Network-Based Continuing Medical Education

Social Media and Professional Development

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Contents

Preface

The traditional types of educational paths will in future increasingly be seen as just the starting-points of a long-term learning process which will be directly managed by the individual learner him/herself. This is all the more true for those professions where professional knowledge undergoes constant renewal, and it certainly applies to the medical profession where, as well as basic university training and professional development based on personal experience, a continuous updating process is required, regarding both the results of scientific research and the best professional practices directly worked out by colleagues in the workplace.

Medical training in fact needs to be understood as a continuous process, where professional knowhow is an ever-changing synthesis of different types of knowledge, integrating experience, practice and rigorous scientific studies. And it is because of this need that specific national programmes of continuing medical education (CME) have been institutionalised already for several decades now. In these programmes too, the progressive diffusion of the new information and communication technologies (ICTs), particularly the mobile ones, has had and is still having its effects; indeed training schemes based on e-learning and more generally on Technology-Enhanced Learning are more and more widespread.

However, although the technology being used is last-generation, most of the actual approaches adopted are still based on an old conception of e-learning (the phrase "old wine in new barrels" has been coined). This is the so-called "content-driven" e-learning, i.e. e-learning based on extensive distribution of educational materials and administration of progress tests, albeit issued online in an automatic form. These are formal learning processes where vertical flows of knowledge are generally created between the possessors of that knowledge and those who have to acquire it. This process is mediated by electronic (e-) content and sometimes avails itself of the support of online facilitators. The social dimension of learning is almost wholly neglected.

As mentioned earlier however, there is another fundamental kind of dynamics governing continuing training processes, and that is peer professional knowledge sharing. This often uses various, decidedly more informal, channels which are nowadays hugely potentiated by the networks and mobile technologies (NMTs). But just because they are informal and often based on social networks managed in a restricted group, the experience and methods of these networked communities of professionals often remain unknown within the general CME context.

By gathering together important contributions from leading international experts in the field, this book will try to show: (1) how NMTs foster and potentiate formal and informal learning processes in the CME context; b) what the possible role of professional social networks in the CME context is; c) how informal learning processes characterised by horizontal (peer-to-peer) knowledge flows can be integrated with more formal ones centred on vertical knowledge flows (i.e. flows from authoritative sources to potential users); d) how the learning achieved by informal processes can be assessed in order that credits can be awarded to it within the national CME framework.

The book is divided into four parts. In the first part (Chapters 1-4), we discuss how the social dimension of learning in CME can be usefully exploited using NTs and Networked Learning (NL). Specifically, we address the issues connected to learning design, to personalisation of the learning process, to the use of graphic tools for fostering the sharing and collaborative construction of new knowledge, and to the link between the continuous learning process and improvement of the impact on professional practice and patient care.

The second part (Chapters 5-7), complementary to the first, will consider how to evaluate the effectiveness of NL in CME, and some specific approaches such as the Reflexive Networking approach and the Networked Collaborative approach in an informal learning context.

The third part (Chapters 8-9) is dedicated to the role of professional communities of practice (CoPs) in CME. Two specific projects will be described: the first concerning a CoP made up of paediatricians, the second a CoP of oncological nursing staff.

Finally, the last chapter (Chapter 10) reflects on the continuum existing between undergraduate education, postgraduate training and lifelong professional learning.

Let us now look at the chapters in greater detail.

In Chapter 1, Lynn Robinson and Jaime Metcher set out to describe how design can facilitate social learning in CME. Design for learning is not deterministic, but rather can enhance the efficiency and effectiveness of all dimensions of learning, including the social one. Design can be considered at three levels: meso, micro and macro. Each level of design should be informed by available evidence about how professionals learn, by a deep understanding of the professional episteme, and by thoughtful observation of naturalistic socio-professional culture and behaviours. Improvements in learning design that attend to its social dimensions and network effects should result in improvements not only in individual practice performance but also in the capacity of the whole health care system to respond to new challenges. This calls for an extension of the conceptualising of learning design at the macro level.

Another important theme linked to the use of NMTs in CME is the personalisation of learning paths. This is addressed in Chapter 2 by John Sandars and Kieran Walsh. Creating personalised learning for continuing medical education (CME) is a challenge, since it requires an effective response to each individual learner's unique learning needs and approaches to learning. Technology can create innovative opportunities for the development of learning networks that are specific for each learner. These networks can link a wide variety of learning resources, with different content and media presentation, to ensure that learners can make sense of the complexity of daily practice. The potential of learning networks will only be achieved if there is careful attention to the educational aspects of these networks, including

the development of self-regulated learning skills, the development of new information and digital competencies, and the recognition of the importance of mentors.

Pursuing the theme of how to create the best conditions for an effective use of NMTs in CME, in Chapter 3 Gurmit Singh, Maggie McPherson and John Sandars offer a critical review of the interdisciplinary literatures on electronic continuing professional development (eCPD) in healthcare. The review distils the 5 key design features of eCPD most likely to improve impact on practice and patient care, and emphasises the need for educators to design flexible structures that strategically align pedagogies, social networks and learning technologies, so as to deliver context-specific programmes that produce change in practice and empower practitioners.

The first part of the book ends with Chapter 4, which discusses the role that tools for Graphic Knowledge Representation (GKR) can play in facilitating the dynamics of informal learning and knowledge flow within professional groups operating both online and face-to-face. In this chapter, Guglielmo Trentin discusses the results of an experimentation with graphic approaches to knowledge representation during informal learning processes based on problem-solving in the healthcare sector. The tools chosen for the experimentation are concept mapping and Petri Nets.

After having described and analysed some methods for fostering CME processes with the support of NMTs, the next 3 chapters attempt to identify some methods for evaluating the effects of these processes.

In Chapter 5, John Sandars, Peter Jaye and Kieran Walsh tackle the theme of NL assessment. An evaluation of the effectiveness of NL in CME requires appreciation of the interests of its various stakeholders, from patients and accreditation bodies to CME providers. Demonstrating that CME improves patient care and health outcomes is difficult, since healthcare professionals may have acquired new relevant knowledge and skills but may be unable to apply them to their daily practice because of constraints in the context they work within. However, the process of NL for CME can be evaluated by using technology, especially by learning analytics that can identify the network of interactions and how new knowledge is constructed within these interactions. The importance of evaluating the cost-effectiveness of networked learning for CME is discussed, but the limitations are acknowledged. Greater involvement of users in the emergent area of evaluation of the effectiveness of NL in CME is proposed, with recognition of the value attributed by participants to their networked learning and also of the importance of the usability of an intervention. The need for greater involvement of users in the emergent area of evaluation of the effectiveness of NL in CME is also proposed. This participatory evaluation approach is essential if the potential benefits of NL in CME are to be realised.

In Chapter 6, picking up again on Chapter 3, Gurmit Singh and Maggie McPherson tackle the theme of the impact of Electronic Continuing Professional Development (eCPD), and particularly the evaluation of a Reflexive Networking innovation. Research indicates that changes to healthcare practice only occur when the agency of professionals is involved. Current approaches to electronic continuing professional development (eCPD) using online communities of practice, self-study modules and discussion forums are relatively ineffective because agency is ignored. A case study with a pilot programme was devised with a healthcare commercial CPD partner, after a critical and theoretical review of the literature indicated that a Reflexive Networking approach would be most effective for remote learners. The research contributes an original theory-driven solution to an important problem of eCPD.

The second part concludes with another aspect of the evaluation of informal learning processes centred on NL, i.e. how to assess the contribution and active participation in the collaborative development of an artefact of each single member of a professional practice

community. This theme is dealt with by Guglielmo Trentin in Chapter 7. A methodology is described and discussed which allows evaluation of the collaborative learning process based on professional co-writing in a wiki environment. After considering the effectiveness of co-writing as a peer-learning strategy, the chapter highlights issues regarding methods for evaluating each group member's contribution to the collaborative process and to the group's overall action. A possible solution to the problem is discussed, based upon the elaboration of information traced automatically by wiki and employing survey grids and formulae to calculate participation and contribution indexes. These tools are illustrated together with their application ~~in~~ to an informal learning situation in a professional community made up of head physicians and health care managers.

As specified above, the third part is dedicated to two Italian projects. In Chapter 8, Barbara Bologna, Laura Reali, Maria Luisa Zuccolo, Miriana Callegari and Angela Pasinato present the experiences of a paediatricians' community of practice (CoP), known as "VenetoWeb" (VeWeb). Specifically, it deals with community interaction within a virtual environment, focusing on the technology used to support the CoP's activities and on the resulting document production and management. From a technological standpoint, the CoP's structure is complex, differentiated and non-hierarchical. While community members' roles do fall within such categories as content expert, online tutor, finisher or resource manager, such roles are interchangeable. Despite periods of less sustained interaction, the CoP continues its work, providing its members with substantial professional advantages and personal satisfaction.

In Chapter 9, Cesarina Prandi, Rosaria Alvaro, Francesco Torino and Oscar Bertetto describe "Prometheus Knowledge Sharing", a project for the dissemination of knowledge within the Piedmont and Aosta Valley Oncology Network. Prometheus aims to give practical access to a "knowledge system" available to all nurses. The goal is to encourage the birth and future enrichment of a knowledge network designed to manage cancer patients. The core idea is to make available the wealth of tacit and explicit knowledge in a strongly thematic database. The Prometheus Project provides free access to resources. Innovative learning methods are used in the field of health sciences. The socialisation of knowledge led to the co-construction of solutions to concrete problems of clinical practice. The project, centred on nurses' experience, allowed the formalisation of explicit knowledge.

In the last chapter (Chapter 10), Seamus Mc Suibhne, Kevin Malone and Allys Guerandel offer a final reflection on the continuum existing between undergraduate education, postgraduate training and lifelong professional learning in medical education. CME involves the career-long acquisition and enhancement of knowledge, skills and attitudes. As well as being a regulatory requirement for ongoing medical practice, it is a concept which can be positively embraced by professionals themselves to help ensure quality improvement of clinical outcomes and innovation in service delivery. There are barriers to CME, especially when it is traditionally conceived as a series of didactic teaching sessions. As well as not helping to meet the logistic~~al~~ challenges involved in delivering education to a geographically dispersed and time-pressured group of professionals, traditional didactic approaches are less likely to foster lifelong learning skills and to create communities of learning. Network-based approaches have the potential to greatly increase the power of CME to achieve its goals, especially by facilitating the development of learning communities, by providing tools for self-assessment and reflective practice, by directly aligning teaching and assessment and by allowing learners and regulators to easily ascertain what topics have been covered. There is also great potential for savings of both money and staff time, which offset the required initial costs.

In conclusion, I wish to thank all the authors who have contributed with their precious scientific knowledge and experience to the writing of this book. It is addressed to all those who desire constantly to increase their understanding of the best educational use of social computing in conjunction with NMTs, with a view to achieving the optimum integration of formal, non-formal and informal learning in Continuing Medical Education.

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