

# Blended Learning before a learning environment change

## *Pre-departure training for medical students*

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### Background information

Masters medical students can leave for their internship in various countries during their 1st, 2nd or 3rd year. The pre-departure training should therefore be offered to students at different study levels, but should also be 'time-tailored'. Students need to finish the training just before they leave, so they know which country they will go to (just-in-time-learning). As a consequence, students can apply knowledge of the training to their country of internship (contextualization). This contributes to well-preparedness of students.

### Introduction

Maastricht University encourages medical students at masters level to gain international experience. An internship in a non-western country poses different problems and challenges for students compared to the usual internships in the Netherlands and neighbouring countries. Around 150 medical students leave our university for non-western countries each academic year. The aim of the university is to send these students well-prepared to their overseas institutions: The internship on the tropics should be safe for patients, but also for students. In the past students had to follow an obligatory course in tropical medicine. This course focused on some important tropical infectious diseases and public health aspects, but not so much on personal preparation. For instance; safety issues and dealing with cultural differences. Because of a change in the curriculum this course was not compulsory anymore. At the same time, the lack of sufficient preparation of medical students for foreign electives was a national topic of discussion. Therefore the need was felt to develop a training, which focused not only on tropical diseases, but could also contribute to personal preparation for foreign electives. The aim of the study is to evaluate the pre-departure training for medical students.

### Content and structure of the 'pre-departure training'

The content of the training was developed by (tropical) doctors and a safety expert. A blended learning expert was consulted from the beginning of the development of the training. The topics of the training are displayed in Table 1.

**Table 1** An overview of the topics in the pre-departure training

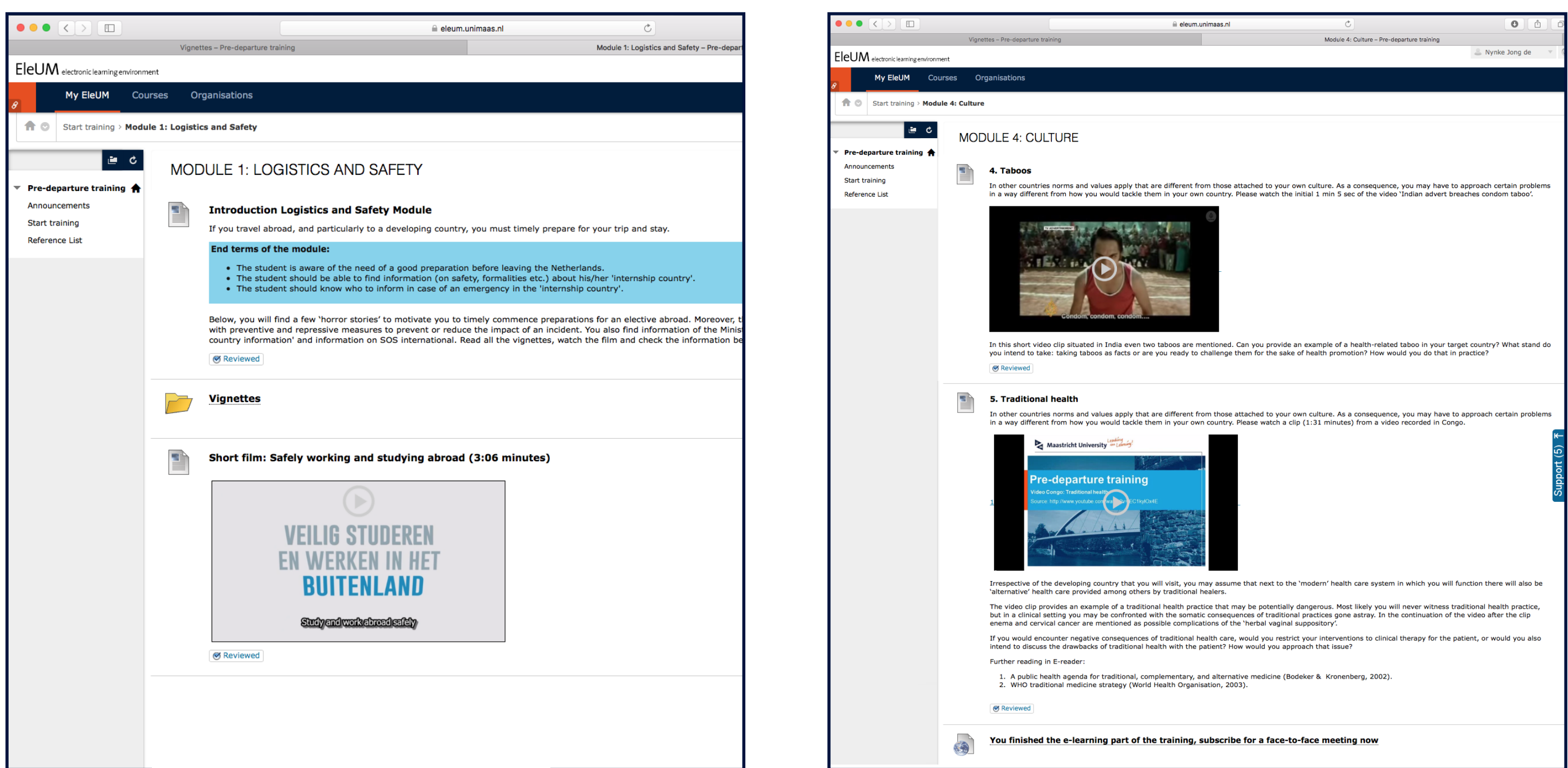
Topics of the training	Description of the topics
Topic 1: Logistics and Safety	Students get general information on safety issues.
Topic 2: Infectious Diseases	This training focuses on infectious diseases that are more common in developing countries. Personal safety issues with infectious disease are also dealt with in this training.
Topic 3: Mother and Child Health	This training provides information on health issues around reproductive health, pregnancy, delivery and pediatrics. The training invites students to think about specific problems that can be encountered in developing countries.
Topic 4: Culture	It seems obvious that cultural difference can be a source of misunderstanding. This training challenges students to think about this.

The structure of the pre-departure training is flexible. For this reason an 'open' online training, on a secure platform 'Blackboard' was chosen. 'Open' means that students can enrol themselves in the training at any time. At the introduction page of the training students find basic information about the entire training. They start with the topic 'Logistics and Safety'. By 'clicking' students move from one subtopic to another subtopic. Each topic is supported by video clips and literature, but is also differently elaborated. At the end of a topic, students do an assignment or a multiple-choice examination. The training is completed by attending a face-to-face meeting where the assignments on culture and safety are discussed in groups with around 15 students. A tropical doctor is supervising the session of two hours. The safety expert is visiting the session for half an hour.

### References

- Ormrod, J. E. (2009). *Human Learning (5<sup>th</sup> edition)*. London: Pearson Education Ltd.
- Dolmans, D. H. J. M., De Grave, W., Wolhagen, I. H. A. P., & Van der Vleuten, C. P. M. (2005). Problem-based learning: Future challenges for educational practice and research. *Medical Education*, 39, pp. 732-741. doi:10.1111/j.1365-2929.2005.02205.x

Two examples of the content on Blackboard:



### Methods

A paper questionnaire was developed by the researchers to elicit demographic characteristics, place of internship, hours spend on the online part of the training, clearness of procedure, structure of the training, and the existence of technical problems. The online part of the training and the face-to-face meeting were also evaluated using a 5-point Likert scale with room for free text comments. A grade for the entire training was given on a 10-point scale. The questionnaire was administered directly *after* the face-to-face meeting.

### Results (n=93)

The training was completed by 67 female and 26 male students. The average age of the group was 22.3 years (SD = 1.5). The locations of internships: 11 in South-America, 39 in Asia, and 43 in Africa. The largest group will go to India (26 students). 65% of the students spent 11-30 hours on the online part of the training. The procedure and structure of the training was clear for 90% of the students. 25 students experienced technical problems which were mainly caused by the clicking part of the training. Screens appeared smaller each time. The most favourable topics were: Infectious Diseases (mentioned 40 times) and Mother and Child Health (mentioned 36 times). Reasons for choosing these two topics were: format, interesting, new information, and relevant for my clinical practice. The clearness of the content of the four topics was not rated below 3.8 average (range 1-5), which means the content was clear. Students reported they learned much from the online part of the training (mean score 3.5; SD 0.8) and face-to-face part of the training (mean score 3.8; SD 0.9). The face-to-face meeting was positively evaluated with a mean of 4.0 (SD = 0.7) for instructiveness, a mean of 4.1 (SD = 0.8) for informative, and a mean of 3.9 (SD = 0.8) for relevance. Students found the face-to-face meeting added value to the training (mean is 4.1: SD = 0.8). The statement 'The quality of the training was good' was rated 3.7 (mean) (SD = 0.8). Students graded the entire training with a 7.0 (range 1-10), which means students were satisfied.

### Conclusion

In conclusion, well-prepared students are a necessity for foreign electives, not only with respect to sufficient knowledge on tropical diseases but also for their personal development. Students are satisfied with the online and the face-to-face parts of the training. With this training students can reflect on their own possibilities and needs. Faculty staff can also anticipate the likelihood (context), such as information on the ZIKA virus, directly in the online component or in the face-to-face meeting. This blended learning format provides students with the possibility to learn in context before the change in their learning environment.