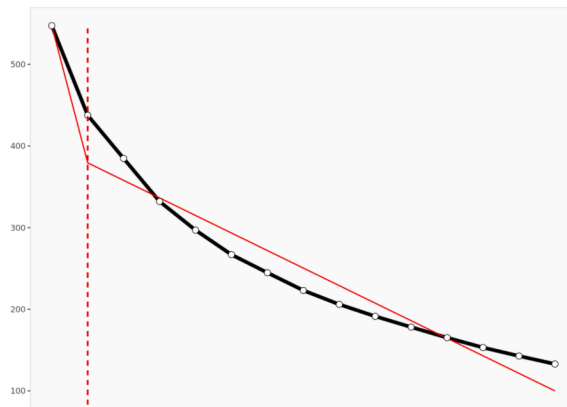
Appendix

Appendix 1. 6-cluster segment description

	Population	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6
Look Good on my Resume - Showcase Ability	3.26	2.33	2.00	2.92	4.00	4.43	3.75
Campus Placement Prospects	3.66	1.50	4.75	2.50	4.46	4.14	4.75
Practical Insights	3.18	4.50	2.38	3.00	3.31	3.86	1.75
Job Switching	3.02	3.83	2.75	1.92	3.38	4.43	2.00
Care about convenience	3.14	4.00	3.75	3.08	3.08	3.14	1.00
Price Sensitive	2.92	3.67	2.38	3.75	2.00	3.14	3.00
Comfortable e-Learning	3.10	4.00	3.25	1.75	4.15	1.86	4.25

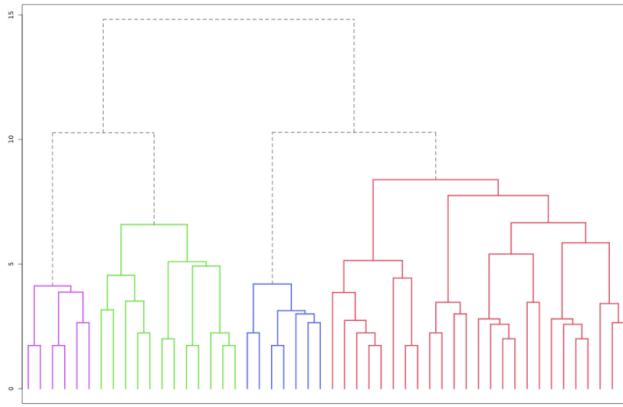
Segment description. Average value of each segmentation variable, overall for each segment (centroid). Segmentation variables that are statistically different from the rest of the population are highlighted in red (lower) or green (higher).

Appendix 2. 2-cluster scree plot



Scree plot. The scree plot compares the sum of squared error (SSE) for each cluster solution. A good cluster solution might be when the SSE slows dramatically, creating an 'elbow'. Such elbow does not always exist.

Appendix 3. 4-cluster dendrogram



Dendrogram. The dendrogram is a tree diagram to illustrate the arrangement of clusters produced by hierarchical clustering, and how the observations are incrementally clustered together.

Appendix 4. 6-cluster descriptor analysis

This table reports the descriptor averages of each segment. The more differences can be found, the easier it will be to predict segment membership based on descriptors alone.

	Population	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6
B-school = Premier B-School	0.580	0.167	0.750	0.583	0.692	0.714	0.250
B-school = Unknown B-School	0.220	0.000	0.000	0.167	0.308	0.286	0.750
Total Work Experience	11.62	29.17	4.88	6.33	15.31	11.43	3.00
Relevant Work Ex (in BFS)	3.12	9.00	0.00	3.00	4.15	1.71	0.00
Major Specialization = Finance	0.540	1.000	0.375	0.500	0.615	0.429	0.250
Major Specialization = Systems	0.280	0.000	0.250	0.333	0.308	0.286	0.500
Minor Specialization = Marketing	0.320	0.833	0.250	0.333	0.154	0.429	0.000
UG Degree = BE BTech	0.500	0.500	0.500	0.167	0.769	0.286	1.000
UG Degree = BCom	0.300	0.333	0.250	0.500	0.231	0.286	0.000
UG Degree = BA	0.140	0.000	0.250	0.167	0.000	0.429	0.000
Percentile in Class = Top 25 Percentile	0.380	0.500	0.500	0.167	0.462	0.286	0.500
Percentile in Class = Neither	0.400	0.500	0.500	0.250	0.385	0.571	0.250
Attends Finance Workshops	2.98	3.33	3.38	3.42	2.15	3.00	3.00
Attends Career Counseling Sessions	2.58	2.17	2.75	2.42	2.31	3.43	2.75
Participates in Fests	3.00	2.67	3.38	2.83	3.23	2.29	3.75

Descriptor data per segment. Average value of each descriptor, overall and within each cluster. Descriptors that are statistically different from the rest of the population are highlighted in red (lower) or green (higher).

Appendix 5. Segment size

	Population	Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Segment 6
Size	50	6	8	12	13	7	4
Relative size	100%	12%	16%	24%	26%	14%	8%