



USE OF "DRILL" UTILITY OF INFORMATION SYSTEM OF MASARYK UNIVERSITY FOR NON-LANGUAGE MEDICAL STUDENT EDUCATION

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Abstract

The "Drill" utility in the Information System of Masaryk University (IS MU) is based on recent findings from psychology of learning - so called "spaced repetition" system. For more quality remembering the terms it is better to repeat the terms less frequently during a longer time period, rather than intensive short-termed memorizing. The "Drill" utility is an automated system that offers to its users cards with "questions" (e. g. terms in one language); user try to find an "answer" (e. g. term in the second language). The user self-evaluates his/her own knowledge of the answer. Later the system offers more frequently cards labelled by the user as trouble-making and less frequently the cards that do not make problems. The spaced repetition systems, including the "Drill" in IS MU, are mostly used for language education. Non-language use of this system is rare, although possible. At the Institute for Microbiology of Medical Faculty, Masaryk University, we decided to enable our students to use this system for memorizing some specific terms of our branch. In the first phase, we implemented "Drill" for scientific names of medically important parasites, this year we offered another "Drill textbook" to our students – some specific diseases and the typical pathogens causing them. Only part of our students use them, but available feedback says that they are quite content with this new opportunity. In recent education it is emphasized to prefer learning "where to find facts" instead of learning facts themselves. Nevertheless, in medicine (and not only here) some basic knowledge of facts is inevitable and also accepted by students, but only when modern education methods are used. We assume that "Drill" or similar learning methods could be further used not only in the subject of medical microbiology, but also in some other subjects of medical education.

Key words: Spaced repetition, Memory training, Medical microbiology

Situation

This article describes a new utility for Medical Microbiology for students of General medicine. Medical microbiology for General medicine is a subject that durates two semester (usually 4th and 5th semester of study) and has a



form of blended learning; contact part has a form of 1 hour of lectures and 3 hours of practical sessions in a week. Self-learning from textbooks and e-learning using our tools should be used by students, because contact learning itself is not sufficient for obtaining requested amount of information.

E-learning position in medical microbiology for general medicine in Masaryk University, Brno

The Institute for Microbiology, Medical Faculty, Masaryk University, Brno, has a very good access to e-learning tools. Masaryk University has a unique "Information System of Masaryk University" (IS MU) and this system, besides containing many other tools (evidence of students, teachers, subjects, examinations, discussion forums, registration of subjects for students etc.) also functions as a good platform for e-learning tools. Institute for Microbiology uses many of them for students of General Medicine. Protocols for practical sessions are actualised every year, uploaded to the system and downloaded by students. Slideshows from practical sessions have a specific "e-learning version", that is not identical to the form used in contact learning, for example it contains cross-links between individual parts. More recently, former "check-up questions", that were placed in the end of laboratory protocols, were transformed into an electronic questionnaire; filling it is compulsory and unlike original questions, students have variants of answer, but also feedback in form of additional information given to them both in case of a correct answer or a wrong answer. Recently, students have also possibility to use "interactive syllabi" that function as a united gate to protocols, e-learning versions of slideshows, questionnaires, but also video-clips (if some video-clips are available to a chosen topic). All these materials mostly function together with practical sessions. On the contrary, the "Drill" utility, described in this article, is not directly related to practical session and functions as a support also for the parts of Medical Microbiology that are not covered by practical session schedule.

More instructions

Unlike some other tools, "drill" is one of relatively new functions of the IS MU. It was mostly developed for language learning. It is based on available knowledge from psychology of learning. The psychologists assume, that for more quality remembering the terms it is better to repeat the terms less frequently during a longer time period, rather than intensive short-termed memorizing. This is called "spaced repetition" system. The "Drill" utility uses this knowledge. It is an automated system, similar to other systems used in the



world. The system offers to its users cards with "questions" (e. g. terms in one language); user try to find an "answer" (e. g. term in the second language). The user self-evaluates his/her own knowledge of the answer. When the student comes to the "Drill" system agains, the programme offers more frequently the cards that were self-evaluated by the students as "I did not know" than those labelled "I remembered well".

At the Institute for Microbiology of Medical Faculty, Masaryk University, we decided to enable our students to use this system for memorizing some specific terms of our branch. In the first phase (2009), we implemented "Drill" for scientific names (versus Czech names) of medically important parasites, recently (2011) we offered another "Drill textbook" to our students – some specific diseases and the typical pathogens causing them. Unlike the first "drill textbook", that could be casually classified as "language textbook", as scientific names of parasites are Latin names, the second "textbook" concerns making connections between two related terms of the same language. For logical reasons, for this textbooks only some relations were eligible: it would be useless, if students would memorize relations like "Legionella – legionellosis". Another problem to solve was that often microbial diseases are related to more than one organism, and organisms are related to more than one disease. Finally, only such "pairs of terms" were used, that make practical sense, and that enable one clear answer. Therefore, it was not always possible the classical "two-way" system, typical for learning of language vocabulary. In our case, formulation for "disease – pathogen" pathway had to be often different than that for "pathogen – disease" pathway.

Only part of our students use the new system, but available feedback says that they are quite content with this new opportunity. It will be of course difficult to proof, whether the knowledge of used terms is really better when "Drill" is used by students.

Discussion concerning future

In short-term future we plan to implement also English version of Drill textbooks, as many foreign, English-speaking students study at our University and we consider this method as usefull for them, too. Other e-learning tools in Medical Microbiology exist already in both Czech and English version, so we wish to make the same with "Drill", too.

In long-term future we consider very important solution of the question, what would be the future leading platform for e-learning at our workplace. In this moment, there exist the IS MU as a university system (that connects



Medical faculty with all other faculties of the University), but in the same time, we have also the e-learning portal of our Medical Faculty, that is connected to other medical faculty learning portals in the Czech and Slovak Republic through "Mefanet" network. We hope that future would bring a technical solution, how to enable use of our e-learning features, including Drill, not only by our students and students of other faculties of our University, but also by students of our colleagues in other Czech and Slovak cities (or even cities of other countries).

Conclusion

Many recent papers concerning education say that it is necessary to prefer learning "where to find facts" instead of learning facts themselves. Nevertheless, in medicine (and not only here) some basic knowledge of facts is unevitable and also accepted by students, but only when modern education methods are used. We assume that "Drill" or similar learning methods could be further used not only in the subject of medical microbiology, but also in some other subjects of medical education.

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