Introduction

The technological revolution brought about by the internet has affected many aspects of modern life, in particular nursing education. Modern information and communication technologies (ICTs) have permeated classrooms, lecture halls, skills labs, libraries, etc. Their omnipresence in the world of education cannot be denied. On the one hand, they offer nurse educators opportunities for creating new and enhanced educational experiences for their students. On the other hand, ICTs present nurse educators with many challenges that go above and beyond mere technical aspects (Jäger, 2013a). The primary challenge lies in developing the competency to teach by utilizing innovative instructional methods geared toward, indeed based upon, these technologies (Kerres et al., 2005, p. 6).

With e-learning becoming more commonplace in tertiary education, there is a documented need for what is being called “e-pedagogy” or “e-didactics” (Jäger, 2013a). Some even see e-learning as “the future of higher education as movement is made away from the structured classroom to the much larger learning environments of home, community, and the clinical setting” (Finke, 2005, p. 5). Although computer-assisted learning has been used in nursing education since the 1960s (Bloomfield et al., 2010), it was not really until the mid-1990s, when widespread use of the internet became available to the general public, that ICTs began to have a major impact on the field. This was due mainly to the rapid technological development of ICTs (Bloomfield et al., 2008; Schiffer and Templ, 2006, p. 1085). This perhaps also explains why there is almost no relevant literature published before 1990 (Chumley-Jones et al., 2002).

When we now think of how technology has changed nursing education, high-fidelity simulation and computerized testing are the two areas which immediately come to mind, though the technological revolution is actually much more comprehensive, with students (and instructors) using laptops, smartphones, and tablets in class to instantly access great stores of information on the internet. One of the most recent applications is the virtual patient. These interactive, case-based learning programs are more easily accessible and less expensive than high-fidelity simulation labs. However, it is e-learning which will most likely change the way we teach nursing, for it “is an entirely new type
of educational experience, which requires a re-examination of the online instructor’s role” (Maor, 2003).

**e-Learning**

**Definition**

Over the course of the past two decades, a plethora of terms has been coined to describe the use of ICT for learning purposes, including computer-assisted learning, web-based learning, and online-learning. For the purposes of this paper, I will be using the term “e-learning”, which has found widespread international acceptance (Rey, 2009). e-Learning is defined as any educational offering that makes use of ICT for asynchronous, decentralized content presentation and distribution, as well as for interpersonal communication and interaction (Halstead and Billings, 2005, p. 424; Holmberg, 2008, p. 37; Kerres et al., 2005, p. 6). According to this definition, there are three elements which characterize e-learning as being different from face-to-face learning:

1. Asynchronicity (lack of unity of time);
2. decentralization (lack of unity of place); and
3. electronically mediated interaction and communication.

The elements of e-learning and face-to-face learning are the same, with the exception of the unity of time and place (see Fig. 1). While interaction and communication obviously take place during face-to-face instruction, these occur instantaneously and include the full gamut of non-verbal communication such as facial expression, posture, and gestures. The same cannot be said of e-learning. The lack of unity of time and place dictates that interaction and communication between the instructor and the student be mediated electronically. Indeed, the “distance classroom creates a social environment quite different from that in a face-to-face classroom and necessitates the development of new social skills. The communication process is hindered by the lack of nonverbal cues” (Gunawardena, 1992; see also Bennett and Lockyer, 2004).

The altered nature of communication and interaction affects all the other elements of teaching as depicted in Fig. 1, which in turn demands a different approach to teaching, one which “revolves around a learner-centered system with teaching activity focused on facilitating learning... and [which] is based on the principle that the key to learning is what students do, not what teachers do” (Beaudoin, 1990; see also Moore and Kearsley, 1996, as well as Sammons, 1988). This implies the need for a role adaptation among educators.

**Advantages and Disadvantages of e-Learning**

Compared to face-to-face learning, e-learning offers some advantages as well as disadvantages to both teacher and student (see Table 1). e-Learning allows the individualization of educational materials and employs innovative, interactive methods in an information-rich environment, all of which are important for a constructivist approach to adult learning (Bloomfield et al., 2008; Cook et al., 2008; Jäger, 2013a). Since study materials must be accessible for all students at any time during a course, these must be fully prepared prior to course begin. This improves quality by ensuring consistency of educational delivery (Bloomfield et al., 2008). One of the greatest advantages afforded by e-learning lies in its asynchronous and decentralized nature, because this offers flexibility in time and location of learning. The ability to access a course at a time and place which is convenient to the student increases student independence and motivation (Cook et al., 2008). It also allows students to proceed at their own speed (Jäger, 2013a), while at the same time it helps reduce overall learning time (Bloomfield et al., 2008; Coomey and Stephenson, 2002). In addition, e-learning expands student access to education (Cook et al., 2010; Cravener, 1999).

That said, the lack of spontaneous, personal interaction and communication between the instructor and the student can impede the social process of learning (Bloomfield et al., 2008; Halstead and Billings, 2005, p. 435). Many instructors fear that this “facelessness” will lead to a loss of relationships between instructor and student, and thus may negatively affect the instructor’s ability to teach (van Rensburg, 2013; Thornam and Phillips, 2001). Others point out their concern that the lack of social presence, both of the instructor as well as of other students, may hamper the establishment of a community of learning thereby negatively affecting learning outcomes (Beer et al., 2003; Hillt, 1998). For the instructor, e-Learning is “generally more time consuming than working with standardized curricula and learning formats” (Beaudoin, 1990; see also Beer et al., 2003; Clark and Ramsey, 2005, p. 410; Cravener, 1999). Despite these disadvantages, e-learning has been shown to be an effective mode of education.

**Effectiveness of e-Learning**

Education scientists, psychologists, and media analysts have researched the e-learning phenomenon extensively since the early 1990s. A number of systematic reviews have been conducted which provide adequate evidence that e-learning is an effective educational method. Whereas Paulus and Strittmatter (2002, pp. 295–297) found no conclusive evidence that e-learning was more or less effective than face-to-face learning, Chumley-Jones et al. (2002) conclude that the quality of learning outcomes achieved via e-learning in healthcare professions is comparable to traditional classroom-based education, provided the pedagogical–didactical design meets specific quality criteria. Cook et al. (2010) reach a similar conclusion as do Childs et al. (2005), who add that both instructors and students perceive e-learning as an effective and enriching experience. Bloomfield et al. (2008) confirmed the effectiveness of e-learning in the acquisition of clinical skills. In summary, e-learning can be seen as an equally effective alternative to traditional classroom based instruction.

**The Role of the Nurse Educator in a Traditional Classroom Setting**

The concept of the social role is defined as the sum of the behavioral expectations which a social system places upon an individual, based upon their social function. These expectations include social norms which are more or less accepted by the individual fulfilling the role (Biddle, 1986; Zielke-Nadkarni, 2005, pp. 76–77). If we apply this definition to the role of the nursing instructor, then we must look at the

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1. In this respect, e-learning is very similar to old-fashioned distance learning via correspondence, with the exception that communication now takes place electronically. Indeed, most distance education is now conducted in the form of e-learning.
The goal-oriented planning, organization, and reflection of teaching and learning that takes place in the institution (ibid.). It is, therefore, the role of the sage that is of primary interest in this paper.

The traditional classroom is an instructor-centered setting in which the instructor is an expert dispensing knowledge (Jäger, 2013b; Rest, 2002, pp. 17–19). The German Ministers of Education Conference defines an instructor as a subject expert whose core responsibility involves the goal-oriented planning, organization, and reflection of teaching and learning processes according to the most current scientific knowledge available. In addition, instructors assess and evaluate individual student performance to ensure that learning objectives are achieved (KMII, 2013). The instructor “knows both what is to be learned and how learning occurs. Though independent epistemologically, the learner’s activity must be prompted and guided by the teacher... [who] guides the learner’s thinking and brings about understanding through interaction with the learner” (Sammons, 1988).

Nursing as a discipline also places specific demands upon the nurse educator. Since nursing is a clinical profession, instructors must teach more than just knowledge. They must also guide students toward achieving objectives within the affective and psychomotor domains (Behrens and Langer, 2010, p. 161; Bergian and Tegethoff, 2013). Furthermore, the nursing instructor plays an important part in the professional socialization of students, often serving as a professional role model (Reiber, 2011; de Vries, 2005, pp. 147–148). When transferred from the traditional classroom to an e-learning scenario, nurse educators will find themselves confronted with a new set of circumstances which may challenge their role concept.

**Review Design and Methods**

**Objective**

This article seeks to answer the following question: How does e-learning transform the role of nurse educators?

**Design**

Narrative literature review.

**Data Sources**

A database search of CINAHL, Cochrane Review, Medline, Ovid, PubMed, and Google Scholar was conducted using the English and German key words, “teacher,” “educator,” “role,” “e-learning,” and “nursing,” yielding 765, 524, 508, 364, 213, and 78 publications respectively. Google Scholar was used to locate German language publications, which are only indexed in the previously named databases if they have an English language title, abstract, and key words. These results included overlap between the databases. Abstracts were reviewed for relevant publications, and the following inclusion criteria were applied:

- Primary source, such as research, project report, literature review, theoretical analysis, discussion paper, textbook, etc.
- Involved use of e-learning in higher education
- Included the instructor’s/educator’s perspective; and
- Dealt with the role of the instructor/educator in the virtual setting

Literature which met the inclusion criteria was reviewed in its entirety.

**Review Methods**

English or German language literature published between 1990 and the present was included and evaluated according to the Iowa Model of Evidence-Based Practice to Promote Quality Care hierarchy of evidence (Titler et al., 2001) in order to capture the diverse approaches to examining the concept of the nurse educator’s role. Several articles on distance learning in higher education were included, as well as articles from disciplines outside of healthcare, in order to broaden the perspective of this review. Electronic citation tracking, article ancestry and hand searching of reference lists and relevant journals were also undertaken. The literature was critically analyzed and the results summarized thematically.

**Results**

The search strategy resulted in the inclusion of 40 sources, the majority of which is expert opinion and examines the educator’s role in e-learning from a theoretical point of view (n = 30). There is paucity of empirical research examining the educator’s role (n = 10) consisting of one literature review and nine descriptive or qualitative studies. With the exception of four sources (Finke, 2005; Halstead and Billings, 2005; Schweiger, 2005; Thornam and Phillips, 2001), there is no literature on the role of the nurse educator in e-learning, which is why this review relies heavily on literature from journals of higher education and distance-learning.

**The Need for a Role Re-definition**

A common theme throughout the literature is the need to re-define the educator’s role for virtual settings, “requiring changes to both pedagogy and practice” (Bennet and Lockyer, 2004; see also Finke, 2005, p. 17). The roles of the student and the instructor are interdependent (ibid.; Moore, 1994), e-Learning requires a move to student-centered, independent learning, which changes the instructor’s role from that of the content expert to that of a facilitator of learning processes, who guides and coaches students to help them achieve learning objectives (Anderson, 2011, p. 67; Gunawardena, 1992; Kerres et al., 2005, p. 19). Teachers are no longer expected to teach; rather, they are expected to help the students to teach themselves (Graf and Motamedi, 2002, p. 155). This role change is frequently referred to as the transition from “the sage on the stage” to “the guide on the side” (de Laat et al., 2007; Schweiger, 2005). It means giving up the control educators have had
in the traditional classroom and assuming a more passive and nondirective role, allowing students the freedom to individually pace their learning (Gunawardena, 1992; Sammons, 1988).

As a result of the depersonalization of the virtual classroom, students perceive an increased need for personal feedback and encouragement at more frequent intervals (Holmberg, 2008, pp. 75, 88). This means that either the instructor must spend more time online in order to provide this support, or someone else must take over the job of communication and interaction. In some cases, this task is performed by online tutors, so that the instructor no longer has any interaction with students (Arnold et al., 2013). This also implies that “the teacher no longer works alone but as a member of a team” (Gunawardena, 1992). “The new role does not diminish the importance of the teacher but requires new knowledge and skills” (Rest, 2002, p. 22). Though the principles of modern adult education call for this very role transition, the depersonalization of the virtual classroom can pose an insurmountable barrier to facilitating the learning process (Beer et al., 2003, p. 5; Childs et al., 2005). The lack of direct teacher–student interaction implies that educators cannot rely on immediate verbal and non-verbal feedback from the students to judge the effectiveness of their teaching. Rather, they must anticipate the effectiveness of methods and strategies ahead of time (Harasim et al., 1997, p. 175).

Communication normally takes place in written form. It is extremely important that the instructor words everything as understandably as possible, as misunderstandings in an asynchronous learning environment are not readily noticed and can significantly impede the learning process. In traditional classrooms the instructor can clear up misunderstandings as they occur (Holmberg, 2008, p. 88). In order to adapt to these role changes, instructors need a new set of competencies.

**New Competencies**

There is an important distinction to be made between mere technical competency—in the sense of being able to utilize technology in teaching—and competency for teaching in a virtual environment. This includes the following:

- **Technical competency:**
  - Familiarity with necessary hardware and software; and
  - understanding the strengths and weaknesses of each medium when used for teaching purposes.
- **Didactical competency for the design of materials suitable for independent online study:**
- The ability to create a multimedia, information-rich learning environment by linking materials with other electronic resources;
- anticipation of student needs;
- facilitation of asynchronous learning processes;
- use of innovative teaching methods;
- the ability to project a teaching presence in the virtual classroom;
- the ability to mediate asynchronous communication and interaction;
- the ability to create a community of learning in the virtual classroom;
- a high degree of self-discipline and organization; and
- the monitoring and evaluation of student achievement and participation.

The real challenge, however, is not in the mastery of these competencies, but rather in using them to create a high quality e-learning experience with added value for the student (Arnold et al., 2013, p. 207; Bennet and Lockyer, 2004; Gunawardena, 1992; Jäger, 2013a; Kerres et al., 2005, p. 6; Schulmeister, 2005; Wheeler, 2000).

**Functional Role Models for e-Learning Instructors**

Role can be defined by function. While there are widely accepted functional roles in traditional forms of education—e.g. teacher, lecturer, trainer, or professor—there are, as yet, no set functional roles for e-learning instructors (Arnold et al., 2013, p. 210). However, several functional models are put forth in the literature. The most widely cited model is that of Goodyear et al. (2001; see Fig. 2), who describe eight distinct role functions for instructors in e-learning. Although this model has been well received, several of the functions attributed to the instructor’s role are now commonly fulfilled by ancillary personnel, for example technological expert or management.

Williams (2003) defines a four-fold role of administrator, teacher, developer of educational materials, and technical expert. Bennet and Lockyer (2004) differentiate between the functions of teacher, subject designer, content developer, and evaluator of student achievement. Schulmeister (2005) sees the teaching role expanded to include organizational and administrative duties directly related to managing the virtual classroom. In their qualitative study, de Laat et al. (2007) present an excellent summary of online teaching roles and competencies. Based upon this, they hold that “there seems to be a consensus about the online teachers’ role and competencies in the literature” (ibid.), which may explain why there is a great deal of overlap among the models.

Pennsylvania State University has developed a detailed three-part model consisting of technological expert, course administrator, and pedagogue. A list of competencies (28 total) has been assigned to each function, and expectations of instructor performance have been formulated (FEC, 2011). The Penn State model is by far the most developed of those included in this review.

**Conclusions and Discussion**

It is not surprising that many of the tasks, competencies, and functions presented in this paper are common to both e-learning and traditional classroom teaching, considering that both share common elements, with the exception of unity of time and place (see Fig. 1). However, this lack of unity changes the nature of communication and interaction between the instructor and the students, adding a new dimension of complexity to teaching as well as a shift in emphasis in the fulfillment of the educator’s role. Learning processes are more individualized, requiring frequent personal attention from the instructor/tutor, and hence an increased time commitment. The contradiction between this increased need for individual tutoring and the depersonalization of interaction in the virtual classroom can lead to a role conflict for the educator.

![Fig. 2. Functions of an online instructor.](image-url) Adapted from Goodyear et al. (2001).
e-Learning is here to stay and will continue to have a growing impact on nurse education. We must take this into account when educating nurse instructors. Unfortunately, even the literature directly related to nursing does not provide any indication of how the special needs of nurse education (such as teaching clinical skills) can be met. Nurse educators must remain professionally competent experts with clinical nursing experience, regardless of the educational setting. However, electronic, impersonal interaction makes it difficult for them to serve as professional role models for students and other nurses. They must find new ways to mentor, guide, encourage, teach, and fairly assess and evaluate student nurses. Facilitating student-centered learning processes in the cognitive, affective, and psychomotor domains becomes a special didactical challenge, perhaps even exacerbating the theory–practice gap.

There is a consensus in the literature on the need for a new definition of the educator’s role in light of e-learning. The competencies and models examined in this review display a considerable amount of overlap, which seems to indicate that we are moving closer to a new or expanded definition of the educator’s role. Nevertheless, e-learning is still so novel that these competencies and functional models have yet to congeal, so that it would be premature to speak of a well-defined role.

The competencies and functions described in this paper can help us to develop a preliminary role description, which in turn could serve as the basis for empirical studies examining how nurse educators who are actively involved in e-learning interpret, experience, and attempt to fulfill their role.

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