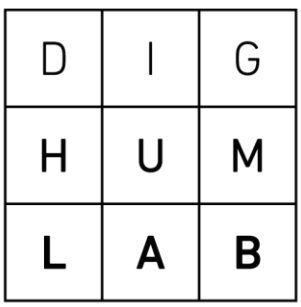
ASGER HARLUNG

NetLab IT Proficiency Test General Background

- NetLab 2019 -



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Version 1

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1 Purpose

The purpose of NetLab's IT Skill Proficiency Test is to provide an advisory function where researchers may get a better understanding of whether their IT skills match the scope and implied needs for a project, as well as suggestions for how to proceed if the match is less than perfect.

The purpose of this short background article is to provide insights in the test design and its underlying ideas and implications for those who might be interested, or who would like to have a better understanding of the test, and possibly of the test results.

2 Summary About Using NetLab's IT Proficiency Test

The test is advisory, and has researchers as the main target group.

The test results may be seen as estimates rather than exact calculations. For this reason the result is marked with "does not serve as documentation".

The test result may be printed with a print button placed at the bottom of the result page. Active URLs have been omitted in the test response, because they may be lost when printing, or if printing to a pdf file.

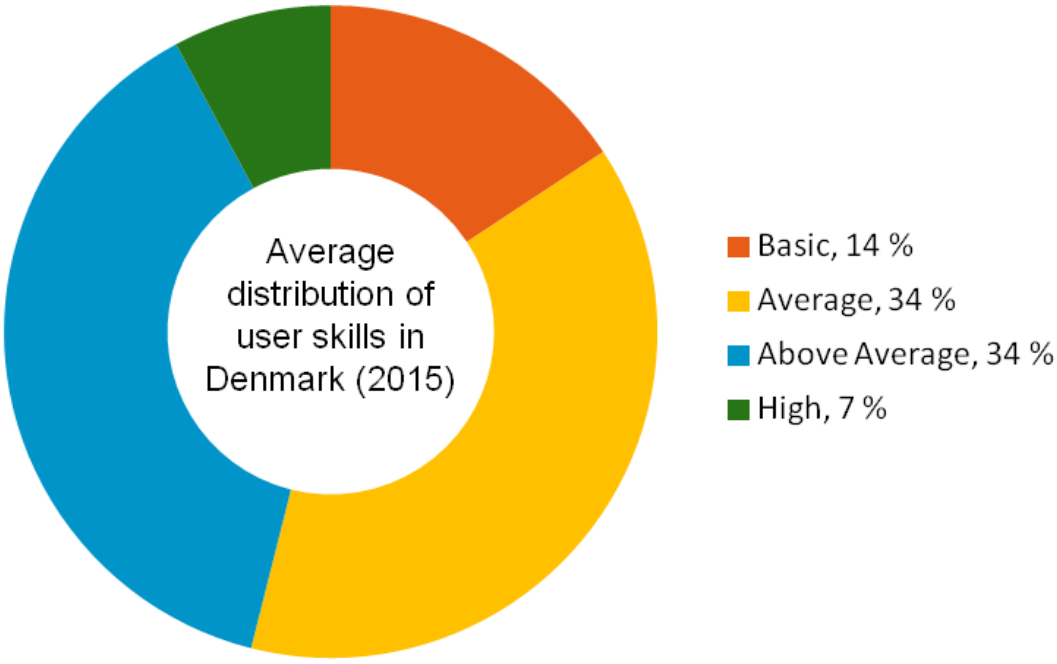
Test input will be gathered for future analysis in compliance with the GDPS rules.

3 Measuring Computer Skills

"Computer skills" is widely used as a loose term without a precise definition. It may be found in job advertisements, applications and CVs where it will often be described as a certain amount of experience, typically measured in years, with specific systems, programs of more specialized types of IT use and work..

A more precise definition of the broad term "computer skills" may be derived from research conducted by OECD (OECD, 2016). OECD defines IT skills as the ability to combine a number of operations, often with the need for using more programs or specific program features.

The patterns vary only little between OECD countries OECDs findings, and for Netlab's IT Proficiency test, the numbers for Danish computer users have been used as the basis for scaling four levels of IT proficiency.



This is a representation of the four IT proficiency levels measured by OECD, with a fifth category, "Cannot use computers, 11%) omitted because this category will not realistically be represented among modern knowledge workers.

While some users may be accustomed to thinking of themselves in terms of experience with systems X and Y for Z number of years – and based on that, to consider themselves "experienced computer users" – OECDs approach is more accurate, because it is concerned with a broad fluency in computer use; with understanding and using the computer as a tool. IT Procifiency thus becomes measured as the ability to solve problems, rather than in terms of routine.

As a result of using OECDs approach, users who take NetLab's IT Proficency test must be prepared to get results that place them as less proficient than they would have estimated.

4 Basic Design for NetLab's IT Proficiency Test Matrix

The test design for NetLab's IT Proficiency Test has been developed with an intention of creating a self-test that would be fast to take and easy to use.
It has therefore been designed as a multiple choice test that can be taken in less than twenty minutes (as confirmed by pilot testing before the release).

The twenty minutes maximum timeframe was defined from research confirming that respondents' attention and patience will diminish in surveys that take longer. (Revilla and Ochoa, 2017)

Since NetLab's IT Proficiency test is not a survey but a self-test which the respondents may be expected to be motivated for taking, it was estimated that this maximum length (as opposed to an ideal median time of ten minutes for surveys) might provide a suitable guideline for how much might be included in a quick self-test.

The result is a test consisting of 24 main questions.

In order to translate OECDs "ability to combine operands and operations" approach, the questions have been designed to cover two dimensions of computer use.

The first dimension is *complexity*:
Six questions are concerned with simple and basic operations and basic ready knowledge. Six are concerned with special operations and complex situations. Twelve questions are "mid-range" questions which are all concerned with everyday computer use in a broad sense.

The second dimension is *various aspects of use:*
Understanding and using computer interfaces, data handling, and security. The questions are equally spread between these three aspects with eight questions in each category.

5 Pilot Test

A pilot test has been conducted before release of the final test. Eight people tried the test in order to ensure that it worked properly, and in order to evaluate the content and usefulness.

Five pilot testers were researchers, two were university students, and one was an IT specialist.

The pilot test responses caused minor moderations of some phrasings and replies, a complete replacement of one question, confirmed the time estimate of “within twenty minutes total” for completing the test, and confirmed that the test seemed useful to researchers.

6 General Explanation of the Point System

The point system for the test is based on an approach where no replies are regarded as bad” – there are no negative points – but some replies are regarded as “good”.

No single question or reply determines whether the respondent is IT proficient or not. The questions, and the possible replies offered, should be seen as a broad array of “positive indications of a broad ability to use computers in a broad sense”.

Choosing a reply that is not considered “good” for any single questions is not crucial for the test taker’s final result. The majority of the points that determine how the user’s IT proficiency is evaluated stem from the “mid-range difficulty” questions. The point system is “positive” in the sense that “good replies” count as indicators of proficiency, while replies that are not considered “good” are no hindrance for getting a high IT proficiency category estimate.

Computer users have different needs and routines which say little about IT proficiency when seen individually. One user may for example not follow the full advise on for example password security to the letter, and he or she may still be a very highly IT proficient user, while another user may follow said rules without necessarily being highly skilled in other aspects of use.

However, a high proficiency profile must necessarily show signs of competent use in all the aforementioned aspects of use, interface understanding, data handling, and security.

The broad possibilities of individual computer user behavior is the reason for designing the questions as an “array of positive indicators” where the test taker

gathers a sum of points that may be generated in very dissimilar ways, before getting the final estimate.

With the limitation to 24 questions it has been necessary to create a few “extra” questions in the highest and lowest category in order to ensure that basic skills will be counted, and that the highest skill levels can be reached from several different user scenarios.

For this reason – that IT proficiency can be demonstrated in many different ways during the test, and with extra questions and possible points in the high and low categories - an exact placement within the four categories cannot be calculated. The test taker will only get an overall estimate of his or her main proficiency category.

7 Data Gathering

The data input from test takers will be kept for future analysis.

It is the hope of NetLab that a sufficient number of users may over time take the test, and that the resulting data may be used to analyse patterns of how well IT proficiency matches research projects in general, or of specific areas that should be focused upon in order to make web archiving and use of web archives for research more accessible.

When taking the test the user will be presented with detailed information about data gathering and GDPS concerns.

8 References

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