

The use of blended learning to improve health professionals' communication skills: a literature review

Valentina Cappi¹, Giovanna Artioli², Erika Ninfa³, Silvia Ferrari⁴, Maria Cristina Guarnieri⁵, Gianfranco Martucci⁶, Leopoldo Sarli⁶

¹Department of History and Cultures, University of Bologna, Bologna, Italy; ²Azienda USL-IRRCS Reggio Emilia, Reggio Emilia, Italy; ³Parma University Hospital, Parma, Italy; ⁴Carlo Poma Hospital, Mantova, Italy; ⁵ASP Reggio Città delle Persone, Reggio Emilia, Italy; ⁶Department of Medicine and Surgery, University of Parma, Parma, Italy

Abstract. *Background and aim of the work:* In recent years, health professionals' education has moved towards the increasing use of blended learning. One of the most widespread blended formulas is the mix of face-to-face and online learning, which combines the advantages of distance learning, both in training provision and in training fruition, with the maintenance of socialization goals and application to practice activities. This literature review aims to find out whether blended-learning is employed for improving health professionals' communication skills and which are its outcomes. *Methods:* Literature review of publications released from January 2000 to January 2019 was conducted across the academic databases Cinahl (EBSCO), Cochrane and Pubmed using relevant keywords. *Results:* Research has shown that blended learning is used in the education of different health professionals (students, nurses, physicians, etc.) at various stages of the educational path. The enhancement of communication skills appears to be a secondary learning objective in many studies, but it is shown to be nevertheless central to the proper acquisition and application of more clinical skills addressed by the blended courses. The blended modules here examined achieved their goals. However, the evaluation of the learning outcomes is still based on self-assessment, and thus needs to be implemented. *Conclusions:* Blended learning providers would need to pay more attention in the design and implementation phases of blended modules, assessing participants' needs and offering more tailored and targeted programs, and should provide a more rigorous evaluation of learning outcomes. (www.actabiomedica.it)

Key words: blended learning, health professionals, communication skills, e-learning, distance learning, continuing medical education, nurse

Introduction

Health professionals' education has gone through powerful changes in recent years, shifting on the one hand towards a more interactive and learner-centred approach; on the other, thanks to the development of technological innovation and the changed working and living conditions of the professionals, it has moved towards the increasing use of e-learning or distance learning (1).

If e-learning, defined as the delivery of education through Information and Communication Technology

(2), offers the undeniable advantage of transcending the limits of space and time in the training provision, and provides reusable and updated materials through interactive multimedia content, however, it also suffers from significant disadvantages, such as learners' isolation and need for self-discipline to sustain motivation, and the difficulty in creating a sense of community (3). Despite the progress of online technologies, in fact, it is known that medicine is a practice-based discipline and that both curing and caring for people are relational works, so it wouldn't be desirable to completely replace the traditional education of health professionals with

online learning. The potential of blended learning, that is the combination of an educational method that adopts two or more approaches that complement each other while imparting the same teaching materials (4), is thus increasingly debated. One of the most widespread blended learning formulas is the mix of face-to-face and online learning (5), which is the object of this literature review. Blended e-learning (6) is now recognised as an effective way to promote greater learning independence and personalization without losing those collaborative aspects and socialization goals that face-to-face training has always promoted.

The aim of this review is to find out whether blended-learning, intended as the combination of face-to-face activities and e-learning, is employed for improving health professionals' communication skills and which are its outcomes.

Interest in the teaching of the so-called nontechnical skills (also called soft-skills) has progressively increased since the last thirty years (7). Among these, communication skills occupy a primary role, becoming one of the objectives of health professionals' education in the third millennium. It has been argued, in fact, that the quality of practitioner/patient communication contributes in determining the level of satisfaction in patients, which directly influences patients' compliance and recovery and reduces patients' psychological distress and anxiety (8).

Since communication skills are truly human skills that cross the workplaces, in this review we considered as target population of blended learning courses, all health professionals, regardless of their role (doctors, nurses, etc.) and the level or training context (graduate, undergraduate, postgraduate, continuing medical education, etc.).

Furthermore, the aim of this review is to identify and to discuss the outcomes of different experiences implemented within the field of blended learning in recent years.

Method

Literature review, completed in February 2019, was conducted across the academic databases Cinahl (EBSCO), Cochrane and Pubmed.

Key-words used were 'blended learning' AND 'health professionals' AND 'communication skills'. Results were filtered by publication date, to return only publications released from January 2000 to January 2019, available in full text, with no word variations and dealing with human species.

The search strategy (Figure 1) identified 41 items. After the removal of 3 duplicate items and scanning the titles and abstracts, 28 were found to be potentially eligible. Then, full texts were read for further assessment and 23 items do not encompass the review criteria. Thus, 5 items remained and were included in this study. These are summarized in Figure 2.

We included studies in which blended-learning is an essential element.

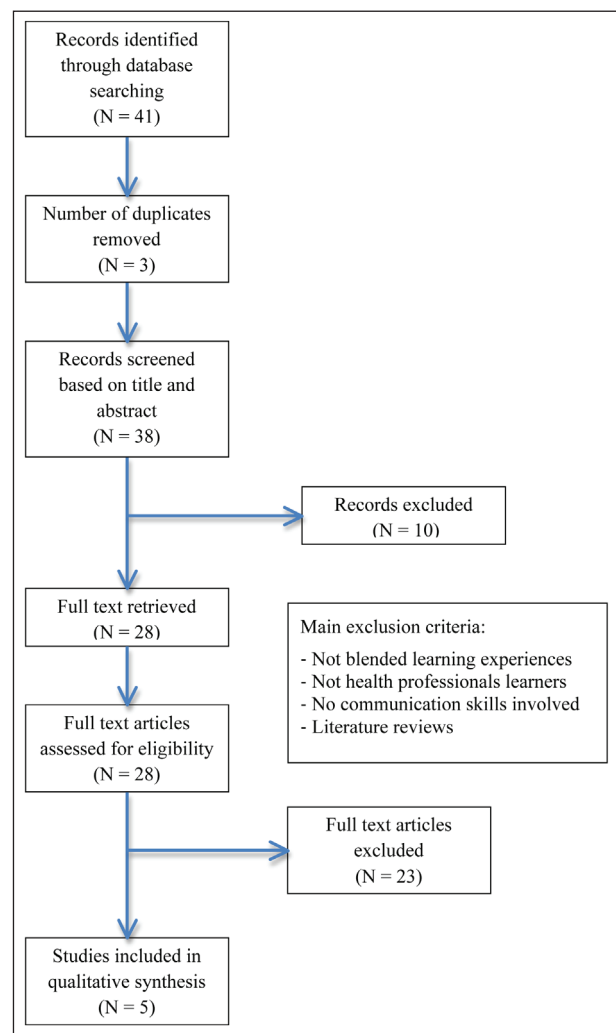


Figure 1. Literature review flow diagram

Authors & Journals	Participants	Learning context	Intervention	Evaluation measurements
Shorey, Siew, Ang (2018), <i>Nurse Education Today</i>	First year nursing undergraduates students	University-Affiliated Nursing school Singapore	Blended module aimed to enhancing nursing students' effective communication to patients and their family members	Reflective written exercises at the end of the module
Halverson, Da Rosa, Borgstrom, Caropreso, Hughes, Hoyt, Sachdeva (2014), <i>The American Journal of Surgery</i>	Rural surgeons	Continuous Professional Development USA	Blended learning surgical skills course based on a gap analysis for surgeons in rural practice	Post-course and follow-up self-assessment questionnaires
Holland, Bench, Brown, Bradley, Johnson (2013), <i>The Clinical Teacher</i>	Advanced undergraduate students in medicine, adult nursing and physiotherapy	University UK	Inter-professional blended module on clinical care in the acute care setting	Participants' narrative self-reports
Taylor-Fishwick, Okafor, Fletcher (2012), <i>Journal of American Association of Nurse Practitioners</i>	Advanced Nurse practitioners	Continuous Professional Development USA	Evidence-based distance-learning educational course designed to aid the dissemination of the 2007 asthma clinical guidelines	Course evaluation form; Pre, post and follow-up questionnaires
Bekkers, Simpson, Dunstan, Hood, Hare, Evans, Butler and the STAR study team (2010), <i>BMC Family Practice</i>	General Practitioners and Nurse Practitioners	Continuous Professional Development UK	Stemming The Tide of Antibiotic Resistance (STAR) blended educational program to enhance the quality of antibiotic prescribing and raise awareness about antibiotic resistance	Semi-structured telephone interviews

Figure 2. Studies considering blended learning for the improvement of health professionals' communication skills identified in the literature review

We only included studies in which blended-learning is intended as the mix of face-to-face learning and e-learning.

We included studies whose participants are (existing or future) health-professionals, except for those working in paediatric units.

We included studies assessing blended learning programmes aimed at improving health professionals' communication skills.

We included studies reporting concrete and already provided blended-learning experiences.

We excluded studies recruiting non-health professionals learners.

We excluded studies recruiting health professionals working in paediatric units.

We excluded studies whose interventions weren't aimed at communication skills' improvement.

We excluded studies in which the improvement of communication skills was directed at subjects different from health professionals.

We excluded studies reporting data derived from non-already provided blended learning experiences.

We excluded literature reviews.

Results

Research has suggested that blended learning pedagogical tool is widely used in health professionals' education in many countries, at different stages of the educational path, for different purposes and aimed at diverse health professionals. The implementation and reporting of blended learning experiences, although remarkably different from each other, are always accompanied by an evaluation process of the impact of blended modules on learners. In this section, we will illustrate the results emerged from a qualitative content analysis of the studies included, which highlighted the following main themes: participants and learning context; purpose of intervention; type of intervention; evaluation measurements and outcomes.

Participants and learning context

Studies involved a diverse range of existing and future health professionals, although the most repre-

sented category is that of nurses. Nurses appear to be involved as exclusive target of two different blended modules experiences: one considering, as participants, 74 first years nursing undergraduates students (4) and the other being directed to advanced nurse practitioners in (but not exclusively) their continuing education (9). Moreover, nurse are included in other two studies among other health professionals: in a blended educational program aimed at Primary Care practitioners, together with General Practitioners (10) and in an inter-professional module on clinical care in the acute care setting, together with their undergraduates peers studying medicine or physiotherapy (11). Only one blended course emerged from literature review as targeted to rural surgeons only (12).

Except for the two studies involving undergraduate students, in which the blended module was provided within university courses, in all other cases blended learning was implemented in the context of continuing professional education.

Purpose of Intervention

The improvement of health professionals' communication skills through a blended pedagogy emerged, in this literature review, as the main learning objective only in one case. In fact, if in the study of Shorey et al. (4), the blended module was aimed to enhancing nursing students' effective communication to patients and their family members, in all the other studies examined, blended courses addressed the improvement of multiple skills, both clinical and non-technical. The blended course illustrated by Halverson et al. (12) addressed a module on leadership and communication among others modules dealing with a variety of skills that reflect the broad scope of practice of surgeons in rural areas, such as endoscopy, emergency gynaecology, emergency urology, facial plastic surgery, etc. Holland et al. (11) observed that good interprofessional collaboration and communication are prerequisite for good patient outcomes in acute care, so their course focused on integrating clinical knowledge, skills, decision making and reflective practice underpinning the interprofessional care of the acutely ill adult. The main objective of the STAR Educational Program (10), instead, aimed to enhance the quality of antibiotic prescribing

and raise awareness about antibiotic resistance among general practitioners. Finally, the Asthma Principle and Practice Course (9) was designed to aid in the dissemination of asthma clinical guidelines and create an environment to enable participants to apply knowledge and skills into clinical practice. Communication skills thus appear in the above-mentioned courses as a crosscutting learning objective necessary to the delivery of proper care in very different contexts.

Type of intervention

A wide heterogeneity in blended courses' instructional designs and formats emerged from the literature review. Shorey, Siew and Ang (4) offered an overview of a four-credit course module aimed at improving nurses' effective communication, in which the virtual learning environment included online presentations (made of PowerPoint slides and videos), online quizzes, discussion forums and reflective exercises, whereas the face-to-face lecture comprised real-life clinical scenarios, students' class and online active participation assessment, video-making and an interview with standardized patients. Halverson et al. (12) reported a blended learning format consisting - for what concern web-based materials - of references, book chapters, links to web-based videos illustrating specific operative skills; whilst the face-to-face portion of the course provided experiential mentored skills training. The blended learning module illustrated by Holland et al. (11) was designed for an extensive use of asynchronous e-learning: a web site hosted all documentation for the module (information on evidence-based practice and critical appraisal, and links to papers), private spaces for students' observations and reflections and a discussion forum; the contact sessions comprised an induction session, a clinically-situated structured observation, a simulation-based training and facilitated debriefing and a collaborative peer-group working and presentations. The STAR Educational Program described by Bekkers et al. (10) consisted of an online part providing case scenarios and video scenarios for online reflection on clinicians' own practice, examples of the latest evidence in the form of reference charts and summarised readings and a web forum; the face-to-face part consisted of a practice-based seminar.

The Asthma Principle and Practice course, outlined by Taylor-Fishwick et al. (9) comprised a face-to-face study day conducted using case studies, role-plays, student-led discussions, video and lecture, which followed an interactive distance-learning study binder designed with 11 modules of readings and exercises. These studies showed that online materials are mainly concerned with background information, theoretical knowledge, updated clinical guidelines, video and exercises/quizzes pertaining the specific topic addressed by the course and discussion web-spaces aimed at participants' socialization; whilst on-site face-to-face moments appear to provide a practical application of what has been learned through the distance learning module. In the examined studies, the most common live-situations mentioned are role-plays, student-led discussions, simulation-based trainings or mentored skills training.

Evaluation measurements and outcomes

Satisfaction, perceived skills acquirement and perceived change to practice, measured through self-assessment, are the main form of blended learning evaluation emerging from the literature review.

Shorey et al. (4) collected students' experiences of the blended learning course, through reflective written exercises that were conducted at the end of the module. Data were thematically analysed and showed that students felt more self-confident at the end of the course and thought that this improved their social interactions. A four-component evaluation system, based on Kirkpatrick's outcomes model, was proposed in their study by Halverson et al. (12) to evaluate: learners reactions regarding the relevance and quality of the course (through a post-course questionnaire), knowledge acquisition (through a surgeon's self-assessment questionnaire), surgeons' skill development and behavioural changes in practice, and perceived patients benefits (through a follow-up electronic survey six months after the completion of the course). Surgeons indicated that they felt they had improved their communication skills and they all reported changes in their interaction with colleagues. The evaluation of the IWAC course was limited to narrative self-reports of satisfaction and value obtained from students and faculty staff

involved. They reported high-satisfaction scores and self-identifying both explicit and tacit learning as having occurred. Effectiveness of the STAR educational program (10) was evaluated in a randomised controlled trial through a multi-faceted process evaluation that included: the views of participants from the experimental group, seminar facilitators' views, practice background information, mapping of participants' use of the on-line learning program, web forum comments and an economic evaluation. Participants' perspectives, collected through semi-structured telephone interviews with purposive sampled trial participants, reported an increased awareness on the course topic, greater self-confidence in practice, some change in consultation style and prescribing behaviour, and increased insight into patients' expectations. The process of evaluation of Taylor-Fishwick et al.'s study (9) involved participants completing a course evaluation form that asked questions about the experience of the course, the educational style, and course-related materials. A pre-questionnaire sent through the distance learning binder, a post-questionnaire at the end of the study day and a follow-up questionnaire sent to participants six months after the completion of the study day were used to assess changes in the use of clinical guidelines and in the use of communication skills. Participants showed statistically significant improvements, after the blended course, in confidence in using the communication strategies for improving interaction with patients.

Discussion

From the findings, it is noted that blended pedagogy appears to be consistently applied in nurses' education, both at university level and in continuing professional development, even more than in other health professionals' educational paths. Given the limited number of studies included in this literature review, these results appear to be in line with Liu et al.'s meta-analysis (3), which reported nursing students and nurses as being the second and third most involved participants in studies concerning blended learning interventions, after medical students. Furthermore, blended learning demonstrated to be applied predominantly within the context of continuous professional

education. As stated in Halverson et al.'s study (12), continuous professional development shows many barriers to professionals' participation, such as the need to travel long distance, the difficulties in finding coverage for the professional's practice while away and the loss of income while away, from practice. Blended learning has the potential to overcome these barriers, enabling health professionals to reduce travel costs and to learn at a time that is convenient to them, pacing their learning to suit their needs and interests, as pointed out by Scott et al. (13). This does not forcedly mean they avoid human socialization. All the blended courses surveyed in this review studies, in fact, provided large space dedicated to online and face-to-face peer discussions and interprofessional collaboration, where expected. Many participants, in the evaluation phase, stressed precisely the importance of having interacted formally with other professionals working in the same context, and with instructors during the course, and informally during the breaks and meals (12). This was shown also in Markett et al.'s study (14), which demonstrated that increased interactivity between the educator and the learner enhances participants' motivation. Shorey et al. study's participants referred particular appreciation to the class feedback and sharing sessions, which lead, in their opinion, to the creation of a unique bond among the students and to an enhanced perceived importance of the cross collaboration among the teamwork members (4). Bekkers et al.'s respondents viewed the face-to-face seminar as providing a much-needed "human touch" and as a unique chance to increase communication within the practice team, dismissing at the same time the web forum (10). Taylor-Fishwick et al. collected, in their evaluation of study days, participants' positive comments pertaining to interaction and shared practices among the group (9).

Blended learning, thus, appears as a concrete way to overcome the limitation of the traditional e-learning, promoting within its modules interactivity, reflection and application to practice, as shown also in Lawn et al.'s study (2).

The online part of the courses, mainly concerned with background information, theoretical knowledge, updated clinical guidelines, video and exercises/quizzes pertaining the specific topic addressed by the course, were generally evaluated positively by the par-

ticipants. In all the reported cases, increased level of clinical knowledge or the reinforcement of already existing knowledge emerged as outcomes. Moreover, participants generally felt the online activities were useful in helping them to prepare for face-to-face sessions, highlighting the close connection and interdependency between the online and face-to-face parts.

Finally, literature review's findings showed that a systematic approach to planning, development, implementation and evaluation of blended courses is still lacking. Even if many of the studies considered demonstrated to have conducted extensive researches and embraced theoretically strong approaches to design their blended modules, only one (12) seems to have provided a needs assessment to establish learners' existing knowledge, attitudes and information technology skills and only Holland et al.'s study (11) seems to have been piloted before its implementation.

Following Scott et al.'s ten evidence-based principles for the development of technology-enhanced learning (13), we can say that the studies included in this review: positively clarified the rationale of their purpose; effectively incorporated approaches proven to improve learning, such as dividing course into a series of small sections (15); integrated case-based learning and project-based learning, as suggested by Huckstadt et al. (16) and Christianson et al. (17); included activities that involved actual practice of the skills; enabled interaction between learners and teachers. On the other side, the studies examined didn't provide opportunity for revision to aid retention and demonstrated the tendency to evaluate above all learners' satisfaction, self-assessment of learning or intention to change practice, to the detriment of the learning outcomes. Since previous studies had shown a poor correlation between self-assessment and observed performance (18), a proper evaluation of learning outcomes, long-term retention of knowledge and skills and application to practice would be recommended.

Conclusions

Blended learning shows to be increasingly used both in continuing medical education and in university courses. It is well known (19) that the effectiveness of

any form of education depends on a wide range of factors. Some of these factors, such as the learners' interests, ability and readiness for change, would be appropriately taken into account through a needs analysis.

Teaching institutions, within the field of health professionals education, thus need to pay more attention in the design and implementation phases of blended modules, to assess participants' needs and offer tailored and targeted programs.

This literature reviews showed no sufficient evidences on effectiveness of e-learning on patient outcomes. Most of the studies, in fact, have focused only on measuring professionals' perceived knowledge acquisition or self-reported practice change, leading us to suggest that blended learning should move towards more complete and rigorous evaluation methods.

It is interesting to note that professionals recognized the value of enhancing communication skills even in the context of those blended course aimed mainly at developing clinical skills.

This demonstrates how the transferability of communication competence (20) does not refer as much to the similarity of situations among working environments that the professional may encounter in his working career, but to the subject's ability to activate similar processes in different working context in order to solve problems and accomplish tasks or to promote positive teamwork and provide effective care to patients.

Conflict of interest: None to declare

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Correspondence:
Valentina Cappi
Department of History and Cultures, University of Bologna
Piazza San Giovanni in Monte 2 - 40124 Bologna (Italy)
E-mail: valentina.cappi3@unibo.it