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Documents and Teachers in Designing Tertiary ESP Courses in Poland

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Abstract

The article presents an analysis of ministerial and internal faculty documents, that shape the design of tertiary ESP courses in Poland, as well as the results of a small-scale study conducted among subject teachers at the Faculty of Mathematics of the University of Białystok. The analysis of the documents has revealed a number of problems with these documents. Many of them seem to stem from the misunderstanding of the process of teaching a foreign language. Some of these issues are also revealed in the teacher survey alongside a certain discrepancy between the language requirements and the respondents' opinions. While some of the problems are systemic (caused by the process of developing these documents and people's attitudes towards them) and therefore cannot be easily solved, a number of improvements such as more balanced approach to the development of language skills or a different selection of texts for students to work with could be made through cooperation between content teachers and language teachers

Key words: ESP courses, tertiary education, document analysis, language requirements, English for Mathematics, cooperation

1 Introduction

The work of teachers of all levels in Poland is strongly controlled by various ministerial and internal regulatory documents. In the case of tertiary education this includes *Teaching standards* issued by the Ministry of Science and Higher Education, which form the basis for documents developed by individual faculties such as general *Teaching outcomes* and *Programmes of study* for individual fields of study[1]. This article presents an analysis of these documents, as they apply to ESP language courses in a non-linguistics field of study. The issue in question is whether these documents are more of a help or a hindrance to language teachers, as well as how well they fit with the actual needs and expectations of students and language instructors. To answer this question, the author has conducted a qualitative analysis of the aforementioned documents, as they apply to BA studies in Theoretical Mathematics at the Faculty of Mathematics of the University of Bialystok. Furthermore, content teachers were questioned with regard to how they perceive language requirements from the *Programme of study for Theoretical Mathematics*.

The article is divided into four parts. The first part is a short description of documents that shape the design of tertiary language courses, the second part discusses faculty requirements for language courses, the third part presents the results of a small-scale study conducted among faculty content teachers and in the final part the author conclusions and possible ways of cooperation between language teachers and content teachers in designing language courses.

2 Documents shaping the design of tertiary ESP language courses in Poland

Teaching standards were developed by the Polish Ministry of Sciences and Higher Education for 118 fields of study. They are sets of requirements for programmes of study which are obligatory for all institutions of higher education in Poland.

These documents are divided into six main parts for BA programmes, into five main parts for MA programmes and into six main parts for long cycle programmes[2]. The parts of the documents are as follows:

- **General requirements:** this part specifies the number of semesters, teaching hours and the minimum number of ECTS (European Credit Transfer System) points.
- **Qualifications of a graduate:** this is a general description of graduates' knowledge and skills. This part also states that a graduate should be prepared to take up a job and to follow an MA or a PhD programme.
- **General teaching content**: this part details concepts to be taught within the group of topics obligatory for all the students and within the group of topics which students will learn depending on their major. This part also provides the teaching outcomes, divided into skills and competences for each topic, as well as the minimum number of teaching hours and ECTS points for each group.
- **Professional practice:** this part specifies, among others, the minimum duration of professional practice.
- **Other requirements**: this part contains, among others, the minimum number of teaching hours and ECTS points for physical education and IT classes.
- **Recommendations:** the content of this part will specifically depend on the requirements of a given field of study.

1 "Field of study" in this context does not refer to a research area or a branch of science, but a group of subjects or areas of knowledge taught together at a university. This is similar to a minor and/or major in the American system.

2 Five-year studies leading to an MA degree

As regards foreign languages, requirements can be found in the part **General requirements** where it is stated that a graduate of a BA programme should know at least one foreign language at B2 level of CEFR (or higher) and a specialised variety of the language. The part **Other requirements** determines the number of teaching hours and ECTS points assigned to language courses whereas the part **Recommendations** suggests the language that students should learn.

According to ministerial *Teaching standards for Mathematics*, a student during the BA programme thus learns English for 120 lessons (one lesson lasts for 45 minutes) to reach at least upper-intermediate level (the language course is worth 5 ECTS points). He or she should also learn a specialised variety of English, but its level is not stated in the document.

Ministerial *Teaching standards* are the basis for individual faculties, that develop a document titled *Teaching outcomes*. The first part of the document — **General information** — specifies, among others, general teaching aims, graduates' employment opportunities, the involvement of other parties, such as faculty authorities, students' council, or potential employers in defining teaching outcomes. The second part of the document — **Teaching outcomes** — presents in detail the teaching outcomes for a given field of study. The outcomes are divided into three sections: **Knowledge**, **Skills**, and **Competences**.

As regards foreign languages, the *Teaching outcomes* developed by the Faculty of Mathematic of the University of Białystok state that a graduate of a BA programme should know at least one foreign language at B2 level (**Knowledge** section) and that he or she should be able to search for information in professional literature both in Polish and foreign languages (for reasons hard to fathom this is put in the **Social competences** section).

As for employment, a graduate should be able to find work with: 1) institutions using mathematical methods, 2) primary schools, junior high schools (which have since been removed from the system due to the 2017 educational reform) and vocational schools, if they complete the optional teacher training course.

This general document is the basis for more detailed documents tilted *Programmes of study for day (extramural) studies* which present intended teaching outcomes for the whole cycle of studies for students of a given field of study within one faculty. For example, at the Faculty of Mathematics of the University of Białystok at BA level there are programmes of study for Financial Mathematics, Theoretical Mathematics, and Information Safety.

The *Programme of study for Theoretical Mathematics* for the BA programme specifies teaching outcomes for 37 modules (e.g. Topology, Algebra, Differential Calculus). In the document there are four language modules each corresponding with one semester. The author of the article analysed this programme because she teaches students of Theoretical Mathematics and is therefore obliged faculty regulations while designing and ESP course.

Table 1 presents teaching outcomes for ESP courses, divided by semester. The phrases in bold in the table indicate new requirements that are introduced in a given semester. The language requirements were literally translated from the faculty documents.

Table 1: *Requirements from the Programme of study for Theoretical Mathematics concerning foreign language courses*

Semester 1	Semester 2	Semester 3	Semester 4
A graduate has basic knowledge of mathematical terminology in foreign languages. A graduate can: – prepare a summary in foreign languages of a popular science article about mathematics – translate into Polish a popular science article about mathematics published in a foreign language – prepare in a foreign language an auto-presentation, a short paper on basic mathematical concepts (encyclopaedic entry) – discuss in a foreign language graphs and the results of mathematical calculations – write: informal and formal letter, a report	A graduate has **basic but systematic** knowledge of mathematical terminology in foreign languages. A graduate can: – prepare in a foreign language a report, a **write-up** and a summary of a popular science article about mathematics – translate into Polish a popular science article about mathematics published in a foreign language – prepare in a foreign language an auto-presentation, a short paper on basic mathematical concepts (encyclopaedic entry) – **discuss in a foreign language data sets** (presented for example in tables) and the results of mathematical calculations – write an informal letter, **an email with instructions,** **a description**	A graduate has systematic knowledge of mathematical terminology in foreign languages. A graduate can: – prepare in a foreign language a report, a write-up and a summary of a popular science article about mathematics – translate into Polish a popular science article about mathematics published in a foreign language – prepare in a foreign language an auto-presentation, a short paper on basic mathematical concepts (encyclopaedic entry) – discuss in a foreign language graphs and the results of mathematical calculations – write formal letter/ email, **a description of an object** – **find, understand and analyse information from different sources (for example from foreign professional literature) which corresponds with his or her major** **A graduate participates actively in discussions conducted in a foreign language**	A graduate has systematic knowledge of mathematical terminology in foreign languages. A graduate can: – prepare (orally and in writing) in a foreign language a report, a write-up and a summary of a popular science article about mathematics – translate into Polish a popular science article about mathematics published in a foreign language – discuss in a foreign language graphs and the results of mathematical calculations – **prepare summary of his or her BA thesis in a foreign language** – **knows a foreign language at B2 level of CEFR** – write an informal letter, **speech, essay** – find, understand and analyse information from different sources (for example from foreign professional literature) which corresponds with his or her major – **lead a discussion in a foreign language and is able to sum it up** **A graduate knows how to negotiate, mediate and reach a compromise in a foreign language.**

3 Language requirements from the *Programme of study for Theoretical Mathematics*

The language skills and knowledge from the *Programme of study for Theoretical Mathematics* were put into a syllabus and language teachers were asked to provide content. In the first place they had to decide what basic mathematical terminology in this context is.

In order to do so, language teachers would need to build a corpus of texts related to faculty content subjects in cooperation with faculty content teachers who know which vocabulary items obtained through the corpus analysis are subject-obligatory and could be treated as basic mathematical terminology. However, this is a long-term project and does not provide teachers with immediate answers about the content of their courses or rather lists presenting the scope of mathematical concepts to be taught, that are required of language teachers in October, when language syllabi are accepted by the faculty.

Clues to the choice of specialist vocabulary to be taught can be found in other requirements from the *Programme of study for Theoretical Mathematics*: students are expected to be able to discuss graphs, data sets (presented, for example, in tables), and the results of mathematical calculations. To do so students need to know, for example, the names of different graphs basic operations, algebraic and calculus symbols in English.

The choice of terminology should also enable students to prepare a summary of their BA thesis. However, language courses at the Faculty of Mathematics of the University of Białystok end when students are in their second year and their diploma seminars, where they discuss the content of the dissertation, begin in the third year. Consequently, students will not be able to prepare a summary of their BA thesis during a language course, as they do not know yet what issues they will be researching.

Another requirement according to the *Programme of study for Theoretical Mathematics*, is that a graduate should be able translate into Polish a popular science article about mathematics. Such a statement confirms that "the essence and complexity of translation activity is commonly misunderstood and underestimated" (Hejwowski, 2004, p. 235). Hejwowski further argues that it is commonly believed a person who has learned a foreign language can translate any text into and from the foreign language. Translation competence does include a good knowledge of at least two languages, but it is usually developed through many years of practice. Consequently, not every language teacher, if they do not have the appropriate training and/or experience, will be able to translate, let alone teach translation to upper-intermediate students.

Popular science articles frequently use more complex language structures than specialist literature, which tends to focus more on clarity and precision than on style. Pluta (2008, p. 47) observes that tertiary students will find it easier to understand specialist rather than popular science articles from their field of study, as the specialist knowledge they gained in other subjects will help them grasp the message of the text and compensate for inadequacies in language knowledge, which would otherwise impede understanding of the text. Taking all this into account, if translation is at all to be required, it would make more sense for students to translate specialist texts.

Another skill listed in the faculty programme of studies is the ability to prepare a summary of a popular science article about mathematics in foreign languages. Since specialist texts are clearer and more precise than popular science articles, it would make more sense to require that students summarize specialized articles.

The authors of the requirements put a lot of emphasis on writing skills. Apart from preparing translations and summaries, students have to know how to write formal and informal letters, formal emails, emails with instructions, a description, a description of an object, a speech and an essay. Writing formal and informal letters is emphasized already in the first semester, but one could argue that paper

correspondence is an obsolete skill for students who belong to the generation of digital natives. However, BA graduates should know how to write a formal email. Students are also required to write an email with instructions, but it is not clear what it means. Another question is whether graduates of mathematics really need to be able to write, of all things, an email with instructions (whatever that may be)?

Equally baffling is the statement that students should be able to write a description. A description of what? A person? A room? A landscape? The requirements for the first semester of the second year are more specific: a description of an object. However, it is not defined what an object is for a mathematician and if it is even relevant.

It is also difficult to interpret the statement on students being able to write reports and write-ups[3]. Without cooperation with content teachers a language teacher will not be able to establish what types of reports or write-ups mathematicians prepare, or how often they need to write them. Consequently, they will not be able tell how much attention should be devoted to these forms in the language classroom.

After the fourth semester of a language course students are required to know how to write a speech but they do not have to be able to deliver it. Instead, they need to be able to prepare oral reports and write-ups. It is hard to imagine why mathematicians would need to be able to write speeches which they are not going to give. It would make much more sense for graduates to be able to prepare and present a paper at a conference. The ability to present a paper is mentioned, but it is supposed to cover basic mathematical concepts, which would only be useful on the rare occasions when teachers of mathematics might be called upon to teach a class in a foreign language.

The last writing skill language teachers are required to develop is writing essays. Again, why do mathematicians write essays and how important is this skill for them? Perhaps this statement should be interpreted as an element of developing students' general language skills? After all, graduates are required to know a foreign language at B2 level of CEFR.

Such a strong emphasis on writing skills is probably caused by the fact that it is only content teachers who authored the language requirements and they are obliged to pursue academic careers, which involves, among others, publishing articles in English. It is likely that the skills in the requirements, not only the writing skills, are the ones faculty academics use and perhaps that is why they assumed that students would also need them. According to the requirements, graduates should be able to find, understand and analyse information from different sources (for example from foreign professional literature), which corresponds with their major. These are exactly the skills a person should possess to pursue an academic career and prepare academic publications. These are useful skills, albeit only for a minority of graduates who would like to follow their vocation in academia or in science popularisation.

Moving away from writing, as far as speaking is concerned, interaction is only mentioned in the requirements for the third semester and yet first-year students already know how to interact orally in English, as the majority of them had learnt the language in secondary school and took their final written and oral exams. If students are not expected to develop their speaking skills during the first year in more diversified ways than it is indicated in the requirements, their speaking skills, and especially interacting with others, will probably deteriorate. The way the requirements for speaking are formulated means that students are thrown in at the deep end in the third semester: there is a huge gap between being able to discuss the results of mathematical calculations or delivering an auto-presentation and being able to participate actively in discussions conducted in a foreign language.

3 In the Polish version of the language requirements the authors use the words *rapport* and *sprawozdanie*, which are synonyms in Polish and without adequate context, are almost impossible to either distinguish or translate precisely. No such context was provided and therefore the author of the article used the English word 'report' for *rapport* and 'write-up' for *sprawozdanie*.

To become effective communicators, students need to be systematically guided and supported in how they develop relevant speaking skills (Goh, 2017, pp. 245–246). The faculty language requirements do not allow for such systematic support. That is why requiring students in the fourth semester to be able to negotiate, mediate and reach a compromise in a foreign language, or to be able to lead and sum up a discussion is unrealistic, because they have neither the time nor the opportunity to develop the necessary skills, especially that the language requirements are already quite demanding. Another question is how the speaking skills students have to master will relate to their communicative goals as graduates of mathematics?

That brings us to the issue of needs analysis which is one of the major pillars of English for Specific Purposes (ESP) (Harwood & Petrić, 2011, p. 245). Needs analysis can be defined as the process of gathering and interpreting information on how language learners will use the target language outside classroom walls (target situation analysis TSA; Widdowson, 2000, p. 196).

As was mentioned before, the faculty *Teaching outcomes* state that a graduate of BA programme should be able to find employment in the school system or in institutions using mathematical methods. Before designing an English for Mathematics course one would have to research how and when Polish primary school teachers of mathematics use English during their lessons.

According to the latest Core Curriculum for primary schools, schools are allowed to introduce bilingual education in the two final classes. This means that graduates of Mathematics would have to be prepared to use English in the context of language and content integrated learning (CLIL). However, it should be noted that it is not obligatory for schools to introduce CLIL. Since most Polish teachers of mathematics are not expected to teach in English, CLIL should be included in the language requirements but not prioritized.

As for employment in institutions using mathematical methods, the content of a language course should probably be designed in cooperation with relevant institutions. At the very least, language teachers should communicate with content teachers in order to establish what is meant by institutions using mathematical methods and what their language needs in terms of mathematical English might be.

4 Research project

4.1 Methodology

Since ministerial language requirements are very general and therefore open to interpretation and faculty language requirements, even though more detailed, do not seem to take into account actual needs of graduates, research was conducted to gather content teachers' views concerning tertiary language teaching. The research was motivated by the following research questions:

1. What language level should graduates of the BA programme possess?
2. What level of the specialised language variety should graduates of the BA programme represent?
3. What proportions should there be between English for General Purposes (EGP) and English for Specific Purposes (ESP) in a language course?
4. Which language skills (specialised or general) should be emphasized during a language course?
5. Which skills and knowledge listed in the *Programme of study for Theoretical Mathematics* should be emphasized most strongly in a language course?

The research tool was a self-administered questionnaire. The language of the questionnaire was Polish. At the time of the research, the Faculty of Mathematics of the University of Białystok employed 36 content teachers, but only seven of them completed the questionnaire. Even though the findings

cannot be generalized because of low response rate, the answers provide interesting insights into how the respondents, who are content teachers, perceive the requirements for language courses.

4.2 Interpretation of the results

The first question item on the questionnaire concerned the language level. Four out of seven respondents indicated that graduates should know a foreign language at the upper-intermediate level, which corresponds with ministerial regulations. Two respondents indicated the advanced level and one person opted for the intermediate level. As regards the level of the specialised variety of the target language, four respondents indicated that the level of ESP should be the same as the level of EGP and three people thought that the level of ESP should be lower than the level of EGP. In reality it is difficult to obtain the same level of EGP and ESP, because the abilities do not translate well from one to the other and language teachers have too little time (120 lessons) to take students to at least B2 level of EGP (especially when they start at A2/B1 level) and at the same time to teach them ESP to the same level of competence.

As for the proportions between EGP and ESP, four respondents think that a language course should include elements of both EGP and ESP, but with the main emphasis put on general English. Two respondents indicated that students should learn only a general variety of the foreign language and one person indicated that ESP should be emphasized more than EGP during language courses. These opinions seem to contradict the answers concerning the language level: the majority of the respondents think that students should know ESP and EGP at the same level and yet they argue that language teachers should devote more time to developing general language skills. This is especially paradoxical as students enter university with a certain degree of knowledge of EGP but usually with no knowledge of ESP.

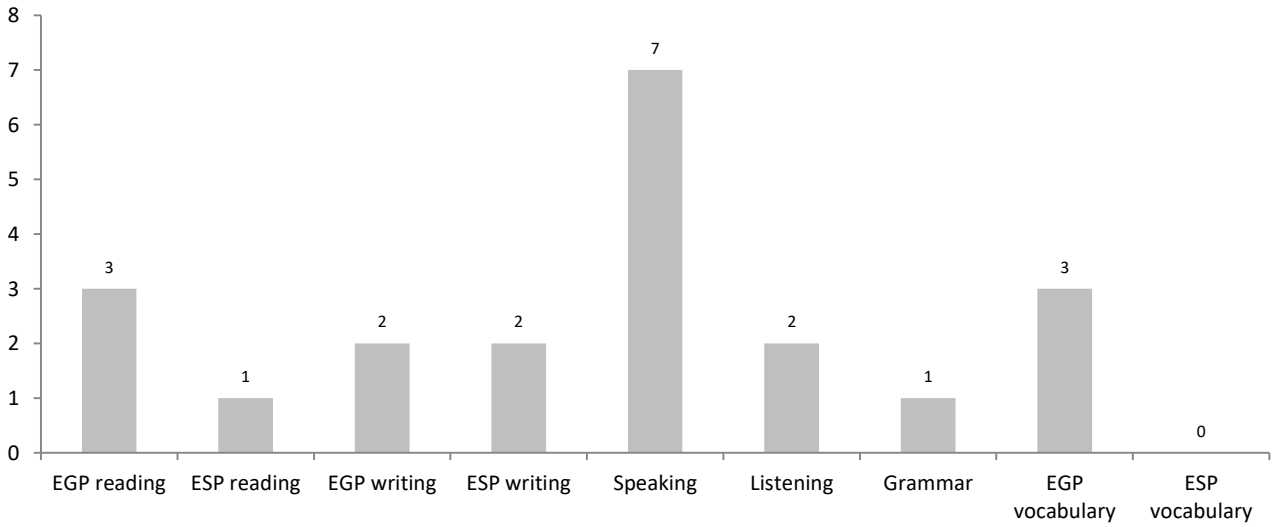

Figure 1: *The importance of skills in a language course*

The analysis of answers to question 4 revealed that all the respondents think that speaking should be emphasized the most in a language course, whereas in the faculty language requirements speaking is one of the most neglected skills. In the second place the respondents indicated developing EGP reading skills and improving EGP vocabulary, which are not mentioned in the requirements at all. Interestingly, none of the respondents thought that language teachers should help students broaden their knowledge of ESP vocabulary which is the most stressed aspect in the *Programme of study for Theoretical Mathematics*. This might be due to the fact that content teachers are likely to know how to express mathematical concepts in English and assume that students, just like them, can learn it

independently of the teacher. The obtained data also shows that the respondents would want more attention to be devoted to general rather than specialised language skills, but general language skills are virtually absent from the language requirements.

The last question in the questionnaire contained all language requirements from the *Programme of study for Theoretical Mathematics* and the respondents were asked to indicate those 5 which should be emphasized most in a language course. Table 2 presents the requirements sorted by the number of "votes" they received.

Table 2: *The importance of skills from the Programme of study for Theoretical Mathematics*

The skills	Number of responses
Preparing an auto-presentation	6
Leading and summing up a discussion	6
Searching for and analysing information from different sources (e.g. from foreign professional literature)	4
Preparing a summary of a popular science article in a foreign language	4
Preparing a summary of a BA thesis	3
Translating into Polish a popular science article in a foreign language	3
Discussing graphs and the results mathematical calculations	2
Preparing a report in a foreign language	1
Preparing a write-up in a foreign language	1
Presenting a short paper on basic mathematic concepts	1
Writing an essay in a foreign language	1
Negotiating, mediating and reaching a compromise	1

According to the respondents, two most important skills require a good command of a spoken language, the development of which, as it was already mentioned is not prioritized.

In the second place the respondents indicated *searching for and analysing information from different sources* and *preparing a summary of a popular science article in a foreign language* – skills which can be more useful for people pursuing their academic careers, than for teachers of mathematics or mathematicians in non-academic institutions.

In the third place the respondents chose *preparing a summary of a BA thesis*, which is a surprising choice, because, although almost all students are guaranteed to need it, they will probably only use it once. The same number of responses was accorded to *translating into Polish a popular science article published in a foreign language*. It should be reiterated that the time and effort needed to obtain this level of linguistic ability is beyond the scope of the language course in question.

The remaining skills indicated by the respondents are the ones that are best developed with the teacher's support and perhaps that is the reason why respondents think they should be included in a language course. Interestingly, none of the respondents indicated the development and systematization of mathematical terminology.

5 Discussion

The analysis of documents which shape the design of tertiary language courses in Poland has shown what consequences the lack of cooperation between content teachers and language teachers might have on formulating language requirements.

At present, the faculty language requirements are based on such misconceptions as: "knowing a foreign language means being able to translate", or "popular science articles are easier to understand and consequently to translate and summarize, than the specialist ones". Moreover, the requirements make language teachers develop too many skills at one time. During a four-semester course language teachers also have to develop skills (e.g. translating) which would normally be taught during long cycle programmes with students majoring in these skills. Additionally, language instructors struggle to interpret vague statements, such as *writing descriptions of an object*, in the context of English for Mathematicians.

If asked to cooperate while developing language requirements, language teachers would be able to tell how many language skills and how much knowledge (i.e. the scope of mathematical terminology) can be developed during one semester. They would also be able to suggest a more balanced approach to the development of all language skills and provide more suitable scaffolding (Goh 2017, p. 248) for the development of language skills. Furthermore, language instructors would be able to select appropriate texts to work with. Additionally, in view of the fact that a graduate of a BA programme is required to know a foreign language at least at B2 level of CEFR and its specialised variety, language teachers could help design the course in such a way as not to neglect the general variety and support the development of the specialized language, the level of which would probably have to be lower than that of general English.

The analysis of the *Programme of study for Theoretical Mathematics* also suggests that no needs analysis was conducted as far as graduates' employment opportunities are concerned. As they are currently formulated, the skills and the knowledge that students have to master are more suitable for future teachers conducting research and working in institutions of higher education rather than for teachers of Mathematics in Polish primary schools.

It is questionable whether there is indeed a need for graduates to have mastered ESP, considering that almost nothing indicates that many of them might need it in their future careers. Neither do they need it for learning, as at present English is not required for preparing for other classes.

The discrepancy between these language requirements and the opinions expressed by the respondents in the teacher survey combined with the low response rate suggest that these documents are not taken very seriously, perhaps because they are seen as more of a formality than an actual useful document.

One of the aforementioned discrepancies is that respondents put far greater emphasis on general rather than specialized language skills. They also stress the importance of language skills different than those stressed in the documents (e.g. speaking rather than writing). Interestingly, they do not foster the need to teach specialist vocabulary and emphasize most skills that cannot be self-taught. However, they repeat some of the misconceptions about language teaching expressed in the language requirements, for example: the need to teach translating and summarizing popular science articles.

All this suggests that it might be preferable for language teachers to take a leading role in preparing the learning requirements, while content teachers might have more to offer in creating specific syllabi content, such as vocabulary lists – the opposite of the current situation.

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