

REPORT OF THE PILOTING PHASE

1. INTRODUCTION

The ALCMAEON project aims to innovate the medical history module with a new educational approach, the object-based learning, and integrate historical, ethical, and psychosocial components of medical humanities. The integration of different disciplinary contents is strengthened through the object-based learning approach, and an educational strategy focused on the role of sensory experience, a direct learning experience essential to promote the students' critical reflection. Experiential learning highlights everyday experience's meaning to promote change in practice structures and the learners' perceptions. The project represents an effort to redefine medical history's role in medical students' curriculum and assure an appropriate medical humanities room. Our proposal considers two essential aspects of characterizing teaching medical humanities: the lecturers' lack of special training in medical history and the format of educational contents traditionally used. The use of digital technology can support lecturers to face the need of embed the teaching of medical history in a more general framework which respond to organizational needs contemporary medical education. The project developed a digital platform to improve the learning and teaching process of medical humanities by developing a digital museum and offering to the learners further contents to understand the historical context through historical sources' direct experience. The project built a partnership between medical museums, universities museums and medical schools and promoted the experiential learning to show the object of medical museum systematized through a training package available for medical humanities lecturers and medical students. The intellectual output 1 developed a training package in medical history for medical humanities lecturers. We developed a teaching module corresponding to 2 ETCS. The module contents have been designed on the findings of a mapping that explored students and lecturer s needs through a focus group study and a questionnaire. The educational contents design has been inspired by the medical humanities curriculum review, which provided a common standard for the material. Trough the intellectual output 1 we achieved the contents to design the educational material, the mapping explored the contents of medical history programmes in each country, and identified specific competences required in the different countries. The format of the material has been other aspect informed by the mapping curriculum, the diversity of the format assumed by the courses of medical humanities in the different countries obliged to explore previously all the available options to assure the readiness and the application in different higher education organisations. Moreover, the mapping offered the opportunity to explore the users' and providers' needs in the different organisational contexts, and tailor an adaptable material for all the circumstances. In fact, medical humanities programmes can include different subjects depending on the format and the contents of medical curriculum in used in each medical school, this is because among the subjects generally included in medical humanities courses there are medical history, medical ethics, social medicine, communication skills, public health and history of epidemiology, and other possible disciplines. Each HEI involved in medical education can follow an order or apply different criteria to implement the medical humanities learning programs. The stakeholders consultation explored users' and providers' needs to improve the contents of medical history module, the educational material included 12 units corresponding to two lectures per unit, each unit supported from a reading to help students to understand the historical surrounding each topic. The organisation of the units followed two different approaches, a more traditional chronological account of medical history, used in some of the countries involved in the project, and a more topic-specific account where the order of subjects can be varying in relation to the lecturer preferences and the organisation of the course. Each unit has been linked with the digital collection developed in the IO2 and the videolibrary available in the IO3. The structure of teaching material has been thought to be modified and integrated to the different modules order available in each country. Mapping showed how the position of the medical history module can be different, and how these differences are sometime due to the structure and the organization of the educational program, or to the preferences of lecturer who prefer to start with medical history or to make historical references during the implementation of the medical ethics or medical sociology module. To consent an *ad hoc*



Project number: 2018-1-ES01-KA203-050606

integration of the medical history module in existing medical humanities courses we designed a toolkit to evaluate students from a formative (after each unit) and summative (after the module) perspective. Formative evaluation is performed through specific open questions related to each unit, and summative evaluation is possible through a database of multiple-choice questions assessing to the competences required. The IO1 has been developed through three essential stages: 1) Mapping curricula of the course available for medical students in medical humanities, introduction to medicine and all other courses where history of medicine is a module embedded in a bigger course. We searched on the web site of all the national medical schools involved in the consortium and we screened the corresponding syllabuses related to the medical humanities programs, to identify the most common formats available, the departments involved in the program and the lecturers expertise. 2) stakeholders consultation, the second stage entailed the organisation of a focus group study in each country with medical history lecturers, medical education researchers, medical history researchers, and graduate medical students with 6-8 participants and the administration of 30 questionnaires to undergraduate medical students to identify barriers and facilitators related to the learning of medical history. Questionnaire items have been designed from codes extracted in the thematic analysis of focus groups and piloted with a small group number of students (3-5 per country) before the administration in all the countries. 3) to develop educational contents for medical humanities lecturers. The design of lectures took in account the mapping findings where permitted, we maintained a strong compromise to respect students wishes and suggestions, although the diversity of the medical schools organisation, the structure of the formal teaching program and the expertise of lecturers represented a limitation to fully satisfy the students' needs. Starting from the need to design material corresponding to 2 ECTSs, 60 hs of student work and the different structure of terms in each country we produced 12 units.

Methods

The educational material has been assessed online by the medical students of each university involved in the consortium and assessed through an online questionnaire available on the project website. The material has been sent individually to each student who agreed previously to participate in the assessment with the researcher. The material has been assessed in English and the survey has been performed in English. The evaluation has been done on a scale from 0 to 10 points each question. We asked to the students the following questions:

Q1 Are you happy with the organisation of the contents of each unit?

Q2 Are you happy with the balance between the chronological account of medical history and the room assigned to the analysis of specific arguments in each unit?

Q3 Is the educational material available in the platform promoting your active involvement in the learning process?

Q4 Have the educational contents offered you the opportunity to connect the historical contents with medical practice?

Q5 Are you happy with the assessment procedure elaborated to evaluate the participation to the course using our educational material?

Q6 How the educational material and its organisation contributed to improve your understanding of the subjects presented in the course?

Q7 How much innovation, technological development, chronological history, the role of physicians and the history of ideas are balanced in the educational material?

2. PILOTING AT NATIONAL LEVEL

In Greece 10 medical students at the medical school of the Aristotle University of Thessaloniki assessed the material of the IO1 through the project website. The Q1 related to the structure of educational contents with 8.5 out of 10 scoring, the Q2 about balance between chronological account and specific subject has been assessed with 8.8 out of 10, the Q3 about the involvement of users in the development of the project 8.3, Q4 the connection with medical practice of project contents 8.2, in the answer to the Q5 the assessment procedure being scored 8.9, in the Q6 the



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understanding of contents facilitated by the material a 8.9 and finally the balance between the different meaning of medical history in medical humanities explored in the Q7 a 9.1. In Italy 79 medical students at the medical school of the University of Rome La Sapienza participate in the assessment of the educational material. Q1 related to the contents organisation scored 8.4 out of 10, Q2 related to the balance between chronological and specific perspective of contents scored 8.3, the user involvement assessed in the Q3 scored 8.4, the Q4 about connection between contents and medical practice scored 8.2, the students' involvement in the project implementation assessed in the Q5 scored 8.3, the understanding of the contents proposed in the module scored 8.7 and finally the balance between the different aims of medical history has been scored 8.4. In Romania 14 medical students at the medical school of the University of Iasi participated in the assessment of the educational material. The Q1 related to the structure contents scored 9.2 out of 10. In the Q2 about the balance between contents the score has been 9.3, the Q3 related to the users' involvement scored 8.9, the relationship between contents and practice assessed in the Q4 obtained a score of 9.2, the procedure related to the quality assessment scored 9.8, the improvement of the contents understanding scored 9.2, and finally the balance between the aims of medical history module scored 9.1. In Spain 38 medical students from two different medical schools have been involved in the assessment of the educational material developed in the IO1. 27 from the Universidad Europea de Madrid and 11 from the Universidad Complutense de Madrid. The reason of this difference and the involvement of a second university is due to the different timing of the medical humanities course at the UCM. At the moment of the evaluation the course at UCM was concluded, for that reason Spanish team involved a second group of students available when needed. Lecturer at the Universidad Europea had the opportunity to show the material and illustrate the project in the classroom, meanwhile the UCM evaluation has been out of the ordinary development of lectures. The Q1 about the structure contents scored 8.5 out of 10, in the Q2 the balance between the different contents has been evaluated with 8.5, the Q3 related to the involvement of user is slightly lower than in the rest of partner and we have the reason to guess the score is due to the low participation of the UCM students during the evaluation process, as explained above. The Q4 about the connection between medical practice and educational contents is scored 8.4, the opinion about the assessment procedure explored in the Q5 is scored 8.4, and the improvement of the understanding of contents 8.2, finally, the balance between the different aims of medical history is scored 8.5. United Kingdom is the only partner without undergraduate students involved in medical humanities for the different organisation of medical school program. The University of Bristol has a different curricular model and the assessment of the material would be impossible due to the different circumstances of the medical humanities program. The students involved in the assessment were only two and we didn't take in account their evaluation for the lack of significance of a such small sample.

3. MAIN FINDINGS

3.1 LECTURERS

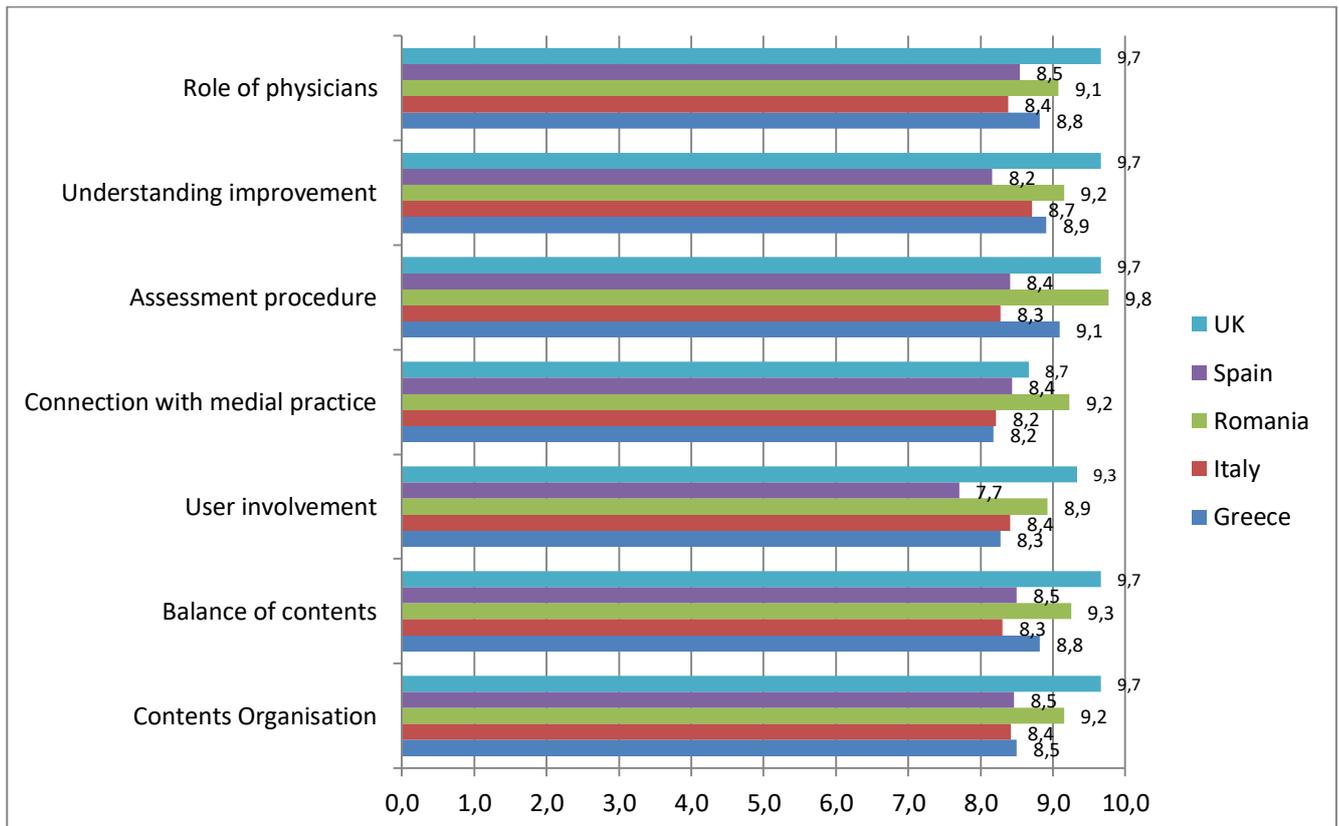
The educational material has been assessed by lecturers involved in the project at national level, deliverable have been shared and feedback exchanged during the design and implementation phase. The form assessment of the material has been realized through a peering process where each partner peered the educational material of other. Peering has been implemented with the following relationship: the team of Universidad de Santa Maria at Arequipa, Peru peered the team of Universidad Complutense educational material, the team of University of Bristol in United Kingdom peered the team of University of Iasi in Romania, the University of Rome La Sapienza peered the University of Thessaloniki in Greece. Peered material has been modified by each author after a discussion with the corresponding peer reviewer, where a consensus wasn't reached, the coordinator made a last decision about the final version of the material.



3.2 STUDENTS

The students' feedback about the quality of the material are globally positive and showed a significant consensus on the main aspects of the assessment procedure. We performed a total of 138 questionnaires to assess the educational material developed in the IO1. The evaluation of the structure of contents reached a score between 8.4 from Italy to up 9.2 in Romania, the score related to other partners showed the same score with a slight difference for Italy of 0.1. The space assigned to the chronological criteria and the specificity of subjects presented showed a difference between the lowest score of Italy of 8.3 to the highest of Romania 9.3, the difference between Greece 8.8 and Spain 8.5 is 0.3. The users' involvement is significantly different in Spain, with a score of 7.7 and reach a peak in Romania with 8.9, the difference between Greece and Italy is of 0.1. Respect to the connection between medical practice and educational contents we have the same lowest score in Greece and Italy with a score of 8.2, and the highest in Romania with 9.2, the score of Spain is 8.4, only 0.2 of difference with Greece and Italy. The assessment procedure applied to evaluate the educational material reported a lower rate with 8.3 in Italy, and 9.8 in Romania with a degree of satisfaction 9.1 in Greece and 8.4 in Spain showing a slightly difference of 0.1 between Italy and Spain, and 0.7 between Romania and Greece. The understanding of the contents presented in the course scored 9.2 in Romania, with 8.2 as the lowest rate in Spain, meanwhile Italy scored 8.7 and Greece 8.9. The balance between the different aims of medical history has been scored 9.1 in Romania, and 8.4 in Italy, with a 8.8 score in Greece and 8.5 in Spain.

Fig. 1 Global assessment per country



4. CONCLUSION

The students' evaluation is globally positive, all the aspects assessed in the piloting process showed a very homogeneous score, with very small difference between a country and another and with a positive trend in all the surveys items. The findings depicted an effective response to the students and lecturers needs identified in the mapping. In the IO1 the research team balanced the three essential aspects of mapping and designed educational contents according to the requirements detected in the empirical phase of the project. In fact, the review of curricula defined an organizational structure to fulfil, and the stakeholder's consultation depicted the needs of lecturers and students. The piloting provided the research team all the information and the guarantees about the readability of the material for lecturers and students, and its suitability with the different higher education organisations involved in the project. However, the study presented some limitations due to the plurality of circumstances that influenced the implementation of the project. The number of students required to pilot the material was 10, but some countries involved more students because this was possible at the time of piloting, in other countries the difference between the time of lecturing reduced the possibilities to offer the access to a more extended number of students. UK for the particular organisation of the University of Bristol medical curriculum and the difference related to the teaching of medical humanities provided a very small sample (2 postgraduate students). The lack of reliability of the UK data convinced the team to exclude them by the piloting. The particular situation of the assessment in Spain, mentioned above suggested to involve a second University to assure a consistent number of students, this factor influenced slightly the Spanish data related to the participation of the students, although the difference is not significant in term of global score.

