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English and German thesauri for language production: Examining the user-friendliness of two electronic thesauri

Abstract: This article explores the use and challenges of online thesauri, focusing on the English and German languages. Drawing from the historical significance of Peter Mark Roget's *Thesaurus* and its impact on the development of similar resources and considering the shift towards digital mediums in language reference tools, especially for educational purposes, we aim to fill the gap in user studies concerning online thesauri. Our research delves into user experiences, identifying common issues encountered, and how they might be addressed. Specifically, we will present the findings of an analysis of two prominent online thesauri: *Thesaurus.com* for English and *Openthesaurus.de* for German. After providing some theoretical background on the characteristics of synonym dictionaries and thesauri and an outline of dictionary-user studies in foreign language learning, a detailed methodology outlining participant selection, materials used, and procedures will follow. Subsequently, we will present an overview of our findings and conclude with a discussion of implications and future directions.

Keywords: online thesauri, synonym dictionaries, user experience, EFL, GFL

It is the range and the diversity of its vocabulary which constitute one of the advantages of the *Thesaurus*, enabling you to choose the most accurate, the most apt or the most telling term for your purpose. (Lloyd 1982: vii)

Note: The two authors have written the paper jointly. In particular Carolina Flinz is responsible for §2.1, §2.2 and §4.2, and Laura Pinnavaia for §2, §3 and §4.1. Introduction (§1) and Discussion and future outlooks (§4) were written jointly.

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1 Introduction

A thesaurus is a reference work that “presents the vocabulary of a language, language variety or subject discipline by systematically tracing synonym networks between words within semantic domains” (Hartmann/James 2000: 142). In the history of English lexicography, Peter Mark Roget’s *Thesaurus of English Words and Phrases: Classified and Arranged so as to Facilitate the Expression and Ideas and Assist in Literary Composition* represents one of the earliest and most renowned examples. Since its first publication in 1852, it has been reissued over eight times with each successive edition becoming larger and larger, clearly underscoring how synonymy is at the heart of the acquisition and the use of vocabulary and not of the English language alone. Roget’s *Thesaurus* was not only central for the English language, but also for other European languages, including German that adopted its ontological system as a model (Storjohann 2012). The most important German correspondent is Dornseiff’s *Wortschatz nach Sachgruppen* (1934), which is now in its 9th edition (2020).

Nowadays, resources of this kind are present also on the internet, not only as products that have been issued by well-known publishing houses, but also as products of their own, or that have been integrated into online information systems (Klosa 2016). Some of the most notable examples for the English language are *Collins English Thesaurus* (2019), *Merriam-Webster’s Dictionary and Thesaurus* (2020), and *Oxford Thesaurus of English* (2009) that have all online versions next to paper ones, as well as *Free Thesaurus*, *Power Thesaurus*, and *Thesaurus.com* that are only available online. For the German language, in addition to the classic printed dictionaries of synonyms issued by the publishing houses Duden and Wahrig, worthy of note are *Openthesaurus.de* inserted also in *Digitales Wörterbuch der Deutschen Sprache* (DWDS), Dornseiff’s *Wortschatz nach Sachgruppen* added to *Wortschatzportal Leipzig*, and *Woxikon (Online Synonym-Wörterbuch)*.

Starting from the assumption that dictionaries are used mostly online now (cfr. Márkus/Fajt/Dringó-Horváth 2023: 180), especially for production purposes (among others Flinz/Ballestracci 2022; Abel 2024) and that in the Italian school and university systems the use of general dictionaries, dictionaries of synonyms and thesauri is encouraged in the foreign language classroom for writing purposes (Abel 2024), the aim of this work is to begin to carry out research on online thesauri, which is an area of lexicography that as yet has received little attention. User studies in the field of foreign language learning have in fact concentrated mostly on general print and electronic monolingual and bilingual dictionaries,¹ with translation tasks being the main focus. Specific studies on thesauri and on other types of tasks are still a desideratum, so this article is a first step in this direction. More precisely, a set of different online thesauri will be examined in an empirical manner in order to investigate how students consult them,

1 For the concept of dictionary type and the possible classification see Kühn 1989, Hausmann 1989, Wiegand et al. 2010.

to see what problems arise, and how these might be solved. This paper will present the results concerning two electronic thesauri, *Thesaurus.com* for the English language and *Openthesaurus.de* for the German one.

2 English and German thesauri and dictionary of synonym

The avoidance of repetition and the use of appropriate words in contexts is one of the pillars of textual cohesion, as the lexicologists Bellmann (1968) and Harras (2001) along with the lexicographers Wiegand (1976) and Viehweger (1982) have clearly pointed out. English and German language examination boards test linguistic proficiency by including reading, writing, listening, and speaking exercises that are heavily based on the ability of both native and non-native speakers to understand and use synonyms.

‘Synonymy’ is understood to be a “meaning relationship between units that can be mutually substituted regarding their main features” (Wiegand et al. 2020: 814). However, two expressions can only be substituted in a text if the reference does not change. Therefore, the majority of synonyms are really only partial synonyms that may have totally different connotations and frequencies of use (Wiegand et al. 2020: 814). Linguistic studies have shown how synonyms correspond to the different meanings that words can express, ranging from denotational, connotational, reflected, stylistic to collocational (Cruse 2000; Cuyckens/Taylor/Dirven 2009; EunHee 2022; Geeraerts 2010; Goddard/Wierzbicka 2014; L’Homme 2020; Maiernborn/Heusinger/Portner 2019; Murphy 2013). Moreover, because studies have also shown that “substitutability is also based on non-linguistic factors such as the speakers’ differences and individual fluctuations related to their experiences and on context of reference” (Basile 2023: 41), synonymy is not just an intricate linguistic phenomenon but a cognitive one too.

The complexity that seems to characterise synonymy may explain why next to the plethora of theoretical studies that have evolved around this topic, an unending current of heterogenous lexicographic works has also ensued in the last few decades. It is noteworthy, however, that such a large quantity of lexicographic tools is not accompanied by the same amount of studies of usage. Indeed, after having presented a short overview of the characteristics of synonym dictionaries from which the English and German online thesauri have evolved,² we will briefly focus on dictionary-user studies in the field of English and German Foreign Language Learning for Italians, highlighting the need for further research and, more precisely, on thesauri.

² In general language semasiological dictionaries synonyms and quasi-synonyms are part of the explanation of meaning and are given as an interpretation of the lemma. They will not be considered in this article.

2.1 English and German dictionary of synonyms and thesauri

While the concept of thesauri goes back to classical antiquity, the ‘thesaurus’ as we know it today came into common use only after the “unprecedented success of Peter Mark Roget’s *Thesaurus*” in 1852 (Hüllen 2009: 29). Its appearance is the result of a long lexicological and lexicographic process that reached its height in the 18th century when mainstream lexicography began to develop in Europe. In order to establish standardized and national linguistic systems able to meet all the communicative needs that could possibly arise, the dictionaries and books that were published “established the meanings of words by other words thought to be identical in meaning” with exchangeability being the proof (Hüllen 2009: 31).

The recognition of the importance of synonyms for communication was thus the trigger for dedicated lexicographic works too. The 18th century indeed saw the dawning of the first synonym dictionaries³ (Hahn 2004: 3), which have been placed into three categories according to the characteristics possessed: discriminating, accumulating, and partially discriminating and accumulating (Hahn 2004: 8).⁴ In the dictionaries that belong to the first category synonyms are explained and described in a comparative and contrastive manner aided by examples of use. Instead, to the second category belong the dictionaries that completely exclude any kind of explanation. In these dictionaries, the entries are listed in alphabetical order and synonyms are simply juxtaposed without providing any or at the very most minimal semantic information bereft of diatopic and diastratic labelling. The aim of these works is to provide related words from which the user can choose the most appropriate match for a particular context. To the third category (see also Kühn 1985), belong the dictionaries that partly resemble the accumulating synonym dictionaries, owing to their microstructures, and partly the discriminating ones, owing to the inclusion of a modicum of explanatory information regarding the meaning, use, and style of words.

While the most recent synonym dictionaries belong to the third category, thesauri as we know them today stem from the second one, emblematised by Roget’s *Thesaurus*. Storjohann (2012: 477) describes them as follows: they are dictionaries in which words and expressions with similar meanings are combined into subject groups, arranged semantically, grouped according to word types and then arranged alphabetically, without any indication of meaning. Roget’s influence in England led to the compilation of a series of thesauri by the well-known publishing houses Collins, Merriam-Webster, and Oxford among others that, like their dictionaries, are now also available online.⁵ In Germany, it

³ See also Püschel 1994.

⁴ See also Wiegand’s “Matrix zur Typologie der Synonymenwörterbücher zur deutschen Standardsprache nach 1945” (Wiegand 1994).

⁵ *Collins English Thesaurus* (2019), *Merriam-Webster’s Dictionary and Thesaurus* (2020), and *Oxford Thesaurus of English* (2009) all have online versions as well as paper ones.

led to the compilation of Dornseiff's *Wortschatz nach Sachgruppen* (1934),⁶ and Wehrle/Eggers's work *Deutscher Wortschatz. Ein Wegweiser Zum Treffenden Ausdruck* (1961).

Nowadays, next to thesauri that are in print (and online), there is another series that are available online only. For the English language, they include *FreeThesaurus*, *Power Thesaurus*, and *Thesaurus.com*, the latter of which is the most popular. In *Thesaurus.com* for each lemma looked up, synonymic as well as antonymic matches of different strengths are provided. The lemmas are classified according to their part of speech and definiendum. By clicking on a match, the system cross-references the user to another series of matches. At the end of every page, examples of use taken from different texts are also listed. In order to understand the meanings of the lemmas, the user can click on the accompanying dictionary (*Dictionary.com*). For the German language, *Openthesaurus.de* and *Woxikon Online Synonym-Wörterbuch* are available, the former of which is the most popular. *Openthesaurus.de* is linked and integrated into the lexical information system DWDS and the information is shown as blocks under the meaning section (see Nabel 2005). Besides synonyms, users can also find some taxonomic relations: "Openthesaurus consists of a list of meanings (synsets) that can be represented by one or more words (terms)" (Meyer/Gurevych 2010: 41). Hypernymic, hyponymic, and antonymic relations are also present, but fewer than in other resources, such as *Wiktionary* or *GermaNet* (see Meyer/Gurevych 2010).

Considering the articulated and hypertextual structures that characterise them, *Thesaurus.com* and *Openthesaurus.de* seem in fact to be much more similar to the partially discriminating and accumulating dictionaries than to the accumulating ones described above. The fact that users can, at a click, access definitions and examples of use, make them much more exhaustive synonym-finding tools. Whether they are easy to use, however, still needs to be established, given little research directed at describing or testing them has been carried out.

2.2 The need for user studies of English and German thesauri

Dictionary-user studies aim to investigate how and to what extent lexicographic resources are used (Müller-Spitzer 2016: 292). They also investigate if a resource is an appropriate aid for certain users in certain situations. The aim of these studies is indeed to improve dictionaries on the basis of the knowledge gained and to make them more user-friendly tools (Müller-Spitzer 2016: 294). Since 1989, dictionary-user studies have become more and more numerous, with an important number focussing on online dictionaries,⁷ within the field of foreign language teaching especially, albeit not to the same extent for all languages. While dictionary usage for language acquisition has become a very prominent area of study for English as a Foreign Language (EFL), it has not

⁶ This thesaurus is now also online because it has been added to *Wortschatzportal Leipzig*.

⁷ Nied Curcio (2022: 69) lists more than 250 researches in the last thirty years.

reached such prominence for German as Foreign Language (GFL). However, for Italian learners there is still much to be done for both English and German (see Nied Curcio 2022; Dominguez Vasquez/Mollica/Nied Curcio 2014; Müller-Spitzer et al. 2018b).

As far as the English language is concerned, Nuccorini stands out for her work on Italian learners' use of specialised monolingual and bilingual dictionaries (Nuccorini 1989; 2009), and especially on the difficulties involved in choosing phraseological units (Nuccorini 2013; 2017). For the German language, Nied Curcio (2022) provides a detailed overview of 200 studies in this field, differentiating between studies through questionnaires and/or interviews (Nied Curcio 2022: 74–76), studies in a concrete user situation and with a user *in actu* (Nied Curcio 2022: 77–80), studies through user experiments or user tests (2022: 81–82), electronic dictionary studies (2022: 83–86), and studies examining the effectiveness of dictionary teaching (2022: 87–89). In sum, the majority of these studies have centred on monolingual and bilingual dictionaries. The investigations have, moreover, involved translation tasks (Nied Curcio 2022: 78), and the lexical features that have principally been examined are formal/informal words, polysemic words, homonyms, collocations, and multiword units, all of which have been recognised as being especially problematic for Italian learners when having to translate (see also Nuccorini 1994; Mollica 2017; Mollica 2023). It is interesting to note that in all the studies carried out by means of different methodologies the results all seem to point to the same fact and that foreign language learners head directly for the information they are looking for, hardly ever reading the whole dictionary entry.

Given that “sono necessari studi che partano da questi risultati e si concentrino su singoli aspetti per ottenere informazioni ancora più precise, soprattutto sugli atti di consultazione degli utenti e i motivi di errori dell'utente, in particolare quando si usano dizionari online” (studies are needed that build on these results and focus on individual aspects in order to obtain even more precise information, especially on users' acts of consultation and the reasons for user errors, especially when using online dictionaries) (Nied Curcio 2022: 81), this study will be devoted to the fields of English and German Foreign Language Teaching, within an Italian university setting. More precisely, it falls into the category of studies that Welker (2010) classifies as those carried out in a concrete situation with a specific task (finding synonyms). The study will focus on a specific online resource (the thesaurus) and on specific lexical elements (words and multiword units) in order to investigate how efficient the resource is for Italian learners.

3 Methodology

The need to find synonyms can be for two major purposes, for decoding or encoding ones. However, even though users naturally turn to thesauri for writing purposes (Kipfer 1987; Siegel 2007; Müller Spitzer et al. 2018a), studies in lexicography have shown that synonymy has mainly focused on the readers' perspective to facilitate comprehension,

rather than on the writers' need for language production (Zock et al. 2010). Indeed, lexicographic teams seem to have concentrated more on the addition of words to lists rather than on improving the structure and the organization of the entries in thesauri, which has not only created problems for users having to choose synonyms (Murphy 2013; Storjohann 2006), but has made them generally quite unfriendly tools for production purposes (Chon 2009; Storjohann 2006), and especially for non-native speakers, who unlike native speakers are less easily guided by their mother-tongue instinct. It is the aim of this article to begin to investigate whether German and English thesauri should be redesigned to become better tools for production purposes. This will be done through a series of theoretically- and empirically-based studies on the use of the current tools available. The first of these, as represented by this work, will focus on testing the user-friendliness of two online thesauri, *Thesaurus.com* for English and *Openthesaurus.de* for German, by administering a series of synonym-finding exercises to second-year undergraduate students of English and German. The findings of this first step in the research project will be twofold: firstly, to understand the level of users' skills in accessing and retrieving the correct information and, secondly, to gauge whether there are lexicographical aspects that need addressing to improve the tools if not found to be efficient.

Participants

To carry out this preliminary research, we decided to test an English class and a German class of second-year undergraduate students, enrolled in the degree programme Languages and Literatures at the University of Milan. The choice of second years was determined by the fact that we wanted to exclude beginners. Indeed, among first-year undergraduate students enrolled in the programme above, along with more expert students it is possible to have in the same class absolute beginners and false beginners, especially for German. Indeed, we hoped to test two classes of students, who had all received the same type of training after a year at university, as far as both language and lexicographic skills are concerned. Second-year English and German students, enrolled in the degree programme Languages and Literatures at the University of Milan, normally have a B1/B2 level of language knowledge according to the CEFR framework.

Materials and procedure

To analyse the user-friendliness of thesauri, we opted for online works for ease of access under test conditions and because students tend now to opt for online tools anyway (Márkus/Fajt/Dringó-Horváth 2023: 180). The two tools are also the two thesauri that appear first following a google search. Two articles regarding global warming and climate change, one written in English (*Coral reefs: Why are they so important?*) and one

in German (*Korallensterben: Was ist das Problem?* (Coral death: What is the problem?), were then selected from the website *Deutsche Welle*. A Test sheet and Question sheet, based on the same article, were created for each language and five words were chosen for synonym substitution.

The five words were selected in such a way as to test the extent to which thesauri can be helpful in choosing matches for words or combination of words that, as mentioned above, have been seen to be problematic for learners. We chose a) words that have a strong connotation or semantic prosody, either positive or negative; b) polysemic or homonymic words; c) words that are polyfunctional (i.e. the same form can have different functions); d) words whose register is flexible and can vary from formal to informal accordingly; e) phrasemes whose meanings show different scales of idiomaticity (collocations, idioms etc.) (cf. Table 1):

Table 1: The typology of words.

	English	German
a) Words with a strong connotation (either positive or negative)	<i>to cause</i>	<i>Überlebenschancen</i> (survival chances)
b) Polysemic, homonymic and polyfunctional lexical units	<i>pretty, warming</i>	<i>verzehren</i> (to consume), <i>verbreitet</i> (widespread)
c) Typically formal or informal words or words with a different meaning related to the situation (formal, informal)	<i>dodgy</i>	<i>Leute</i> (people)
d) Phrasemes	<i>(not) to get a hold on</i>	<i>(nicht) in den Griff bekommen</i> ((not) to get to grips with)

As can be seen in Table 1, for the English language we chose a) the verb *to cause* that has a negative connotation or semantic prosody, b) *pretty* that can function as an adjective or as an adverb, thus having two different meanings, and *warming* that can be used as a present participle or as an adjective; c) the adjective *dodgy* that is usually used in informal registers; d) the phraseme *(not) to get a hold on*. For the German language, we chose a) the noun *Überlebenschancen* that has a positive connotation or semantic prosody; b) the verb *verzehren* that has two different meanings and *verbreitet* that can be used as a verb or attributive adjective; c) *Leute* whose register can be more or less formal depending on the context; d) the phraseme *(nicht) in den Griff bekommen*.

Two testsheets – one with the English text and one with the German text – along with a corresponding question sheet were administered to the English class of 39 and to the German class of 26 second-year undergraduate students. They were given forty five minutes to carry out the task of finding a suitable synonym for each of the five words in the assigned thesaurus only, including the accompanying dictionary of course. The words were clearly signposted in italics in order to stand out from the text. Besides having to find a suitable synonym, the students were asked to indicate under what

lemma they found the synonym and encouraged to motivate their choice, by adding any other information they deemed important for their choice.

To complete the test, the students were also asked to answer five questions regarding their exposure to the English and German languages as well their usual habits regarding the use of dictionaries. More precisely, they were asked: a) how long they had been studying English/German; b) what language level they are: B1 (pre-intermediate), B2 (intermediate), C1 (post-intermediate, advanced), C2 (near-native); c) what monolingual online lexicographic resources they usually use and for what purpose; d) what other tool they would have used to search for the synonyms. All the questions, both linguistic and personal, were provided in Italian – the students' mother tongue – in order to lower the affective filter and to allow them to work without feeling pressure of any kind (Krashen 1986). It was in fact explained to the students at the outset that this was an experiment and that it would not imply any sort of evaluation. Indeed, the students were asked not to put their names on the question sheets in order to safeguard anonymity.

4 Results

4.1 English

As far as the English class is concerned, all 39 students declared that they had been studying English for at least 10 years: 21 students for 10 years (since middle school); 13 students for 11–15 years (since primary school); the remaining 5 for over 15 years. They all also declared they have at least a B2 level of English according to the CEFR framework: in actual fact 24 students said they have a C1 level; 13 a B2 level, and 2 a C2 level of English.

The students also admitted that they do not habitually use thesauri. For writing essays and doing translations, they said they use online monolingual dictionaries or online tools such as *Reverso Context*, *Wordreference*, *Google Translate*. Indeed only 6 mentioned having ever used a thesaurus of any kind. Moreover, the other tools they would have preferred to use to carry out the synonym-finding task are the *Collins Online Dictionary*, *Cambridge Online Dictionary*, *Oxford Online Dictionary of English*, *Merriam Webster*, and in more general terms monolingual and bilingual dictionaries, along with the search engine *Google Search*.

Turning to the task, apart from one student for the verb *to cause*, 2 students for the words *warming* and *dodgy*, and 14 students for the phraseme *(not) to get a hold on*, all the students provided a synonym. The number and type of synonyms provided for each of the 5 words, representing the categories mentioned above, are reported below.

4.1.1 Words with a strong connotation (positive, negative)

When asked to replace the verb *to cause* in the sentence “Increased ocean temperatures *caused* by climate change is the main cause of coral bleaching events”, the students provided the synonyms as shown in Table 2.

Table 2: Synonyms for *caused*.

synonym	number
induced	10
generated	5
coming from	4
effected	4
stemmed/stemming from	4
activated	3
arising from	3
produced	2
created	1
done	1
provoked	1
total	38
no synonym	1

As we can see in Table 2, 10 students opted for the word *induced*, while 27 provided an array of 12 different synonyms ranging from *generated*, chosen by 5 students, to *created*, *done* and *provoked* chosen by one. One student failed to answer, explaining that they could not find a suitable synonym.

Thesaurus.com provides three classes of matches for every entry word: strongest, strong, and weak. For the verb *cause*, in the sense of ‘bring about’, the class of strongest matches comprises the verbs *begin*, *create*, *generate*, *induce*, *lead to*, *make*, *precipitate*, *produce*, *provoke*; the class of strong matches is made up of the verbs *brainstorm*, *breed*, *compel*, *effect*, *elicit*, *engender*, *evoke*, *hatch*, *incite*, *introduce*, *kickoff*, *kindle*, *let*, *motivate*, *muster*, *occasion*, *open*, *originate*, *revert*, *secure*; and the weak-matches class holds the verbs *be at the bottom of*, *break the ice*, *bring to pass*, *come out with*, *cook up*, *dream up*, *fire up*, *get things rolling*, *give rise to*, *make up*, *result in*, *sow the seeds*, *start the ball rolling*, *think up*, *work up*. The fact that *induced* and *generated* – albeit with quite a wide numerical difference – are the topmost selected verbs may be explained by the fact that they appear among the strongest matches. This categorization system, offered by *Thesaurus.com*, may also have guided the 2 students who chose *produced* and the other 2 students, one of whom chose *created* and the other *provoked*, that are also among the strongest class of verb matches.

While the 4 students who opted for *effected* may have chosen this synonym from the class of strong matches, it was not immediately evident from which class the synonyms *coming from*, *activated*, *stemmed/stemming from*, *arising from*, and *done* were

chosen. They are not in fact listed in any of the three classes of matches for the verb *cause*. By examining the linguistic and motivational comments accompanying the students' responses, it became clear that these synonyms were chosen by the students who looked up the adjective *caused* as opposed to the verb *cause*. Indeed, if we look up the adjective *caused* with the meaning 'originating', the strongest matches provided by *Thesaurus.com* include the adjectives *activated*, *arising*, and *stemming* chosen by 3 and 4 students respectively. If we look up the adjective *caused* with the meaning 'induce', among the strongest matches we can find *done* that was chosen by only one person.

It is clear that this array of different synonyms provided by the students for the word *caused*, interpreted either as a verb or as an adjective, reflects *Thesaurus.com*'s wealth of words and the ease with which they can be accessed directly via different parts of speech. It also highlights, however, the students' uncertainty in choosing the synonym of *cause*. Stubbs (1995) has shown that *cause* tends to have a negative semantic prosody given it is commonly associated with negatively connoted concepts, and especially "climate change", which occurs nearly 6,000 times in the corpus *English Web2021*.⁸

Within the strongest matches of synonyms for the verb *cause* in *Thesaurus.com*, the most negatively connoted verbs seem to be *induced* and *provoked*, whilst the most positively connoted ones seem to be *generated*, *produced*, *created*. The definitions and examples of use given in the accompanying dictionary (*Dictionary.com*) illustrate this fact:

Induce

1. to lead or move by persuasion or influence, as to some action or state of mind: e.g. to induce a person to buy a raffle ticket.
2. to bring about, produce, or cause: e.g. That medicine will induce sleep.

Provoke

1. to give rise to, induce, or bring about: e.g. What could have provoked such an incident?

Generate

1. to bring into existence; cause to be; produce.
2. to create by a vital or natural process.
3. to create and distribute vitally and profusely: e.g. He generates ideas that we all should consider; e.g. A good diplomat generates good will.

Looking at the definitions of the verbs *induce* and *provoke*, the first two examples provided in *Dictionary.com* point to a change that is brought about by something or

⁸ In *English Web 2021* (made up of 61,585,997,113 tokens), accessed through *Sketch Engine*, "caused by climate change" returns 5,923 hits.

someone else. In describing a lack of own will, these verbs are imbued with a somewhat negative aura. In contrast to this, the example of use that accompanies the third meaning of the verb *generate* endorses creativity and goodness, which are instead commonly-held positive actions. These connotational meanings are however not made explicit by *Dictionary.com* and have to be inferred from the examples when they are provided. In fact, in the quotations above we can see that, unlike for the definitions of *induce* and *provoke*, *generate*, when used in the sense of ‘cause’, is not even accompanied by an illustrative example.

Whether these definitions and examples of use helped to guide a quarter of the students who opted for the synonym *induce* is not clear through the motivational information provided in the question sheets, but they certainly might have done. In the corpus *English Web 2021* “induced by climate change” in fact returns 425 hits, which is clearly a long way off from the number of hits that “caused by climate change” returns, but it is certainly more than the 125 hits returned by “generated by climate change”, which is a rather awkward turn of phrase for a native speaker and was chosen by 5 students only.

That said, the negatively-connoted word *induced* is not the first verb that would come to mind to a native speaker when having to replace *caused* in the context of climate change. Neither is *provoked*, which in fact returns only 20 hits in *English Web 2021*, despite its summarily negative connotation. It is more likely that native speakers would use the more neutrally-connoted *brought about*. In the *English Web 2021*, “brought about by climate change” in fact returns 505 hits. While none of the students chose this phrasal verb, 3 students did opt for *arising from* which returns over 578 hits when referring to climate change. Indeed, unlike *coming from* that returns 42 hits, *stemming from* that returns 240 hits, *arising from* and *brought about* take on a more marked negative connotation that, by featuring the subject collocates “rising temperatures”, “storms”, “weather changes”, “disasters”, “risks”, ‘sound’ better next to climate change.

Whilst being surely exhaustive by providing a plethora of matches that are subdivided into categories, expressing the strength of the synonymous relationships, *Thesaurus.com* does not seem to provide enough information as far as the connotation of the verb *cause* is concerned. Lexicological research has shown that ‘cause’ is a heavily negatively connoted verb and yet no explicit information regarding this is provided in its definition in relation to its synonyms. The 3 students, who opted for *arising from*, one of whom has a C2 level and two of whom have a C1 level of English, were undoubtedly guided by their intuition much more than by the semantic information provided in *Thesaurus.com* and accompanying *Dictionary.com*. Lack of native-speaker intuition compounded by a lack of clarity in *Thesaurus.com* may therefore explain why none of the students suggested the synonym *brought about* for *caused*. Even though many students mention this phrasal verb in order to indicate under which lemma they looked for the synonyms, none of them thought of adopting it as a suitable match. In *Thesaurus.com* *bring about* in fact appears as the definiendum of the verb *cause* and not among the possible matches in any of the three classes of synonyms. It is evident that the students, who are not mother-tongue speakers, did not even consider it.

4.1.2 Polysemic, homonymic and polyfunctional lexical units

When asked to replace the present participle *warming* in the sentence “They’re suffering from bleaching, overfishing and are being cooked by *warming* oceans”, the students provided the synonyms as shown in Table 3.

Table 3: Synonyms for *warming*.

synonym	number
boiling	13
heating	13
scalding	5
steaming	3
melting	1
mitigating	1
soothing	1
total	37
no synonym	2

Before reflecting upon the students’ responses, it is important to clarify what the attributive phrase “warming oceans” really means. Even though the word *warming* is in an attributive position, it has a predicative function. *Warming* in this phrase is the present participle of the verb *warm* and means ‘are heating up’.

From the answers provided in Table 2, it is clear that none of the students looked up in *Thesaurus.com* the verb *warm*: they all looked up the word *warming*. The two students who provided the synonyms *mitigating* and *soothing* indeed looked up the adjective *warming* that in *Thesaurus.com* is defined first as ‘comfortable’ and second as ‘soothing’. From the former entry the students obtained both synonyms, respectively classified as a strong and a strongest match. Since the meaning of these adjectives has nothing to do with climate change and with the rise in ocean temperatures, it is clear that these students chose them without knowing their meanings.

The temperature-related meanings of the other synonyms listed in Table 3 would therefore suggest that the other students looked up the verb *warm* in the sense of ‘to heat up’. This appears, however, not to be true. Along with their responses, these students in fact reported they looked up in *Thesaurus.com* the third and last entry of *warming*, classified as a noun and having the meaning of ‘heating’. Under this entry *cooking* and *melting* are listed as the strongest synonyms, and *baking*, *boiling*, *broiling*, *grilling*, *roasting*, *scalding*, *steaming* as the strong ones. From this entry 1, 3, 5 and 13 students respectively chose *melting*, *steaming*, *scalding* and *boiling*.

While from a syntactic perspective these options might be suitable, because like *warming* in the phrase “warming oceans” they act as attributive adjectives, from a semantic perspective they are not exact. Unlike *warming*, they do not express the

idea of rising temperatures but rather point to temperatures that have reached their maximum heat. Aware of this slight meaning discrepancy, these students in fact made a point of underlining that they had chosen them only because they were the only ones that were the closest to *warming* within the context of global warming. The realization that the other matches listed under the noun *warming* are suitable only in the context of food and cooking in fact led the students to discard them.

It is the same awareness of food as the semantic preference for this noun that explains why the remaining 13 students chose the word *heating*. Even though these students also picked their synonym from under the noun *warming*, they opted for its definiendum. Indeed, unlike for ‘bring about’ – definiendum of *cause*, they claimed that ‘heating’ was the only possible option, disclosing a greater linguistic sensitivity here than earlier. However, while this sensitivity is valid as far as the meaning of *heating* is concerned, it is not in terms of its position next to *oceans*. “Heating oceans” is not a commonly used expression: it occurs only 21 times in the *English Web 2021* as opposed to “warming oceans” that occurs 1,537 times. In this case the students were intuitively led by the semantics of the word *heating*, whilst being unaware of the fact that it does not readily collocate with *oceans*.

That the students stopped at the structure of *warming* without worrying about the fact that as an adjective it has little or nothing to do with global warming or that as a noun it cannot provide a syntactically-correct equivalent only partly points to linguistic inexperience, it mainly points to a reluctance to use the thesaurus properly. Although most students were aware that the synonyms they found under the noun *warming* were not the best possible solutions, they did not explore the tool in search of other ones, including the 2 students who did not provide any matches because, as claimed, they could not find any suitable ones.

If the students had spent more time looking for a better solution to match the syntactic and semantic complexity of the word *warming* in the phrase “warming oceans”, they would have found under the verb *warm* the more suitable equivalent *heat up*, which they could have used creating the periphrasis ‘the oceans that are heating up’. Indeed, lack of native-like intuition compounded by a reluctance to explore the tool seems to have resulted in this poor outcome. Clearly, if *Thesaurus.com* included the adjective *warming* in the sense of ‘heating up’, then it is likely that the outcome may have been quite different.

When asked to replace the adverb *pretty* in the sentence “Coral reefs provide shelter and function as nursery grounds for some *pretty* commercially important fish, like grouper and snapper, as well as invertebrates like lobster”, the students provided the synonyms as shown in Table 4.

Pretty is an example of a polysemic word because it points to different conceptual meanings. As an adjective it means ‘attractive’; as an adverb it can have two senses: ‘fairly/moderately’ and ‘quite/very’ (see *Dictionary.com* s.v. *pretty*). In the sentence above, *pretty* undoubtedly functions as an adverb.

From Table 4, we can see that 36 out of 39 students understood this meaning of *pretty*. Indeed, except for the 3 students who, in choosing *beautiful*, *first rate*, and *tasteful*,

Table 4: Synonyms for *pretty*.

synonym	number
quite	13
considerably	11
rather	6
fairly	4
very	2
beautiful	1
first rate	1
tasteful	1
total	39
no synonym	0

erroneously opted for the adjectival meaning of the word, all the other students opted for the adverbial use. Unlike the words examined earlier, *pretty* can be replaced by a much wider range of matches, which probably made it easier for the students to choose the correct adverb. The synonyms *quite*, *considerably*, *rather*, and *very*, chosen by 32 students, are in fact all legitimate options because like *pretty* they mean to underline the importance of snappers and groupers in commercial terms. In appearing among the strongest matches in *Thesaurus.com* under the adverbial entry, it was thus relatively simple for the students not to pick the wrong one. It was not impossible though!

Surprisingly, unlike *Dictionary.com* and other dictionaries (see, for example, LDOCE, OALD), *Thesaurus.com* does not provide for *pretty* two separate entries according to whether it means ‘moderately’ or ‘very’. In *Thesaurus.com* under the entry *pretty*, whose definiendum is ‘very; moderately’, we can in fact find among the strongest matches *considerably*, *quite*, *rather*, *somewhat*, and *very* that point to the meaning of ‘very’ and the synonyms *a little*, *fairly*, *kind of*, *moderately*, *reasonably* that point to the meaning of ‘moderately’, though not separated in this way but rather listed all together in alphabetical order. The 4 students who opted for *fairly* may thus have chosen this match unaware of its ‘moderate’ sense, even though it is well-defined in the accompanying *Dictionary.com*, or possibly because – as one student claimed – they thought it sounded better in the given context. It is hard to tell here whether it was the tool that misguided them or whether they did not have the linguistic sensitivity to choose the correct sense of the adverb.

4.1.3 Typically formal or informal words or words with a different meaning related to the situation (formal, informal)

When asked to replace the adjective *dodgy* in the sentence “It’s a very generous name for some gastropods that look more like *dodgy* quesadillas”, the students provided the synonyms as shown in Table 5.

Table 5: Synonyms for *dodgy*.

synonym	number
evasive	5
evasively tricky	5
shifty	5
ambiguous	3
crafty	3
dicey	3
risky	3
evasing	2
shaky	2
tricky	2
chancy	1
subtle	1
unreliable	1
unsafe	1
total	37
no synonym	2

As we can see from Table 5, the number of synonyms suggested for the word *dodgy* clearly surpasses the number provided for the three words seen so far. The distribution is, moreover, much more even. If for *caused*, *warming*, and *pretty* one or two matches stand out from the rest with at least 25% of students having opted for them (i.e. *induced*, *boiling/heating*, *quite/considerably*), for *dodgy* the matches that stand out were chosen by 12% of students only. It is an evenness that suggests even more uncertainty than in the cases seen so far.

Indeed, there are four different matches chosen by one student only (*chancy*, *subtle*, *unreliable*, *unsafe*); three chosen by 2 students (*evasing*, *shaky*, *tricky*) and four chosen by 3 students (*ambiguous*, *crafty*, *dicey*, *risky*), while the ‘most’ popular matches involve the 5 students who chose the synonyms *evasive*, *evasively tricky*, and *shifty*. That *evasive*, *evasively tricky*, and *shifty* are slightly more popular than the other matches might be explained by the fact that in *Thesaurus.com* they are the strongest ones: *evasive* and *shifty* are actually the only two synonyms provided in the strongest category, while *evasively tricky* is the lemma’s definiendum. All the other synonyms belong to the strong and weak categories of matches.

This notwithstanding, *evasive*, *evasively tricky*, and *shifty* are not at all the best matches for *dodgy* here. *Evasive*, *evasively tricky*, and *shifty* all point to ‘untrustworthiness’ or ‘deceitfulness’, as the definiendum ‘evasively tricky’ suggests, but this is not what *dodgy* means next to *quesadillas*. *Evasive*, *evasively tricky*, and *shifty* are suitable synonyms when describing people’s behaviour but not when describing food.

Dodgy next to *quesadillas* means ‘dangerous’. It is the third sense of *dodgy* when we look it up in *Dictionary.com*:

Adjective, *dodg-i-er*, *dodg-i-est*.

1. inclined to dodge.
2. evasively tricky: a dodgy manner of dealing with people.
3. chiefly British. risky; hazardous; chancy.

Indeed, as we can see from the entry reported above, *dodgy* that means *risky*, *hazardous*, and *chancy* is the sense that the students should have opted for to replace *dodgy*. However, only 6 students seemed aware of this: 3 students in fact picked *risky* and 3 each chose *chancy*, *dicey*, and *unsafe*. All the other students chose synonyms that suggest unreliable behaviour, as do *evasive*, *evasively tricky*, and *shifty*.

While consulting the accompanying dictionary in the thesaurus may have helped the students opt for the correct sense of *dodgy*, the lack of examples included in the dictionary would not have helped them to choose the right match. Indeed, in the context of food, *risky* and *unsafe* are the only possible options, while *chancy* and *dicey* are not suitable (in *English Web 2021 dicey food* in fact occurs only twice and *chancy food* does not occur at all). Emblematic is indeed the comment made by one student (with a B2 level of English) who claimed that there were too many synonyms to choose from but no examples of use to help him/her choose the right one for the context of use.⁹ It is the same justification that the two students who did not give an answer also provided. In reading the students' responses along with their comments, the impression is that the students were on the whole partly at a loss with what *dodgy quesadillas* meant, and partly unable to find a suitable equivalent. *Dodgy* in fact does not just have more than one meaning, it also has a colloquial and informal meaning, thus making it more likely that learners will be unfamiliar with it, especially in relation to food. In failing to point out the informal nature of *dodgy* as well as in failing to provide targeted examples for its different contexts of use, both *Thesaurus.com* and *Dictionary.com* seem to underestimate the intricate and singular nature of this word, especially for learners of English.

4.1.4 Phrasemes

When asked to replace the phraseme (*not*) *to get a hold on* in the sentence "But these efforts might all be in vain if humanity *doesn't get a hold on* climate change, which presents the biggest singular threat to the future of coral reefs", the students provided the synonyms as shown in Table 6.

What clearly stands out in Table 6 is the number of students who did not provide a match for the phraseme (*not*) *to get a hold on*. The explanation for this, which was also

⁹ "L'ampia possibilità di scelta mi ha un po' confuso, sarebbe stato d'aiuto la presenza di qualche esempio per capire il contesto adeguato in cui utilizzare ogni sinonimo".

Table 6: Synonyms for *doesn't get a hold on*.

Synonym	number
control	5
end	4
approach	3
buck	1
cling	1
comprehend	1
consider	1
doesn't get a grip on	1
doesn't go on	1
grasp	1
handle	1
have the upper hand with	1
hold on	1
overtake	1
persist	1
withstand	1
Total	25
no synonym	14

expressed by many students in accompanying comments, was that the phraseme does not exist in *Thesaurus.com*. Indeed, if you look up *get a hold on* in *Thesaurus.com* and in *Dictionary.com*, you will not find it. While *Dictionary.com* says that no results can be found for it, *Thesaurus.com* suggests looking up other phrasemes, among which appear *get a hold of*, *have a hold upon*, and *hold on*. However, because the students were specifically asked not to consult other tools besides *Thesaurus.com*, being inaccessible, the phraseme was considered as unmatchable for 14 of them.

A look at the matches that were provided by the remaining students suggests they simply guessed, guided by one of the similar-looking phrasemes and by their intuition. It is the case of the 12 students who opted for the verbs *end*, *approach*, *buck*, *comprehend*, *(doesn't) go on*, *grasp*, *handle*, *overtake* that are listed among the various matches of the verb *to get a hold of* in the sense of 'reach'. It is the case of the 5 students who looked up the verb *hold on* and under its various senses found *doesn't get a grip of*, *cling*, *hold on*, *persist*, and *withstand*, as well as of the student who opted for *have the upper hand* under *to have a hold upon*. Only a few more adventurous students decided to explore *Thesaurus.com* further, looking for matches under the noun *hold* (meaning 'possession'), which returned the synonym *control* for 5 students, and under the verb *hold* in the sense of 'believe', which returned the synonym *consider* for one student. These matches seem haphazardly chosen, giving the impression that the students were not really sure of the meaning of the phraseme they had to replace.

While this may have been true for some, it was not true for all of them. For instance, one of the students, who opted for the verb *approach*, commented that they would have gladly used another word (*tackle*) that was not provided as a match and that, albeit unsuitable, they thought *approach* was the ‘least worse’ option.¹⁰ Indeed, in having had the instruction to use *Thesaurus.com* only, many students claimed they had chosen matches only from the words indicated by the tool, even though they were not happy with them. None ventured to propose their own synonym.

The phrasal verb *to get a hold on* is in actual fact not an easy verb to replace. In the context in which it is used in the text it means ‘to get a better understanding of something and to tackle it’. It has a metaphorical meaning that only partly overlaps with *to get a hold of* in the sense of *comprehend*, *grasp*, and *handle*. The complexity of its collocational meaning may therefore explain why it is not found in *Thesaurus.com*, *Dictionary.com*, and in many other English dictionaries. This is nonetheless surprising given that it has 3,866 occurrences in the *English Web 2021* and is therefore a commonly used phraseme. Even though it is informal and idiomatic, it might be well worth including it in lexicographic tools.

4.2 German

As far as the German class is concerned, all 26 students declared they have been studying German for more than 2 years: 7 students for 7 years; 6 students for 2 years; 4 students for 8 years; 2 students for 6 years and 2 students for 5 years; 1 student for 13 years, 1 student for 10 years, 1 student for 9 years, 1 student for 3 years. 1 student is bilingual. They also declared they have a B1/B2 level of German: 16 students say B1; 8 students say B2; 1 student says C1; 1 student says C2. They admitted that they do not habitually use thesauri for writing essays and for doing translations, but would rather use online monolingual dictionaries (*Duden* – 24; *Wiktionary* – 3; *DWDS* – 2; *Langenscheidt* – 1). Only one student declared that they had never used a lexicographic resource. The other tools they stated they regularly use are bilingual dictionaries (*Pons*, *Leo* and *Wordreference*), the multilingual neural machine translation service *Google Translate*, the search engine *Google Search* and parallel corpora like *Context Reverso*.

4.2.1 Words with a strong connotation (positive, negative)

When asked to replace the noun *Überlebenschancen* (chances of survival) in the following sentence “Langfristig bietet nur ein Rückgang der globalen Treibhausgasemis-

¹⁰ “‘Approach’ non mi soddisfa. Avrei usato un’altra parola (*tackle*) che qui non è inclusa. ‘Approach’ mi sembra il piuttosto meno peggio”.

Table 7: Synonyms for *Überlebenschancen*.

synonym	number
Überlebensaussichten (survival prospects)	9
Fortlebensmöglichkeit (possibility of survival)	1
Überlebensmöglichkeit (possibility of surviving)	1
Überlebenshoffnung (hope of survival)	1
Möglichkeit am Leben zu bleiben (possibility to stay alive)	1
Möglichkeit zu überstehen (possibility to survive)	1
Fortleben Chancen (opportunities to live on)	1
am Leben bleiben (stay alive)	1
angesehen (regarded)	1
total	17
no synonym	9

sionen echte *Überlebenschancen* für Korallenriffe” (in the long term, only a reduction in global greenhouse gas emissions offers real chances of survival for coral reefs), the students provided the synonyms as shown in Table 7.

Table 7 shows, firstly, that 9 students selected *Überlebensaussichten*, while 8 students chose different words, which, like *Fortlebensmöglichkeit*, *Überlebensmöglichkeit*, and *Überlebenshoffnung*, are partial equivalents or which are paraphrases such as *Möglichkeit am Leben zu bleiben*. Secondly, it shows that 9 students failed to provide any matches, stating that they found no support from the lexicographic resource.

Openthesaurus.de in fact provides only one synonym for the compound *Überlebenschancen*, and that is *Überlebensaussichten*. However, only 9 students chose it as a synonym, showing that the others were not convinced with the information provided in the resource. The students who chose it in fact claimed that it was the only option available.

Not wholly convinced with the synonym provided in the tool, 8 students divided the compound into its two components *Überleben* and *Chance* and looked them up separately. They creatively provided the following matches: changing both units, as in *Fortlebensmöglichkeit*, changing only the principal element of the compound (*determinatum*) as in *Überlebensmöglichkeit* and *Überlebenshoffnung* (giving the singular form as an answer), or changing the secondary element (*determinans*) as in the incorrect

form *Fortleben Chancen*. Using the synonym *Möglichkeit* for *Chance*: 2 students provided the paraphrase *Möglichkeit am Leben zu bleiben* and *Möglichkeit zu überstehen*. One student provided a synonym for the *determinans* of the compound (*am Leben bleiben*) only, and one student gave a completely incorrect solution (*angesehen*).

From these results, it might be safe to say that the most popular strategy used by the students to find a suitable match for the word *Überlebenschancen* was to rely on their previous competences and personal knowledge, given that the tool provides no alternatives nor examples of use for it.

4.2.2 Polysemic, homonymic and polyfunctional lexical units

When asked to replace adjective *weit verbreiteten* (widely spread) in the following sentence “Ein anderer vielversprechender Wirkstoff, Eleutherobin, verlangsamt im Labor das Wachstum von Krebszellen und kommt in einer *weit verbreiteten* Weichkorallenart vor” (another promising substance, eleutherobin, slows the growth of cancer cells in the laboratory and is found in a widespread species of soft coral), the students provided the synonyms as shown in Table 8.

Table 8: Synonyms for *verbreiteten*.

Synonym	number
üblich (usual)	5
ausgebreiteten (spread)	4
diffundierten (diffused)	3
verbreiteten (spread)	1
sich ausbreiten (expand)	1
propagierten (propagated)	1
entstehen (arise)	1
gängigen (common)	1
angesehen (appreciated)	1
gebieten ¹¹	1
erheben (raise)	1
bilden (create)	1
ausdehnen (expand)	1
total	22
no synonym	4

As Table 8 shows, the synonym *üblich* is the one most students opted for, followed by *ausgebreiteten* and *diffundierten*. The plethora of different matches provided, however, points once again to a certain amount of uncertainty on the students’ part, which

¹¹ This word does not exist.

emerges especially in relation to the parts of speech that the matches provided belong to (sometimes the infinitive verb and sometimes the adjective). 4 students stated that they found no support from the lexicographic resource.

These results can be explained by the fact that the students wrote the form *verbreiteten* in the search mask (without *weit*). Consequently, the thesaurus offers two possibilities to choose from: the verb *verbreiten* or the adjective *verbreitet*. For the first choice (the verb *verbreiten*) the resource provides three groups of synonyms: two groups with (*sich*) *verbreiten* and one with *verbreiten*. In the list of synonyms we can find some of the choices (for example *ausbreiten*). On the right hand side of the page, further information taken from *Wiktionary* is provided: i.e. the definition of the lemma and other synonyms. For the second choice (the adjective *verbreitet*), the tool provides only a group of synonyms, among them we can also find some options chosen by the students: *gängig*, *üblich*, *verbreitet*. On the right hand side of the page also the information taken from *Wiktionary* provides insight into the word's meanings and synonyms. In this second choice there is also *weit verbreitet*, written separately or together (*weitverbreitet*).

It is clear that only 6 students focused on this second option, choosing *üblich* and *gängig* as a synonym, while 7 opted for the first option. 4 students must have got lost, giving completely wrong answers (*angesehen*, *gebieten*, *erheben*, *bilden*). Again the cause of these problems could be ascribed to the lack of examples of use, but in this case also to the organisation of the entry, which is also rather confusing. Even though the presence of examples might certainly have aided the students, the major problem for them was that they wrote the form of the word in the search mask, without considering the lemma. Furthermore, they failed to focus on *weit*. A lack of competence in using lexicographic tools correctly can also be seen as a cause of these poor results.

4.2.3 Typically formal or informal words or words with a different meaning related to the situation (formal, informal)

When asked to replace the verb *verzehren* (consume) in the following sentence “Menschen *verzehren* jährlich etwa 150 Millionen Tonnen Fisch und Meeresfrüchte, und diese Tiere müssen sich irgendwo fortpflanzen” (Humans consume around 150 million tonnes of fish and seafood every year, and these animals have to reproduce somewhere), the students provided the synonyms as shown in Table 9.

Table 9: Synonyms for *verzehren*.

synonym	N.
konsumieren (to consume)	8
essen (to eat)	4
vernaschen (to snack on)	4

Table 9 (continued)

synonym	N.
nehmen (to take)	2
nutzen (to utilise)	2
aufessen (to eat up)	2
einnehmen (to ingest)	1
sich verzehren (to consume oneself)	1
zu sich nehmen (to consume)	1
total	25
no synonym	1

As Table 9 shows, *konsumieren* is the match that most students opted for, followed by *essen* (more general), and *vernaschen* that is not only incorrect in this context, but does not appear as a possible match in the thesaurus. Some students chose *nehmen*, but without *zu sich*, thus giving an incomplete answer, *aufessen* (that is not correct in this context), *einnehmen*, and *sich verzehren* (that is also not correct). *Zu sich nehmen* was chosen once, while 2 students chose *nutzen*, which is however not present in the resource.

The verb *verzehren* has two meanings (cfr. DWDS¹²), the first is ‘to eat something’ (*etw. essen*) and the second, elevated and figurative ‘something consumes sb., in the sense that that sth. demands a great deal of sb.’s physical and mental strength’. In this context it is used with the first meaning. *Openthesaurus.de* provides *aufessen*, *aufzehren*, *konsumieren*, *zu sich nehmen* as options and (*sich*) *einverleiben*, *essen*, (*sich*) *gütlich tun* (*an*) as associated words. The verb *verzehren* is also given as part of the verb (*sich*) *verzehren nach* in another group of verbs with the sense of ‘to crave for’ (to adore). This option is not correct in this context. *Openthesaurus.de* also includes data from *Wiktionary*, providing the meanings of the verbs and synonyms: *essen* (to eat), *trinken* (to drink) for the first meaning and *vernichten* (to crash) for the second one. Considering the description of the entry in *Openthesaurus.de*, it is clear that the students were provided both with the group of possible synonyms and with the definition, but none of the students indicated the description of the meaning as a reason for their choice. The most common reason offered was that the match seemed the most suitable one in the context of use (17 ss). Only 4 students opted consciously for the more generic option (*essen*) and 2 used their previous competences.

Even for this word, the main problem encountered was the lack of examples of use to support the choice of the right verb. Another criticism made by the students was the lack of labels to distinguish the register and the organisation of the entry, which was considered confusing.

12 *verzehren*, provided by DWDS, <<https://www.dwds.de/wb/verzehren>>, accessed 31.03.2024.

When asked to replace the noun *Leute* ('people') in the following sentence "Ok, aber das ist ja nur für *Leute* relevant, die am Meer leben" (Ok, but that's only relevant for people who live by the sea), the students provided the synonyms as shown in Table 10.

Table 10: Synonyms for *Leute*.

synonym	number
Menschen (people)	18
Volk (nation)	3
Personen (persons)	3
Bewohner (inhabitants)	1
Menge (crowd)	1
total	26
no synonym	0

The noun *Leute* is a noun that is used only in the plural form¹³ and has a different meaning according to the context of situation, whether formal or informal. Generally, and in this case, it means 'persons', but if it is used in an informal, colloquial context it means 'worker, employee' (i.e. also 'soldats') or 'family members'. In Table 10, we can see that almost all the students chose plausible synonyms, like *Menschen*, or *Personen*. The 5 students who opted for *Volk*, *Bewohner*, and *Menge* were the only few to have made a mistake.

Even though this word was successfully replaced by the majority of students – possibly because it is an item of vocabulary that is learnt at an elementary level (A1) of German,¹⁴ almost 20% of the students still managed to opt for an informal match. In *Openthesaurus.de* there are in fact six groups of synonyms, five of which provide matches that are suitable in informal contexts, and only one that provides matches in formal ones. From the latter, most students clearly chose *Menschen* and *Personen*, which are formal matches. However, from the same group, one student chose *Volk* that is not appropriate here because it has a different meaning: 'community, large group of people of the same descent, language and culture'.¹⁵ Another student was also drawn by *Volk*, through which he/she erroneously arrived at *Bewohner* which is formal as is *Menge* that was chosen by one student from one of the informal groups of synonyms.

The reason why so many students opted for the correct synonym here is surely because *Leute* in its formal context of use is among the items of vocabulary that students learn in the first year of German. The reasons why, on the other hand, some students opted for the matches that are more suitable in informal contexts might be many

¹³ *Leute*, provided by DWDS, <<https://www.dwds.de/wb/Leute>>, accessed 15.03.2024.

¹⁴ See https://www.goethe.de/pro/relaunch/prf/de/A1_SD1_Wortliste_02.pdf [15.03.24].

¹⁵ *Volk*, provided by DWDS, <<https://www.dwds.de/wb/Volk>>, accessed 15.03.2024.

and varied. It may be partly owing to the way that the thesaurus presents the word *Leute*, devoting more space to informal than to formal matches and failing to provide examples of use in order to clarify the difference between the two registers of use. It may also be partly owing to the students' misunderstanding of the context in which *Leute* appears in the text, and to their incapacity of finding their way around the tool and of distinguishing between the superordinate *Leute* and its hyponyms such as *Volk* and *Bewohner*, and to their being too lazy to look up semantic information in the accompanying *Wiktionary*.

4.2.4 Phrasemes

When asked to replace the phraseme *(nicht) in den Griff bekommen* ('(not) to get to grips with') in the following sentence "Doch all diese Bemühungen könnten umsonst sein, wenn die Menschheit den Klimawandel nicht *in den Griff bekommt*" (but all these efforts could be in vain if humanity fails to get to grips with climate change), the students provided the synonyms as shown in Table 11.

Table 11: Synonyms for *(nicht) in den Griff bekommen*.

synonym	number
bändigen (to tame)	7
unter Kontrolle haben (to have under control)	5
kontrollieren (to control)	3
bezingen (to overcome)	3
im Griff haben (to have under control)	1
bewältigen (to cope with)	1
meistern (to master)	1
schaffen (to create)	1
Kontrolle über etwas gewinnen (to gain control over something)	1
ergreifen (to take hold)	1
total	24
no synonym	2

We can see from Table 11 that 7 students answered *bändigen*, which along with *bezingen* are not the best possible options, 5 students chose *unter Kontrolle haben* (which is correct), 3 students *kontrollieren* (also partially correct), one student *im Griff haben* (that is partially correct), one student *Kontrolle über etwas gewinnen* (correct). One student opted for *ergreifen*, forgetting to write *Kontrolle*. Only 2 students were unable to provide a synonym.

Openthesaurus.de provides two groups of synonyms for *in den Griff bekommen*: a first group in which the phraseme means ‘to have sth. under control’¹⁶ and a second group in which it has a slightly different meaning that points to the nuance ‘to find a solution for sth.; to master; to cope with sth’. No further information is provided as far as examples of use are concerned.

Analysing the students comments and checking the resource, it looks as though the students chose *bewältigen*, *meistern*, and *schaffen* (not correct in this context) either through the match *gebacken bekommen* that appears in the second group of synonyms or by looking up the negative form *nicht in den Griff bekommen*, which leads to *nicht bewältigen*, *nicht schaffen* (not correct in this context).

Bezwingen and *bändigen* seem instead to have been reached through *bewältigen* (i.e. *überwältigen*), but it is not clear which route they took.

Even though the phraseological unit (*nicht in den Griff bekommen*) is present in the resource and therefore certainly a plus point for it, its two different meanings are not clearly exemplified. This explains why some students opted for some less suitable matches, and why some reached the more appropriate ones indirectly. Once again the students lamented the lack of examples of use and unclear presentation of matches in *Openthesaurus.de*.

5 Discussion and outlook

This experiment, which has served as a trial to understand whether it is worth pursuing the idea that thesauri should be redesigned to become better tools for production purposes, seems indeed to have borne the initial results we expected. The data obtained from the second-year undergraduate English- and German-language students, who were asked to find synonyms for five words in a text by looking them up respectively in the *Thesaurus.com* and in the *Openthesaurus.de* has in fact provided the evidence that, firstly, users have problems in accessing and retrieving the correct information from thesauri and, secondly, that there are aspects that lexicographers need addressing for thesauri to become better linguistic tools.

That the students had difficulty in accessing and retrieving the correct information is quite blatant. It emerges clearly from the number and type of matches provided for each word requiring substitution. The fact that the variety was often quite wide is indicative that the students were uncertain about which synonym to choose. It is, moreover, an uncertainty that the students themselves admitted to in their responses. In many cases, they commented that they were not sure which word to choose and that they had just followed their linguistic knowledge or instinct (i.e. what ‘sounded’

¹⁶ The two aspects that are divided in *Openthesaurus.de* are united in the definition of the DWDS (<https://www.dwds.de/wb/etw.%20in%20den%20Griff%20bekommen>) [15.3.24].

better). However, for these second-year students a native-like language instinct is still far off, and it explains why the matches chosen were sometimes partially and sometimes totally wrong.

The difficulty in being able to retrieve the correct information is not, however, only a question of linguistic uncertainty, it is also due to the lack of experience in using the tool. Most of the students involved in this experiment declared they had never used a thesaurus before and this emerges quite clearly when looking at the matches provided. Inexperience seems to have led many of them either to look up the wrong word in the thesaurus or to stop at the first hurdle and not look beyond the match they were incidentally not happy with. Both *Thesaurus.com* and *Openthesaurus.de* are accompanied by a dictionary that the students could have accessed had they wished to check meanings. While this reluctance might be explained by the fact that the students were specifically asked to use the thesaurus and no other tool during the task, it is not insignificant that most students, despite having claimed that they normally use online dictionaries for writing production, did not use the accompanying dictionary to help them distinguish meanings. As Nied Curcio (2022) clearly underlines there is a strong need to teach learners how to use dictionaries.

The truth is that, unlike native speakers, learners need to be guided much more when they use lexicographic tools, which is why learner lexicography has become such an important branch of theoretical and applied linguistic studies (see Cowie 2009; Fontenelle 2009). *Thesaurus.com* and *Openthesaurus.de* are not learner thesauri and this may also be why students found them quite difficult to use. Indeed, for most of the words the students were asked to substitute both thesauri provided long lists of matches. Unlike a native speaker who would not find it difficult to pick the correct synonym, the students claimed that with so many options it was difficult to find the right match for the given context.

As often declared in their responses, the students would have appreciated examples of use in order to understand how the matches can be used in context. Examples of use exist but they are not presented in a systematic and orderly manner. The only way to access targeted illustrative examples is through the accompanying dictionary, which as stated above was hardly ever consulted. Since the labels that distinguish formal from informal use are not always applied to the words in the thesauri, the students found it difficult to understand the register of the synonyms too. Indeed, in *Thesaurus.com* some very informal phrasemes, such as *(not) to get a hold on*, were not even included.

Despite the evident methodological limits of this study¹⁷ that comprise the restricted number of participants involved, the choice of one text only, the restricted number and subjective selection of words requiring substitution, which in some cases are not fully comparable between the two languages concerned – English and German – and the fact that the findings of this study are limited in time owing to the evolving nature of

17 For the most common methodological weaknesses see Welker (2010: 25–27).

online thesauri (Nied Curcio 2022: 71), we might tentatively conclude that problems exist regarding the user-friendliness of *Thesaurus.com* and *Openthesaurus.de*. While these thesauri may indeed be efficient tools for native speakers, they are less so for learners. As Susan Lloyd's words suggest in the preface to Roget's 1982 edition, thesauri help users that have a consolidated knowledge of language.

You cannot find a word you have forgotten or do not know in a dictionary [...]. But find a word of similar meaning in a thesaurus, and you will discover a variety of expressions which should include the one at the back of your mind, or perhaps an unfamiliar word which when checked in the dictionary, proves even more appropriate (Lloyd 1982: vii).

Native or near native speakers' language instinct can indeed guide them round the various matches, allowing them to pick the most suitable one for every context of use. Language learners, who are largely inexperienced in using them, may find these works confusing or not exhaustive enough. A much more dedicated tool is needed for them. To see if we can find any confirmation in this, our next step will be to extend this research to other thesauri, including a series of learner thesauri.

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