Project Report: Users' satisfaction about Dalarna University's Homepage

ST3012 Data Collection

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1 Abstract

We write as very last thing **Keywords: foo bar**

2 Introduction - Tobias

Not long time ago, Dalarna University decided to update the website layout to cutting-edge web technologies. To set up a website is easy but who guarantees that the users are satisfied with it? With this project we help to increase the understanding of user needs and how well these needs are suited by the prevailing system.

2.1 Research Question

Users' satisfaction is a very broad topic and the scope has to be narrowed down carefully. A survey about general satisfaction would be doomed to fail. It either would be too big and comprehensive or too general and vague. Both would lead to missing and/or imprecise information. Therefore, this project focuses on functionality aspects of the "search personal" page. Following main questions were raised:

1. If "find personal" is accessed, then the path is intuitive and quick?
2. If "find personal" page is visited, then the required data is found quickly?
3. If "find personal" page is visited, then a up-to-date front-end is displayed?

In oder to answer these questions a survey among the website users is conducted.

3 Methodology

A qualitative survey [1] with quantified questions is suggested as functionality remains a subjective impression. For quantification a five-point Likert scale [2] is used. The scale is not directly visible to the subject as questions can be answered with sentences like "I fully agree", "I agree", etc. There is a discussion [3] whether five-point Likert scales are a sound method or not. This research sticks to it as more sophisticated methods [4] seem unhandy and are not easily adaptable in the system, which is used for data collection.

3.1 Research design

A Google docs online form is chosen to conduct the research. It seems to be used in other educational context [5] but is not suggested in research beyond a Master thesis level. Dalarna University offers a survey tool which should be used instead in a real context.

3.1.1 Population - Tobias

The population are all human beings who have visited the Dalarna University website in the past and who will visit it in the future. One can estimate their number by analyzing server logs but still has to narrow down the time (visitors during the last month) and make certain assumptions.

3.1.2 Sampling size - Tobias

As no previous data is available, one has to assume the most conservative P value of $P = 0.5$. Furthermore, the standard values of 10% for error level and 95% for the confidence interval are assumed. Therefore, the sampling size is calculated as shown in equation 1.

$$n = Z_\alpha^2 \frac{\dot{P(1-P)}}{(\hat{p}-P)^2} = 1.96^2 \frac{0.5(1-\dot{0.5})}{0.1^2} = 96 \text{ subjects} \quad (1)$$

3.1.3 Data collection plan - Tobias

As the survey is not carried out on the full sample but just on a few show cases, we send an E-Mail or WhatsApp message with link to the Google forms document and explanation to some of our classmates.

In reality, an implementation of sequential sampling as described by Fan et al. [6] is suggested directly on the website. If users search a person e.g. the depicted binomial approach can be applied to show a overlay with an invitation link to the survey. Still, it remains questionable if the structure of respondents is representative and delivers an unbiased view as humans tend only to report unwanted results [7]. Maybe incentives to answer the questionnaire have to be introduced.

3.1.4 Statistical Indicators

About the Statistical methods we apply. Here go the dummy tables

3.1.5 Data Quality Assurance

Why we use the DESAP checklist

3.1.6 Data collection plan

Why (only) a on line survey. Why on line?

3.1.7 Ethical considerations

How do we store the data? What is the problem with Google forms. (Maybe write that in a real research we would use our own form/tool!)

Table 1: Dummy cross table for all questions

	I fully agree	I agree	I mainly agree	I partly disagree	I disagree	Σ
pupil	0	0	0	0	0	0
student from other institution	0	0	0	0	0	0
researcher from other institution	0	0	0	0	0	0
student @DU	0	0	0	0	0	0
researcher/employee @DU	0	0	0	0	0	0
other	0	0	0	0	0	0
Σ	0	0	0	0	0	0

3.1.8 Legal considerations

GDPR checkbox in the survery

3.1.9 Analysis plan

For the questions we use cross tables, to calculate absolute and relative frequencies as well as the χ^2 coefficient. A dummy table is represented by table 1.

4 Analysis

4.1 Pilot

4.2 Absolute and Relative Frequencies

4.3 (Co-)variances

4.4 Independence

5 Conclusion

References

[1] S. Sofaer, "Qualitative methods: what are they and why use them?," *Health services research*, vol. 34, no. 5 Pt 2, p. 1101, 1999.

[2] R. Likert, "A technique for the measurement of attitudes.," *Archives of psychology*, 1932.

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[4] C. J. Chimi and D. L. Russell, "The likert scale: A proposal for improvement using quasi-continuous variables," in *Information Systems Education Conference, Washington, DC*, pp. 1–10, 2009.

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[6] C. Fan, M. E. Muller, and I. Rezucha, "Development of sampling plans by using sequential (item by item) selection techniques and digital computers," *Journal of the American Statistical Association*, vol. 57, no. 298, pp. 387–402, 1962.

[7] R. Bergstrand, A. Vedin, C. Wilhelmsson, and L. Wilhelmsen, "Bias due to non-participation and heterogenous sub-groups in population surveys," *Journal of chronic diseases*, vol. 36, no. 10, pp. 725–728, 1983.

Appendices

Survey Guideline

Information about the questions

Survey Questions

Only absolute relevant questions

DESAP checklist

Checklist can be found in the git folder