Appendix 4

Survey on Apprentices Use of Apps and Mobile Devices in the Building Trades

In order to better understand the perspective of the intended user group for Learning Layers, ITB, Pontydysgu and BauABC have undertaken a survey of apprentices at one of Germany's largest construction training centres, BauABC. The survey is still on-going, but it is possible to advance some preliminary conclusions.

This survey has gathered data about the use of mobile devices by apprentices in the building industry . The questionnaire includes:

- The type of mobile devices used
- Internet access
- The use of mobile devices at different training venues
- Usage patterns
- Knowledge and use of existing work-related apps
- Preferred formats for information retrieval and communication.

At the time of writing, 581 respondents in 16 occupations related to the building industry and crafts had answered the survey. These occupations mostly require a three year, sometimes a three and a half year apprenticeship. The respondents' age range from 15 to 35. Most are in the first or second year of their apprenticeship, as this was the group easiest to access in early autumn, 2013 (see Figures 1 and 2). Third year apprentices are expected to complete the survey later in the year. The overwhelming majority of respondents meaning differences according to gender cannot be computed.

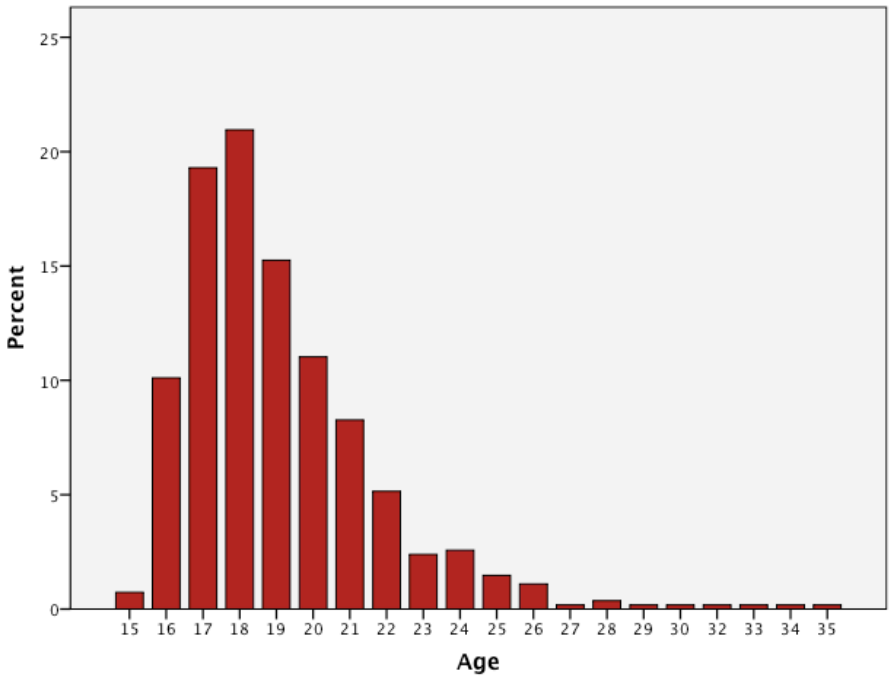

Fig. 1: Age of respondents

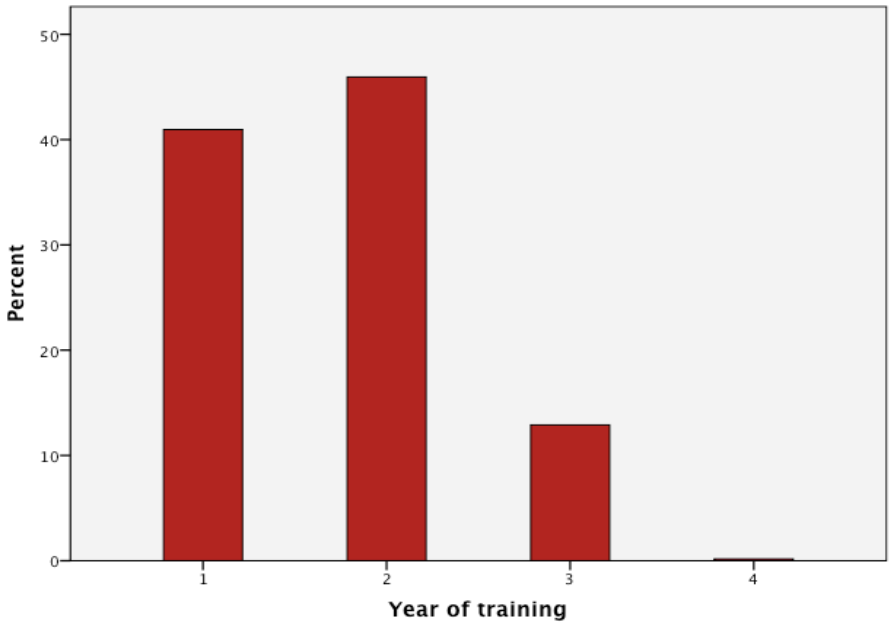

Fig. 2 Respondents' year of training

Mobile Devices

Of the 581 respondents, a high percentage of 86,7% use a smartphone. The use of previous generations of mobile phones (18,1 %) is clearly becoming outdated

within this group. 19,4% own a tablet computer, 59,7% a laptop, 54,7% a desktop computer. 6 of the respondents (0,5%) do not have any of these devices.
The great majority of users (78,3%) are connected to the internet via their private smartphones. Moreover, more than half (53%) have an internet connection via a private landline. Additionally, there is some use of public free hotspots (14,6%), while the use of paid hotspots is rare (6,4%).
Despite this, the use of mobile devices is not encouraged by employers: only 1,9% of employers provide access to the internet and only 27% of employers allow the use of smartphones at the workplace.

Use patterns

Smartphones have become a ubiquitous means of communication. The majority of users use their smartphone more than 10 times a day (fig. 3).

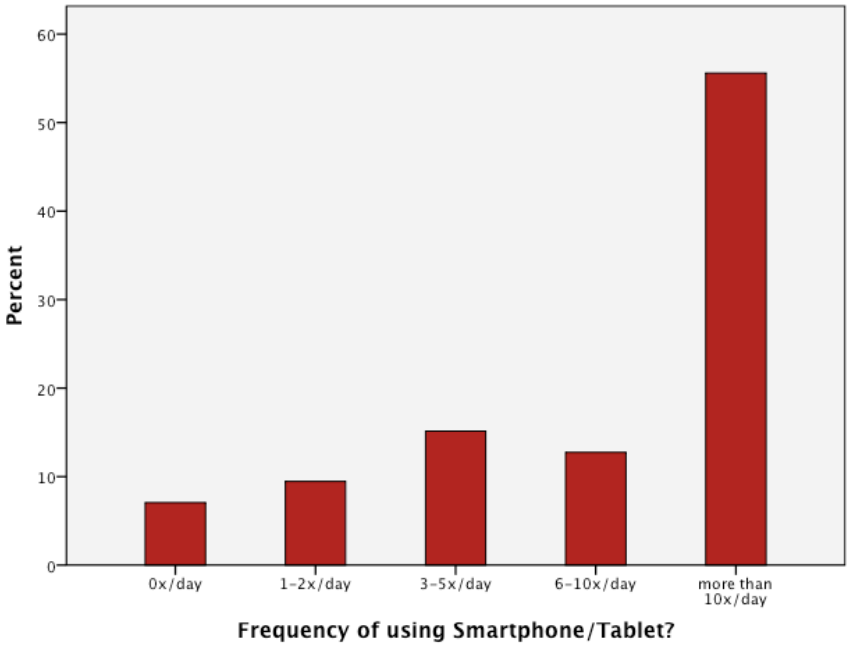

Fig. 3: Frequency of using smartphones and tablets per day

Though not encouraged by employers, the use of smartphones is not restricted to private purposes. 94,3% use their smartphone for private calls, but 58% for work-related calls and 53,2% for information gathering at work.

Use patterns show that the smartphone, though still mainly used as a communication device for private purposes, has become a tool used for wider purposes (see Figures 4-6).

It is interesting that gathering information needed for work or training is a task that almost 50% do often or very often (see Figure 6).

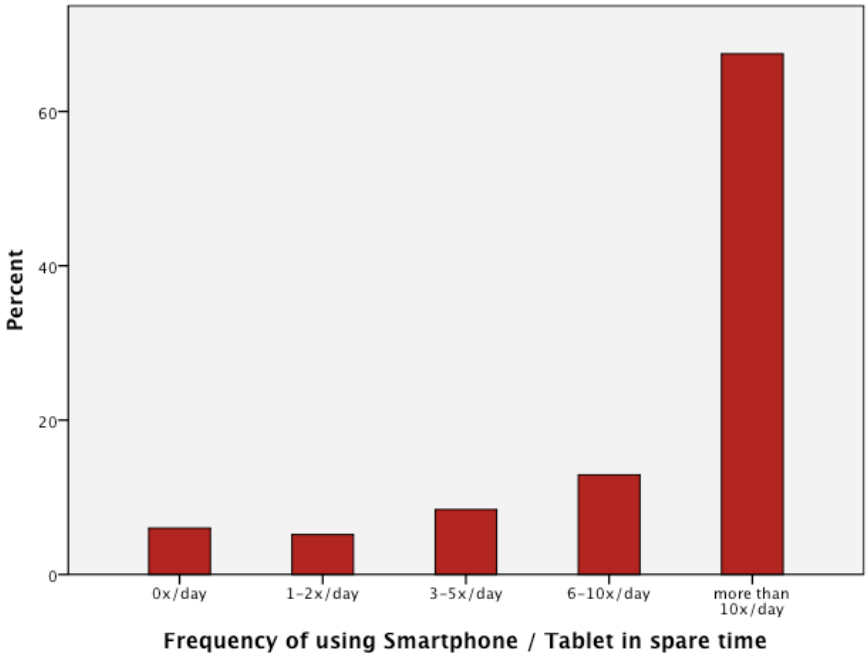

Fig. 4: Frequency of using smartphones and tablets in spare time

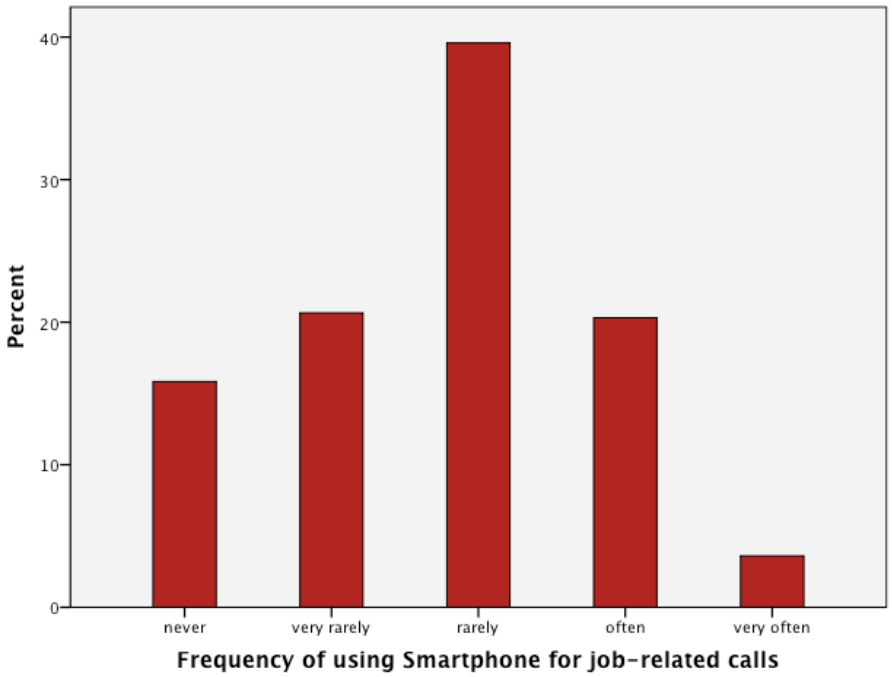

Fig. 5: Frequency of using smartphones for work-related calls

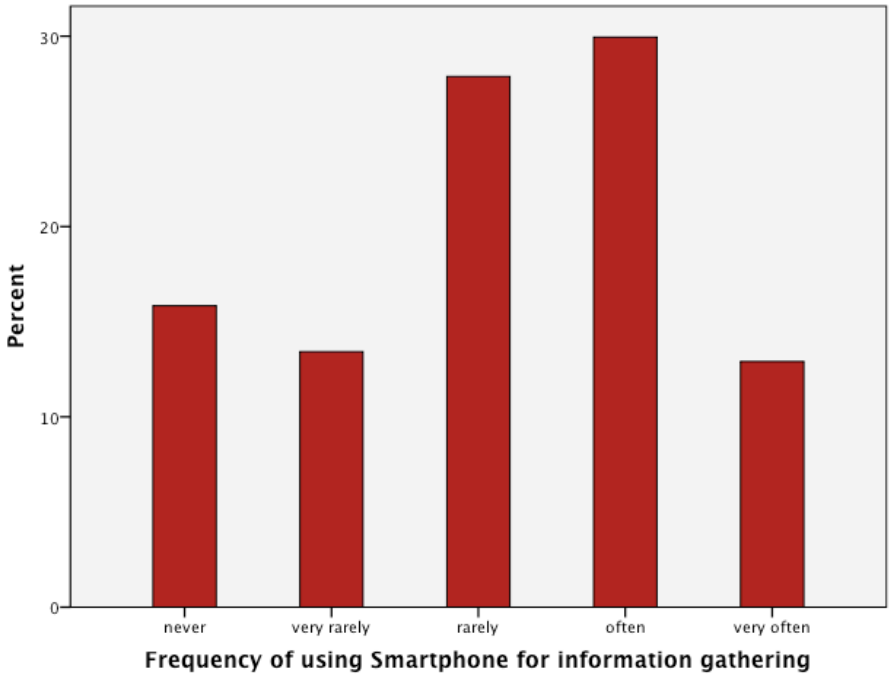

Fig. 6: Frequency of using smartphones and tablets for gathering information needed at the work place or for the training.

In line with this pattern is the way apprentices make use of their mobile devices at the workplace (Figures 7-9). Private calls are not normally allowed, but apprentices made calls during their breaks. Work-related calls happen to some extent, information gathering via apps is quite rare. One of the reasons may be that employers do not allow the use of mobile devices at the workplace, another could be that apprentices are not aware of useful existing apps or that these apps are not seen as helpful (see below).

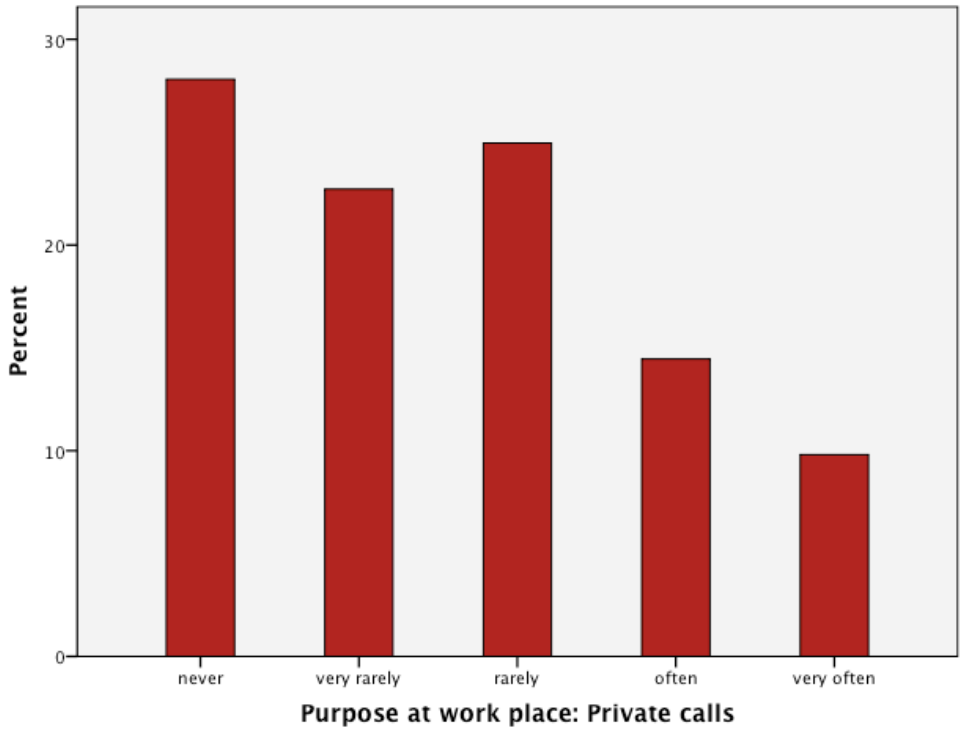

Fig. 7: Use of smartphones at the work place for private calls

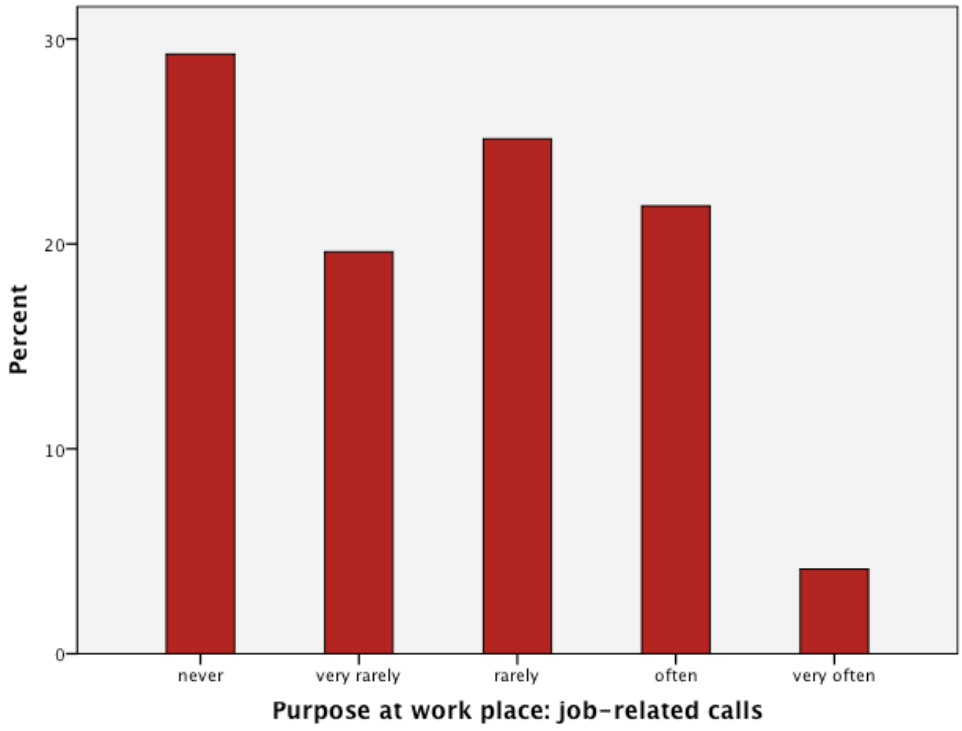

Fig. 8: Use of smartphones at the work place for work-related calls

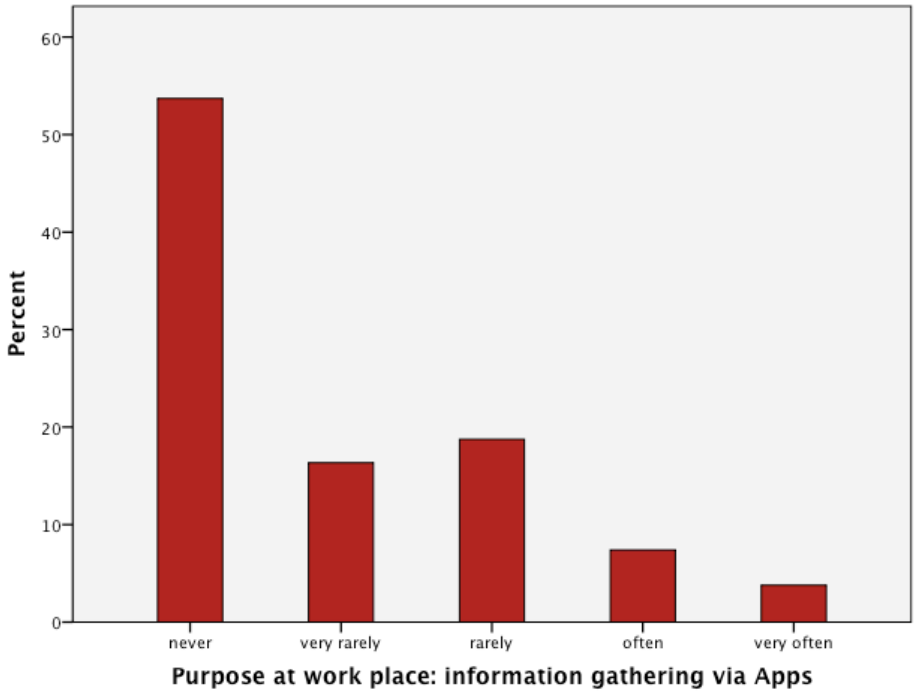

Fig. 9: Use of smartphones at the work place for information gathering via apps

Work-related apps: knowledge and use

In general, the apprentices do not have a preferred source for gathering information about existing work-related apps. Information on possibly helpful apps comes from other apprentices (28,1%) or colleagues at work (17%). 9,5% heard about them from trainers at the workplace or the training centre. 46,8% obtained information from the internet (obviously, here multiple answers were possible).

We presented the apprentices with a list of different apps that can be used for workplace-based learning. Some of them, like WhatsApp are popular consumer applications. Others, like the Bosch app, Distance meter pro or Decibels ultra, are designed for specific work situations in the building industry (measuring noise etc.), and some, like BG Bausteine provide information on health and safety. Apart from WhatsApp, which is almost everyone knew, these apps were not commonly known of by the apprentices (see Figure 10).

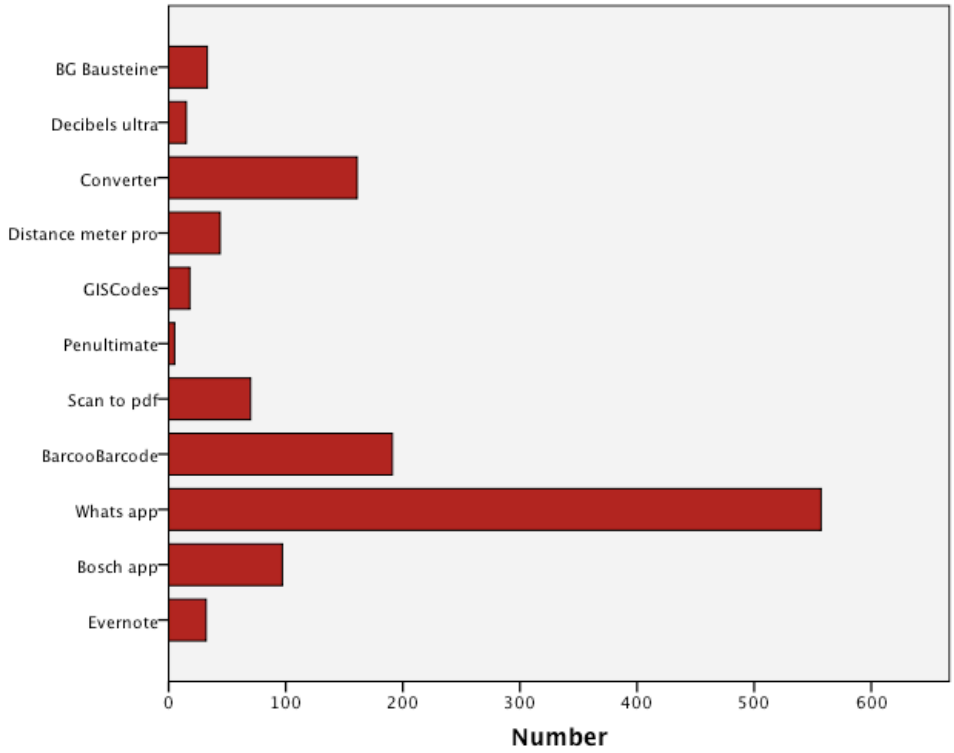

Fig. 10: Knowledge of existing apps related to the building trades

Those apprentices that know about the apps, make little use of them (see Figures 11-21). The slightly more frequent use of Decibels Ultra (for measuring noise) as well as of BG Bausteine and Penultimate (a handwriting app) is not significant due to the small number using them. That WhatsApp is more frequently used may be because apprentices make short videos of their work and learning tasks at the training centre.

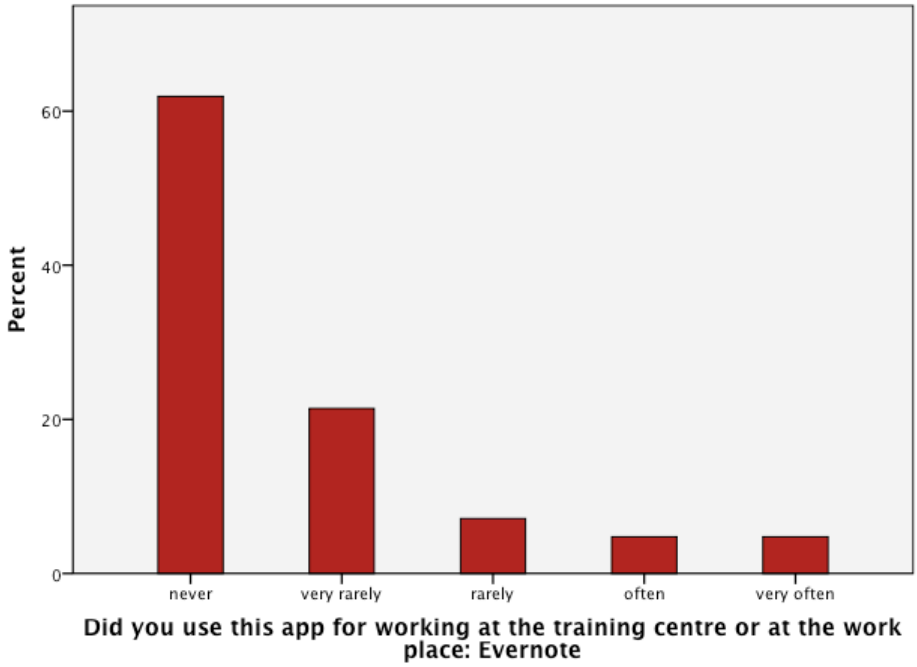

Fig. 11: Use of apps at work place or training centre: Evernote (n=42)

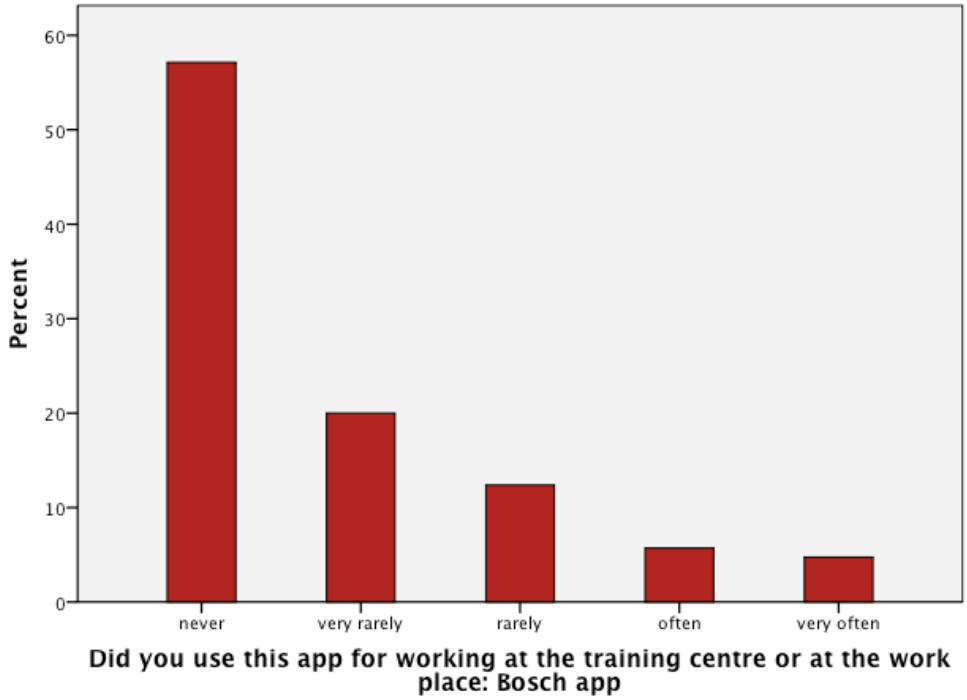

Fig. 12: Use of apps at work place or training centre: Bosch App (n=105)

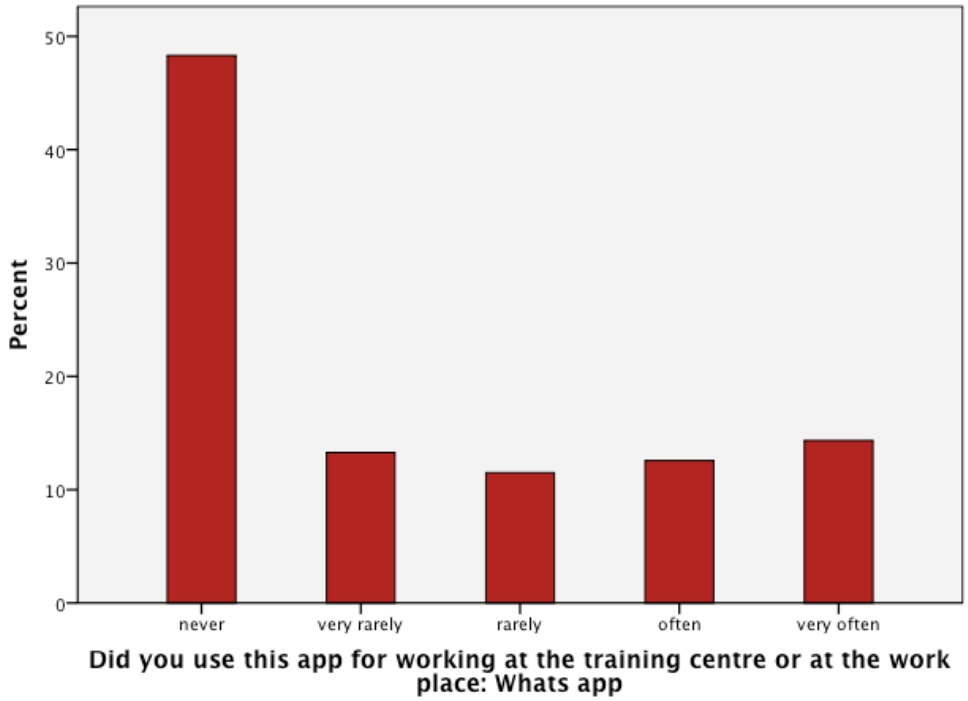

Fig. 13: Use of apps at work place or training centre: WhatsApp (n=565)

Fig. 14: Use of apps at work place or training centre: Barcoobarcode (n=201)

Fig. 15: Use of apps at work place or training centre: Scan to pdf (n=81)

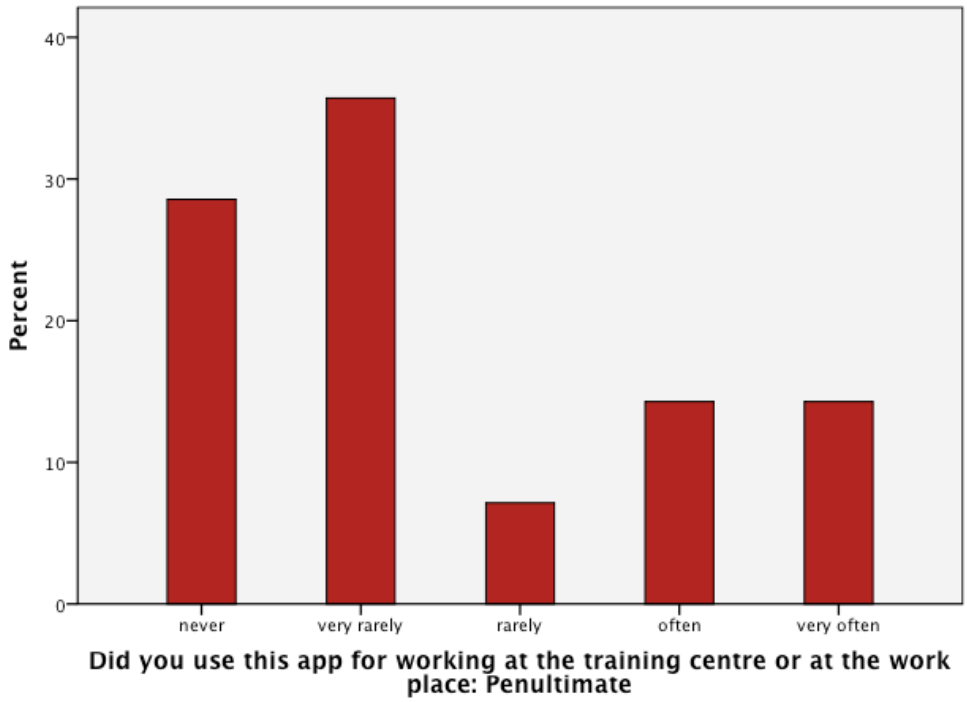

Fig. 16: Use of apps at work place or training centre: Penultimate (n=14)

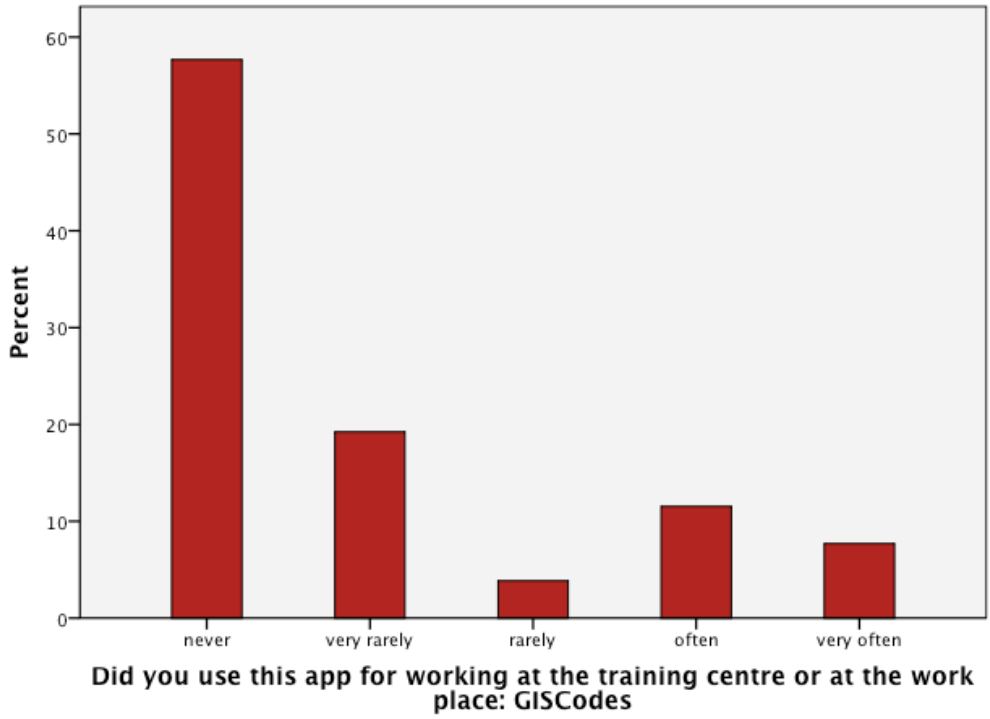

Fig. 17: Use of apps at work place or training centre: GISCodes (n=26)

Fig. 18: Use of apps at work place or training centre: Distance meter pro (n=51)

Fig. 19: Use of apps at work place or training centre: Converter (n=167)

Fig. 20: Use of apps at work place or training centre: Decibels Ultra (n=23)

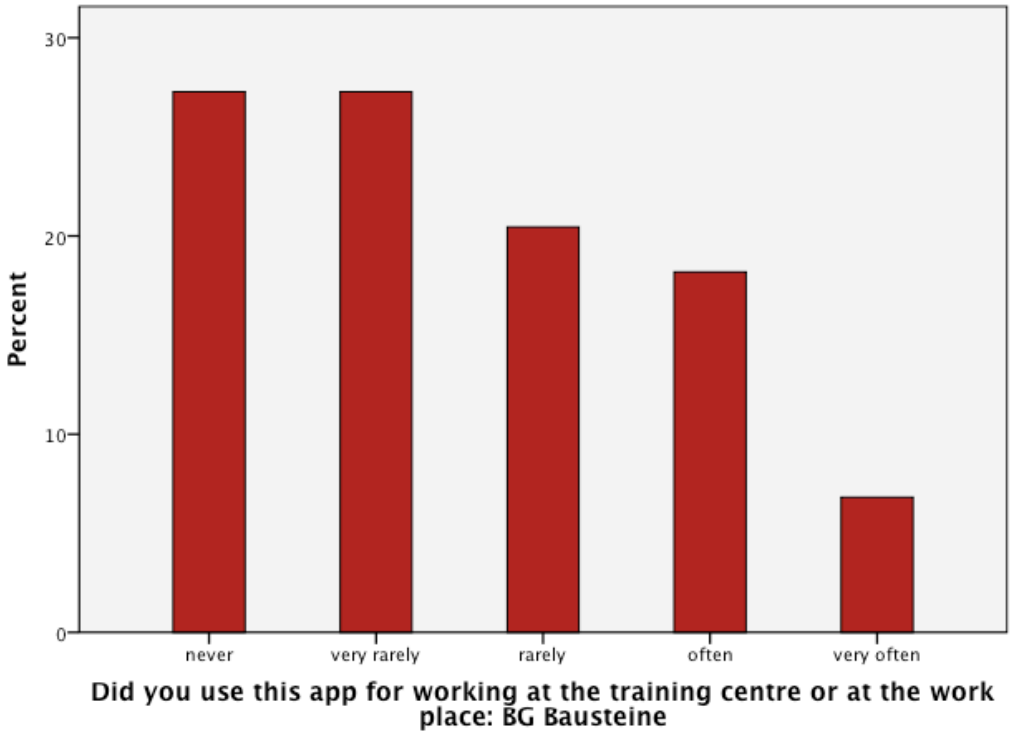

Fig. 21: Use of apps at work place or training centre: BG Bausteine (n=44)

In addition to these apps, the apprentices were asked about three more potential uses of their smartphone. The first was for accessing the training centre's Facebook group (Figure 22). Although everyone knew of the group, it was not used as a resource for collective learning.

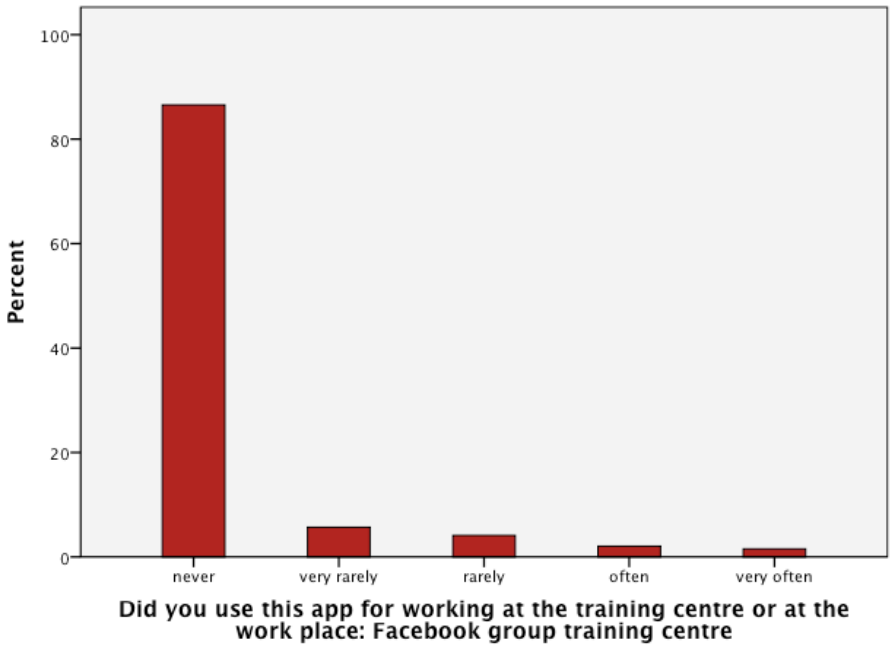

Fig. 22: Use of apps at work place or training centre: Training centre's facebook group (n=581)

Smartphones can also be used for taking photos and videos. 19,6% of the apprentices take photos 'often' or 'very often' (see Figure 23). It can be argued that scaling up the work-related use of digital devices in Learning Layers project may make use of this in for the collective development of learning materials. Videos are at present rarely made for work-related purposes with only 6% 'often' or 'very often' doing this (see Figure 24).

Fig. 23: Use of apps at work place or training centre: taking photos

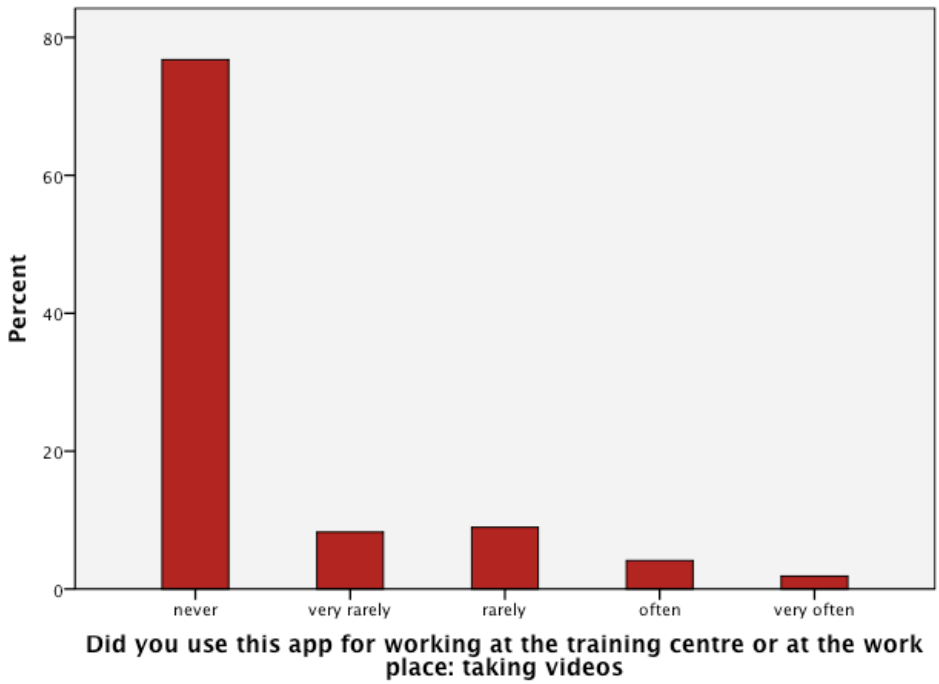

Fig. 24: Use of apps at work place or training centre: Taking videos

Though apprentices seldom use existing apps at the work place, they are positive about the potential of mobile devices. The clear majority believe that support offered by smartphones and tablets would be useful (Figure 25).

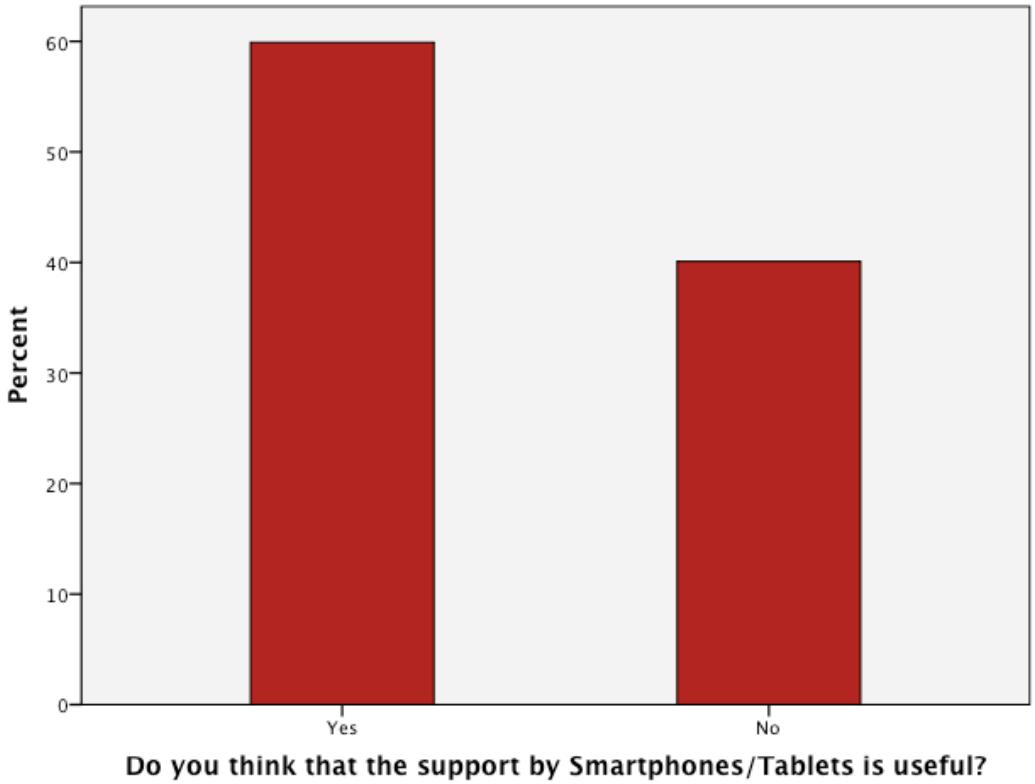

Fig. 25: Evaluation of smartphones'/tablets' support at the workplace

For non-users, there were diverse reasons given for not using mobile devices at the workplace (see Figure 26). 11,2% cited cost, 12,4% mentioned data protection issues and 16.2% that they had not seen any necessity to do so. However the largest group had simply had not considered the use of such devices.

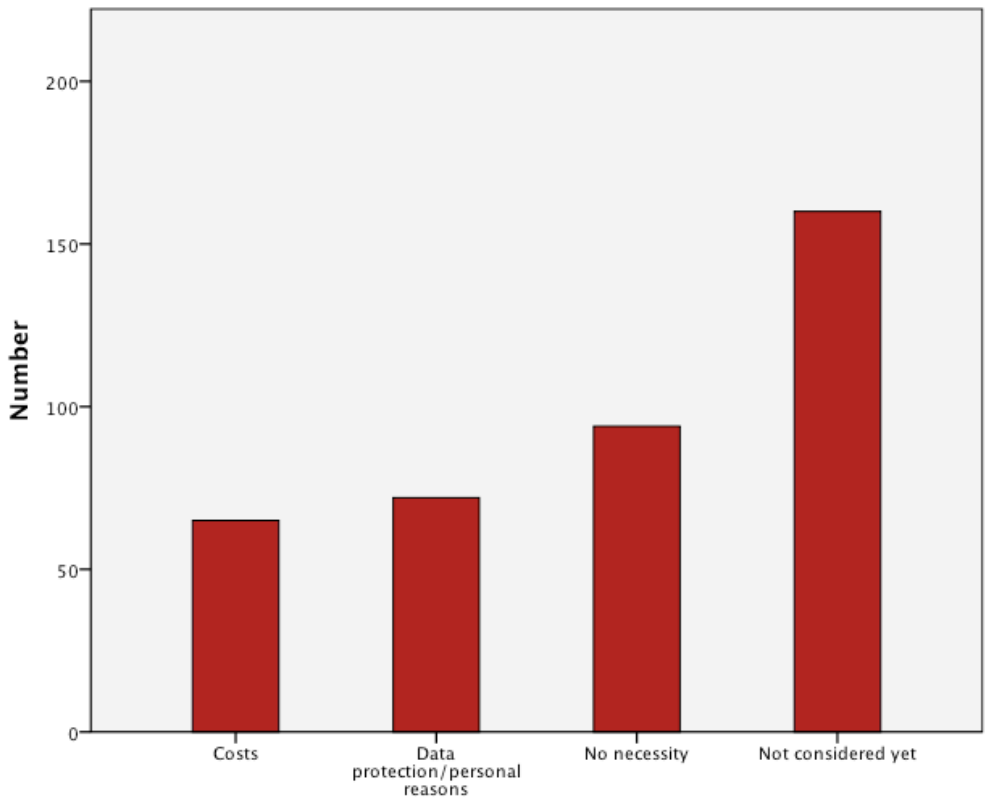

Fig. 26: Reasons for not using mobile devices at the workplace

Issues in scaling up the use of mobile devices for work place related learning

Apart from the issues outlined above, for instance the use of mobile devices and the use of existing apps, the survey asked for the ways in which apprentices use mobile devices for communication. This data can inform the design of potential future applications.

First, to inform the Learning Layers design work, we asked operating system the apprentices had on their phone (Figure 27). Less than 50% of the participants answered this question. Further research will address if this is simply due to the question being at the end of the questionnaire or if it points at the apprentices' digital literacy being less developed than one would think in the light of the results above. The majority of apprentices who answered use Android, with a substantial number using iOS. Other operating systems are rarely used.

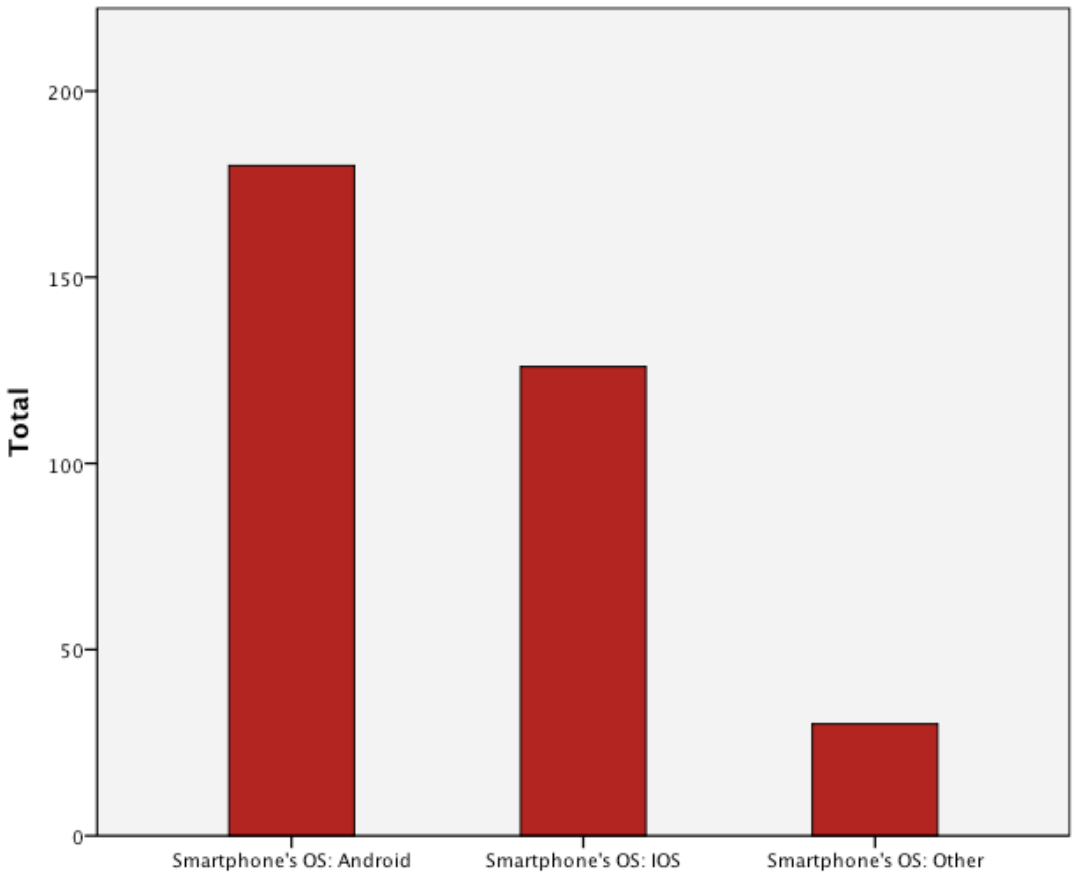

Fig. 27: Apprentices' smartphone OS (n=253).

We were able to identify a group of 'heavy users', communicating more via smartphone and having more digital devices than others. This group, though, did not show any significant differences in terms of work-related use of mobile devices.

In terms of looking for information on the internet, the vast majority of apprentices prefer text (see Figure 28). Audio was seldom used when seeking information.

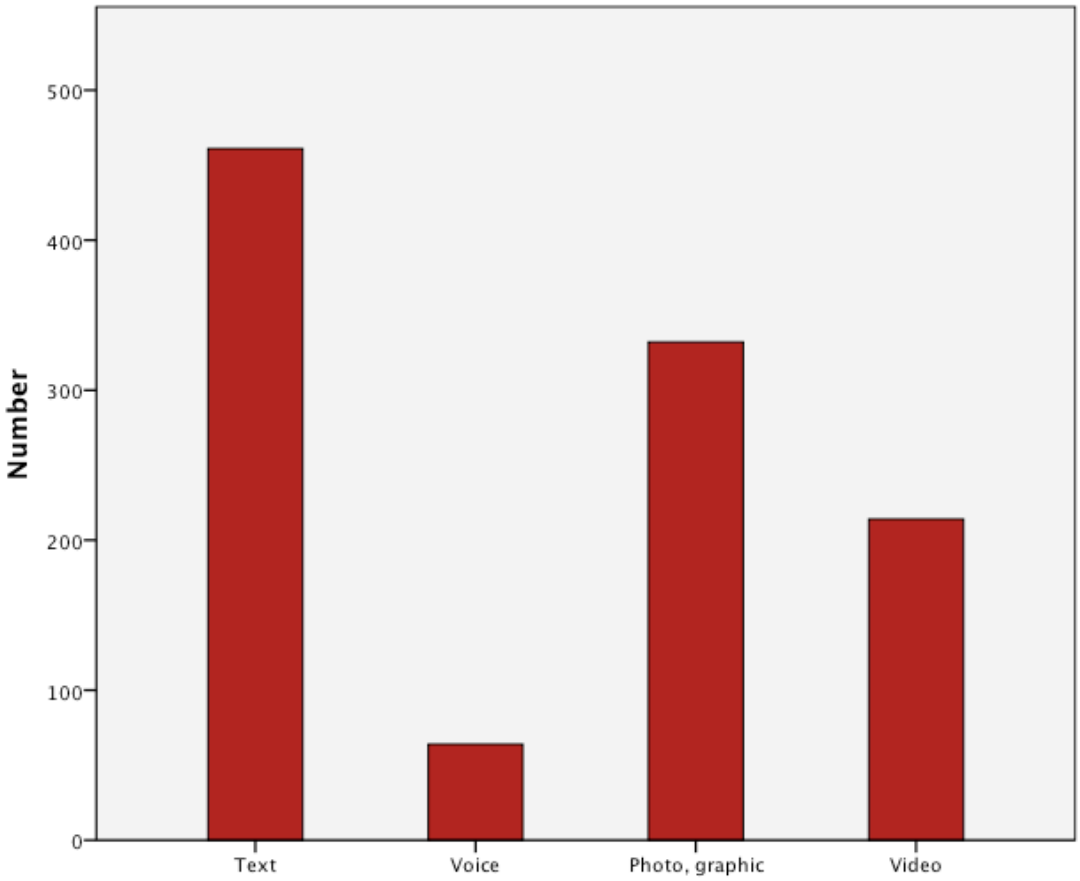

Fig. 28: Preferred format for information gathering from the internet

The main ways of communicating with mobile devices are text and voice, although already some 20% each claim that they use video and photos (see Figure 29).

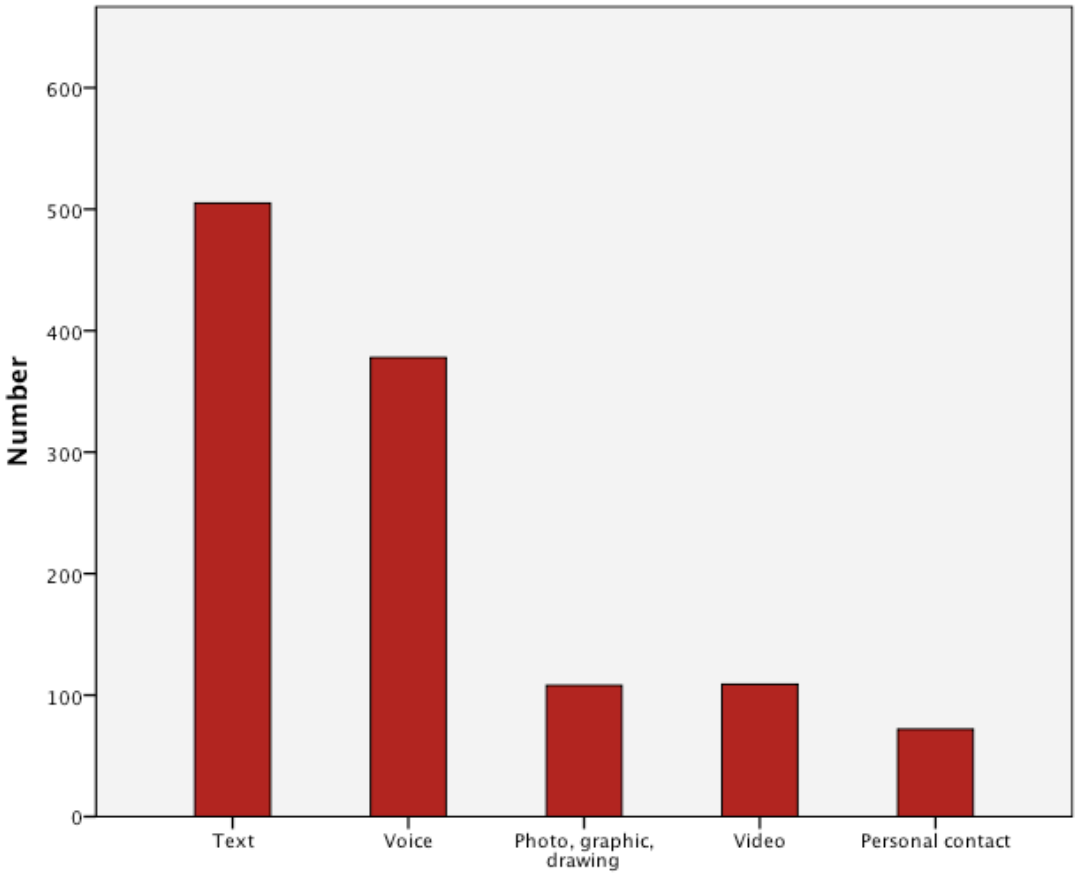

Fig. 29: Preferred format for communicating with mobile devices

Conclusion

The vast majority of German apprentices in the building trades possess devices and the skills to use them. These devices could be used as part of the Learning Layers project. As the cost of tablets and smartphones becomes cheaper, the digital divide does not seem to be a major issue for this group.

Smartphones are used for acquiring work-related knowledge, through personal communication or from the internet. These activities are to a large extent carried out in the apprentices' own time.

However, the work-related use of digital devices is still uncommon. 20% of the apprentices use their smartphones to make work related photos and such existing practices, could be used by the Learning Layers project for enabling the collective development and sharing of learning materials.

The majority of apprentices think that the support offered by mobile devices at the workplace would be useful. Learning Layers has the chance to scale up the use of

mobile devices by offering apps that are helpful and/or showing the possibilities of making innovative use of existing apps.

Knowledge about work-related apps is gained to a large extent from personal contacts with other apprentices, colleagues, and trainers. This should be taken into account in Learning Layers upscaling strategies.