Apps for learning German vocabulary - What does the digital landscape look like?

Susanne Krauß, Marburg

Apps for learning German vocabulary - What does the digital landscape look like?

Susanne Krauß, Marburg

Vocabulary learning is not only a highly individual task that often takes place outside of the classroom but also one that is continued over many years if not lifelong. In theory, apps – like their desktop predecessor software – can play an important role in supporting this learning process by various means. But do they live up to the pedagogical expectations and technological possibilities?

When apps are reviewed from an educational point of view, the focus usually lies on technological and general pedagogical aspects. However, when apps focus on a specific language area such as vocabulary, linguistic aspects ought to be included as well.

This article provides a critical overview of a selection of currently available apps – from dictionary and reference tools to vocabulary trainers and word games – and discusses which aspects of vocabulary acquisition they support and to what degree they take into account principles of memory and the mental lexicon. It comes to the conclusion that whilst there are some good examples for each of the technological, pedagogical or linguistic aspects, there is a shortage of apps that combine all three, which would make them more relevant to learning foreign vocabulary.

1. Introduction

Current smartphones can already serve as mini-computers (cf. Wang & Heffernan 2009: 173) and this development will doubtlessly continue. As a result, a range of apps has found its way into language learning raising very similar, if not the same, questions as emerged with the arrival of the computer (and then later the internet) as a language learning tool. Whilst mobile devices have certain additional technological affordances compared to computer assisted language learning, it is widely accepted that both these technologies can only function as an *addition* to the language learning process. Yet, it remains questionable whether existing apps have indeed fully exploited their technological potential to provide the best possible pedagogical support. Within certain limits, a lot of what is pedagogically sound is also technologically possible and the gap between technology and pedagogy has already narrowed, as can be seen from some of the examples below. But is this still the case when, in addition to this review, linguistic aspects necessary for vocabulary learning are included as well?

This paper focuses on how the learning of German vocabulary can be supported by apps, which are reviewed not only on the basis of technological and pedagogical

aspects, but on relevant linguistic ones as well. Therefore, a special focus lies in how principles of memory and the mental lexicon are taken into account.

After a discussion of mobile language learning in general and vocabulary learning in particular, a selection of freely available or free to try German vocabulary learning apps for adult learners will be reviewed. They consist of apps for iOS and Android and are geared (though not restricted) to English speaking learners of German as a means to support them in their self-study.

2. Mobile learning and apps

Mobile learning – or m-learning – is a broad term with no unanimous definition to date. This can be attributed in part to the rapidly changing nature of the field but also stems from the ambiguity of the word 'mobile' which can be used to define the mobility of the technology (i.e., portable devices), the learner (i.e., anytime/anyplace-learning) and/or the content (i.e., easy to access, consume and share) (cf. Hockly 2013: 80f.; Kukulska-Hulme 2009: 158f.).

Whilst "[t]here are no fixed paradigms yet of what a language learning app should be" (Sweeney & Moore 2012: 4), experiences with mobile learning in general as well as computer assisted language learning (CALL) and mobile assisted language learning (MALL) in particular can serve as a guideline of important aspects to be remembered and pitfalls to be avoided when discussing apps in language and vocabulary learning.

Generally, in studies on MALL a move from delivery or instruction to learner-generated and collaborative content has been described (cf. e.g. Kukulska-Hulme 2009: 161; Yang 2013: 20). This transition is (partly) mirrored in the approaches, sometimes understood as stages or generations, that have been identified in the development of CALL and computer assisted vocabulary learning (CAVL) (cf. Goodfellow 1995; Bax 2003; Ma 2009). They include, for instance, tutorial-oriented programs and tools. Whilst tutorial programs have often been regarded with criticism and been degraded as drill and practice in comparison to alluring promises of creativity and collaboration of tools, they are still popular in CALL (cf. Ma 2009: 180). Whatever the terminology, both types – and indeed even more 'traditional' forms of CALL – can contribute to learning depending on when, why and how they are used (cf. Ma 2009: 176; Mitschian 2010: 20; Stockwell 2013: 213).

2.1 Characteristics of apps

It is widely accepted that pedagogical reasoning should determine the choice of technology and not vice versa (cf. Ellis 1995; Hockly 2013; Kukulska-Hulme 2009; Rösler 2004, 2010). Yet, whilst it is true that "'[t]echnology alone does not create language learning any more than dropping a learner into the middle of a large library does'" (Healy cited in Stockwell 2013: 205), the available technology does influence individual learning choices (cf. Kukulska-Hulme 2009: 159) in the way that technology may allow for certain learning scenarios that are significantly more difficult to realize otherwise. The following diagram is a suggested compilation regarding features of apps that have been mentioned in research literature in regards to their technological functionality and pedagogical relevance (cf. Chinnery 2006; Godwin-Jones 2011; Hockly 2013; Kukulska-Hulme 2009, 2010; Stockwell 2013; Sweeney & Moore 2012; Wang & Heffernan 2009). Since the pedagogical relevance of the technology in regard to the respective learning goal and target group (cf. Rösler 2004: 10; Würffel 2010: 1227) is the determining factor in deciding whether or not to use apps for learning, many features are mutually dependent and therefore difficult to assign unambiguously to either one category.
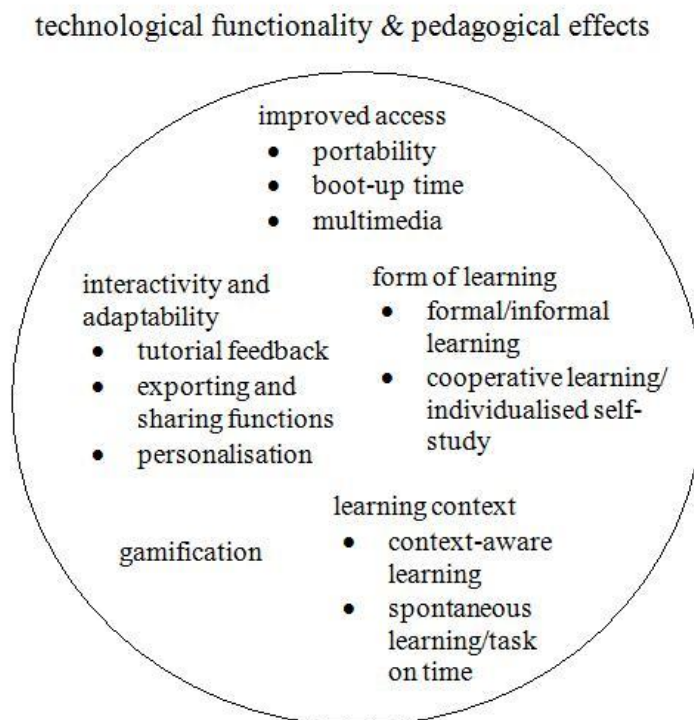
Figure 1: technical and pedagogical characteristics of mobile learning

One characteristic of mobile technology is its improved access compared to other digital devices such as, for instance, the desktop computer. Due to its portability, access can be anytime and anywhere and the reduced boot-up time allows for quicker access. The multimedia as well as the interactive quality are potentially the same for every digital or online device but deserve to be mentioned here nonetheless as an important characteristic with implications for learning such as audio and visual elements, tutorial feedback, the ability to export, adapt and create content, as well as social aspects of sharing progress or content and communicating with others[1]. This allows for various forms of learning (formal or informal learning in a cooperative or individualised self-study way). Gamification[2] is also not limited to mobile devices but "[t]he association between mobile learning and mobile gaming is […] strong and it appears to be getting stronger" (Kukulska-Hulme 2009: 159). Yet the possibilities of social interaction and gaming are still greatly under-exploited in language learning (cf. Sweeney & Moore 2012: 9). Another aspect is the learning context, where mobile technology by means of location-based support (e.g. GPS function, QR-codes and augmented reality) allows for spontaneous learning whenever the need arises. "It is these […] activities that fully realize the potential of MALL" (Hockly 2013: 82) as they would otherwise be impossible to carry out without a mobile device.

Apart from these potential affordances, there are certain issues that influence these factors which Stockwell (2013) has categorised into physical, psychological and pedagogical issues. Physical issues have to do with the technology and include, for instance, limitations regarding screen size, storage capacity, one-finger data entry, power and connection speed (cf. Chinnery 2006: 13; Stockwell 2013: 209; Wang &

---

[1] Regarding this social aspect of interaction it is important to note that this does not automatically have to promote communication, as there needs to be a reason for wanting to communicate. (Hess 2006: 305; Rösler 2010: 1209) Therefore, apps such as *HelloTalk* - a sort of tandem learning tool - and *HiNative* - which allows asking native speakers for language advice and clarification - have been excluded here even though, as a form of computer-mediated communication, they can contribute to vocabulary learning in an informal way.

[2] Sweeney & Moore (2012: 8) use the Macmillan Open Dictionary and define gamification "as 'the use of features and concepts (e.g. points, levels, leader boards) from games in non-game environments, such as websites and applications, in order to attract users to engage with the product.'" See also Laura Pihkala-Posti's article 'Spielerische Kollaboration und kommunikative Authentizität mit Minecraft' in this issue for a further definition of gamification.

Heffernan 2009: 484). Psychological issues include the skill, experience and preference[3] of users with the technology in general (cf. Stockwell 2013: 210) whereas pedagogical issues are related to knowing "how to use it effectively for learning purposes" (Stockwell 2013: 211). To that the issue of pedagogically sound implementation could be added, because the short-term nature and split attention require material that is designed for that purpose, not just re-packaged (cf. Kukulska-Hulme 2010: 9; Mitschian 2010: 152). If done well, the material "may present a welcome opportunity to capture, at least for a short time, the full attention of the learner" (Godwin-Jones 2011: 8).

The above compilation of characteristics combines the two aspects usually discussed in mobile language learning. When discussing mobile technology – or in this case, apps – for a specific language area, however, a further aspect needs to be taken into account: linguistic features. For what Ma (2009) terms "dedicated CAVL programs"[4] this is already the case, however, many of these stem from the 90s, are either not freely or no longer available and few are geared towards the German language (for an overview of CAVL programs see Fox 1984; Goodfellow 1995; Ma 2009). Whereas computer assisted vocabulary programs cannot be put on the same level as apps because of the above mentioned challenges and restrictions, the question remains whether and/or how recent available apps integrate these factors. The next section will therefore outline important aspects regarding vocabulary learning with a specific focus on linguistic features relevant for German.

3. Vocabulary learning

As well as decisions on which vocabulary to learn, foreign language vocabulary includes at least two other aspects: whether it should be learnt explicitly or implicitly and what aspects of vocabulary knowledge are actually needed. Nation (2001) has compiled a comprehensive list of aspects and the productive and receptive learning tasks that these involve (see also Ellis 1995). The following abbreviated version of

---

[3] Wang & Heffernan (2009: 484) and Kukulska-Hulme (2010: 8) suggest that the physical limitation of a small screen is in fact learner-dependent as some learners do not mind the small screens.

[4] "Dedicated CAVL programs are particularly geared to vocabulary learning in a more comprehensive and systematic way […]. That is, vocabulary learning is both contextualised and itemised; is it both meaning and form focused; it often combines tutor and tool; both the initial learning process and the subsequent rehearsal are taken care of. Ideally, the learning benefits may go beyond simply learning vocabulary items: cultural knowledge is promoted and vocabulary learning strategies are inculcated" (Ma 2009: 187).

Nation (2001: 27) lists necessary aspects to fully acquire a word[5] and illustrates the role of important aspects regarding the structure of the mental lexicon:

- Form (spoken, written, word parts)

- Meaning (form and meaning, concept and references, associations)

- Use (grammatical functions, collocations, constraints on use [register, frequency…])

On the basis of the assumption that the mental lexicon is most likely structured in form of a network, the more and the stronger the associations are between words, the better they can be committed to memory. Furthermore, structural principles of language (e.g. word formation or collocations) can also help with learning vocabulary (for a comprehensive discussion of the structure of the mental lexicon, see Aitchison 2012 and Cenoz et al. 2003)

Whilst eventually, vocabulary ought to be applied and encountered in meaning-based situations, an engagement with "words […] as objects of learning [instead of] tools of communication" (Laufer 2005: 231) can be very beneficial for the vocabulary learning process[6] – not only at beginner's level. In order to allow for an adequate size, breadth and depth of vocabulary knowledge, as well as the necessary repetitions in order to achieve active knowledge and speed of access, direct teaching of vocabulary can be quite effective as *one* teaching method (cf. Laufer 2005: 245).

Nation (2001: 99ff.) provides a range of activities for each goal of the vocabulary learning process (form, meaning, use – see above), many of which are theoretically transferable to digital devices using closed questions including appropriate feedback and/or digital reference tools (see the list in appendix A).

3.1 (Desired) features of vocabulary learning apps

If "[t]he main learning difficulties for vocabulary include fixing the new vocabulary in memory, mastering the meaning(s) of new items, using vocabulary items correctly, and incorporating idiomatic expressions into one's vocabulary" (Ma & Kelly 2006: 24), these aspects should feature and be supported in computer or mobile assisted vocabulary

---

5   This does not mean, however, that all these aspects always have to have been grasped. It depends on how language is used. I might understand and be able to use a spoken word form in conversation but not recognise it in its written form.

6   See Laufer (2005) for a comprehensive discussion of Focus on Form and Focus on Forms in second language vocabulary learning.

learning. Back in 1984, Fox outlined uncontextualised as well as contextualised activities[7] which include help and feedback options that are not only sophisticated for the time but are also often lacking in today's programs.

Furthermore, due to their technological opportunities, mobile features such as sharing and context-sensitive learning[8] could result in changing "the commonly used 'pull' style of learning, where learners need to seek information for themselves, to the 'push' style, where information is made available to learners without effort on their part." (Stockwell 2013: 212) This link between content and functionality will not automatically make the learner better at vocabulary, but digital technologies have the potential to overcome limitations of paper-based activities such as providing feedback and opportunities for productive recall (cf. Allum 2004: 488), and to overcome physical boundaries (e.g. classroom settings, access to materials) by providing immediate availability and adaptability of target language resources.

Figure 2 shows the technological and pedagogical characteristics as discussed in Figure 1 and further includes linguistic aspects relevant to vocabulary learning as discussed above. Therefore, the key linguistic features that are relevant in mobile applications for vocabulary learning are: form, meaning and use as well as the selection of words[9]. Furthermore, applications that are concerned with the process of memorization should focus on one or more of the three processes that may lead to a word being remembered (noticing, retrieval and generative use [Nation 2001: 63ff.]). These processes, as well as whether the application's focus is on explicit or implicit vocabulary learning and/or receptive or productive knowledge, are largely dependent on the technological and pedagogical characteristics of the application (and the learning goal of its user). Therefore, the aim of this diagram is to compile aspects that are relevant to the learning of vocabulary and to see to what extent they are implemented in the reviewed apps.

---

7   Uncontextualised activities are using opposites, collocations and analogies in exercises. Contextualised activities include fill in the gaps, betting on which word fits into a specific gap and reconstructing a text using scrambled sentences (Fox 1984)

8   Examples for context-sensitive learning are, for instance, RFID tags on objects (Beaudin et al. cited in Kukulska-Hulme 2009: 163) or QR-codes and augmented reality in context-sensitive language learning scenarios on campus (Liu et al. cited in Yang 2013: 22). See also Sweeney & Moore's (2012: 13f.) feature checklist for language learning apps.

9   The selection of words is on the one hand difficult to fully ascertain and on the other hand highly dependent on individual learning needs. Therefore this aspect has not been prioritized here.
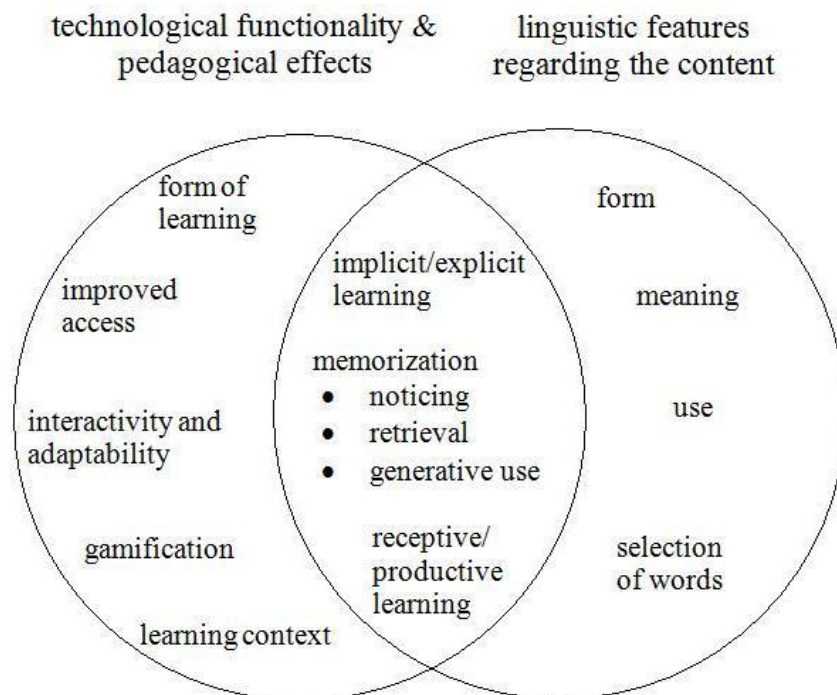
technological functionality &
pedagogical effects

linguistic features
regarding the content

form of
learning

form

improved
access

implicit/explicit
learning

meaning

memorization
- noticing
- retrieval
- generative use

use

interactivity and
adaptability

gamification

receptive/
productive
learning

selection
of words

learning context

Figure 2: technological & pedagogical characteristics of mobile learning plus linguistic aspects regarding vocabulary learning

4. Review of vocabulary learning apps

Generally, when language learning software is reviewed, the features are scrutinized primarily from a technological and pedagogical perspective (see, for instance, Sweeney & Moore's [2012: 13f.] app feature checklist for language learning apps). However, with a focus on one language area, in this case vocabulary, linguistic aspects should receive greater attention.

Since, in order to assess the positive impact, comprehensive studies on the actual learning outcome are necessary, the following review will focus on the language learning *potential* instead and to what degree this has been implemented[10]. Three groups of vocabulary learning apps will be looked at: reference apps, vocabulary trainers and word games. The focus is on the level of vocabulary processing (e.g. which aspect of vocabulary is represented and how this relates to aspects of the mental lexicon). This is combined with the aforementioned technological and pedagogical aspects (see figure 1 and 2 above).

---

[10]   An empirical evaluation falls outside the scope of this article as it relies on a clearly defined learner group and the monitoring of their user behaviour.

The review begins with a brief outline of any specific aspects that are relevant for vocabulary learning, before moving on to how this is implemented in the selected examples of apps (see appendix B for an overview). The focus of this selection does not imply that any of the four skills (reading, listening, writing, speaking) are to be disregarded as an important source for acquiring and/or consolidating vocabulary. These aspects have been excluded here merely for the benefit of a closer discussion of linguistic aspects in vocabulary learning[11].

4.1 Reference tools

Whilst dictionaries are not the only reference tools available as apps, they outnumber others such as thesauri or phraseological dictionaries etc. by far. Dictionaries can be used to decode (comprehend) or encode (produce) language as well as for learning it (e.g. "Enrich knowledge of partly known words, including etymology" [Nation 2001: 282]). For all these purposes, dictionaries should be as useful to learners as possible. This includes, for instance (cf. Nation 2001: 292, Sweeney 2011):

- audio & pronunciation support; lookup in fuzzy logic; sample sentences; definitions in relevant language; information on word frequency, collocations, synonyms, grammatical patterns etc.

- the ability to learn and/or review looked-up words through vocabulary trainers and games

- exporting content to word processors, email etc.; linking to 3rd party content such as encyclopaedias etc.

Most of the apps cover aspects such as bi-directional searches (the exception being *DE* which allows searches in German only). Many, though by far not all, allow for searches in fuzzy logic or provide relevant suggestions (*LEO*, *Bravolol*, *TheFreeDictionary*, *German Wörterbuch Dict Box*, *bab.la* and *WordReference*). The most striking difference, however, concerns the comprehensiveness of the content provided. Whilst synonyms and sometimes collocations and phrases are included in all reviewed apps, be it as part of various meanings or translations or in a separate list of synonyms, audio support is only included in the online dictionaries *LEO* and *dict.cc* as well as the offline dictionaries *Bravolol* and *German Wörterbuch Dict Box*. While the latter two ostensibly

---

[11] Authentic tools such as word processors, wiki software etc. are not included because they are not dedicated to the learning of vocabulary. Podcasts, which count towards mobile language learning and may thematically focus on vocabulary, are strictly no apps because they lack the interactivity of the user with the application and its content.

provide synthesized pronunciation for all words, they struggle, amongst others, with homographs such as 'modern' [modern or to go mouldy] or 'umfahren' [to drive around or to run over]. *LEO* and *dict.cc* do not provide pronunciation for all examples, but seem to use authentic speakers for their recordings.

Of the apps that provide a translation rather than a definition, *LEO* includes the most comprehensive basic grammatical information (e.g. word class, gender *and* plural for nouns, irregular verb forms *and* whether they are transitive or not) but lacks the indication of the auxiliary for compound tenses though this can be looked up by following the links to third party content such as DWDS or Canoo[12]. With the exception of *Bravolol* and *Woxikon* all apps provide information on usage (e.g. register, style, subject-field, regional labels etc.). Even sample sentences are included in various apps (e.g. *TheFreeDictionary*, *German Wörterbuch Dict Box*, *DE*, *Linguee* and *Bravolol*) though not for all words.

Regarding aspects of adaptability and personalisation, *German Wörterbuch Dict Box* and *Bravolol* offer the most options. In *German Wörterbuch Dict Box* the user can select whether or not the word is automatically pronounced; notes can be added to words; word lists and dictionaries can be managed[13] and content be exported to Dropbox or Email. In *Bravolol* the speed of the pronunciation can be adjusted and content be copied and pasted to other applications.

Surprisingly few apps offer a vocabulary trainer with which to learn or review looked-up words. *German Wörterbuch Dict Box* provides a slideshow which includes the pronunciation and the dictionary entry or a picture[14] of the word. The pictures are, however, not always clear. The verb 'gießen' [to pour/to water], for instance, was depicted by a picture of the city of Gießen. This might be helpful as a mnemonic device but can be potentially confusing. *LEO* allows for searched words to be added to a

---

[12] The Digitales Wörterbuch der deutschen Sprache (http://www.dwds.de/) is a free compilation of online mono-lingual German dictionary, etymological dictionary, thesaurus and corpora. Canoo (http://canoo.net/) is a free online German dictionary and grammar.

[13] *German Wörterbuch Dict Box* includes a remarkable range of dictionaries for an offline app. Amongst the eight internal dictionaries are, for instance, the Handwörterbuch Deutsch-Englisch/Englisch-Deutsch and Wahrig.digital Deutsches Wörterbuch as well as technical and economical dictionaries that can be individually (de)selected.

[14] Pictorial representations are usually not overly helpful except for concrete words at beginner's level or specialist vocabulary. They can, however, function as a mnemonic aid as long as they clearly depict the respective entry. Often, it makes more sense to allow users to insert their own pictures which they associate with the word.

vocabulary trainer which can be synched with the trainer in the web dictionary. The app trainer, however, only consists of a slideshow as well with no possibility to indicate whether or not a word was remembered. Compared to the rather comprehensive vocabulary trainer in the web dictionary, this is a shortcoming.

In general, reasons for using dictionary apps that require an internet connection (*LEO*, *Woxikon*, *TheFreeDictionary* and *WordReference*), in comparison to their web versions, are most likely because they have been adapted to the smaller screen size of a mobile phone. If the web version offers features such as pronunciation (TheFreeDictionary.com, Linguee.de, *DE*/Wiktionary.de [15]) or a vocabulary trainer (LEO.org, dict.cc) that are not included in the app, it casts doubt on the added value of the app over the web version. Therefore, the potential added value of free dictionary apps – which goes beyond a mere adaption to screen size or a list of possible translations for quick reassurance – seems to lie in providing a useful combination of sources of information and features that contribute to individual learning needs (e.g. look-up and retrieval) and a more personalised access, especially since a simultaneous use of different apps – whilst possible – can prove to be inconvenient.

In addition to dictionary apps, there are also authentic thesauri that could be used for reference purposes: e.g. *FragDasSchaf* and *Synonyme pur*. Both use the open source project OpenThesaurus[16] as a source. *FragDasSchaf* allows searching for idioms as well as single words but requires an internet connection and merely lists the synonyms without any further information. *Synonyme pur* can be searched offline and allows for each word to be copied to the clipboard and pasted into other applications. Both seem to provide a more comprehensive list of synonyms than most dictionary apps do. However, the user has to have a good understanding of the meaning and usage of the words as no further information is included in the apps themselves. *Synonyme pur* tries to overcome this by providing third party links to Duden online, Wikipedia or Google for definitions and further information (internet connection required).

---

[15] The app *DE* sources all its definitions from the open dictionary Wiktionary. On de.wiktionary.org pronunciation is available for selected words. In the app, it is still listed as such but is not accessible.

[16] https://www.openthesaurus.de/.

4.2 Vocabulary trainers

In contrast to reference tools, with which the learner mostly discovers new or unknown vocabulary, vocabulary trainers focus on consolidation. This is usually achieved through presenting and then testing the vocabulary and can be done in the form of flashcards or more course-based approaches[17].

Most vocabulary trainer apps follow the principle of learning with word cards (or flashcards) which "describe[s] the formation of associations between a foreign language word form (written or spoken) and its meaning (often in the form of a first language translation, although it could be a second language definition or a picture or a real object, for example)." (Nation 2001: 296)

Whereas audio is always and pictures are sometimes included in ready-made material (e.g. *Hueber Deutsch-Box*, *Goethe-Institut Vokabeltrainer*, *Duolingo* [18] and *Lern Deutsch*), none of the vocabulary trainers present a definition in German. This could, of course, be due to the language level as all of them are aimed at beginners. *Hueber Deutsch-Box*, *Goethe-Institut Vokabeltrainer* and *Lern Deutsch* have included sample sentences which provide some information on context but except for *Hueber's Deutsch-Box* none provide comprehensive basic grammatical information[19] or even synonyms. Regarding the common standards of dictionaries and the various aspects that are part of knowing a word, this suggests a gap between reference and trainer programs that ought to be overcome. Even if it may not be necessary or possible to remember all aspects, they should be accessible if needed. Memorization is usually limited to reading the word and comparing one's mental translation with the answer. Except for *Pons*, *Duolingo* and *Lern Deutsch* (as well as *StudyBlue* and *phase6*) none of the vocabulary trainers require the learner to type the word. One might suggest that adding a pool of fill in the gap exercises or cloze exercises should not pose a technological problem and would add to a more comprehensive depth of knowledge. So far, the exercises offered in the apps reviewed here mostly attend to the form-meaning connection (e.g. matching words and definitions or pictures) much less so to the written form (e.g. word dictation). *Duolingo*

---

[17] Apps that claim to facilitate learning a language rather than (parts of) one aspect of a language are of course to be treated with caution. For the purpose of this article, they are only mentioned if they include a clear focus on vocabulary.

[18] See also Hans Jürgen Heringer's article 'Sprachen lernen mit duolingo?' in this issue.

[19] *Lern Deutsch* provides the article and plural for nouns, but due to its design seems to be limited to concrete nouns that can be introduced in the virtual mini-world provided.

and *Lern Deutsch* – whilst not presenting vocabulary to be learnt but instead testing it on the first attempt – apply some more of these (e.g. putting words in order to make sentences, identifying words in a line of random letters) but many other activities of the kinds that Nation has suggested (see appendix A) would be technologically possible[20] and would better support associations and the principles of the mental lexicon.

Not every learner will need or want to do these activities, but from an aspect of individualisation should be able to do so. Another aspect transferring more control over the learning process to the learner is the possibility to compile an individual list of important words to focus on. This is only possible in *Aussichten*, where words can be added as favourites and in *AccelaStudy* where words or whole topics can be copied to a new study set to be studied separately. *StudyBlue* allows for a list to be created as an overview a) in the order of appearance, b) of the least studied, c) of the 'wrongs', d) of the hardest to remember or e) in random order. This list, however, can only be viewed in the app but not be exported to other applications. *Pons* and *Goethe-Institut Vokabeltrainer* also allow for entries to be edited as well as notes to be added so the learner can include information that is meaningful and helpful to him/her.

Generally, the error correction is very basic and in most cases consists of a green highlighting for correct answers and a red one for wrong answers as well as providing the correct answer. It also can be very strict disregarding, for instance, synonyms as alternative correct answers (*Pons*). *Duolingo* is more lenient in this respect and also points out certain errors like, for instance, having missed a word in a sentence or disregarded an Umlaut. Other than that there is no explanation that would inform about certain rules.

The aspect of gamification is only featured in *Duolingo* and *Lern Deutsch*, where the learner's progress is compared with that of others in a leaderboard. *Lern Deutsch* also tries to integrate a social aspect by encouraging learners to play mini-games with others online in return for points. Both apps follow a set learning path and therefore limit the possibilities to select content that is relevant to the learner's current learning needs. In *Lern Deutsch*, new vocabulary is only presented after having fully completed the

---

[20] These are, for instance, cutting up or building complex words, finding common meanings or choosing the right meaning from a selection, finding and matching substitutes, opposites or collocates and even identifying constraints on use by selecting from given answer choices.

current level, whereas *Duolingo* allows testing out phases in order to jump ahead but within the next level the material has to be completed in the given order as well.

In comparison to these ready-made materials, self-made flashcards have the potential to be specifically more clearly geared to individual needs, as long as the app allows for additional information to be included (e.g. sample sentences, notes, pictures and/or recordings). Except for *Quizlet*, all vocabulary trainer tools allow for pictures and audio to be included. *Quizlet* automatically provides a remarkably well-synthesized recording for every new word – which can prove very helpful for learners with fundamental pronunciation problems. Both *StudyBlue* and *phase6* offer comprehensive adjustability of the settings (e.g. setting the number of cards to be studied and the order of their appearance; (de)selecting exercise types; adjusting the number of review phases) and include more production-oriented exercises. They also provide basic formatting options (incl. colour) in order to adapt the design of cards, which can be helpful for pointing out word parts and/or genders. Whilst all vocabulary trainer tools naturally allow for new cards to be added, none of them allows for more than two input windows (front and back). It would be good if – similar to *Goethe-Institut Vokabeltrainer* and *Pons* – a further option for notes were available where personal associations, mnemonic hints and/or useful information could be added. *StudyBlue* and *Quizlet* further allow for created sets to be shared with others. Depending on the quality of the flashcards, this can potentially be helpful as creating flashcards can take up a considerable amount of time.

The main advantage digital flashcards have over their paper-based equivalents, however, is that they relieve the learner of the metacognitive task of implementing spaced repetition. Whereas before, the learner had to sort words into piles and keep track of how frequently each pile had to be reviewed, the software now automatically presents less well known words more often and therefore increases the exposure and the likelihood to remember them better in the future. Of course, this does not necessarily constitute a causal link as such and very often the memorization process is linked with other cognitive strategies (such as visualising a word, connecting it with a personal experience, etc.). In this respect, the mobile nature of a vocabulary trainer app is potentially better suited to take into account the immediate context of encountering an unknown word e.g. whilst reading a text from paper or coming across an unfamiliar, noteworthy item whilst walking through town or overhearing others etc. The learner can

then take a note of it, take a picture or record it and – in combination with a dictionary app – could also look up its meaning and design the word card 'on the fly'.

4.3 Word games

An exact definition of what a game is, is still widely under discussion but it usually describes a "goal-oriented, rule-based, playful (and usually voluntary) activity" (Reinhardt & Sykes 2014: 5; cf. Jentges 2007: 4ff.). The use of games in a language learning context can range from authentic computer games and simulations (e.g. multi-player online games where vocabulary learning takes place incidentally [cf. Nation 2001: 110]) to 'serious' games (e.g. simulations with an educational goal[21]) to playful exercises and puzzles which mostly deal with isolated words. Whilst vocabulary certainly plays a role in each of these, for the purpose of this article, only games with a clear focus on words have been selected. These can be roughly grouped into crossword puzzles, picture puzzle games, letter- and syllable-based games and synonym/antonym games.

Goodfellow (1993: 101) describes the relevance of word games for the language learning process as an incidental way of building up vocabulary as they can draw on the structural principles of the mental lexicon, but he also points out that they are essentially testing vocabulary rather than teaching it. This is evident in all of the reviewed games where the foremost goal is to either find the correct answer or to find as many words as possible. Nonetheless, they can potentially implicitly or explicitly demonstrate or consolidate form- and meaning-based associations.

Crosswords, for instance, can test and provide synonyms or paraphrases. Depending on the questions asked, collocations, hyponymy and hyperonymy[22] can play a role and can help to create or strengthen associations. *Schwedenrätsel Gratis* offers four levels of difficulty, though these seem to conform to the size of the grid rather than the actual difficulty. Help is available in form of marking any incorrect answers, revealing a selected letter or the whole word which can also lead to the discovery of new words. There is no competitive element as such except for the time it takes to finish the crossword. In *PixWords*, on the other hand, each correct answer is awarded coins which

---

[21]   Examples for German 'serious' games are, for instance, the Goethe-Institute's learning adventures 'A mysterious mission' as well as 'The mystery of the sky disc'.

[22]   Hyperonyms signify more general terms, such as 'furniture', for instance to which 'table', 'chair' and 'bookcase' would be hyponyms as they are all related to 'furniture'.

can be redeemed for either showing the first or a random letter as well as removing superfluous letters. *PixWords* uses pictures instead of text-based cues, and is also much shorter (usually up to 5 words per puzzle) and therefore potentially better suited to learners who are not yet advanced enough to play an authentic crossword. When the player has run out of coins, he/she can seek help from friends; a screenshot will then be sent either via Email or Facebook. This is a feature some other apps use as well (e.g. *Guess a word* and *Letris*), and especially since most apps do not allow a player to abort a game, seems to be a useful feature.

The aim of the letter-based games is to construct words using the letters provided or, in the case of *Galgenmännchen*, to reveal the missing word. In *Ruzzle* and *WortHetz* letters in a grid have to be combined to form words, each word is awarded with points. In *WortHetz*, the player can also set the size of the grid as well as the time limit allowed. *Letris* follows the same aim but allows for various game modes with varying degrees of difficulty to be selected, amongst others the classic Tetris® version where letter tiles fall down and have to be eliminated by forming words. Unfortunately, it does not allow for Umlauts to be transcribed and therefore the dictionary excludes a lot of possible German words. As in *Ruzzle* and *WortHetz*, *Letris* also lists all found words at the end of a game but it stands out from the other two in that it provides a definition (in German) from the inbuilt dictionary of the device. Such a third party link can easily make these games more relevant to language learners. In addition, it would be beneficial also to save these as favourites and/or export them to other applications, for instance a vocabulary trainer.

Except for *Wörtermeister*, all games can be played in offline mode. *Ruzzle* and *Galgenmännchen* also allow for the game to be played by two players on the same device – either one after another or in a mirror-inverted 'split screen' mode. *Galgenmännchen* also categorizes the missing words according to a topic and allows for a list of all of them to be viewed (though not exported). An impressive feature is the possibility to edit these words and to create new categories and words. This avoids the problem of some rather random entries (such as, for instance, 'Cochem' in the category of 'German Cities') and allows the game to be tailored to individual needs.

Wörtermeister is a compilation of four different word games which have to be played in the given order. It starts with unscrambling syllables, filling gaps with letters to reconstruct a word, unscrambling letters to form a word and searching for words in a

grid. It includes either topic-related hints or the respective word class for each word and thus helps to activate previous knowledge to increase the speed of access. The categories and search terms are geared to native speakers, however, and therefore can prove rather challenging for language learners (and natives alike). *WordHype* uses syllables instead of letters to form as many words as possible which can potentially help with recognizing and using word parts (e.g. prefixes, suffixes – kommen, herkommen, bekommen, Einkommen).

In the picture puzzle games, words have to be guessed using the pictures provided. Both *Guess a word* and *2 Bilder 1 Wort* provide a selection of letters to be used. In *Guess a word*, four pictures are available that all have the target word in common. They can be revealed one by one for a certain number of points. The fewer cues needed the more points are awarded for the correct answer. Hints are available in return for points in the form of removing superfluous letters or guessing a letter. In *2 Bilder 1 Wort* the two pictures depict a compound noun. Only the necessary letters for the noun are provided, which makes this slightly easier. In addition, jokers can be used to reveal a random letter. The pictures can help to understand the individual word parts of the noun and can help to remember them (e.g. picture of tooth + hairbrush = toothbrush). It would, however, be helpful if a picture for the compound noun were provided as well.

There seem to be many fewer apps dealing with synonyms for German than there are for English, for instance. In *Synonyms* a synonym for the given word needs to be found using a selection of letters. In return for coins, help is available in the form of either providing a random letter, the solution or deleting superfluous letters. The words are rather difficult from a language learning perspective and despite the fact that additional coins can be bought online in order to use more hints, more help should be made available in order to prevent getting stuck at a specific word. This could be done, for instance, by either providing further definitions for the synonym and/or by providing answer options to choose from. In order to make it more useful to language learning, it should allow for terms to be skipped as well as to be added to favourites in order to be studied later.

The app that most refers to the setup of the mental lexicon seems to be *WortkettenReaktion* which draws on analogies and (semantic) associations between words. Each game consists of seven words of which the first and the last are provided. From top to bottom the aim is to find the next word which could be a synonym,

antonym, compound, collocation or idiom related to the one before. The first letter is always provided and with each error the next letter is shown (at a loss of points). After three attempts the word counts as not solved and the game moves on to the next in line. From a learning point of view, the associations should be explained at the end and definitions or translations provided. As countless associations are possible for each word, it would also help to provide the word class of the next item and/or to provide the answers and have them sorted in the correct order.

Generally, the apps in this section use points and/or time limits to add a game element to tasks that are essentially vocabulary exercises. Nonetheless, the practice this provides can help with consolidating or forming associations between words and can potentially increase the speed of access in retrieving vocabulary. From a language learning perspective, however, the help and hints provided ought to be improved. For instance, instead of revealing a random letter in a target word it should be either the first(s) or the last(s) according to what Aitchison termed the 'bathtub effect'[23]. Also allowing for individualisation in form of adding words to favourites and providing definitions by means of inbuilt or linked to dictionaries would increase the potential educational use of these word games.

5. Summary

Bearing in mind that mobile language learning is in and of itself a sub-category of computer-assisted language learning, it would be foolish to assume that a change in device would solve the problems identified with CALL/CAVL over the past decades. Essentially, it is about striking a balance between what is necessary for learning vocabulary and what each learner's needs are at the moment. Therefore, the above mentioned apps are to be understood as potential *additional* resources. Due to certain limitations such as the restrictions of elaborate automated feedback, vocabulary programs or apps naturally can only occupy a sub-section in vocabulary acquisition and therefore the overall language learning process as well. However, in this sub-section they can fulfil important aspects regarding the discovery and the memorization of words and, to some extent, phrases.

---

[23] The 'bathtub effect' describes that the beginning and the end of words are more easily remembered than the middle. Aitchison illustrates this with a picture of a person lying in a bathtub with head and feet sticking out (Aitchison 2012: 158ff.)

Mirroring cognitive processes that are central to vocabulary learning (i.e. modelling semantic links between L1 and L2 and/or between target items) requires "a considerable effort in preparing materials, which means that they cannot, practically, adapt to the individual learner's preferences in any significant sense." (Goodfellow 1995: 214) Therefore, the aim cannot be to find a one fits all solution but to train learners to identify appropriate material. It remains to be seen whether data-driven learning can bring about change but until then vocabulary learning apps would benefit from more linguistic and pedagogic comprehensiveness, for instance, by including features such as dictionaries and the possibility to save and/or export entries. Technologically, this is possible, however, it requires time and means to conceptualize and implement qualitative material. Apart from restrictions regarding copyright and licensing issues, a greater support not only for further research but also the creation of such material would be welcome.

Bibliography

Aitchison, Jean (2012[4]) *Words in the Mind: An Introduction to the Mental Lexicon*. Chichester: Wiley-Blackwell.

Allum, Paul (2004) Evaluation of CALL: Initial vocabulary learning. *ReCALL 16*(2), 488-501.

Bax, Stephen (2003) CALL - past, present, and future. *System 31*(1), 13-28.

Cenoz, Jasone; Hufeisen, Britta; Jessner, Ulrike (2003) *The Multilingual Lexicon*. Dordrecht: Kluwer Academic Publishers.

Chinnery, George M. (2006) Going to the MALL: Mobile Assisted Language Learning. *Language Learning & Technology 10* (1), 9-16.

Ellis, Nick C. (1995) The Psychology of Foreign Language Vocabulary Acquisition: Implications for CALL. *Computer Assisted Language Learning 8* (2-3), 103-128.

Fox, Jeremy (1984) Computer-assisted vocabulary learning. *ELT Journal 38*(1), 27-33.

Godwin-Jones, Robert (2011) Mobile apps for language learning. *Language Learning & Technology 15* (2), 2-11.

Goodfellow, Robin (1993) CALL for Vocabulary: Requirements, Theory & Design. *Computer Assisted Language Learning 6* (2), 99-122.

Goodfellow, Robin (1995) A Review of the Types of CALL Programs for Vocabulary Instruction. *Computer Assisted Language Learning 8* (2-3), 205-226.

Hess, Hans Werner (2006) "E-Lernen" - Fakten und Fiktionen. *InfoDaF 33*(4), 305-328.

Hockly, Nicky (2013) Mobile learning. *ELT Journal 67* (1), 80-84.

Jentges, Sabine (2007) *Effektivität von Sprachlernspielen: Zur Theorie und Praxis des Spieleinsatzes im Deutsch-als-Fremdsprache-Unterricht*. Hohengehren: Schneider.

Joseph, Samuel R. H.; Uther, Maria (2009) Mobile devices for language learning: Multimedia approaches. *Research and Practice in Technology Enhanced Learning 4*(1), 7-32.

Kukulska-Hulme, Agnes (2009) Will mobile learning change language learning? *ReCALL 21* (2), 157-165.

Kukulska-Hulme, Agnes (2010). Learning Cultures on the Move: Where are we heading? *Education Technology & Society 13* (4), 4-14.

Laufer, Batia (2005) Focus on Form in Second Language Vocabulary Learning. In: Susan H. Foster-Cohen; Maria de Pilar Garcia Mayo,; Jasone Cenoz(Eds.) *EUROSLA Yearbook* 5. Amsterdam: John Benjamins. 223-250

Ma, Qing; Kelly, Peter (2006) Computer Assisted Vocabulary Learning: Design and evaluation. *Computer Assisted Language Learning 19* (1), 15-45.

Ma, Qing (2009) *Second Language Vocabulary Acquisition*. Bern: Peter Lang.

Mitschian, Haymo (2010) *M-Learning - Die neue Welle? Mobiles Lernen für Deutsch als Fremdsprache*. Kassel: Kassel University Press.

Nation, I. S. Paul (2001) *Learning Vocabulary in Another Language*. Cambridge: Cambridge UP.

Reinhardt, Jonathan; Sykes, Julie (2014) Special Issue Commentary: Digital Game and Play Activity in L2 Teaching and Learning. *Language Learning & Technology 18*(2), 2-8.

Rösler, Dietmar (2004) *E-Learning Fremdsprachen: eine kritische Einführung*. Tübingen: Stauffenburg Verlag.

Rösler, Dietmar (2010) Die Funktion von Medien im Deutsch als Fremd- und Deutsch als Zweitsprache-Unterricht. In: Hans-Jürgen Krumm; Christian Fandrych; Britta Hufeisen; Claudia Riemer (Eds.). *Deutsch als Fremd- und Zweitsprache. Ein internationales Handbuch*. Berlin/New York: Mouton de Gruyter, 1199-1214.

Stockwell, Glenn (2013) Mobile-assisted language learning. In: Michael Thomas; Hayo Reinders; Mark Warschauer (Eds.) *Contemporary Computer-assisted Language Learning*. London: Bloomsbury, 201-216.

Sweeney, Paul (2011) ELT dictionary apps - looking up! *CALL Review* Spring, 10-15.

Sweeney, Paul; Moore, Caroline (2012) Mobile Apps for Learning Vocabulary: Categories, Evaluation and Design Criteria for Teachers and Developers. *International Journal of Computer-Assisted Language Learning and Teaching 2* (4), 1-16.

Wang, Shudong; Heffernan, Neil (2009) Mobile 2.0 and Mobile Language Learning. In: Michael Thomas (Ed.) *Handbook of Research on Web 2.0 and Second Language Learning*. Hershey, PA: Information Science Reference, 472-490.

Würffel, Nicola (2010) DaF-/DaZ-Lernen in elektronischen Umgebungen. In: Hans-Jürgen Krumm; Christian Fandrych; Britta Hufeisen; Claudia Riemer (Eds.). *Deutsch als Fremd- und Zweitsprache. Ein internationales Handbuch*. Berlin/New York: Mouton de Gruyter, 1227-1242.

Yang, Jaeseok (2013) Mobile Assisted Language Learning: Review of the Recent Applications of Emerging Mobile Technologies. *English Language Teaching 6* (7), 19-25.

Biographical information

Susanne Krauß (susanne.krauss@staff.uni-marburg.de) studied American Studies, Media Arts and German as a Foreign Language (M.A.) at the Philipps-University in Marburg, Germany. She has taught German as a Foreign language in the USA, Great Britain and Germany and currently works in the *Alphamar 2*-project on vocational-based literacy in German as a Foreign and Second language for migrants, funded by the Federal Ministry for Research and Development (BMBF).

Her research interests lie in applied linguistics, especially concerning German foreign language education and the use of technology in language learning and teaching.

Tags: mobile learning, apps, vocabulary learning, CALL, CAVL, German as a foreign language

Apps including links to the App Store

App name	App title	Developer
2 Bilder 1 Wort	Wortspiele (leicht)	famobi
AccelaStudy	Learn German Free AccelaStudy	Renkara Media Group, Inc.
Aussichten	Deutsch Englisch Vokabeltrainer Aussichten	Mobilinga GmbH
bab.la	Deutsch-Englisch Wörterbuch	bab.la GmbH
Bravolol	Phrasebook: Learn French, Spanish, English, German…	Bravolol Limited
DE	Deutsch Wörterbuch	Offline Wiktionary LLC
dict.cc	dict.cc Dictionary	dict.cc GmbH
Duolingo	Duolingo Learn Languages for Free	Duolingo
FragDasSchaf	FragDasSchaf find words in german thesaurus	werk55 seamless data solutions, Mark Haack
Galgenmännchen	Galgenmännchen (deutsch)	Dominik Walleser
German Wörterbuch Dict Box	German English Dictionary Box + Translator	Xung Le
Goethe- Institut Vokabeltrainer	German Vocabulary Trainer	Goethe-Institut e.V.
Guess a word	Wörter raten!	gamecentercompany
Hueber Deutsch-Box	Deutsch-Box	Andreas Garzotto GmbH
LEO	LEO dictionary	LEO GmbH
Lern Deutsch	Learn German The City of Words	Goethe- Institut e.V.
Letris	Letris 4	Ivanovich Games
Linguee	Dictionary Linguee	Linguee GmbH
phase6	phase6	phase-6 AG
PixWords	PixWords Crosswords with Pictures	Dekovir, Inc.
Pons vocabulary trainer	Pons Vocabulary Trainer	Pons GmbH
Quizlet	Quizlet Flashcards & Study Tools	Quizlett LLC
Ruzzle	Ruzzle	MAG Interactive
Schwedenrätsel	Kreuzworträtsel: Schwedenrätsel Gratis	the binary family
StudyBlue	StudyBlue	StudyBlue, Inc.
Synonyme pur	Synonyme pur	Oliver Kuehne
Synonyms	The SynonymScrambler	Apprope
TheFreeDictionary	Dictionary.	Farlex, Inc.
WordHype	WordHype	HyperHelix
WordReference	WordReference Dictionary	WordReference.com, LLC
Wörtermeister	Wörtermeister	FGJ Software
WortHetz	WortHetz	Andreas Katzian
WortKettenReaktion	WortKettenReaktion Lite	NeaLogic
Woxikon	Woxikon Dictionary	Woxikon

Appendix A

Nation's (2001: 99) list of activities for learning vocabulary. Those transferable to digital devices using closed questions including appropriate feedback and/or digital reference tools have been marked with an asterisk.

Goal		Activities
Form	spoken form	*Pronounce the words Read aloud
	written form	*Word and sentence dictation Filling spelling rules
	word parts	*Filling word part tables Cutting up complex words *Building complex words *Choosing a correct form
Meaning	form-meaning connections	*Matching words and definitions Discussing the meanings of phrases *Drawing and labelling pictures Peer teaching *Riddles
	concept and reference	*Finding common meanings *Choosing the right meaning Semantic feature analysis *Answering questions Word detectives
	association	*Finding substitutes Explaining connections Making word maps[24] *Classifying words *Finding opposites Suggesting causes or effects Suggesting associations Finding examples
Use	grammar	*Matching sentence halves *Putting words in order to make sentences
	collocates	*Matching collocates *Finding collocates
	constraints on use	*Identifying constraints Classifying constraints

Table 1: Activities for learning vocabulary (Nation 2001: 99) and their suitability for digital environments

---

[24] Although making word maps is possible with mind-mapping tools, it requires feedback on and explanation of the associations and connections and is therefore better suited to a classroom or other cooperative learning context.

Appendix B

	iOS and Android	offline use possible	adjustable settings	add notes	edit/add new word	export content	links to 3rd party content	show history/favourites	add pictures	add audio	productive testing	audio support	info on use (context, register etc.)	sample sentences	synonyms and/or collocations	basic gramm. info	definition and translation	fuzzy logic search and/or suggestions	bi-directional	trainer function	hints	games/playful exercises	sharing
dictionaries																							
bab.la	iOS	x							x					x		x		transl	x	x			
Bravolol	x	x	x			(x)[i]		x					x		(x)	x	transl	x	x	(x)[ii]			
DE	iOS	x							x					x	x	x	x	def					
dict.cc	x	x											x[vi]	x		x		transl		x			
German Wörterbuch Dict Box	iOS	x	x	x		x			x				x	x	x	x	x	x	x	x	(x)[iii]		
LEO	x	ON					x						x	x		x	x	transl	x	x	x[iv]		
Linguee	x	x				x		x					(x)[v]	x[vi]	x		transl		x				
The Free Dictionary	x	ON					x						x	x	(x)	x	x	x	x				
WordReference	x	ON	(x)						x					x		x	x	x	x	x			
Woxikon	x	ON	(x)						x							x		transl		x			
thesauri																							
FragDasSchaf	iOS	ON																	x				
Synonyme pur	iOS	x				x	x[vi]							x					x				
vocabulary trainers: ready-made																							
AccelaStudy	iOS	x	x										x					transl		x			
Aussichten	x	x							x				x					transl		x		x	
Duolingo	x	ON	x									x	x					transl		x		x	x[vii]
Goethe-Institut Vokabeltrainer	x	x		x	x[vi]				x				x		x			transl		x			
Hueber Deutsch-Box	iOS	x											x		x		x	transl		x			
Lern Deutsch -	x	ON										x	x		x			n/a[viii]				x	x[vii]

	iOS and Android	offline use possible	adjustable settings	add notes	edit/add new word	export content	links to 3rd party content	show history / favourites	add pictures	add audio	productive testing	audio support	info on use (context, register etc.)	sample sentences	synonyms and/or collocations	basic gramm.info	definition and translation	fuzzy logic search and/or suggestions	bi-directional	trainer function	hints	games/playful exercises	sharing
Stadt der Wörter																	x						
Pons vocabulary trainer	x	x	x	x	x						x	x		x^ix			transl		x			x	
vocabulary trainers: self-made																							
phase6	x	x	x		x		x	x^vi	x^vi		x										x		
Quizlet	x	ON			x		x					x^x									x		x
StudyBlue	x	x	x		x^vi		x^vi	x^vi			x										x	x^vi	x^xi
crossword puzzles																							
PixWords	x	x									x										x	x	
Schwedenrätsel Gratis	iOS	x	x								x				x						x	x	
letter-based games																							
Galgenmännchen	x	x			x						x											x	
Letris	x	x	x				x				x										x	x	x^xiii
Ruzzle	x	x^xii									x											x	x^xiii
Wörtermeister	x	ON									x											x	
WortHetz	iOS	x	x								x											x	
syllable-based games																							
WordHype Lite	x	x									x											x	
synonyms/antonyms games																							
Synonyms	x	x									x				x						x	x	
WortkettenReaktion	x	x									x				x						x	x	
picture puzzle games																							
2 Bilder 1 Wort	x	x									x										x^xiv	x	
Guess a word	x	x									x										x	x	

---

[i]   only through copying to clipboard and then pasting to another application

[ii]   only available in the phrasebook which accompanies the dictionary. There, words and phrases can be recorded, listened to and compared with the provided audio recording.

[iii]   trainer function is limited to a slideshow, no further interaction is possible

[iv]   also available in offline mode

[v]   information on usage is only available through the translated passages in online mode

[vi]   in online mode only

[vii]   of progress with others

[viii] words are presented through pictures, there is no translation available

[ix]   can be added to existing or new entries

[x]   Quizlet provides synthesized pronunciation for every word added.

[xi]   of content with others

[xii]   games against online opponents possible in online mode as well

[xiii] invite friends via facebook

[xiv]   only in form of asking a friend for help