HOW DATA ANALYSIS CAN DRIVE DECISIONS

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Module:	*W10.1 Decision-making*
Unit:	*W10.1.2*
Learning Object:	*W10.1.2.b How data analysis can drive decisions*
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Abstract:	*The Learning Object introduces learners to the importance of data analysis.*
Keywords:	*Motivations, decision-making process, satisfaction, REP scales, push/pull theory of motivation, constant sum method, Likert scale, tailor-made offers.*

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The document created in 2018 for the project Mu.SA – Museum Sector Alliance, funded under the Erasmus+/KA3 programme (project number 575907-EEP-1-2016-1-EL-EPPKA2-SSA).

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Aim and objectives

The aim of this text document is showing learners a case study in which a researcher uses data analysis in the museum context. In this case, the question is what kind of mechanism brings tourists to an exhibition but the same reasoning can be used by a Project Manager who has to invest in the next season of exhibitions or by an expert in the online community engagement that has to decide the new strategy of public involvement. Which criteria do they use? To predict successful actions the first thing to do is talking to people, then collecting data, organizing them (for example through tables) and finally interpret them and make decisions.

Learning outcomes

After studying this resource, you will be able to:

- Recognize tourists' motivations, decision-making process, and satisfaction

- Know the relation among different kind of data

- Manage data with tables

- Indicate different methods to collect data

Keywords

Motivations, decision making process, satisfaction, REP scales, push/pull theory of motivation, constant sum method, Likert scale, tailor made offers.

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1. Introduction

The case study that we will use as an inspiration to reflect on the importance of data analysis in museums is the research published in 2003 by Bethany Lynn England, a student from the University of Florida's Department of Recreation, Parks, and Tourism. She collected enough data, through interviews and survey questionnaires, that allowed her to create tables and match the results to elaborate final considerations. These final considerations are useful to take decisions in the museum context because through the right interpretation of the information it is possible to predict specific actions for the betterment of the museum's cultural offer. This means being able to give visitors the best experience possible.

1.1 First considerations

The aim of England's study, called "Relationship of motivations, decision making, and satisfaction in museum visitor behavior", was to investigate the tourists' characteristics in terms of their **motivations** to visit museums, the influences in their **decision-making process**, and their **satisfaction** with the destination after arriving. In particular, she decided to focus on the exhibition "A T. Rex named Sue" that was realized at the Florida Museum of Natural History in Gainesville in 2002.

The respondents were approached at the exit of the exhibit to voluntarily participate in a 15 minutes survey. The survey instrument consisted of a three-page questionnaire with a total of 25 multi-level questions (close-ended and open-ended questions) that investigated their spending patterns, motivations, decision-making process, satisfaction of the visitors to the exhibit as well as their socio-demographic information.

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We will take inspiration from this paper, that deals with a specific event (an exhibition) in a specific environment (a natural museum) trying to applying the same reasoning in a more various context.

Photo 1. The Florida Museum of Natural History - Credits free by Google

2. Collecting data

England's research began with a statement: a relationship between motivation, decision-making, and satisfaction in museum visitors exist.

Starting with the analysis of motivations, the author claimed that tourists travel to museums and historic sites for several reasons. If we create specific categories we will have: leisure (spend time with friends & family), education and exploration (learning something

new and exploring new environments), rest and relaxation (the desire to break from a routine).

Concerning methodology, motivations were operationalized using the **REP (Recreation Experience Preference) scales** common in leisure literature between the mid to late 70s. Some of these scales include achievement/stimulation, family togetherness, similar people, learning, nostalgia, creativity, and escape personal-social pressures.

According to the sociologist Dann and his **push/pull theory of motivation**, England stated that there were factors responsible to drive the behavior of the individual tourist. Push factors were those that were described as internal and were present to satisfy psychological needs. Pull factors were those that were external and showcased the beneficial attributes of a particular destination. These factors influenced the "who, what, where and when" in the decisions process.

As a second step, the motivation factors have been matched with some components that might influence a person's decision to travel. Thanks to this argumentation it's possible to analyze the factors that influence the decision-making process. In the study, the researcher decides to include "myself, spouse/partner, friends/relatives, children, and others". Which of these categories appear more relevant in making decisions?

The method selected to do this analysis was the **constant sum method**, better adapted for measuring the degree of influence: it consists of having the respondent allocate 100 points between those who were involved in the decision-making process based on the proportion of their involvement.

After making questions, the survey shows results that can be categorized in:

1) Sole decision-maker (100% of the decision)
2) Dominant influence (greater than 50% of the decision)
3) Equal influence (50% of the decision)
4) Lesser influence (less than 50% of the decision)
5) No influence (0% of the decision).

Photo 2. Photo by Annie Spratt on Unsplash

In case that three middle groups (for instance Spouse/Partner, Friends/Relatives, and Children) all had very low percentages of influence in the decision-making process individually, England explained that she decided to compress the categories in only one generically called "other".

Even satisfaction is a relevant concept in understanding and evaluating tourists and their behaviors because if customers are dissatisfied, then they will not be repeat visitors. To measure the

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visitor's perceptions the researcher decided to focus on three components: facilities, services, information.

Visitors have been asked to fill out some tables with these items to measure the components. In this case, the methodology utilized has been the **Likert scale** of one to five, which allows them to indicate their satisfaction with each of the items.

Photo 3. Photo by Blake Barlow on Unsplash

2.1. Organizing data with tables

According to England's analysis, we will give you some indications to organize data in tables before a survey.

Built Table 1. inserting three columns: in the first one, insert the motivation factors, in the second one the motivation items, that are the explanation of the first ones and in the last one the grade of degree comparing with each question (considering that 1 means

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"strongly disagree" and 5 means "strongly agree"). Remember that your aim is to understand why people travel.

Motivation Factors	Motivations Items	Grade of degree (1=strongly disagree)
1. Leisure	• To be with friends and family • To do something with my family • To spend more time with my family	
2. Education and Exploration	• To explore • To learn and experience new and different things • To get to know something different • To seek intellectual enrichment	
3. Rest and Relaxation	• To rest and relax • To take it easy • To reduce the feeling of having too many things to do • To get away from it all	

Table 1. Factors and items motivations

Built Table 2. to focalize who in a travel party made decisions. Under the column "Type of decision" you can add the conditions that are more helpful for your investigation. In the other columns, you can insert all the categories you desire (e.g: children, partner, relatives). For each decision, you will assign a percentage as to the influence of each member of the travel group (if someone else makes decisions alone you will put 100% in the space under "myself").

Type of decision	Myself	Partner	Others
When to come to museum			
Who to bring to museum			
Whether to come at all			
Whether to buy a souvenir			
How much was spent on trip			
How long you stayed at museum			

Table 2. How it works the decision-making process

Built Table 3. to explore the relevant factors that would push people to come back to that museum. Insert three columns: insert the satisfaction factors, in the second one the satisfaction items that are the explanation of the first ones and in the last one the grade of satisfaction comparing with each question (considering that 1 means "highly unsatisfied" and 5 means "highly satisfied").

Satisfaction Factors	Satisfactions Items	Grade of satisfaction (1=highly unsatisfied)
1. Information	● Ability to get tickets or book group package	

	• Information about the museum	
	• Information about what to do in the city	
	• Information in planning my trip to see the museum	
2. Services	• Staff availability • Staff friendliness • Staff helpfulness	
3. Facilities	• Ability to see the museum • Cleanliness of the museum area • The museum itself • Physical layout of the museum area • Variety of things to do in the museum	

Table 3. The people satisfaction

3. Conclusions

Thanks to this analysis England discovered that museum visitors primarily were motivated to attend traveling exhibitions for education reasons (good news to the museum industry considering that its first mission is to educate the community!). Then, she realized that museum exhibitions were also a place where people love to spend "quality time" with friends and family. Concerning the decision-making process, the results suggested the category "shared decisions" was the highest in choosing whether to going to the museum.

But how do these considerations drive decisions and actions?

Project Managers have to use the information collected with the surveys to design **tailor-made offers** for visitors more accurately.

As a consequence, the following interesting insights emerged to enhance the museum's cultural offer and to introduce in the future strategic plan:

- introducing a "bring a friend" coupon opportunities (to support people who come to the museums with others)

- realizing appealing didactical panels, both from a content than a visual point of view (if the results say that people travels for education reason and want to read information)

- setting up partnerships with other area attractions (to enhance the opportunity of spending relaxing time with children).

And you, what kind of actions would you suggest?

Photo 4. The Florida Museum of Natural History - Credits free by Google

4. Synopsis

This document contains information about motivation of tourists in making decision about visiting museums, the influences in their decision-making process, and their satisfaction with the destination after arriving. As a consequence, interesting insights emerged to enhance the museum's cultural offer.

5. List of references

- England B., (2003), *Relationship of motivations, decision making, and satisfaction in museum visitor behavior.*

  http://etd.fcla.edu/UF/UFE0000679/england_b.pdf

- Said J., Maryon M., (2018), *Motivation and Perception of Tourists as Push and Pull Factors to Visit National Park.*

  https://www.e3s-conferences.org/articles/e3sconf/pdf/2018/06/e3sconf_icenis2018_08022.pdf

6. Glossary

Motivation: in the analysis of motivations, the author explores all the reasons that lead tourists to travel to museums, categorizing them in leisure, education and exploration, rest and relaxation groups.

Decision-making process: through the exploration of this part, the author aims to focalize who in a travel party made decisions, because the decision-making process, motivation and satisfaction reasons are directly linked.

Satisfaction: it is a relevant concept in understanding and evaluating tourists and their behaviors because if customers are dissatisfied, then they will not be repeat visitors.

REP scales: the Recreation Experience Preference scales were common in leisure literature between the mid to late 70s and include achievement/stimulation, family togetherness, similar people, learning, nostalgia, creativity, and escape personal-social pressures.

Push/pull theory of motivation: this theory explores factors responsible to drive the behavior of people. Push factors were those that were described as internal while the pull factors were those that were external.

Constant sum method: it consists of having the respondent allocate 100 points between those who were involved in the decision-making process based on the proportion of their involvement.

Likert scale: it's a method that asks people to express a score one to five, to indicate their satisfaction with each of the items.

Tailor-made offers: it's an offer that is developed after a deep analysis of the public with the aim of satisfying its needs.

7. Further readings

Price S., Perry R., Mantell O., Trinder J., Pitts S., (2019), *Spontaneity and planning in arts attendance: insights from qualitative interviews and the Audience Finder database.*

https://www.tandfonline.com/doi/full/10.1080/09548963.2019.1617943