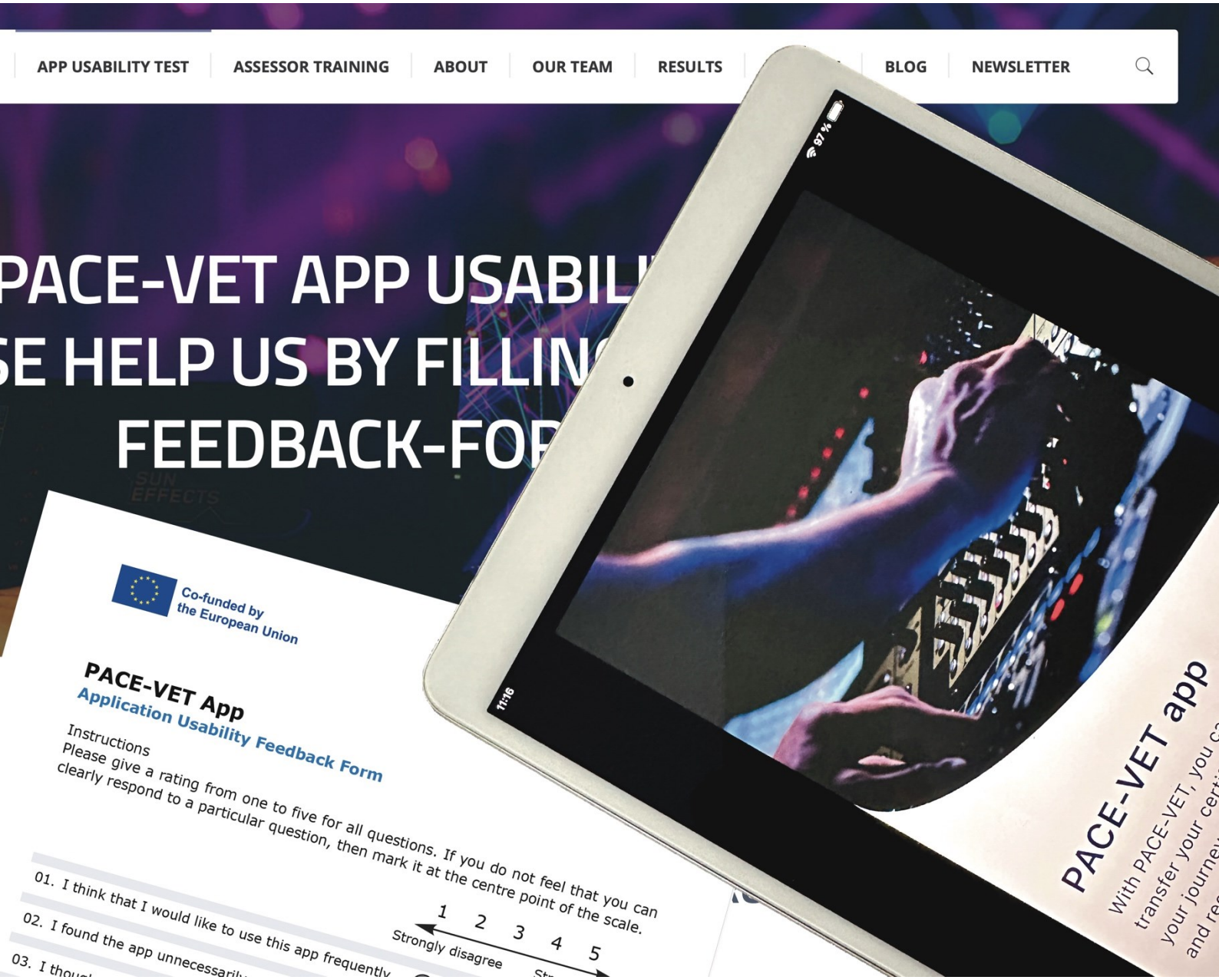

Learning Record Store - Application Development

WP 2.4: Results of the Software Usability Test

Co-funded by the European Union

PACE VET Digital Credential

This document was produced as part of the ERASMUS+ project "Partial Certification in the Vocational Field of Event Technicians – PACE-VET", Project ID: 2021-1-DE02-KA220-VET-000028156.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

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Content

1 Test results

1.1 Feedback

As stated in WP 2.3., the study was based on the System Usability Scale (SUS), developed by Brooke. Two further questions were added to survey the possible interest within the sector for the purpose of the application. The project partners contacted focus group members, attendees of the final conference, and students at RITC (Royal Institute for Theatre, Cinema & Sound - Brussels) and EHB. During a ten-day period, participants were encouraged to visit the project website and download the application. Feedback forms could be directly downloaded, filled out, and uploaded by dragging them into the "drag and drop" window. Further comments (up to 400 characters) could also be included in the upload. The project received 15 responses: 9 in German, 3 in English and 3 in Dutch.

Since the SUS evaluates the subjectively perceived usability in points, it is possible to derive an overall evaluation by surveying a relatively small number of users of the system. The SUS is a percentile interpretation that ranges from 0-100. The guideline value for a system with at least good usability is 68 (or higher), 100 symbolizes perfect usability. The formula for computing the final SUS score requires converting the raw scores, by subtracting 1 from each raw score, then utilizing the following equation:[1]

$$SUS = 2.5\left(20 + \sum(\text{SUS01}, \text{SUS03}, \text{SUS05}, \text{SUS07}, \text{SUS09}) - \sum(\text{SUS02}, \text{SUS04}, \text{SUS06}, \text{SUS08}, \text{SUS10})\right)$$

Only the first ten survey questions are included in the final SUS score.

[1] Lewis, James R. (3 July 2018). "The System Usability Scale: Past, Present, and Future". International Journal of Human–Computer Interaction. 34 (7): 577–590. doi:10.1080/10447318.2018.1455307. ISSN 1044-7318. https://en.wikipedia.org/wiki/System_usability_scale, (accessed October 25th, 2024)

1.2 Survey Question 1:

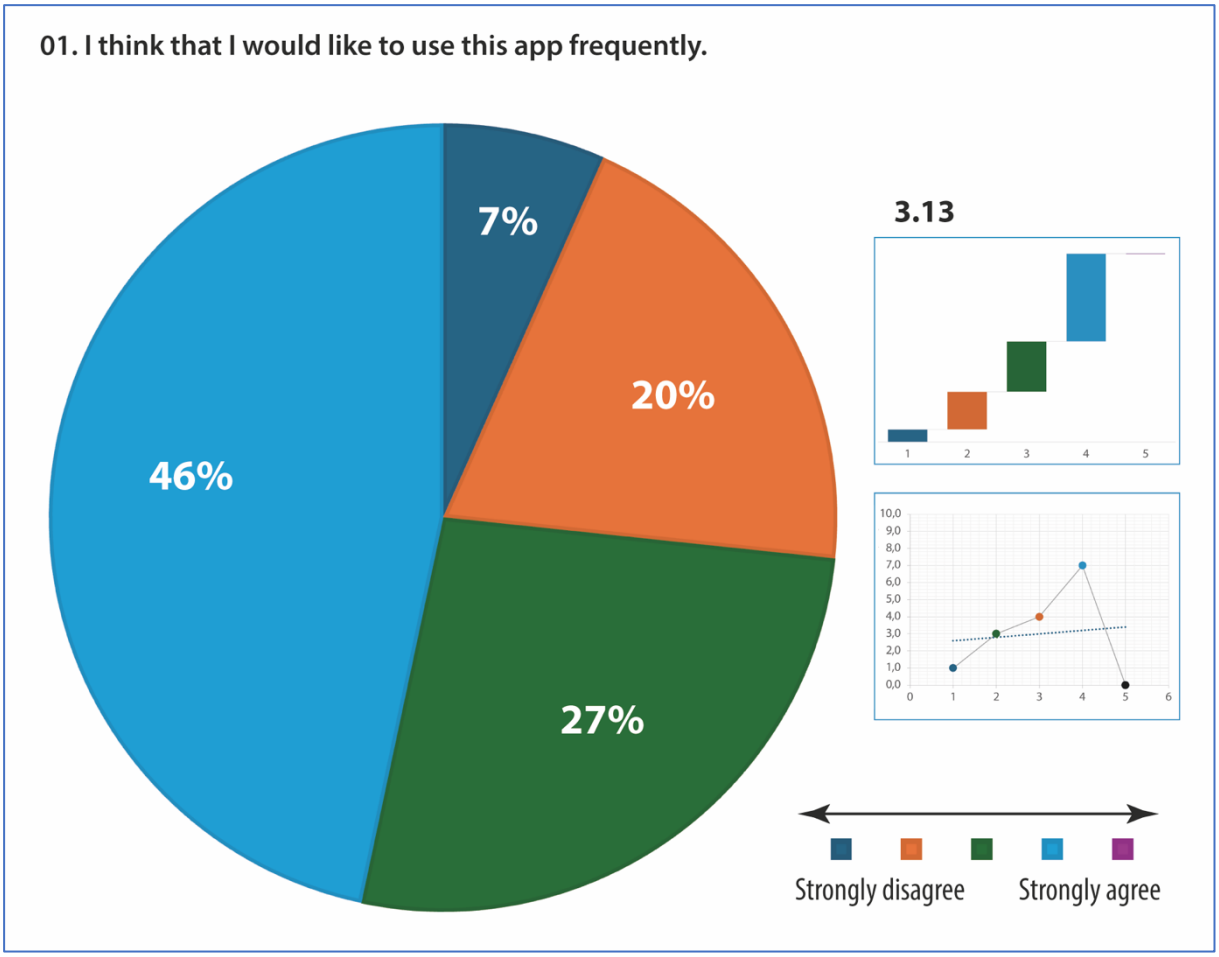

Figure 1: SUS-Survey · Question 1

The raw SUS score is 3.13 – the score for computing the final score is 2.13.

1.3 Survey Question 2:

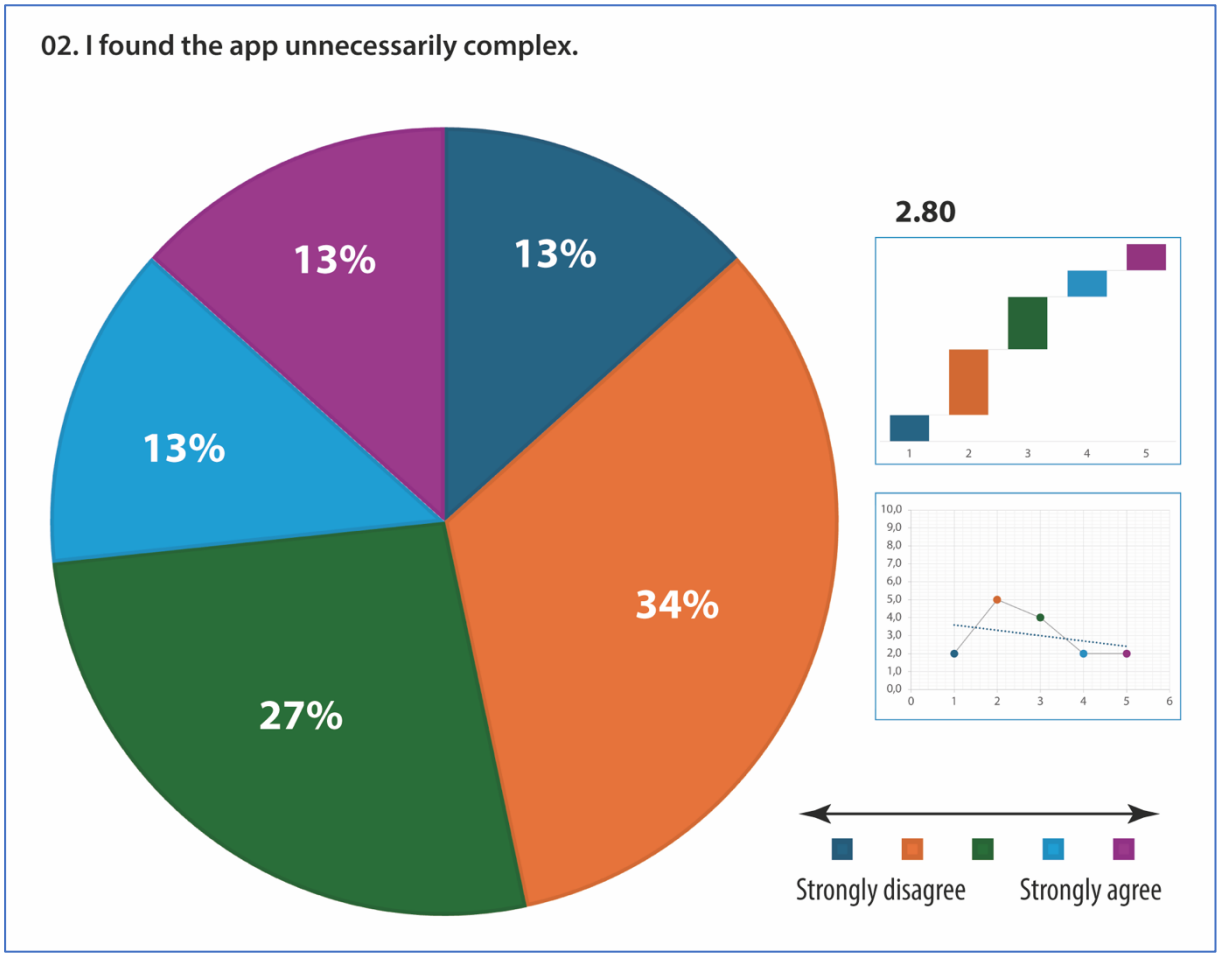

Figure 2: SUS-Survey · Question 2

The raw SUS score is 2.80 – the score for computing the final score is 1.80.

1.4 Survey Question 3:

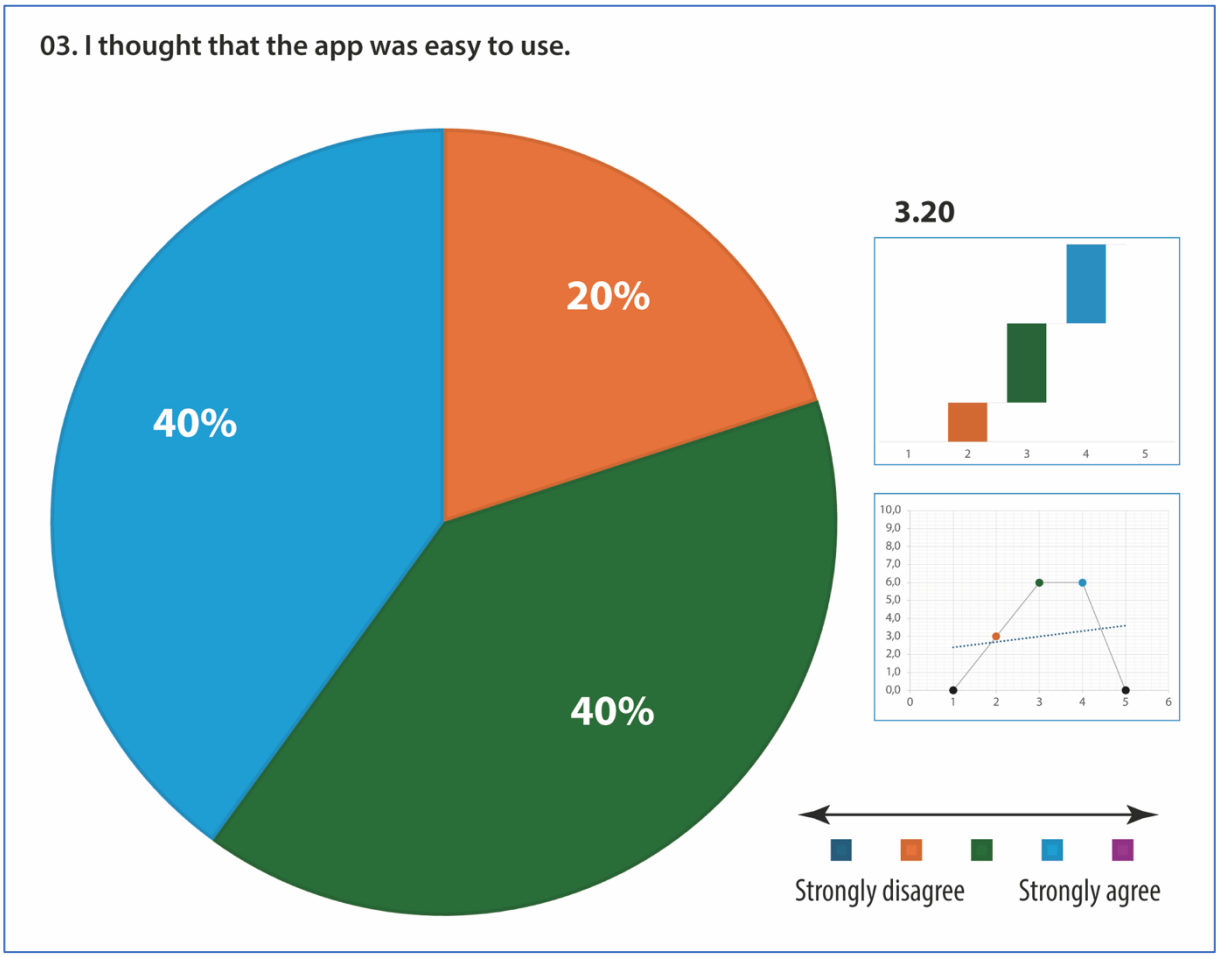

Figure 3: SUS-Survey · Question 3

The raw SUS score is 3.20 – the score for computing the final score is 2.20.

1.5 Survey Question 4:

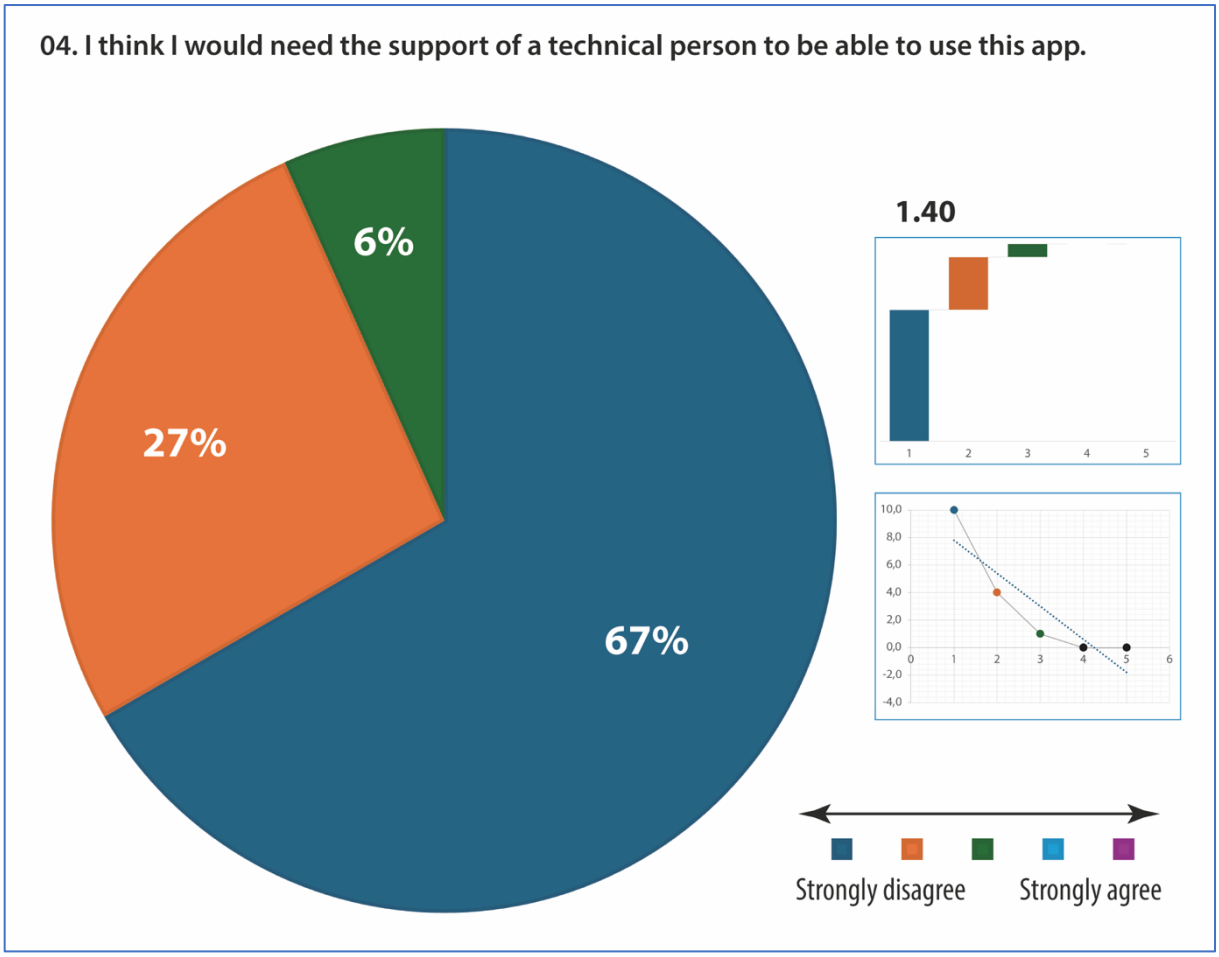

Figure 4: SUS-Survey · Question 4

The raw SUS score is 1.40 – the score for computing the final score is 0.40.

1.6 Survey Question 5:

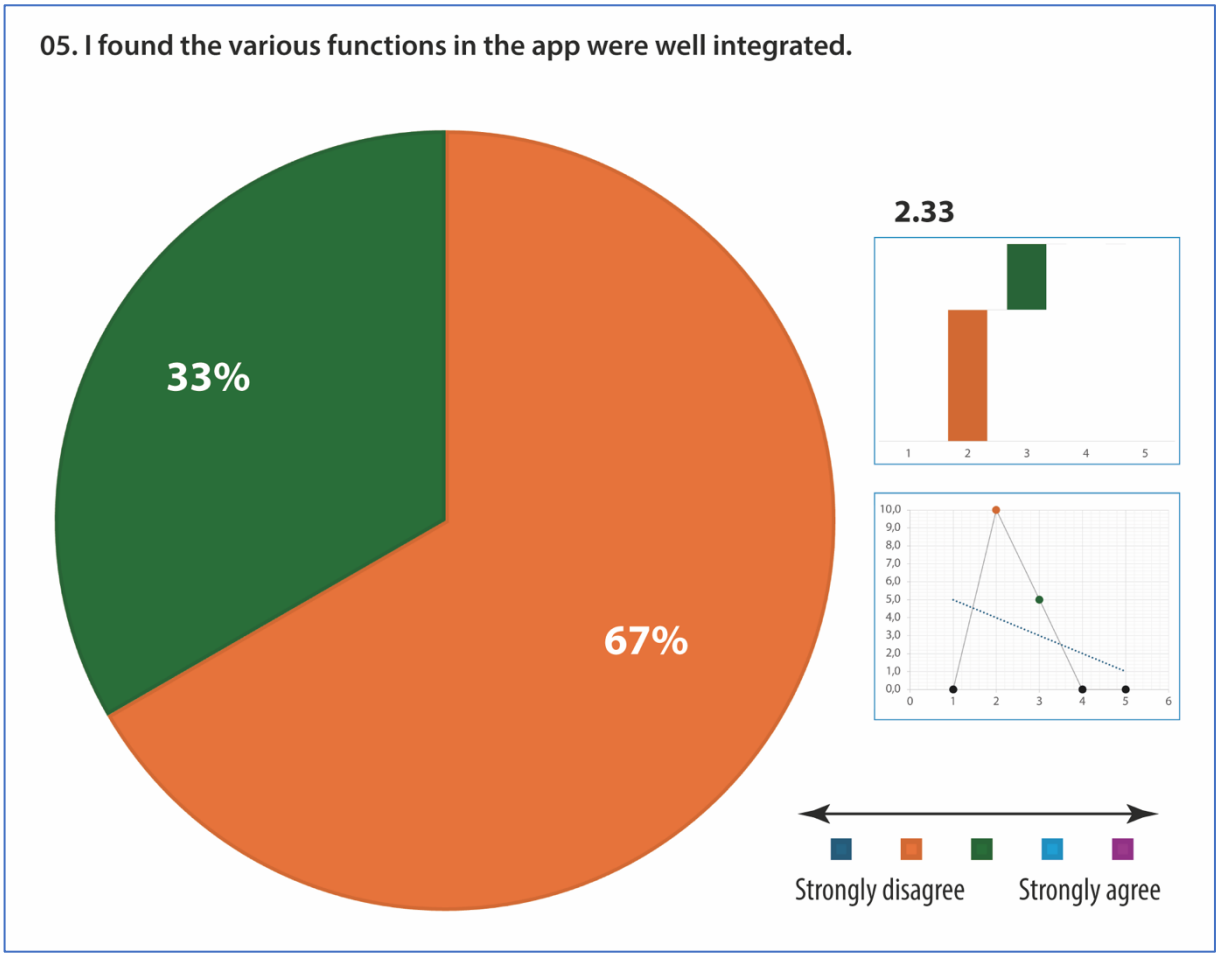

Figure 5: SUS-Survey · Question 5

The raw SUS score is 2.33 – the score for computing the final score is 1.33.

1.7 Survey Question 6:

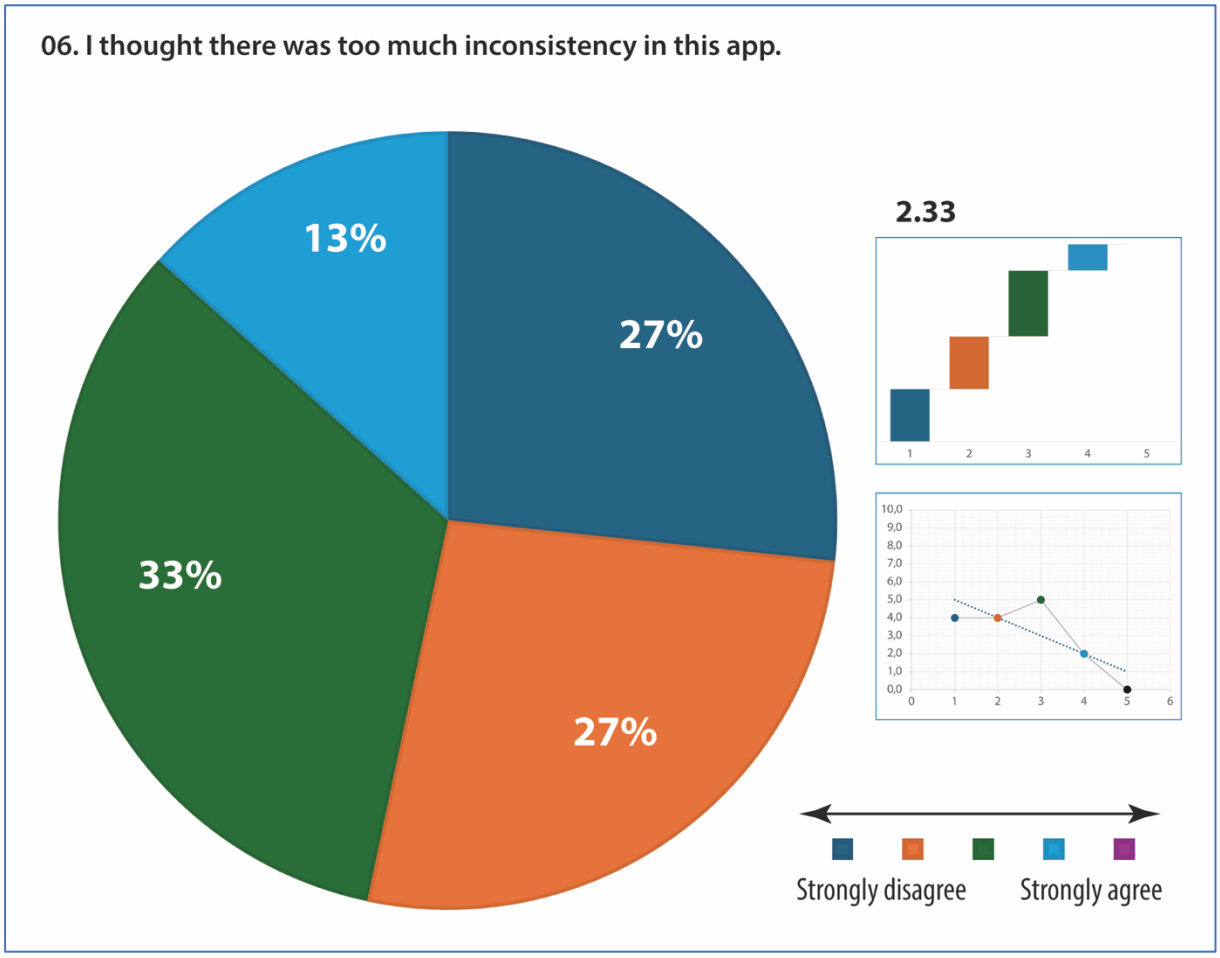

Figure 6: SUS-Survey · Question 6

The raw SUS score is 2.33 – the score for computing the final score is 1.33.

1.8 Survey Question 7:

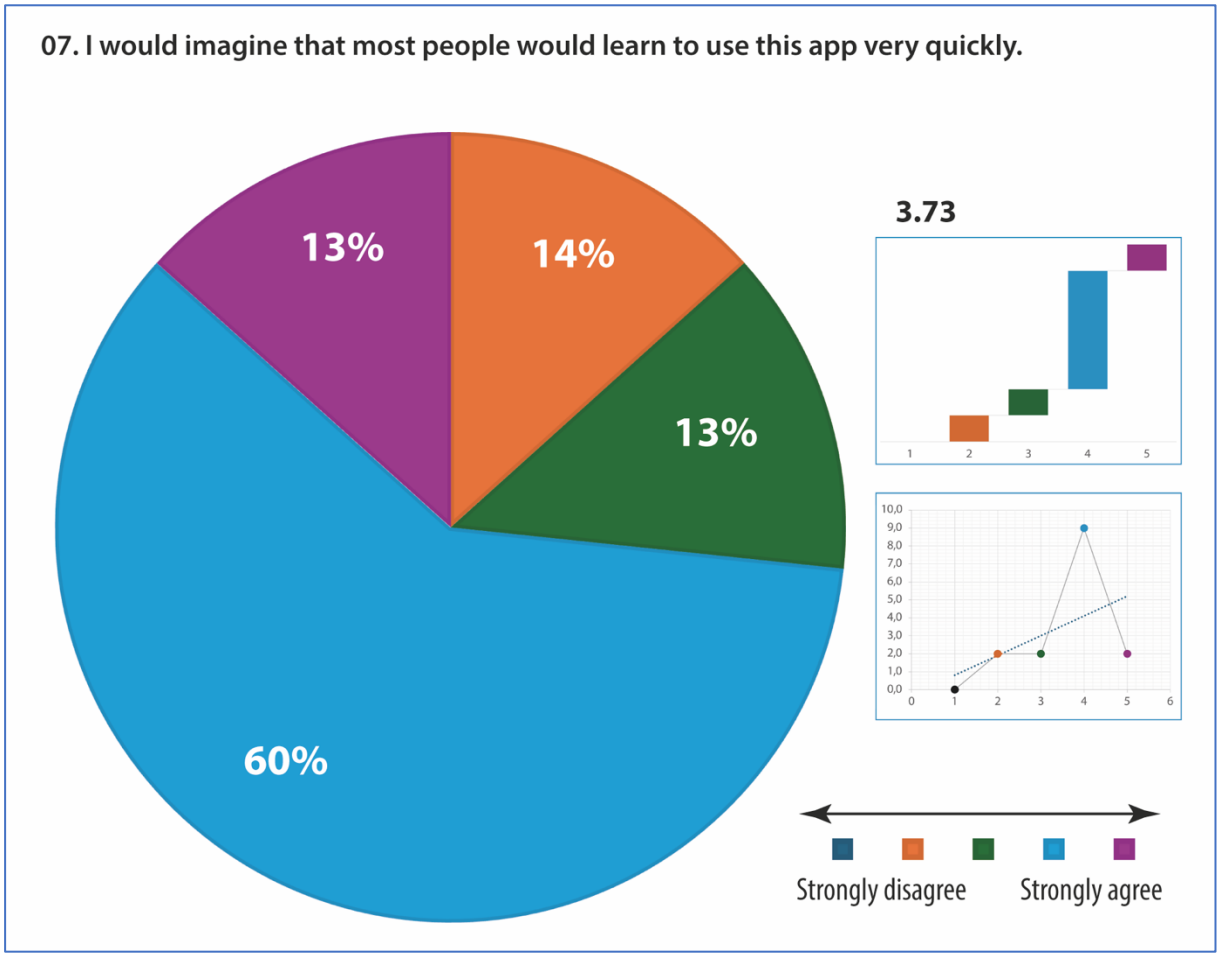

Figure 7: SUS-Survey · Question 7

The raw SUS score is 3.73 – the score for computing the final score is 2.73.

1.9 Survey Question 8:

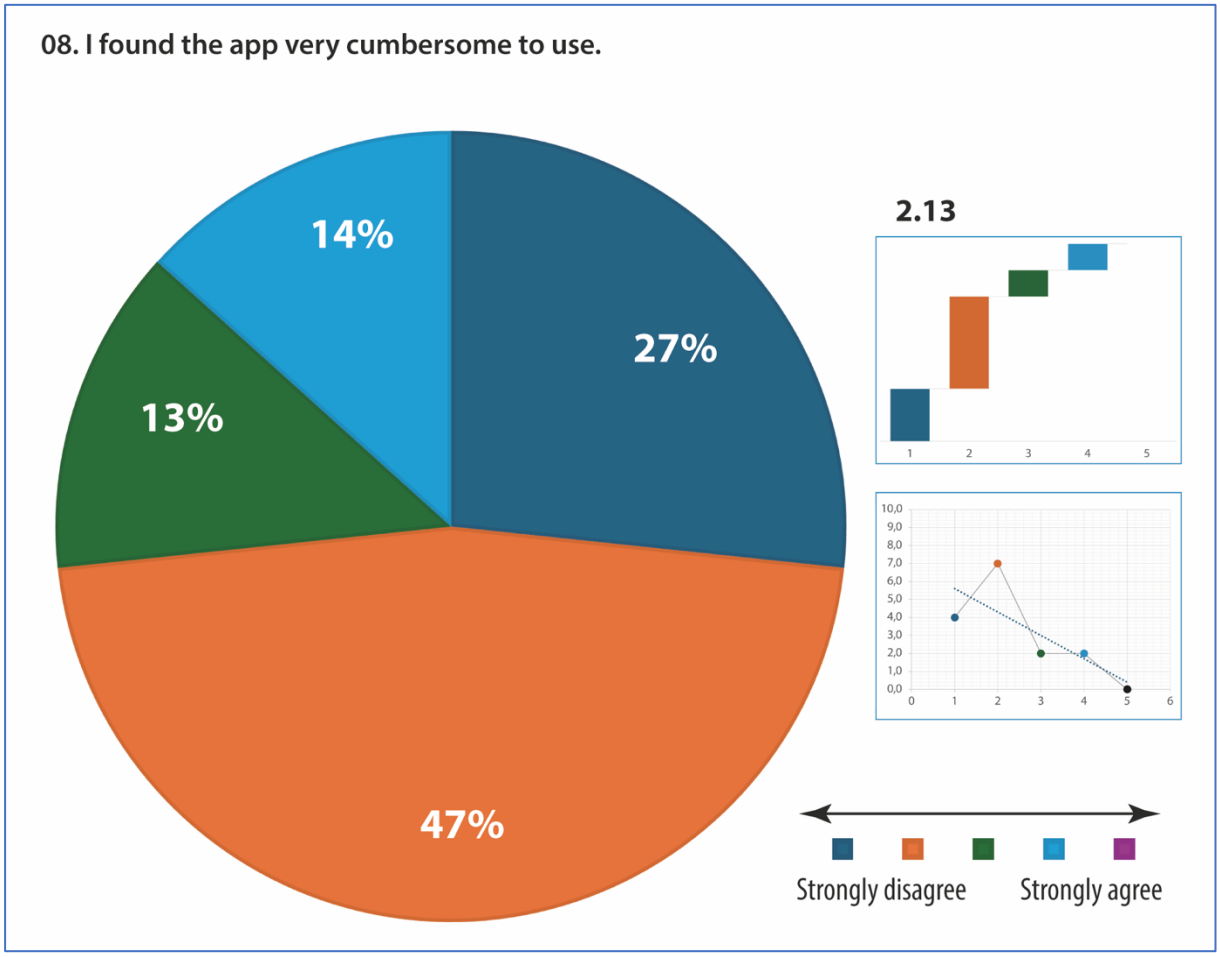

Figure 8: SUS-Survey · Question 8

The raw SUS score is 2.13 – the score for computing the final score is 1.13.

1.10 Survey Question 9:

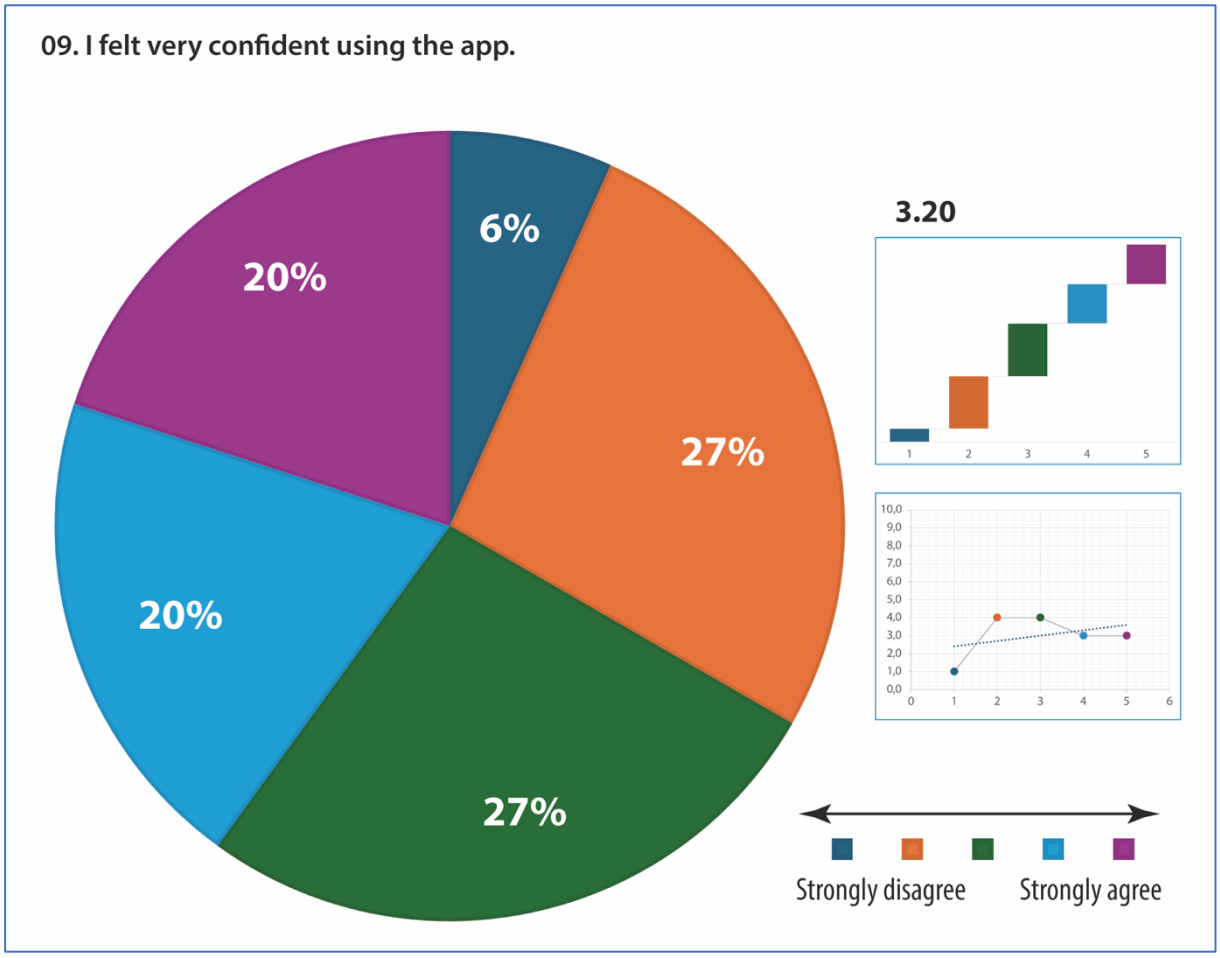

Figure 9: SUS-Survey · Question 9

The raw SUS score is 3.20 – the score for computing the final score is 2.20.

1.11 Survey Question 10:

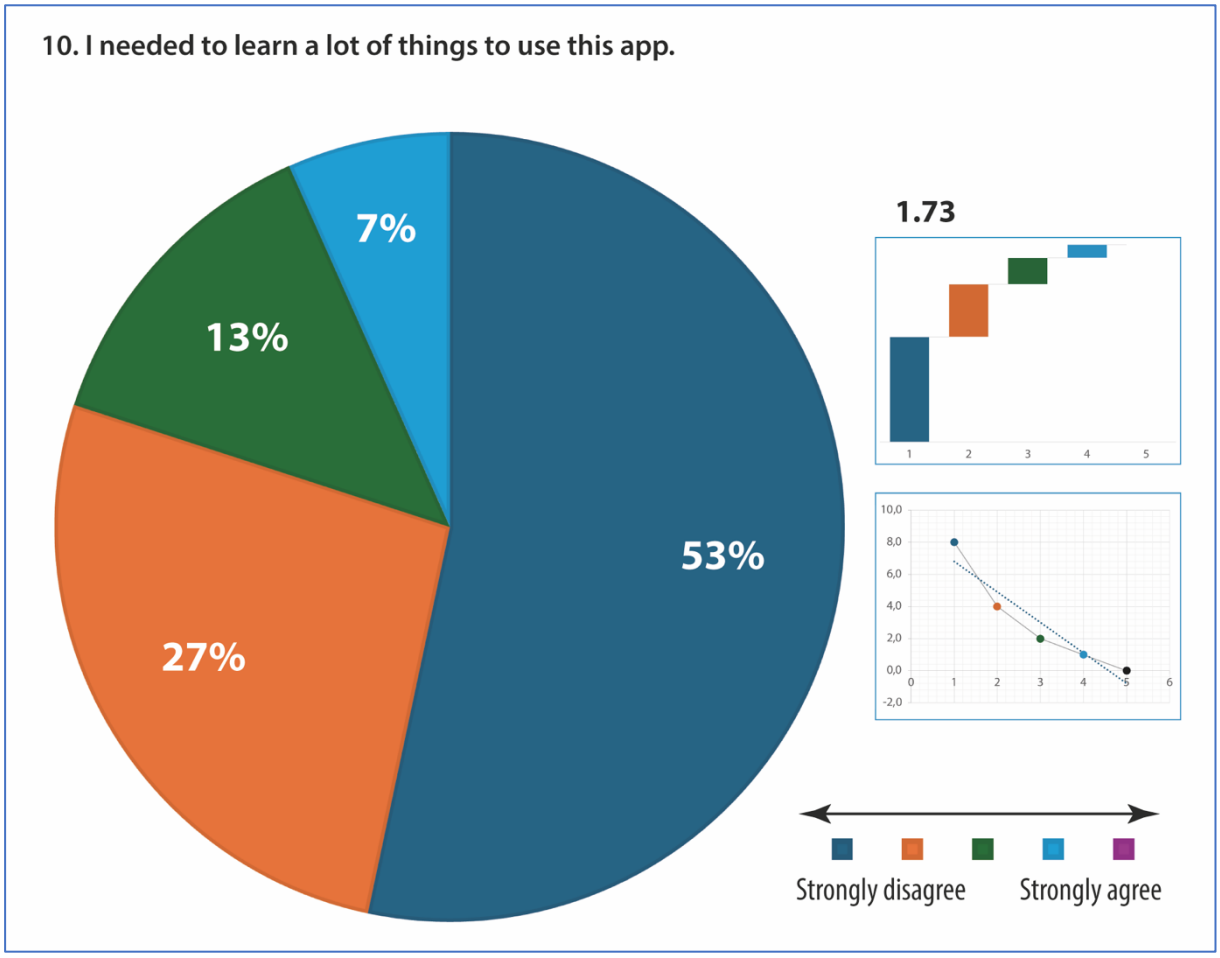

Figure 10: SUS-Survey · Question 10

The raw SUS score is 1.73 – the score for computing the final score is 0.73.

1.12 Final SUS Score

Using the recommended equation, the final result of the PACE-VET SUS-survey is:

SUS = 2.5{20 + ∑ (2.13,2.20,1.33,2.73,2.20) — ∑ (1.80,0.40,1.33,1.13,0.73)}

SUS = 2.5{(30.59) — (5.39)}

SUS = 2.5{25.2}

SUS = 63

According to Sauro, the average SUS score is a 68. A SUS score above a 68 would be considered above average and anything below 68 is below average.[2]

Of course, the inherent complexity of the application and its installation (2-factor-authentification) played a role in its score. It should therefore be noted, that the application's usability is more than its SUS score.

[2] Sauro, Jeff, PhD. February 3, 2011. Measuring Usability with the System Usability Scale (SUS). https://measuringu.com/sus/, (accessed October 25th, 2024)

An example provides some comparative results from SUS scores within the context of a study by the Mayo Clinic (Electronic Health Records) in 2013:

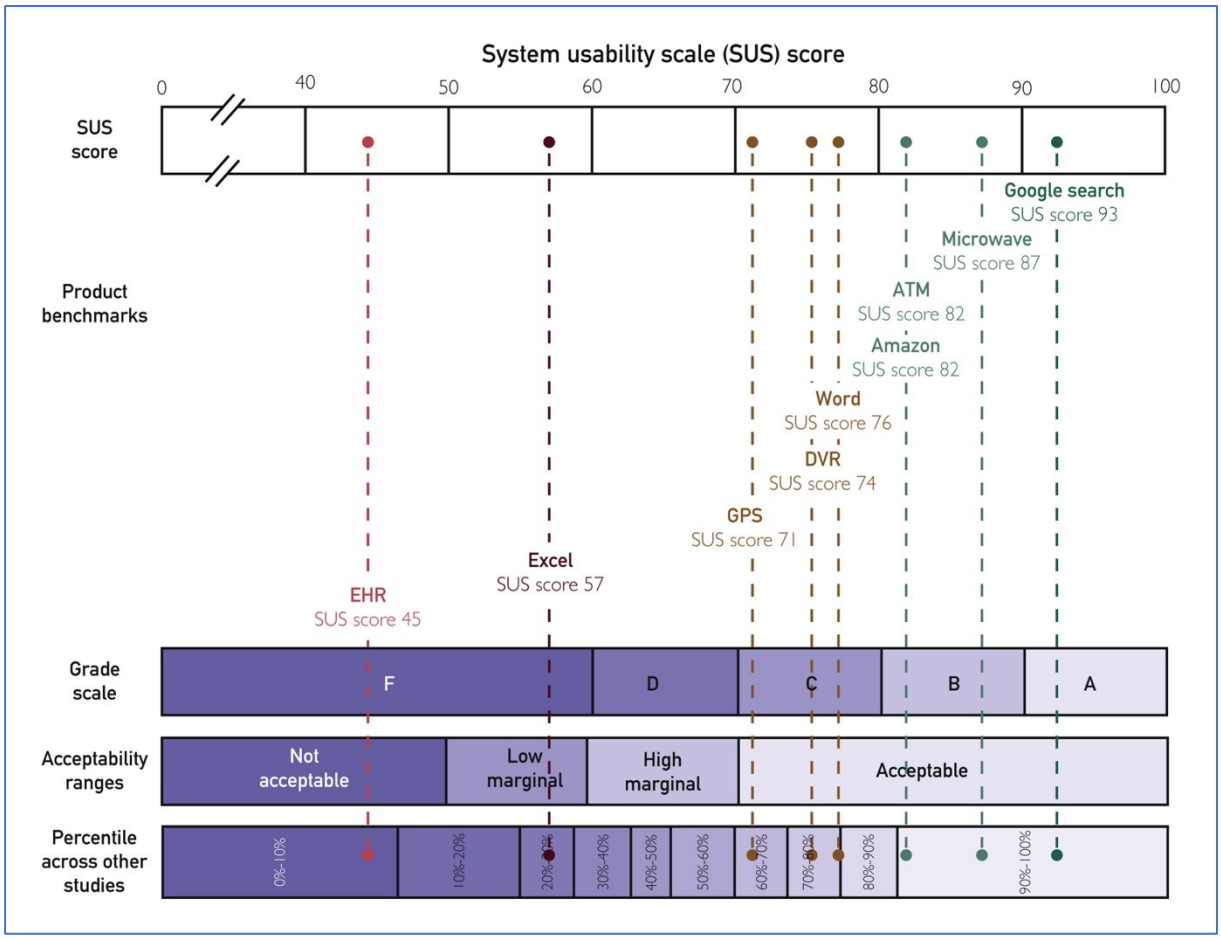

Figure 11: SUS scores - Comparability[3]

As illustrated, the Microsoft Programme Excel© had a below average score. The software, however, also offers a lot of features and requires some complexity to support functionality. Its low score, therefore, does not necessarily mean it's a bad product![4]

1.13 Comments

The following comments (anonymous) were also received:

- The 2-factor authentication on an iPhone is not easy to complete.

[3] System Usability Scale (SUS) score for the electronic health record (EHR) from the analysis reported here and compared across studies in other industries with everyday products mapped onto a grading scale, acceptability ranges, and percentile of scores. ATM = automated teller machine; DVR = digital video recorder; GPS = global positioning system. Figure adapted from: Kortum PT, Bangor A.24 Usability ratings for everyday products measured with the System Usability Scale. International Journal of Human–Computer Interaction. 2013;29(2):67-76.—with permission from Taylor & Francis publishing, License Number 4594911446562.

[4] Melnick, Edward R. et al.The Association Between Perceived Electronic Health Record Usability and Professional Burnout Among US Physicians. Mayo Clinic Proceedings, Volume 95, Issue 3, 476 - 487. https://www.mayoclinicproceedings.org/article/S0025-6196%2819%2930836-5/fulltext

- Initially, there was an issue when trying to download the app "Due to security issues, you can currently not install apps from this source. You may change this in the settings". After confirming the settings, I was able to actually install the app.
- Two-factor authentication is unnecessarily complicated
  Die Zwei-Faktor-Authentifizierung ist unnötig kompliziert
- MFA was the most complicated. I would never do something like that on a mobile device. Trust is essential, so the actual onboarding is still missing in the app. Images in the portfolio are irritating, a different view would be useful. Assessor/ESCO button not recognizable. Assessing crashed immediately. Without a tutorial, interaction or export, the purpose of the app is not clear.
  MFA war das Komplizierteste. Ich würde sowas nie auf einem Mobilgerät machen. Das Vertrauen ist essentiell, daher fehlt in der App noch das eigentliche Onboarding. Bilder im Portfolio irritieren, eine andere Ansicht wäre sinnvoll. Assessor-/ESCO-button nicht erkennbar. Assessing ist direkt abgestürzt. Ohne ein Tutorial, Interaktion oder Export wird der Sinn der App nicht klar.
- Graphically not nicely processed
  Grafisch nicht schön aufgearbeitet
- 2FA during installation was almost a deterrent to installing the app at all. Login is completely sufficient.
  2FA schon bei der Installation war fast schon abschreckend die App überhaupt zu installieren. Bei Login reicht völlig aus.

1.14 Survey Question 11: Sector Acceptance A

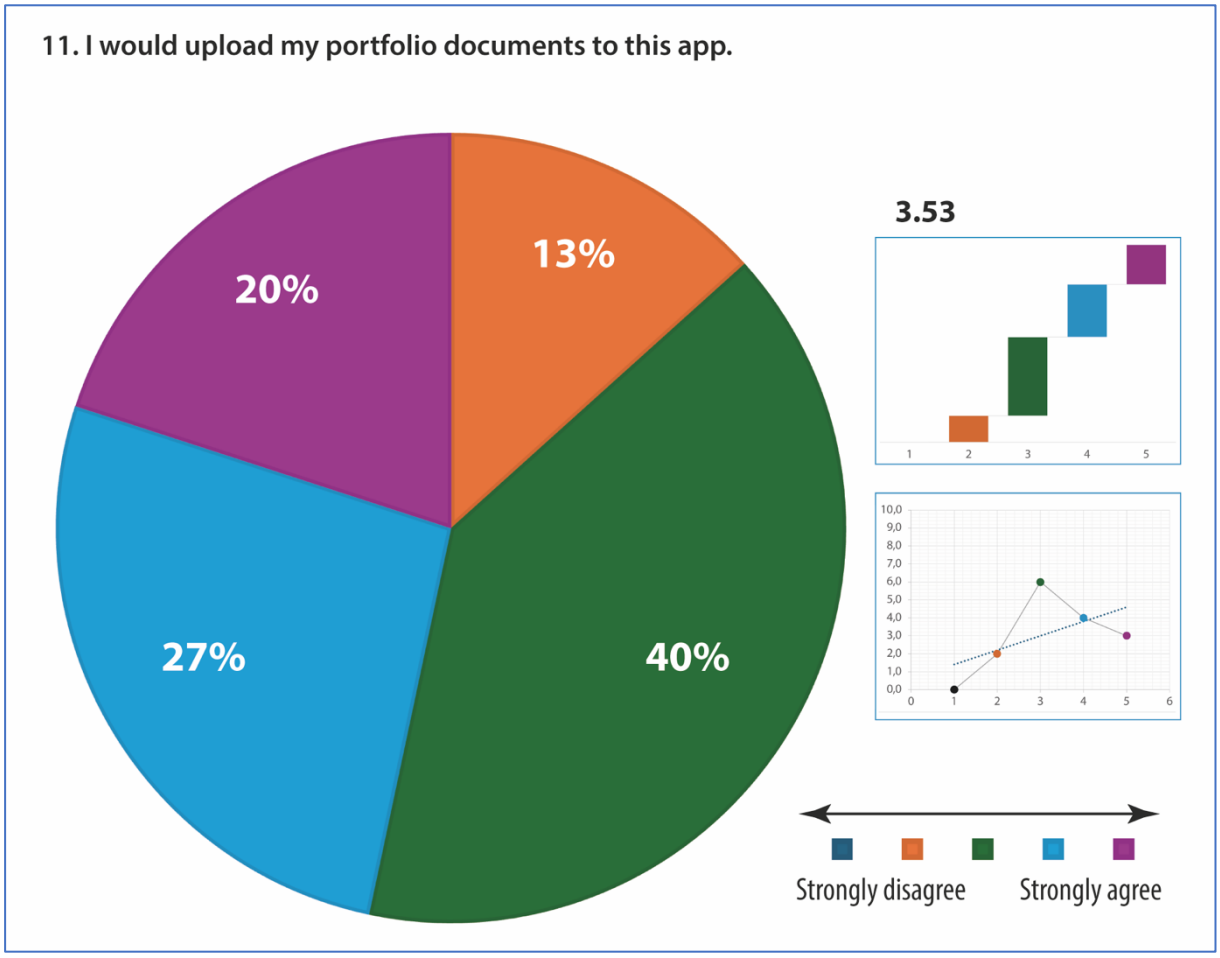

Figure 12: SUS-Survey · Question 11

The raw SUS score is 3.53.

1.15 Survey Question 12: Sector Acceptance B

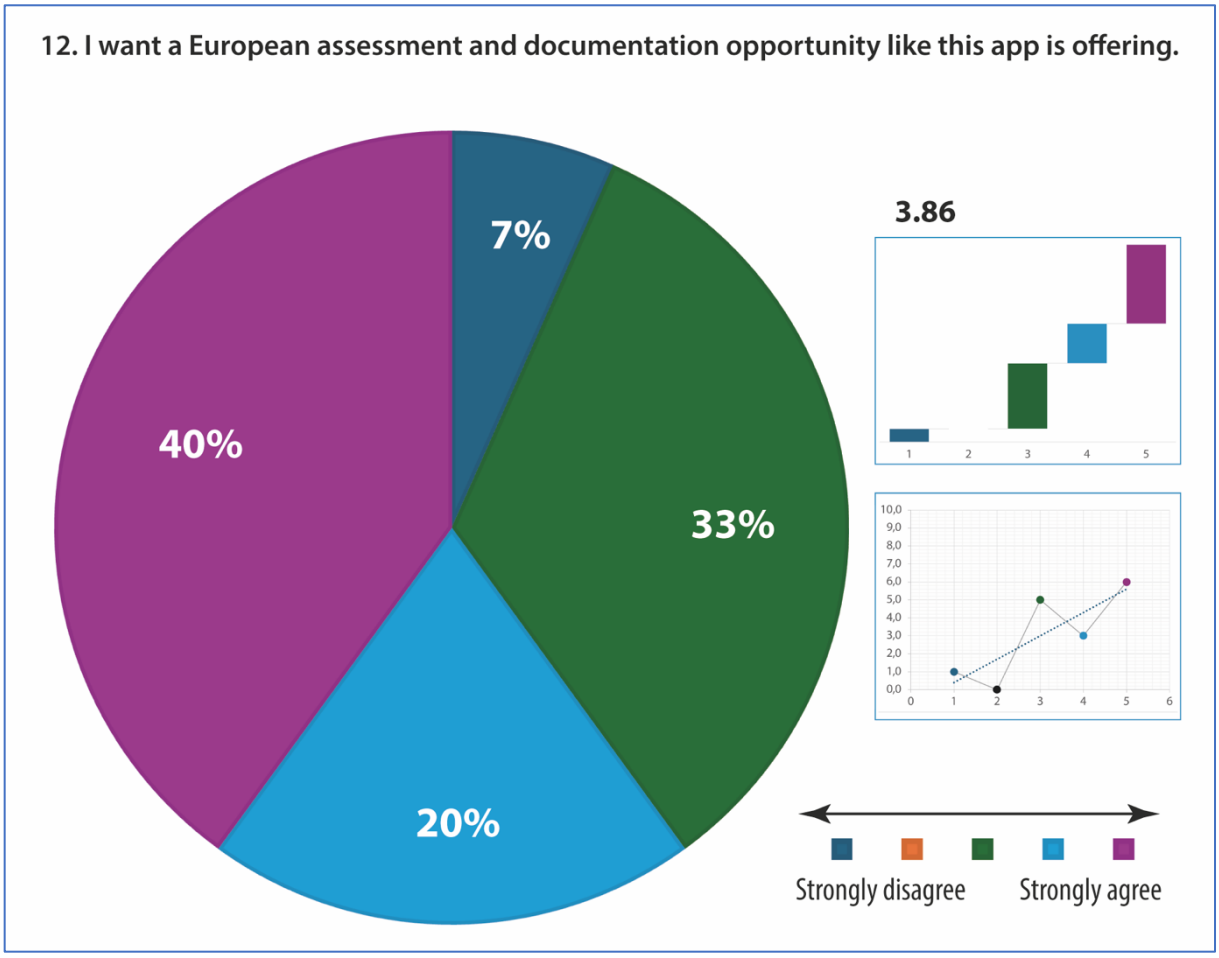

Figure 13: SUS-Survey · Question 12

The raw SUS score is 3.86.

1.16 Survey Results: Sector Acceptance

Despite a lower than average SUS score, the high scores in regard to using the application for a sector-based lifelong-learning document tool support the project's objectives. Almost half of the survey group (strongly agree 47% + median 87%) would agree to upload their portfolio documents to this app. And a majority (strongly agree 60% + median 93%) agree that they would want a European assessment and documentation opportunity like this app is offering.

This echoes the desire of technicians to be able to document all of their learning outcomes in a secure LRS and the need for qualified personnel in the sector.

2 Conclusions

The majority of the survey group found that the application offered a low average in usability. This was certainly due to several factors:

- Due to illness, EHB could not deliver a Google Play Appstore version. The download of an APK-File that had to be installed manually was a barrier and extra hurdle for users on Android© System mobile devices.
- Several functions were still not available, as an infrastructure for mentors and assessors has not be implemented.
- Much of the specific content in the application deals with topics that are not common in the typical working environment of live performance and event technicians, but are either specific for VET (microcredentials) and European policies (ESCO).
- There was insufficient time between the internal and external test phases to relaunch the application with improvements.
- There was no simple user manual provided within the application itself.

At the same time, usability is also a question on complexity and functionality.

Despite the low average in the SUS-survey, the major points for criticism were usability and learnability, not the purpose or the content of the application. The project partners are convinced that an amply financed application that is connected to a European entity ensuring quality assurance and providing server capacity would be successful in the market.

List of Figures

Figure 14: Logos of Project partners

Strategic Report

We thank the co-authors from:

BF/M-Bayreuth

STEPP

EHB

VPLT

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