The CLES-Scale: An Evaluation Tool for Healthcare Education

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Introduction and Concept Definitions

1

Mikko Saarikoski

Professional healthcare is an important component of the welfare service provision of a modern society. Healthcare is delivered by a wide range of healthcare professionals in both the public and private sectors. Typically, healthcare professionals are divided into medical and nursing staff. In this book, *healthcare education* refers to degree programmes for professions such as nursing, midwifery, emergency treatment, physiotherapy, public health nursing and radiography. The names given to these nursing-based professions vary across the world including within Europe, where much effort has been made to standardise the terminology used in these healthcare education programmes.

The broad outlines of healthcare education in the European Union (EU) are defined in the Bologna Declaration and in Directive 2005/36/EC (Recognition of Professional Qualifications) (European Commission 2005). Healthcare education in the EU has been organised by higher education institutions (HEI), either university colleges or higher professional colleges (also known as polytechnics or universities of applied sciences). Degree programmes in healthcare vary in length between 3 and 4 years, and include theoretical studies and clinical training periods in clinical placements (Spitzer and Perrenoud 2006; Warne et al. 2010). Medical education and training programmes for medical studies are largely excluded from this book. Medical education is treated as one example of an area where few exploratory projects using the CLES framework have been done (Part III, Chap. 9).

In the field of healthcare education, a uniform multi-professional perspective or theory on what clinical studies in healthcare education programmes should include is lacking. The earlier research literature has mainly focused on nurse education. Nevertheless, we take up the challenge of writing a book for a multi-professional audience—not only for nurses. A theoretical framework widely used for empirical

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studies in the healthcare context has been the CLES framework. The abbreviation comes from the first version of the research instrument, *Clinical Learning Environment and Supervision Scale* (Saarikoski and Leino-Kilpi 2002). Approximately 50 empirical research papers using the CLES framework have been published in peer-review journals.

The focus of this book is on clinical learning in real-life contexts. This component of training is known as the *clinical practicum*. For healthcare students (henceforth *student*), the clinical practicum includes (1) the learning of practical skills in labs in educational institution, (2) studies in simulation centres where mannequins provide a lifelike learning experience and (3) learning experiences in authentic patient care situations. The last mentioned is crucial for the development of the practical skills, knowledge and caring attitudes required across the healthcare professions.

The *clinical learning environment* (CLE) is an umbrella concept describing hospital wards, outpatient clinics and public healthcare services in the community. According to the concept analysis of Flott and Linden (2016), it consists of four main elements: (1) the physical space; (2) psychosocial and interaction factors; (3) the organisational culture and (4) teaching and learning components. Students' experiences during their clinical practicums are extremely important for their professional development. Two cooperating professionals contribute importantly to this process: clinical staff mentors (henceforth *mentor*) and clinical teachers (later henceforth *teacher*). They are often—especially in the English language countries—also known as *tutors*. In this book, both terms are used. Teachers/tutors are most often hired by HEIs while mentors are staff members of healthcare service organisations. A teacher is an expert in an educational process whereas a mentor is a practical expert and also the most important professional role model for student (Warne et al. 2010; Saarikoski et al. 2013).

The educational process in the clinical practicum includes various interactions between student, mentor and teacher. Such interaction may focus for example on teaching cognitive knowledge, applying theoretical knowledge in clinical practice, providing students with psycho-emotional support, or reflections on the team's working climate—in other words all the psychosocial processes rising from the work unit that affect students' learning and its conditions.

A concept traditionally used in connection with the clinical practicum is supervision. In dictionary definitions (e.g. Steinmetz and Brabhem 1993; Bloomsbury Reference Dictionary 1994), supervision refers to direct control of the worker. In this book, the term *supervision* refers to the pedagogical activities in the relationship between student and mentor or teacher. Examples of such activities are assessment, discussion, guiding, mentoring, teaching, etc., either at the individual or the group level. In group supervision, the same supervisor may have several students or the supervisor may vary with the demands of shifts or the type and location of work. In individual supervision, the supervisor may also take on the characteristics of a mentor. The term mentor is used to denote a personal supervisor who facilitates learning and supervises and assesses the student. Mentors understand the context of the student's learning experience and they are often selected by student (expressly)

for the purpose of providing guidance and support (ENB 2001). In the mentorship context, the term *mentee* refers to an individual who is supported, taught and assessed by a mentor (Anderson 2011; Holland et al. 2013). In this book a mentee is a healthcare student who is in the clinical practicum stage. The verb *mentoring* describes the guiding and supportive interaction between the student/mentee and mentor.

The book is based on the findings of empirical studies conducted over the last 20 years on the clinical practicum in healthcare education programmes. The samples studied have mainly consisted of nursing students—who also constitute the biggest single group of students in healthcare education. We have abundant research evidence to show that the theoretical framework—the CLES approach—used in this book is not tied to any specific subdomain of healthcare education or to any specific area of the healthcare service in which students do their clinical practicums (Bos et al. 2012; Warne et al. 2010; Meretoja and Saarikoski 2012). This multi-professional approach can also be found in Flott's and Linden's (2016) analysis of the concept of CLE, in which they note that the definitions used in countries with healthcare education programmes are similar, showing that CLE elements are not only global in nature but also reach cross-disciplinary as well. For this reason the book can be considered suitable for all nursing-based programmes and all the practical domains of healthcare education.

The contents of this book are divided into three parts. The first part describes the theoretical and practical principles of clinical learning, i.e. the main elements of clinical learning in healthcare education. This part also includes the chapters describing the CLES framework as a research and quality assurance instrument and how the CLES can be validated in different language and cultural environments.

The second part focuses on practical issues, for example how to further a good clinical learning environment along with a positive working climate. In this instance, cooperation between the clinical staff and clinical teacher is an important single factor. Another chapter looks at the link between the CLES research network and the Empowering the Professionalization of Nurses through Mentorship (EmpNURS) project (2010–2013), which formed a part of the European Union's Lifelong Learning Programme (EmpNURS 2013). The aim of the EmpNURS project was to advance professional nursing in four new EU countries (Antohe et al. 2016).

The third part offers new perspectives which can potentially enrich the existing CLES framework. Chapters consider issues which have hardly been explored thus far or are absent from the latest theoretical structure of the CLES + T scale (Saarikoski et al. 2008). Examples are caring relationships between students and their clients and patients, and new environments for using the CLES framework (an experiment among medical students). This part also includes a chapter on the use of the new e-learning-based technologies in clinical teaching.

The book is intended mainly for researchers and clinical professionals who contribute to students' clinical learning in universities and healthcare organisations. It is especially suitable as a learning material for mentorship training courses for clinical personnel. It is also suitable as a textbook for use in master's-level studies in healthcare education.

References

Anderson L. A learning resource for developing effective mentorship in practice. Nurs Stand. 2011;25(51):48–56.

Antohe I, Riklikiene O, Tichelaar E, Saarikoski M. Clinical education and training of student nurses in four moderately new European Union countries: assessment of students' satisfaction with the learning environment. Nurse Educ Pract. 2016;17:139–44.

Bloomsbury Reference Dictionary. London: Bloomsbury Books; 1994.

Bos E, Alinaghizadeh-Mollasaraie F, Saarikoski M, Kaila P. Validation the clinical learning environment, supervision and nurse teacher CLES+T instrument in primary health care settings using confirmatory factor analysis. J Clin Nurs. 2012;21:1785–8.

EmpNURS Project. Final report. 2013. http://eacea.ec.europa.eu/LLp/project_reports/documents/erasmus/ECUE/eras_ecue_510111_fr.pdf

English National Board (ENB). Preparation of mentors and teachers. A new framework of guidance. Luton: ENB, Department of Health, Chiltern Press; 2001.

European Commission. Directive 2005/36EC. Off J Eur Union. 2005.

Flott EA, Linden L. The clinical learning environment in nursing education: a concept analysis. J Adv Nurs. 2016;72(3):501–13.

Holland K, Tichelaar E, Pokorna A, Riklikiene O, Antohe I, Saarikoski M. Empowering the nursing profession through mentorship, Handbook 1: implementation to programme implementation. EmpNURS Project/TUAS Course Material. 2013;76.

Meretoja R, Saarikoski M. Evidence based development of clinical learning environment in Finnish health care services. Improvement by Evaluation/Eval2012. University of Tampere; 2012. p. 150–6.

Saarikoski M, Leino-Kilpi H. The clinical learning environment and supervision by staff nurses: developing the instrument. Int J Nurs Stud. 2002;39:259–69.

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The Nurse Teacher in clinical practice: developing the new sub-dimension to Clinical Learning Environment and Supervision (CLES) scale. Int J Nurs Stud. 2008;45:1233–7.

Saarikoski M, Kaila P, Lambrinou E, Pérez Cañaveras RM, Tichelaar E, Tomietto M, Warne T. Students' experiences of cooperation with nurse teacher during their clinical placements: an empirical study in a Western European context. Nurse Educ Pract. 2013;13:78–82.

Spitzer A, Perrenoud B. Reforms in nursing education across Western Europe: from agenda to practice. J Prof Nurs. 2006;22:150–61.

Steinmetz S, Brabhem CG, editors. Random house Webster's dictionary. New York: Ballantine Books; 1993.

Warne T, Johansson UB, Papastavrou E, Tichelaar E, Tomietto M, Van den Bossche K, Vizcaya-Moreno MF, Saarikoski M. An exploration of the clinical learning experience of nursing students in nine European countries. Nurse Educ Today. 2010;30:809–15.

Part I

Clinical Learning Environment: Theoretical and Practical Principles

The Main Elements of Clinical Learning in Healthcare Education

2

Mikko Saarikoski

2.1 Changing Healthcare Services Also Make Demands on the Education System

Healthcare services are currently undergoing important changes. The ways in which services are delivered has changed; the role of traditional care institutions has declined and that of multiform non-institutional care systems have increased. This can clearly be seen, for example, in elderly care. Healthcare workers increasingly meet clients and patients in their homes. From the viewpoint of professional skills, this means that healthcare workers must be capable of more independent decision-making than, for example, is necessary in a traditional hospital environment, where collegial help is easily obtained. These changes impose new requirements on health-care education; it must produce skilled persons able to act as professional experts—whether as a team member or as a self-reliant worker. There is also a need for continually updating one's professional knowledge; a healthcare worker must be capable for searching for new research-based knowledge and applying it with patients. The lifetime of knowledge can be short in healthcare and working in the field requires a positive attitude to lifelong learning.

Another notable trend in healthcare is rapid increase in information and communication technology (ICT), also known as health informatics. This is especially evident in the documentation of the care process and monitoring of patients' health status. Competence in these areas requires a good general ICT capability. Core competencies comprise the skills, knowledge, attitudes and capabilities necessary to effectively manage electronic patient records and to operationalise other ICT applications needed by healthcare workers in their specific professional field. However, the healthcare service remains a labour-intensive sector—despite the rapid uptake of technological

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innovations. Human resources will always play a central role in healthcare services. It is hard to imagine a robot completely substituting for a home-care worker in elderly care. Some digital distance services (for example, communication and monitoring tools) are valuable but a concrete response to a concrete need—e.g. an elderly person who has fallen at home—requires human services and will continue to do so in the future. Technical tools can make a useful contribution to the healthcare process but do not substitute for a context-sensitive evaluation of a living human being.

2.2 The Clinical Practicum in Healthcare Education

The clinical practicum is an important component of healthcare education programmes. Nowadays, practical training—including skill labs at school and clinical practicums—forms 40–50% of European programmes. The range of 10% in this proportion can be regarded as significant and is explained by historical differences in the development of different countries' education systems. At the beginning of the twentieth century, healthcare education was mainly based on the apprenticeship model and carried out in healthcare organisations, mainly hospitals. Since then, healthcare education has, at different times, regardless of whether the system had its origins in hospital schools or other sites, moved from the service sector to vocational colleges, polytechnics and universities. The term hospital school refers to a school which was a part of a healthcare organisation, albeit often administered by the Ministry of Health (Meerabeau 2001; Lewin 2007). In the Nordic countries, the hospital school system ended in the 1960s whereas in many southern European countries it only ended in the 2000s. If the interval from the hospital school system is short, the education system tends to be more practice orientated, and if the interval is long, the education system tends to be more academic and theory driven. In Greece, Italy and Spain the ratio of the clinical practicum to academic study is approximately 50% whereas in, e.g., Finland it is clearly under 40% (Warne et al. 2010).

Tertiary-level degree programmes in healthcare education are nowadays most often provided in university colleges or in polytechnics. These educational organisations form the HEI system in Europe (Spitzer and Perrenoud 2006; Warne et al. 2010). Clinical practicums have been arranged in social and healthcare service units such as hospitals, homes for the elderly, rehabilitation institutions, outpatient clinics and community nursing teams, which also offer services in clients' homes. The HEIs have total responsibility for the clinical practicum but the supervision and mentoring of students are mainly implemented through clinical placements. This cooperation between the HEIs and service organisations is based on contracts which lay down the requirements set mutually for the quality of clinical learning environments. The person heading cooperation in the HEI is the nurse teacher (NT), who is a responsible stakeholder and clinical teacher. The basic idea is that the clinical practicum supports students' theoretical studies and offers opportunities to apply their theoretical knowledge in practical situations with real-life clients. Working in healthcare services is always team work, and hence the second main objective of the clinical practicum is to provide students with the experience of being a member of a healthcare team.

2.3 Factors of the Clinical Learning Environment (CLE)

The picture of the clinical learning environment and its structures revealed by empirical studies is far from straightforward. Rather, the learning environment is a complex and multidimensional network of social relationships involving a number of crucial elements (Hooven 2014). These elements include psychosocial structures and relations between the personnel in the workplace, the prevailing management culture in the community and the nature of care in the unit. The quality of the cooperative relations between the HEI and healthcare service organisation also affects the quality of the CLE (Saarikoski 2002). These elements can either contribute to the student's professional development or, in an unfavourable situation, add to the risk that the student will drop out and even give up the idea of working in healthcare altogether.

2.3.1 Psychosocial Climate of Work Community

The psychosocial climate of healthcare units is affected by the same group dynamic and psychological laws as any other work community. The working team should be aware of their basic purpose. If the team spirit is free of obstructive and disrupting tensions, the group can devote its energy to implementing its fundamental role. A committed and enthusiastic team also transmits its spirit and motivation to students. A learning experience in a workplace of this kind is an instructive one. In the contrary situation, a student's energy is spent maintaining his or her own psychosocial safety. Research (Pinto et al. 2010; Järvinen 2013) has shown that these elements are dependent on how the team is managed; hence the role of the team leader (known as the ward manager in healthcare units) is crucial in creating a good climate in the unit. In the classic British nurse education research (Orton 1983; Ogier and Barnett 1986), the ward manager (WM) was viewed as the student's most important supervisor. Nowadays, the role of the WM in supervising students is indirect and he or she contributes to the learning environment mainly via management of the unit's climate and its staff's supervisory activities (Fig. 2.1).

There are notable differences between the units in how they perceive their educational profile. British studies carried out in the 1980s (Fretwell 1983; Orton 1983) found two ward types in teaching hospital: highly student-orientated (HSO) wards and low student-orientated (LSO) wards. The difference was explained by the role of WM, who was both the leader of the unit and the supervisor of its students. It is important to note that these studies were carried out in the United Kingdom, where the WM and the student were in a clear hierarchical superior–subordinate relationship. These HSO and LSO terms are still usable in descriptions of typical teaching units.

Nowadays, HSO units have a non-hierarchical structure characterised by teamwork and good communication relations. For example, trained staff encourage students to take part in discussions, e.g. in ward meetings. The leadership style of the WM is democratic; he or she is student orientated and works consciously towards improving the

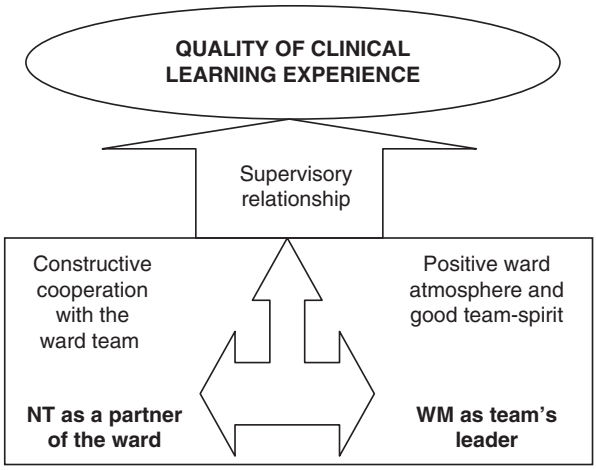

Fig. 2.1 Factors making for a 'good' clinical learning environment

unit's pedagogical atmosphere. In HSO units, the students are primarily learners, not workers. The more informal and open the students experience the unit's climate, the more positively they evaluate the pedagogical principles of the unit (Saarikoski 2002).

2.3.2 Quality of Care and Students' Learning Experiences

High-quality patient care is the most important criterion for meaningful learning experiences. When a student can experience the whole treatment process of a patient, he or she gets more comprehensive picture of the patient's health situation. If the student only sporadically takes part in single phases of the process, the picture remains fragmented (Warne et al. 2010). Holistic planning of care and clear documentation also promote students' comprehensive understanding of the treatment process and provide pedagogically appropriate learning experiences. Thus, the aims of providing high-quality care and a good practical learning experience support each other (Smith 1987; Saarikoski and Leino-Kilpi 1999; Suikkala 2007).

Clinical practicum provides a good vehicle for training students in providing patients with psycho-emotional support. Contacts with patients help students to find professional ways of encountering patients and their unique life situations. Such learning situations in turn promote the integration of conceptual knowledge and empirical experience. In nursing science, learning experiences during clinical situations have increasingly been studied within the framework of caring theories. The concept *caring* includes not only physical care and treatment but also response to patients' psycho-emotional needs. These latter are characterised by empathy, presence, emotional support, human love and sharing of the patient's situation. For students, caring includes many experiential elements associated with the control of emotions. Mentorship studies have shown that similar communicative and psychological elements are also present in the relationship between the student and his or her mentor (Andersson et al. 2015).

2.3.3 Supervisory Relationships in the Unit

Professional socialisation is an interactive process through which a newcomer assumes the values, attitudes, moral conceptions, knowledge and skills of those already established in the target profession. In this process of identification and transition to a new social status, supervisory relationships play a crucial role. Professional socialisation can be viewed as a lifelong process, during which an individual learns new skills and social roles as a member of the reference group. Social integration into the profession can be seen at both the communal level (belonging to the group) and the individual level (socialisation as a prerequisite for individual development). It is an essential condition for successful professional development that the student has the experience of belonging to the target profession. This in turn requires willingness on the part of the student to engage with the assigned working group (Beck 2014; Tomietto 2014).

The model for student supervision has traditionally been group supervision; since the 1990s, however, the emphasis has shifted in favour of an individualised model of supervision (Lewin 2007; Salminen et al. 2010). In healthcare education, individualised supervisory relationships during students' clinical practicums have come to be viewed as crucial for professional development. Confidential supervision sessions have been perceived as important by students because they enable them to talk openly about their experiences and the emotions aroused in caring situations (Saarikoski et al. 2009).

Patient contacts can sometimes be very stressful, if not oppressive, for the student. Situations of these kinds often arise from the emotional shock experienced by patients for whom a serious illness is a holistic phenomenon that influences the patient's existential identity. Patients and their relatives are often in an unstable emotional state. Observing such states can lead to strong emotional reactions in the student. In such situations, mentorship sessions are needed some features of which have been used in clinical supervision. In the English language countries (e.g. USA, UK, Canada, Australia), the concept *clinical supervision* refers to monitoring the quality of professional services to clients. Clinical supervision focuses primarily on the emotional support needed in the human-relation professions in social services and healthcare and in the implementation of different kinds of therapeutic interventions. Clinical supervision helps healthcare workers to manage their emotional reactions, and provides them with opportunities both for finding new ways of learning how to do this and for obtaining professional support, which is particularly important for healthcare staff (Royal College of Nursing 2003; Milne and Watkins 2014).

While from the viewpoint of clinical supervision and counselling the individualised supervisory relationship has a crucial role, it sets some practical conditions. It is important that the cooperation between the student and his or her mentor is clearly specified in their mutual contract and that the mentor named in the contract does not change during the student's placement. Both parties should also have enough time together to properly implement their agreed cooperation. To achieve this objective, the best solution in clinical practice is that, as far as possible, the student works the same shifts as his or her mentor. This procedure enables them to work closely

together, providing possibilities for mini bedside teaching sessions and immediate evaluative feedbacks. From the viewpoint of professional development, weekly supervisory sessions are especially important as they also make it possible to focus on matters which may seem too minor when under the pressure of clinical work.

2.4 The Clinical Practicum as a Vehicle of Professional Development

Supervisory relationships during clinical practicums are the most crucial role factor in the professional development of students. Theoretically, the process is based on role modelling, where a student observes and evaluates models of action by qualified staff. Role modelling is an important factor in educating students in the specific qualities that distinguish 'good' and 'effective' role models from weak or non-desirable ones. In the optimal case, the student's own mentor will act as a 'good' role model and facilitator of learning while also transmitting positive and constructive professional values. Role modelling is also important in the socialisation of students into their future profession (Donaldson and Carter 2005; Larson et al. 2013).

Contacts with patients bring a need for separate supervision sessions that enable students to ponder their clinical experiences. A key issue from the viewpoint of professional development is whether students recognise their emotional reactions and can talk about these with their supervisor. Such psychological introspection is known as *reflection*. Reflection is a generic term that refers to the intellectual and affective activities that individuals engage in when exploring their experiences with the aim of acquiring new understanding. Healthcare students can use reflection during the clinical practicum as a mode of learning to promote their personal and professional growth (Caldwell and Grobbel 2013; Jootun and McGarry 2014).

An individual's professional identity rests on two self-concepts: the *personal self* and the *professional self*. In common discourse, the term self refers to a sense or a feeling that something is 'about me'. Reflecting on oneself is a mental feat that is commonly practiced. Individuals' personal sense of self and self-esteem develop slowly as they mature into adolescents. A stable personal self is an essential feature of the mental health structures of an individual (Oyserman et al. 2012). Professional self-concept has been studied to some extent in nursing science since the 1990s (Arthur and Randle 2007). It is an important concept for academics, administrators and clinicians interested in developing the nursing profession. For nurses, professional self-concept refers to how they feel about themselves as nurses, and is vital in examining current and future nursing practice and education as it affects patient care. The transition from student to professional nurse is an important phase in the individual's professional development and can be significantly promoted by a dialogical mentorship relationship (Kelly and Courts 2007; ten Hoeve et al. 2014).

The development of professional identity, then, is a continuous process that begins with admission to the education programme and evolves throughout the professional career. Education is a key period, as it is during this time that students gain the

knowledge and skills required to become professional healthcare workers. The process involves learning a body of knowledge that forms the basis of healthcare practice; however, knowledge alone is not sufficient. Through educational programmes and learning opportunities, healthcare students come to know and understand the core values and beliefs of the profession as well as what is entailed by professional practice (Johnson et al. 2012; Larson et al. 2013). Professional identity is a logical combination of the concepts of the personal self and the professional self (Fig. 2.2).

It is important to understand the relationship between these two self-concepts, and how far they overlap or 'push' each other apart. Theoretically, they can never be completely separated, as, psychologically, one's personal self is always present in human contacts—whether or not we want this. On the other hand, they cannot overlap completely, as this would create an impossible situation for general professional practice. In patient and client relationships, we can never act solely in accordance with our own personal feelings and wishes. Similarly, acting solely as one's professional self would mean that a nurse, for example, could only be impersonal and affectively neutral or nay cold. The solution to this quandary is the adoption of an appropriate *professional distance* neither wholly personal nor impersonal, which is an important factor in all client and patient relationships in the healthcare services.

Reflection and awareness of one's professional self is the core element of professional development in the healthcare field. Students' direct experiences of contacts with clients and patients further this process. The role of the mentor, in turn, is important, as he or she can help students to find their own style of working in their chosen profession. Although it is a demanding and time-consuming process, it is a necessary condition for a successful career in the healthcare services.

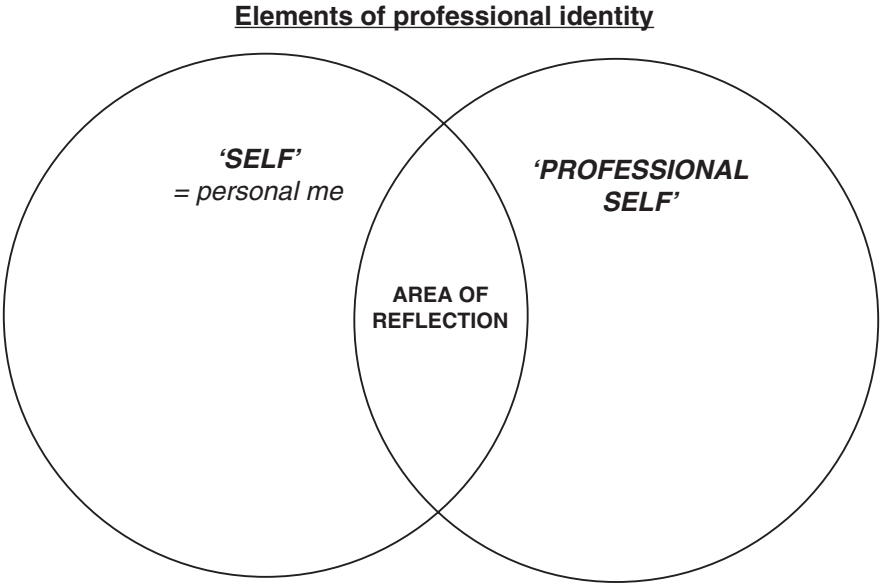

Fig. 2.2 The core context of professional reflection

References

Andersson EK, Willman A, Sjöström-Strand A, Borglin G. Registered nurses' descriptions of caring: a phenomenographic interview study. BMC Nurs. 2015;14:16. https://bmcnurs.biomedcentral.com/articles/10.1186/s12912-015-0067-9

Arthur D, Randle J. The professional self-concept of nurses: a review of the literature from 1992–2006. Aust J Adv Nurs. 2007;24(3):60–4.

Beck JW. Deconstructing student perceptions of incivility in nursing education. J Manag Educ. 2014;38(2):160–91.

Caldwell L, Grobbel CC. The importance of reflective practice in nursing. Int J Caring Sci. 2013;6(3):319–26.

Donaldson JH, Carter D. The value of role modelling: perceptions of undergraduate diploma nursing (adult) students. Nurse Educ Pract. 2005;5(6):353–9.

Fretwell JE. Creating a ward learning environment: the sister's role. Nurs Times. 1983;79, Occasional papers (21): 37–9 and (22): 42–4.

Hooven K. Evaluation of instruments developed to measure the clinical learning environment: an integrative review. Nurse Educ. 2014;39(6):316–20.

Järvinen P. Esimiestyö ongelmatilanteissa. Ekonomia sarja. Helsinki: Sanoma Pro; 2013.

Johnson M, Cowin LS, Wilson I, Young H. Professional identity and nursing: contemporary theoretical developments and future research challenges. Int Nurs Rev. 2012;59(4):562–9.

Jootun D, McGarry W. Reflection in nurse education. J Nurs Care. 2014;3:148. doi:10.4172/2167-1168.1000148.

Kelly S, Courts N. The professional self-concept of new graduate nurses. Nurse Educ Pract. 2007;7:332–7.

Larson J, Brady M, Engelmann L, Perkins I, Shultz C. The formation of professional identity in nursing. Nurs Educ Perspect. 2013;34(2):138.

Lewin D. Clinical learning environments for student nurses: key indices from two studies compared over a 25 year period. Nurse Educ Pract. 2007;7(4):238–46.

Meerabeau E. Back to the bedpans: the debates over preregistration nursing education in England. J Adv Nurs. 2001;34:427–35.

Milne D, Watkins CE. Defining and understanding clinical supervision: a functional approach. In: Watkins CE, Milne D, editors. International handbook of clinical supervision: Wiley-Blackwell, Wiley; 2014. p. 1–19.

Ogier ME, Barnett DE. Sister/staff nurse and the nurse learner. Nurse Educ Today. 1986;6:16–22.

Orton HD. Ward learning climate and student nurse response. In: Davis BD, editor. Research into nurse education. London: Croom Helm; 1983. p. 90–105.

Oyserman D, Elmore K, Smith G. Self, self-concept, and identity. In: Mark R, Leary MR, Tangney JP, editors. Handbook of self and identity. 2nd ed. New York: The Guilford Press; 2012. p. 69–104.

Pinto IR, Marques JM, Abrams D. Membership status and subjective group dynamics: who triggers the black sheep effect? J Pers Soc Psychol. 2010;99(1):107–19.

Royal College of Nursing. Clinical supervision in the workplace—guidance for occupational health nurses. London: Royal College of Nursing; 2003.

Saarikoski M. Clinical learning environment and supervision. Development and validation of the CLES evaluation scale [Doctoral dissertation]. University of Turku, Annales Universitatis Turkuensis, Ser D 525; 2002.

Saarikoski M, Leino-Kilpi H. Association between quality of ward nursing care and students' assessment of the ward as a learning environment. Nurs Times Res. 1999;4:467–74.

Saarikoski M, Warne T, Kaila P, Leino-Kilpi H. The role of nurse teacher in clinical practice: an empirical study of Finnish student nurse experiences. Nurse Educ Today. 2009;29:595–600.

Salminen L, Stolt M, Saarikoski M, Suikkala A, Vaartio H, Leino-Kilpi H. Future challenges for nursing education—a European perspective. Nurse Educ Today. 2010;30:233–8.

Smith P. The relationship between quality of nursing care and the ward as a learning environment: developing a methodology. J Adv Nurs. 1987;12:413–20.
Spitzer A, Perrenoud B. Reforms in nursing education across Western Europe: from agenda to practice. J Prof Nurs. 2006;22:150–61.
Suikkala A. Nursing student—patient relationship and associated factors [Doctoral dissertation]. University of Turku, Annales Universitatis Turkuensis, Ser D 788; 2007.
ten Hoeve Y, Jansen G, Roodbol P. The nursing profession: public image, self-concept and professional identity. A discussion paper. J Adv Nurs. 2014;70(2):295–309.
Tomietto M. Antecedents and outcomes of organizational socialization in newcomer nurses: testing a model [Doctoral dissertation]. Verona: University of Verona, (unpublished); 2014.
Warne T, Johansson UB, Papastavrou E, Tichelaar E, Tomietto M, Van den Bossche K, Vizcaya-Moreno MF, Saarikoski M. An exploration of the clinical learning experience of nursing students in nine European countries. Nurse Educ Today. 2010;30:809–15.

Methodological Issues and Development of the CLES Scales

3

Mikko Saarikoski

3.1 Students' Experiences During the Clinical Practicums as a Research Target

The theoretical structure of the CLES framework is based on a literature review of 102 empirical studies dating from the 1980s onwards. In nursing research, the clinical learning environment (CLE) and supervisory systems have been considered from three different perspectives: students, teachers and qualified staff. However, on the assumption that the students are the key evaluators of quality of a clinical learning environment and supervision, the majority (61%) of the empirical studies on the topic have taken a student perspective. A further 30% of studies have also included teachers and/or staff members as informants, while only small minority (9%) of studies have omitted students' perceptions (Saarikoski 2002). Clinical practicums have been little studied from the perspective of patients.

The relatively few main lines of research that have been conducted on clinical learning environments at different times are shown in Table 3.1.

During the 1980s, the focus of research was most frequently on the ward culture and atmosphere in the working team. Often, the traditional model of supervision was group supervision and studies emphasised the importance of the ward manager's role. In the 1990s, the focus shifted to the supervisory activities of unit staffs, and a new emphasis was placed on the importance of individually tailored supervisory relationships. The *one-to-one* working model and confidential supervision sessions between student and mentor were considered the most effective methods of supervision. The latest research approach has recognised new ICT technology having pedagogical potential also in clinical learning and teaching. Majority of ICT technology-linking research articles have been published in 2010s (Strandell-Laine et al. 2015).

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Table 3.1 Research themes of CLE studies from the 1980s to 2010s

Research themes	Authors	Country
WM as student supervisor, Ward atmosphere, WM's leadership style	Fretwell (1983), Orton (1983), Ogier and Barnett (1986)	England, beginning of 1980s
Individualised supervision, supervisory relationship, mentorship, professional development	Goldenberg and Iwasiw (1993), Myrick (1988), Clayton et al. (1989)	Canada, USA, end of 1980s
Association between quality of care and a good learning environment	Smith (1987), Beck (1993), Löfmark et al. (1999), Morgan and Sangaran (1997)	England, USA, Sweden, Australia, 1990s
New types of learning methods and learning environments (e-learning, online communication, mobile applications)	Mac Kay and Harding (2009), Garret and Jackson (2006), Lin and Shen (2013)	New Zealand, Australia, Taiwan, 2000s

Most studies (54%) have adopted a qualitative methodological approach, somewhat over a third (37%) have applied quantitative measures and the remaining 9% have employed a mixed method. In qualitative approaches, the commonest data collection methods have been interviews and small essays whereas quantitative studies have mainly used survey methods. Sample sizes have been relatively small; in qualitative studies, the number of the respondents has ranged from 6 to 30 and in questionnaire surveys respondent numbers have centred around 150. The relatively small number of respondents required in qualitative studies may be one reason for adopting a qualitative approach. It is also the case that qualitative methods are very often assumed to be more suitable than quantitative measurements for exploring students' socio-emotional experiences. However, while both approaches can yield valid and reliable information on the topic of interest, if our aim is to create a more systematic research tool for wider application, quantitative measurements are essential. In the present author's CLES studies (Fig. 3.1), the student samples have varied in size from 150 to 1900 respondents.

3.2 Validated Research Instrument as a Component of a Quantitative Survey

In the healthcare sciences, validated research instruments are useful tools not only for research purposes, for example, on the content of an area of interest, but also in development projects. Aided by validated instruments, we also can acquire the knowledge needed to inform our theoretical constructs. Such tools contribute more to the credibility and reliability of our research and development work than a simple questionnaire survey, which is often based solely on pragmatic interest in a practical issue.

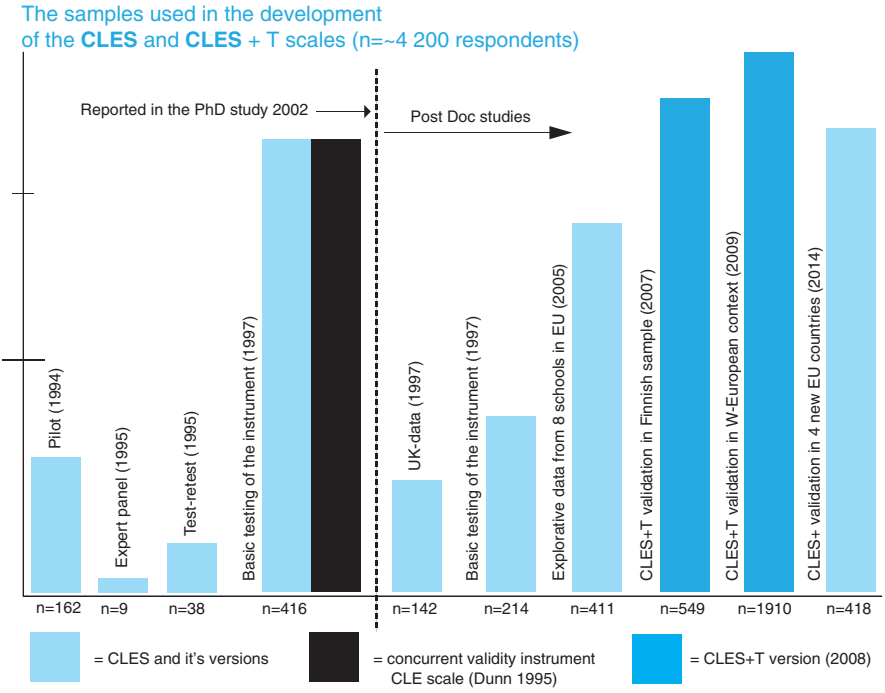

Fig. 3.1 Sample sizes in the original CLES scales' validation studies

Valid research instruments are always based on broad-based development work, including testing in different kinds of environments with many empirical samples. During the testing process, we can estimate how well the instrument encompasses the research target, how sensitive it is to variations and differences in target and how susceptible it is to external influences and sources of error.

It is important to be clear about the reason for choosing one validated research instrument over another and to understand that each instrument has been developed mainly to measure only its 'own' specific research target. For that reason, it is also important to compare different instruments. For example, the CLES scales only measure the quality of the clinical learning environment, not students' learning or nursing skills. The CLES + T scale (Saarikoski et al. 2008) was included in Hooven's (2014) meta-analysis, which evaluated five instruments used to measure the quality of the learning environment in healthcare education. Each instrument was concerned solely with the student perspective. The indicators expected from applying these instruments were (1) staff-student relationship; (2) nurse manager involvement; (3) students' emotions (is this indicator included in the scale?); (4) atmosphere of the unit; (5) nurse teacher involvement and (6) feedback to students. Only the CLES + T scale included all six themes.

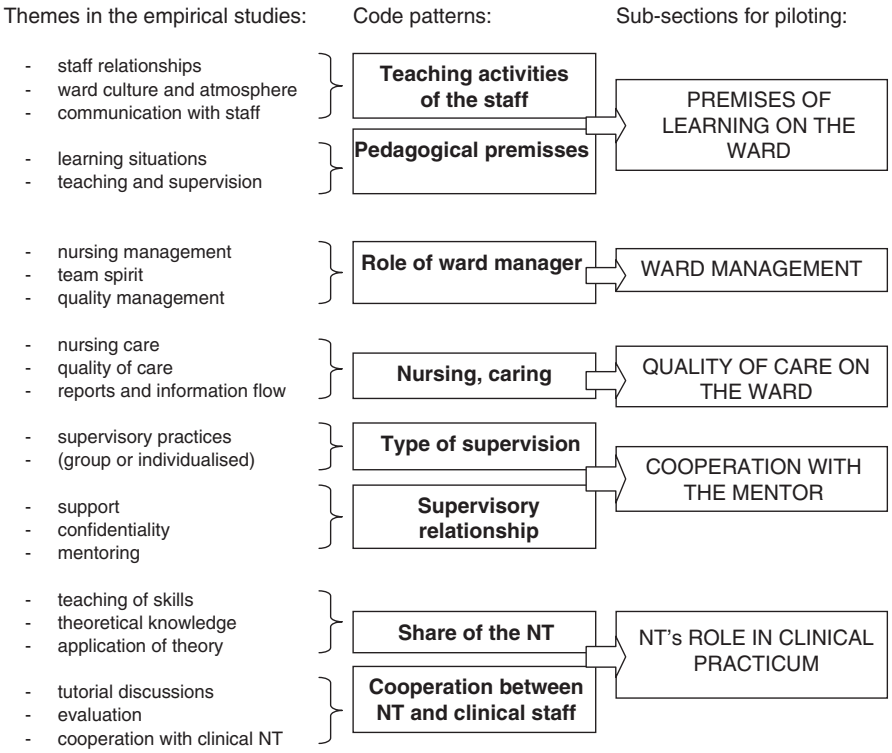

Fig. 3.2 Development of the themes and subsections of the CLES scales (1995–2008)

3.3 Earlier Studies Underlying the Development of the CLES Scales

To create the content areas of the CLES scale, a meta-analysis of empirical studies ($N = 102$) was performed. Both qualitative and quantitative studies were analysed using the traditional analytical approach proposed by Miles et al. (1994), shown in Fig. 3.2. These meta-analyses were done in two time steps: one for the original CLES scale (2002) and the other for the extensive CLES + T version (2008) of the scale. The main areas and topics of the empirical studies were listed. Content analyses and grouping to identify coding patterns yielded a conceptual framework that could subsequently be tested in the present author's needed empirical studies.

For the pilot study, the items to be measured were drawn from the results and conclusion chapters of the analysed studies. The leading idea behind the formulation of these items was that they should measure the components making for an optimal learning environment. After the first pilot phase, an expert panel evaluated

the face validity of all the items used. The panel members were experts in teaching and tutoring students during clinical practicum periods. The pilot study questionnaire included an open-ended question which asked respondents to evaluate the relevance and linguistic clarity of the questionnaire items.

3.4 Statistical Methods Used in Creating and Confirming the Theoretical Base of the CLES Scale

The sample size ($N = 162$) of the pilot study enabled some preliminary item analyses to explore how well the theoretically derived subsections functioned as sum variables. Technical imaging methods using tree analyses, such as organisation charts or illustrations of decision processes, are widely used in non-statistical applications and they also allow analyses of small samples. Graphical methods of these kinds enable the preliminary testing of the relations between items when designing a questionnaire (Tähtinen and Kaljonen 1998; Yin 2012). In our case, it was possible to consider diagrams in which patterns comprising two or more items formed part of a subsequent section of the tree. These graphical illustrations helped to evaluate the connection between the preliminary theory-based model and the thematic patterns found in the tree analyses. These preliminary sections were used in the validation study of the first CLES scale (Saarikoski 1998).

Test-retest is a statistical method which estimates the repeatability of a research tool. In measurements taken by a single person, the same item(s), under the same conditions, are remeasured after a short—e.g. few weeks'—interval. Respondent-identified comparisons between two samples measured at different times can be done using, e.g., Wilcoxon test, which is a non-parametric analogue of the *T*-test (Crocker and Algina 1986; Caulcott 1992; Tähtinen and Kaljonen 1998). High correlation values indicate good reliability but standards for acceptable test-retest values have seldom been given. For socio-emotional factors such as the time interval between tests, where the type of sample used affects reliability estimates, correlations over 0.70 can be regarded as good.

In the validation of the original CLES scale (Saarikoski 2002), the test-retest group ($n = 38$) was formed from two student groups, who were asked to evaluate the quality of the clinical learning environment during their last clinical practicum. For purposes of identification, the questionnaires were numbered from 1 to 38. The students were asked to note the identification number of their questionnaire in their personal diaries. This meant that the subsequent reassessment could be compared with the present assessment. After 4 weeks, the students were asked to use the same identification number and to evaluate if needed the same clinical practicum they had evaluated 4 weeks previously. The correlation of individual items ranged from 0.52 to 0.89 and coefficients of the sub-dimensions from 0.71 to 0.91. The total instrument test-retest reliability was 0.81.

Gustafsson et al. (2015) evaluated the test-retest reliability of the CLES + T scale in a group of 42 nursing students over a 1-week interval. The respondents had performed their clinical practicum in a hospital environment. The Intraclass Correlation Coefficients (ICC) of the sub-dimensions ranged between 0.70 and 0.96. Three sub-dimensions, *supervisory relationship*, *pedagogical atmosphere on the ward* and *role of the nurse teacher*, achieved excellent test-retest reliability (ICC > 0.80), and the total instrument test-retest reliability was 0.84.

Estimation of internal consistency reliability can be done using Cronbach's alpha estimate. The test is based on the mean values of the sum variable's items and it is assumed that the average correlation of a set of items is an accurate estimate of the average correlation of all the items that pertain to the same construct (Nunnally and Bernstein 1994; Gideon 2012). Cronbach's alpha analyses require that the acceptable items are measured on the same scale. The CLES analyses only included interval scale items (not nominal or dichotomous scale items). This means that all the items in a sub-area of interest were evaluated on a 5-point Likert scale: (a) fully disagree; (b) disagree to some extents; (c) neither agree nor disagree; (d) agree to some extent and (e) fully agree. Cronbach's alpha values of the CLES scales have varied from 0.70 to 0.95 in our own empirical studies (Saarikoski 2002; Saarikoski et al. 2008).

3.5 Validity of the CLES + T Scale

The validity of a research tool refers to its ability to measure accurately what it is intended to measure. A valid research instrument reflects the theoretical concepts that describe the research target, and thus also produces trustworthy results. The main types of validity are content validity, face validity, concurrent validity and construct validity (LoBiondo-Wood and Haber 1994; Polit and Beck 2012). The validity of the CLES + T scale has been confirmed using both non-statistical and statistical methods.

Content validity is especially important in the planning phase of a study. In the case of the CLES framework, an extensive literature review (see the Fig. 3.2) of 102 empirical studies yielded the theoretical content for the proper validation studies (Saarikoski 1998, 2002). A second non-statistical method was the use of an expert panel, which acted as a basis for evaluating face validity. Nine experienced clinical teachers were asked to rate the relevance of the items comprising the second version of the instrument modified according to the results of the pilot study. The linguistic suitability of the items was also a target for evaluation by the expert panel.

Concurrent validity demonstrates how well a new instrument measured simultaneously with an earlier validated research instrument (captures the information of interest). The concurrent validity instrument used alongside the CLES scale was the Clinical Learning Environment scale (CLE scale) developed by Dunn and Burnett (1995). The relationship between the CLE and CLES scales was evaluated using correlation tests. Canonical correlation is a measure of the overall linear relationship between two sets of variables: a set of dependent variables and a set of independent variable (Burns and Grove 1997; Tähtinen and Kaljonen 1998). In the present

Table 3.2 CLES + T scale's factor loadings in the 549 respondents' validation sample (Saarikoski et al. 2008)

Explanation (%) and eigenvalues by the factors:					
Supervisory relationship—8 items	(F 1)				
	40%				
	14.04				
Pedagogical atmosphere—9 items		(F 2)			
		13%			
		4.59			
Role of clinical/nurse teacher—9 items			(F 3)		
			7%		
			2.44		
Leadership style of the unit/ward manager (WM)—4 items				(F 4)	
				4%	
				1.39	
Premises of care—4 items					(F 5)
					3%
					1.08
Total percentage of the factor model					67%

case, it is a measure of the relationship between the set of CLE variables and the set of CLES variables. The total correlation between the two instruments was 0.93, supporting the interpretation that the concurrent validity of the CLES was very high when tested with a much-tried and -tested research instrument used in the same research area (Saarikoski 1998, 2002).

The construct validity of the CLES scales was analysed using factor analysis. In a correlation matrix of empirical data, some single items may correlate with each other and thus form groups of items. Such groups are known as factors. Exploratory factor analysis was used to identify item groups that represent attributions of the sum variables included in the CLES scale (Table 3.2). These results were used in evaluating the congruency of the preliminary theoretical construction and the structure of the empirical results: statistically 'clear' and consistent factors indicate that the theoretical hypotheses were reasonable.

Percentage explanations and eigenvalues (in the factor model) can be used to determine the strongest single factor explaining the whole model—in the present case, the relationship between the characteristics of a clinical learning environment and students' ratings of these. After performing a few empirical tests (and current factor models) we can embark on constructing a preliminary theoretical model. In all the CLES validation studies (Saarikoski 1998, 2002; Saarikoski et al. 2008), the factor with the most explanatory power was the *supervisory relationship*. Its independent explanatory power rose from 40 to 42% across tests. The second most important factor was invariably the *pedagogical atmosphere in the unit*. The factors *role of the clinical teacher*, *leadership style of the unit/ward manager* and *premises of (nursing) care* had less independent explanatory power, as they only increased the explanatory power of the whole model by 3–7%.

3.6 Use of the CLES + T Scale

In the case of a questionnaire survey it is important to carefully consider what kind of information you will need to answer your research questions. In a survey study, it is especially important to understand that no modifications can be made after the questionnaires have been sent to the respondents; a researcher must manage with the information he or she has required.

Surveys may contain different types of questions. Research items can be roughly divided into background variables and outcome variables. In the practicum context, the background variables may represent the attributes of the respondents, features of the clinical placements (e.g. ward types) and structural features of the clinical practicum (e.g. duration of placement, type of supervision). The outcome variables reflect the 'empirical reality' that we are measuring (e.g. quality of care, student satisfaction). With the background variables, we can form different groups from the sample (e.g. gender, age) and compare differences between these according to specific criteria (e.g. total satisfaction of female vs. male students).

A research questionnaire generally comprises a few separate sections and a validated research instrument is only one section in the construction of the questionnaire. An average survey questionnaire will have the following separate sections: (1) information for respondents (why this survey is important); (2) demographic variables; (3) the validated research instrument and (4) additional items pertaining to the researcher's own research aims and design. Such items may be supplementary questions (e.g. background variable-type questions concerning, in the present instance, the supervisory model, mentor's profession). Typically, a validated research instrument is a set of outcome variables which reflect and measure the core elements of the target research.

In the CLES + T scale, all these sections are presented in the research questionnaire under their own subheadings (see Fig. 3.3). The idea that the CLES outcome variables reflect the optimal state of the CLE implies logically the absence of negative or reverse statements, and diminishes the risk of coding faults in the data handling. Exploring the validity of the CLES instrument in an empirical sample requires that only the sum variables (consisted by the proper outcome variables) *pedagogical atmosphere*, *leadership style of the unit/ward manager*, *premises of (nursing) care*, *supervisory relationship* and *role of the clinical teacher* are the groups of outcome variables that must be included in the analyses (not another item—even they utilise a 5-point Likert scale). In our own empirical studies, the statistical method used to assess the validity of the CLES scales was confirmatory factor analysis. The explanation percentages of the whole theoretical model have ranged from 64 to 67% (Saarikoski 1998, 2002; Saarikoski et al. 2008). The CLES framework can be used as a part of a total quality assessment of healthcare education and we would argue that the systematic use of the CLES + T scale also provides a strong basis for decision-making aimed at developing the education system in healthcare services.

CLINICAL LEARNING ENVIRONMENT, SUPERVISION AND NURSE TEACHER (*CLES+T*) evaluation scale

(Saarikoski & Leino-Kilpi 2008)

The following statements concerning the learning environment, supervision and the role of nurse teacher are grounded into main areas, each with their own title.

For each statement, please choose the option that best describes your own opinion.

Evaluation scale:
1 = fully disagree
2 = disagree to some extent
3 = neither agree nor disagree
4 = agree to some extent
5 = fully agree

The learning environment

Pedagogical atmosphere:					
The staffs were easy to approach	1	2	3	4	5
I felt comfortable going to the ward at the start of my shift	1	2	3	4	5
During staff meetings (e.g. before shifts) I felt comfortable taking part in the discussions	1	2	3	4	5
There was a positive atmosphere on the ward	1	2	3	4	5
The staffs were generally interested in student supervision	1	2	3	4	5
The staff learned to know the student by their personal names	1	2	3	4	5
There were sufficient meaningful learning situations on the ward	1	2	3	4	5
The learning situations were multi-dimensional in terms of content	1	2	3	4	5
The ward can be regarded as a good learning environment	1	2	3	4	5
Leadership style of the unit/ ward manager (WM):					
The WM regarded the staff on her/his ward as a key resource	1	2	3	4	5
The WM was a team member	1	2	3	4	5
Feedback from the WM could easily be considered as a learning situation	1	2	3	4	5
The effort of individual employees was appreciated	1	2	3	4	5
Premises of care on the ward:					
The wards nursing philosophy was clearly defined	1	2	3	4	5
Patients received individual nursing care	1	2	3	4	5
There were no problems in the information flow related to patients' care	1	2	3	4	5
Documentation of nursing (e.g. nursing plans, daily recording of nursing procedures etc.) was clear	1	2	3	4	5

Fig. 3.3 Clinical learning environment, supervision and nurse teacher (*CLES+T*) evaluation scale

The supervisory relationship

In this form, the concept of supervision refers guiding, supporting and assessing of student nurses made by clinical staff nurses. Supervision can occur as individual supervision, or as group (or team) supervision.
The concept of mentor means a named personal supervisor.

Occupational title of supervisor:	nurse	1
	nurse specialist	2
	assistant ward manager	3
	sister/ ward manager	4
	other, what? _____	

Occurrence of supervision: (circle one alternative only)

I did not have a supervisor at all	1
A personal supervisor was named, but the relationship with this person did not work during the placement	2
The named supervisor changed during the placement, even though no change had been planned	3
The supervisor varied according to shift or place of work	4
Same supervisor had several students and was a group supervisor rather than an individual supervisor	5
A personal supervisor was named and our relationship worked during this placement	6
Other method of supervision, please specify?	

How often did you have **separate private unscheduled supervision with the supervisor** (without nurse teacher):	not at all	1
	once or twice during the course	2
	less than once a week	3
	about once a week	4
	more often	5

The content of supervisory relationship:

The following statements concerning the supervisory relationship. For each statement, please choose the option that best describes your own opinion.	*Evaluation scale:* 1 = fully disagree 2 = disagree to some extent 3 = neither agree nor disagree 4 = agree to some extent 5 = fully agree				
My supervisor showed a positive attitude towards supervision	1	2	3	4	5
I felt that I received individual supervision	1	2	3	4	5
I continuously received feedback from my supervisor	1	2	3	4	5
Overall I am satisfied with the supervision I received	1	2	3	4	5
The supervision was based on a relationship of equality and promoted my learning	1	2	3	4	5
There was a mutual interaction in the supervisory relationship	1	2	3	4	5
Mutual respect and approval prevailed in the supervisory relationship	1	2	3	4	5
The supervisory relationship was characterized by a sense of trust	1	2	3	4	5

Fig. 3.3 (continued)

Role of the (clinical) nurse teacher

Nurse teacher is a lecturer (employed by University or Polytechnic) who is responding the clinical placement. The following statements concerning the linking nurse teacher are grounded into main areas, each with their own title.

	Evaluation scale: 1 = fully disagree 2 = disagree to some extent 3 = neither agree nor disagree 4 = agree to some extent 5 = fully agree				
For each statement, please choose the option that best describes your own opinion.					
Nurse teacher as enabling the integration of theory and practice:					
In my opinion, the nurse teacher was capable to integrate theoretical knowledge and everyday practice of nursing	1	2	3	4	5
The teacher was capable of operationalising the learning goals of this clinical placement	1	2	3	4	5
The nurse teacher helped me to reduce the theory-practice gap	1	2	3	4	5
Cooperation between placement staff and nurse teacher:					
The nurse teacher was like a member of the nursing team	1	2	3	4	5
The nurse teacher was able to give his or her pedagogical expertise to the clinical team	1	2	3	4	5
The nurse teacher and the clinical team worked together in supporting my learning	1	2	3	4	5
Relationship among student, mentor and nurse teacher:					
The common meetings between myself, mentor and nurse teacher were comfortable experience	1	2	3	4	5
In our common meetings I felt that we are colleagues	1	2	3	4	5
Focus on the meetings was in my learning needs	1	2	3	4	5

Fig. 3.3 (continued)

References

Beck CT. Caring relationships between nursing students and their patients. Nurse Educ. 1993;18:28–32.
Burns N, Grove SK. The practice of nursing research. 3rd ed. Philadelphia: W B Saunders; 1997.
Caulcott E. Statistics for nurses. London: Scutari Press; 1992.
Clayton GM, Broome ME, Ellis LA. Relationship between a preceptorship experience and role socialization of graduate nurses. J Nurs Educ. 1989;28:72–5.
Crocker LM, Algina J. Introduction to classical and modern test theory. Orlando: Holt, Rinehart, and Winston; 1986.
Dunn SV, Burnett P. The development of a clinical learning environment scale. J Adv Nurs. 1995;22:1166–73.
Fretwell JE. Creating a ward learning environment: the sister's role. Nurs Times. 1983;79, Occasional papers (21): 37–9 and (22): 42–4.
Garrett BM, Jackson C. A mobile clinical e-portfolio for nursing and medical students, using wireless personal digital assistants (PDAs). Nurse Educ Today. 2006;26(8):647–54.
Gideon L, editor. Handbook of survey methodology for the social sciences. New York: Springer Science Business Media; 2012.
Goldenberg D, Iwasiw C. Professional socialisation of nursing students as an outcome of a senior clinical preceptorship experience. Nurse Educ Today. 1993;13:3–15.
Gustafsson M, Blomberg K, Holmefur M. Test-retest reliability of the clinical learning environment, supervision and nurse teacher (CLES + T) scale. Nurse Educ Pract. 2015;15(4):253–7.
Hooven K. Evaluation of instruments developed to measure the clinical learning environment—an integrative review. Nurse Educ. 2014;39(6):316–20.
Lin KY, Shen YF. The nursing students' attitude toward using blogs in a nursing clinical practicum in Taiwan: a 3-R framework. Nurse Educ Today. 2013;33(9):1079–82.
LoBiondo-Wood G, Haber J. Nursing research: methods, critical appraisal, and utilization. St. Louis: Mosby; 1994.
Lofmark A, Hannersjö S, Wikblad K. A summative evaluation of clinical competence: students' and nurses' perceptions of inpatients' individual physical and emotional needs. J Adv Nurs. 1999;29:641–8.
MacKay B, Harding T. M-support: keeping in touch on placement in primary health care settings. Nurs Prax N Z. 2009;25(2):30–40.
Miles MB, Huberman AM, Saldana J. Qualitative data analysis. London: Saga; 1994.
Morgan S, Sanggaran R. Client-centred approach to student nurse education in mental health practicum: an inquiry. J Psychiatr Ment Health Nurs. 1997;4:423–34.
Myrick F. Preceptorship: a viable alternative clinical teaching strategy? J Adv Nurs. 1988;13:588–91.
Nunnally JC, Bernstein IH. Psychometric theory. 3rd ed. New York: McGraw-Hill; 1994.
Ogier ME, Barnett DE. Sister/staff nurse and the nurse learner. Nurse Educ Today. 1986;6:16–22.
Orton HD. Ward learning climate and student nurse response. In: Davis BD, editor. Research into nurse education. London: Croom Helm; 1983. p. 90–105.
Polit DF, Beck CT. Nursing research: generating and assessing evidence for nursing practice. 9th ed. Philadelphia: Wolters Klower Health, Lippincott Williams & Wilkins; 2012.
Saarikoski M. Clinical learning environment and supervision by staff nurses. Development of the instrument and main results. University of Turku, (unpublished licentiate study, English Summary); 1998.
Saarikoski M. Clinical learning environment and supervision. Development and validation of the CLES evaluation scale [Doctoral dissertation]. University of Turku, Annales Universitatis Turkuensis, Ser. D 525; 2002. http://mikkosaarikoski.fi/wp-content/uploads/summary_saarikoski.pdf

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The nurse teacher in clinical practice: developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale. Int J Nurs Stud. 2008;45:1233–7.

Strandell-Laine C, Stolt M, Leino-Kilpi H, Saarikoski M. Use of mobile devices in nursing student—nurse teacher cooperation during the clinical practicum: an integrative review. Nurse Educ Today. 2015;35(3):493–9.

Smith P. The relationship between quality of nursing care and the ward as a learning environment: developing a methodology. J Adv Nurs. 1987;12:413–20.

Tähtinen J, Kaljonen A. Tilastollisen analyysin perusteita kasvatustieteellisessä tutkimuksessa. Turun yliopiston kasvatustieteiden tiedekunta, Julkaisusarja B:59, Turun yliopisto, Turku; 1998.

Yin Y. Using tree diagrams as an assessment tool in statistics education. Educ Assess. 2012;17(1):22–49.

Country Validation of the CLES-Scale: Linguistic and Cultural Perspectives

4

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4.1 Cross-Cultural Research

In the field of health sciences, cross-cultural research is enabling researchers to test, modify and disseminate theories in an international context (Sousa and Rojjanasrirat 2011; Muñiz et al. 2013). This practice entails the need to translate both measurement instruments and their application and correction instructions, usually from English into other languages (Peña 2007).

The translation of these instruments and procedures often presents specific methodological modifications, which may act as threats to the validity of the results of the future study. In this type of research design, the development of the new version of the instrument, as well as its process of transfer or elicitation, should be adequate to the research question for the chosen linguistic and cultural context. In recent years, there have been significant methodological and psychometric advances in cross-cultural research. For example, the International Test Commission developed a set of 22 guidelines that attempt to prevent the sources of error involved in the test adaptation process, which have recently been revised and published their second edition (Muñiz et al. 2013).

Therefore, in the development of measurement instruments such as test, the concept of fairness is key. The American Educational Research Association defines fairness as an equal treatment in context and purpose of testing, and comparable opportunity to demonstrate abilities on the construct the test is intended to measure (Erkut 2010).

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In spite of the existence of rigorous protocols that favour the high quality and equivalence of the translation (Arffman 2013), in many cases, the translation process focuses only on ensuring linguistic equivalence, which is not enough. In addition to linguistic equivalence, it is necessary to study functional equivalence, cultural equivalence and metric equivalence when the methodology of a research study is to be translated from one language to another (Peña 2007). During the development of this process, it is advisable to follow recommendations, such as the second edition of the guidelines for translation and adaptation of the tests of the International Test Commission (Muñiz et al. 2013), or the guidelines of Sousa and Rojjanasrirat (2011). These authors describe seven useful steps for translation, adaptation and validation of instruments to use in cross-cultural healthcare research.

Next, we describe the concepts of linguistic equivalence, functional equivalence, cultural equivalence and metric equivalence, accompanying them with some examples.

4.2 Linguistic or Conceptual Equivalence

In general, direct translation often guarantees linguistic equivalence. The primary objective of linguistic equivalence is to ensure that the words and linguistic meaning used in the new versions of the instruments and their instructions are the same as for the original version.

Researchers typically use two types of techniques when translating instruments and instructions (Peña 2007). In translation-back-translation, first, a translator translates the instrument or instructions from the original language to the new language chosen. A second translator translates the newly translated version into the original language. Then, the original version and the back-translation are compared by analysing the differences identified and resolved.

Another way is to have the collaboration of a group of native speakers who review the translation to ensure its accuracy. Occasionally, they are even invited to use the Content Validity Index to assess the level of relevance of the items (Baker et al. 2010).

One of the biggest problems that can arise in linguistic equivalence is that, even when words are the same, there are potential differences that can give rise to different patterns of responses (differences in cultural interpretation, familiarity, etc.). For example, the Spanish version of the CLES + T (Vizcaya-Moreno et al. 2015) could present problems employed with Mexican nursing students.

When these potential differences correspond with the research question, the linguistic equivalence will be sufficient and appropriate. However, if the purpose of the study is not this, it will be necessary to use other types of equivalence to avoid possible biases (validity threats). This second option describes the method of work performed by the researchers of the CLES and the CLES + T (Tables 4.1 and 4.2).

4.3 Functional or Semantic Equivalence

Functional equivalence (Peña 2007) is also known as semantic equivalence (Baker et al. 2010; Lauffer et al. 2013). Sometimes the translation from one language to another generates an incongruous meaning, which poses a threat to the validity of the content. Functional equivalence tries to control these types of threats, seeking

Table 4.1 Methodological analysis of the CLES scale's language adaptations

Article	Sample	Context	Scale factors	Translation method	Factor's mean (SD)	Reliability	Validity
Saarikoski (2002) and Saarikoski and Leino-Kilpi (2002)	Tested in 5 different samples of different countries (cross-cultural adaptation). Total number of respondents was 758 students	Finland, England, Australia	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = leadership style of the WM (item 9–item 12); factor 3 = premises of nursing (item 13–item 16); factor 4 = premises of learning (item 17–item 22); factor 5 = ward atmosphere (item 23–item 27). 5-point Likert-type scale	Original version of the CLES scale	From 3.47 (1.10) for factor 2 to 3.78 (1.05) for factor 1	Alpha in main sample: 0.94–0.73; alpha in British sample: 0.96–0.75; total scale = 0.86. Total test-retest reliability = 0.81	Face validity (nine experienced nurses). Concurrent validity using correlation tests between CLES and CLE scale: Pearson's correlation test and canonical correlation = 0.93
Tomietto et al. (2009)	$N = 117$; BN students	Italy. Udine University and Verona University, hospital setting	Factor 5 = Clima del reparto (item 1–item 4); factor 2 = Leaderhip del coordinatore (item 5–item 8); factor 3 = Qualità dell'assitenza (item 9–item 12); factor 4 = Modello di apprendimento (item 13–item 18); factor 1 = Relazione tutoriale (item 19–item 27) 5-point Likert-type scale	Translation from English into Italian	From 3.72 (1.05) for Factor 2 to 4.17 (0.89) for factor 1	Alpha: 0.95–0.78. Test-retest reliability ($n = 28$): $r = 0.89$	Face and content validity. Selected group of experts in the field

(continued)

Table 4.1 (continued)

Article	Sample	Context	Scale factors	Translation method	Factor's mean (SD)	Reliability	Validity
Papastavrou et al. (2010)	*N* = 645 (response rate: 90%); undergraduate nursing students	Cyprus. Public School of Nursing in Cyprus, hospital setting	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = leadership style of the WM (item 9–item 12); factor 3 = premises of nursing (item 13–item 16); factor 4 = premises of learning (item 17–item 22); factor 5 = ward atmosphere (item 23–item 27). 5-point Likert-type scale	Translation and blindly back-translate from English into Greek	From 3.27 (1.05) for factor 1 to 3.61 (1.89) for factor 5	Alpha: 0.95–0.81	Construct validity using EFA. Total % of variance explained: 67%. Questions loaded on the same factors as the factors in the original questionnaire
De Witte et al. (2011)	*N* = 768; 3-year BN programme	Belgium. University College Ghent. Wards in institutions for healthcare	Ward atmosphere (12 items); supervisory relationship (6 items); premises of nursing care on the ward (5 items); the ward as a learning environment (4 items); leadership style of the ward manager (5). Likert scale (ranging from "totally disagree" to "totally agree")	Dutch forward and back-translation of the CLES by two colleagues (fluent in English). Minor problems were resolved by consensus between the translators and the researchers. Previous pilot test (46 students)		Alpha: 0.96–0.8	Experts' face and content validation (content validity index). KMO = 0.97. Construct validity using EFA (principal component analysis with varimax rotation). Total % of variance explained: 71.3%

Öhman et al. (2016)	*N* = 394; sample of medical students	Sweden. Karonlinska Institute in Stockholm. Primary Healthcare setting (152 PHC)	Supervisory relationship (8 items), pedagogical atmosphere on the PHC centre (9 items), leadership style of the manager of the PHC centre (5 items), premises of the patient (3 items). 5-point Likert-type scale	Terms as "ward", "ward manager" were replaced by "PHC centre" and "manager at the PHC centre", respectively. Face and content validity: expert panel (5 PHC physicians and clinical teachers). It also was performed by the authors of the CLES scale		Alpha: 0.95–0.91; total scale Alpha = 0.95	KMO = 0.95. Construct validity using: EFA (principal component method with oblique rotation; 4 dimensions; total % of variance explained: 65%), and CFA (polychoric correlation). Model fit indexes: RMSEA (0.06); SRMSR (0.06); GFI (0.99); AGFI (0.99); PGFI (0.89); NFI (0.99)

Table 4.2 Methodological analysis of the CLES + T scale's language adaptations

Article	Sample	Context	Scale factors	Translation method	Factor's mean (SD)	Reliability	Validity
Saarikoski et al. (2008)	*N* = 549; 3-year RN general programme	Finland. Four nursing schools, hospital setting	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = pedagogical atmosphere on the ward (item 9–item 17); factor 3 = role of nurse teacher (item 18–item 26); factor 4 = leadership style of the ward manager (item 27–item 30); factor 5 = premises of nursing on the ward (item 31–item 34). 5-point Likert-type scale			Alpha: 0.96–0.77	Construct validity using EFA (principal component analysis with varimax rotation). Total % of variance explained: 67%
Johansson et al. (2010)	*N* = 324; convenience sample first-, second- and third-year nursing students	Sweden. Three university colleagues, hospital setting	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = pedagogical atmosphere on the ward (item 9–item 17); factor 3 = role of nurse teacher (item 18–item 26); factor 4 = leadership style of the ward manager (item 27–item 30); factor 5 = premises of nursing on the ward (item 31–item 34) 5-point Likert-type scale	Translation from English into Swedish. Expert panel (8 skilled nursing teachers). Authorised bilingual translator translated it back into English. Discussion between researchers and authors of the original version. Process adhered to the recommended procedure for a semantic equivalence (cross-cultural equivalence)	Only for the scale items individually, not for the factors	Alpha: 0.96–0.75	KMO = 0.93. Construct validity using EFA (principal axis factoring with varimax rotation). Total % of variance explained: 60.2%

Bos et al. (2012)	*N* = 356; undergraduate nursing students	Sweden. Karonlinska Institute in Stockholm. Primary Healthcare setting	Factor 1 = supervisory relationship (8 items); factor 2 = pedagogical atmosphere (9 items); factor 3 = role of nurse teacher (9 items); factor 4 = leadership style (4 items); factor 5 = premises of nursing care (4 items). 5-step Likert-type scale	Adjustment of the Swedish version of the CLES + T (Johansson et al. 2010) by an expert panel of 7 district nurses			Construct validity using EFA to assess the 5 factors independently, and CFA to define the associations between them (unweighted least square analyses of polychoric correlations). Model fit indexes: GFI (0.98); NFI (0.98); RMSEA (0.06). From poor (*r* = 0.26) to strong (0.83) correlation between factors
Henriksen et al. (2012)	*N* = 407 (response rate: 41.6%); first-, second- and third-year nursing students	Norway. Four university colleges (nonrandomly selected nursing colleges), hospital setting	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = pedagogical atmosphere on the ward (item 9–item 17); factor 3 = role of nurse teacher (item 18–item 26); factor 4 = leadership style of the ward manager (item 27–item 30); factor 5 = premises of nursing on the ward (item 31–item 34) 5-point Likert-type scale	Translation from English into Norwegian by two independent bilingual translators. Back-translation into English by two other independent bilingual translators. Expert panel Norwegian university teachers). Pilot test (14 students)		Alpha: 0.96–0.85	KMO = 0.92. Construct validity using EFA (principal component analysis with varimax rotation). Total % of variance explained: 64%

(continued)

Table 4.2 (continued)

Article	Sample	Context	Scale factors	Translation method	Factor's mean (SD)	Reliability	Validity
Bergjan and Hertel (2013)	$N = 167$; BN students	Germany. University nursing school. University hospitals	Pedagogical atmosphere on the ward (9 items), supervisory relationship (8 items), leadership style of the ward manager (4 items), premises of nursing on the ward (4 items) and role of nurse teacher (9 items) 5-step Likert-type scale	Translation from Finnish into German, using specific step procedure to provide semantic equivalence including direct translation, back-translation and random probes. Expert panel (nurse teacher and nurse managers). Pilot study (25 students)		Alpha: 0.96–0.82	KMO = 0.97. Construct validity using EFA (principal component analysis). Total % of variance explained: 73%
Watson et al. (2014)	$N = 416$; convenience sample 3-year BN programme	New Zealand. Private and public hospitals	Supervisory relationship (8 items), pedagogical atmosphere on the ward (9 items), role of nurse teacher (9 items), leadership style of the ward manager (4 items), premises of nursing on the ward (4 items). 5-point Likert-type scale	To facilitate international comparison, few changes were made to the wording of the original, after making a consultation to the authors of the CLES + T scale		Alpha: 0.93–0.83	Face validity testing using an expert panel (nursing students, clinical supervisors, managers and nurse teachers): evaluation of items' relevance = high level for 32 of the 34 items. Bartlett's test of sphericity: $\chi 2$ (9444.9) df (561) $p < 0.001$. KMO = 0.96. Construct validity using EFA (principal axis factoring with direct oblimin rotation): only 4 factors. Total % of variance explained: 58.3%

Vizcaya-Moreno et al. (2015)	$N = 370$; convenience sample 3-year nursing degree programme	Spain. University of Alicante, 10 public and private hospitals	Factor 1 = supervisory relationship (item 1–item 8); factor 2 = pedagogical atmosphere on the ward (item 9–21 and item 31; factor 3 = role of nurse teacher (item 22–item 27); factor 4 = leadership style of the ward manager (item 28–item 30); factor 5 = premises of nursing on the ward (item 32–item 34) 5-point Likert-type scale	Translation from English into Spanish using the modified direct translation method. Expert panel (3 nurse teachers). Back translation into English. Verification of cross-cultural equivalence. Pilot tested (75 students)	From 3.38 (1.01) for factor 5 to 4.15 (0.63) for factor 2	Alpha: 0.97–0.80; total scale alpha = 0.95	KMO = 0.94. Bartlett's test of sphericity: χ^2 (9866.96) df (561) $p < 0.001$. Construct validity using: EFA (5 dimensions; total percentage of variance explained: 66.4%), and CFA (maximum likelihood estimation). Model fit indexes: $\chi 2$ (1314.55); df (512); IFI (0.92); GFI (0.83); CFI (0.92); RMSEA (0.06). Strong-moderate association for item-factor relationships ($0.94 \geq \lambda \geq 0.50$), except for item 21 ($\lambda = 0.32$)

(continued)

Table 4.2 (continued)

Article	Sample	Context	Scale factors	Translation method	Factor's mean (SD)	Reliability	Validity
Papastavrou et al. (2016)	$N = 463$ (response rate: 70.33%); BN programme	Three universities, hospital setting	Factor 1 = supervisory relationship (8 items); factor 2 = role of the nurse teacher in clinical practice (9 items); factor 3 = pedagogical atmosphere on the ward (9 items); factor 4 = premises of ward nursing (4 items); factor 5 = leadership style of the ward manager (4 items) 5-point Likert-type scale	Translation and back-translation following a specific step procedure (Papastavrou et al. 2010). Expert panel (5 expert): acceptable face validity		Alpha: 0.94–0.81; total scale alpha = 0.95	KMO = 0.93. Bartlett's test of sphericity, $p < 0.001$. Construct validity using EFA (principal component analysis with varimax rotation). Total % of variance explained: 67.4%. Different models (4-, 5- and 6-factor models) were compared, and the 5-factor solution was the most appropriate model structure. Convergent validity: Spearman's rho coefficient, all bivariate correlations ("total satisfaction" with all subscales) were significant $p < 0.01$. Correlations between subscales: highly significantly positively related with p-values < 0.001

Lovri et al. (2016)	$N = 136$; 1–3-year BSc nursing students	Croatia. University of Osijek, hospital setting	Final version with 30 items. It consists of 4 factors instead of 5. 5-point Likert-type scale	Translation from English into Croatian; back-translation		Alpha: 0.96–0.77; total scale alpha = 0.97 Test-retest correlation indicates significant ($p < 0.05$)	KMO = 0.94. Bartlett's test of sphericity, $p < 0.001$. Inter-item correlations: 0.39–0.86. Corrected item-total correlations: 0.57–0.89. Construct validity using EFA (principal component analysis with varimax rotation). Total % of variance explained: 67.4%. Different models (4-, 5- and 6-factor models) were compared, and the 5-factor solution was the most appropriate model structure. Convergent validity: Spearman's rho coefficient, all bivariate correlations ("total satisfaction" with all subscales) were significant $p < 0.01$. Correlations between subscales: highly significantly positively related with p-values < 0.001

to find an instrument and method to evaluate the same construct (Peña 2007). That is, functional equivalence seeks to ensure uniformity in instrumentation and procedures.

An example of a translation method used for this purpose is called "decentralisation". Professional translators often use this technique in combination with the translation/back-translation method, to adapt the items of the instrument to a familiar language in the new context. This approach has also been used in the CLES language adaptations (Table 4.1) and CLES + T (Table 4.2).

Another method is "dual focus", in which the research group analyses both linguistic and cultural aspects and the instruments and instructions are designed and developed in two languages in parallel.

4.4 Cultural Equivalence

Sometimes the translation of a measuring instrument complies with the requirements of linguistic and functional equivalence, but not with that of cultural equivalence. It focuses more specifically on how the subjects of groups of different cultures and languages interpret the meaning underlying each item (Peña 2007; Baker et al. 2010). Without any doubt, cultural interpretation can condition the way in which individuals respond to the instruments and their instructions.

From anthropology point of view, cultural equivalence has a particular relevance. In CLES case, Saarikoski (2002) tested the scale in five samples from different countries during the development of the original instrument (Table 4.1) to achieve an appropriate transcultural adaptation. In addition, in subsequent research it has been taken into account the characteristics of the population to which the CLES was directed, and the existence of a common working culture in which the different translation and validation studies have been carried out (Tables 4.1 and 4.2). The CLES is aimed at nursing students (mainly) who develop their clinical practices in the hospital setting (representing the common working culture) in a mostly European context. However, we are aware that there are some differences between the work culture of nursing professionals in the different countries where CLES and CLES + T have been used.

4.5 Metric Equivalence

The metric equivalence focuses on the existence of equity in the degree of difficulty of the items or questions when adapting instruments to different languages. That is, develop parallel measures to control vocabulary can be useful; for example, count word frequency or make word lists in both language versions may benefit the creation of instruments in different languages that can be psychometrically parallel (Peña 2007). In the case of CLES and CLES + T, for example, the actors in the

learning environment have been operationally defined, describing the role of each one of them, and adjusting it to the reality of clinical placement for each of the countries (see Chap. 2).

However, we must not forget that the use of scales requires great care to ensure the existence of metric equivalence. For example, Likert scales should not necessarily contain the same number of standard points, as it is suggested by Grande (2004). For example, in the USA, it is common to use scales with 7 and 9 points, in the North European countries 4-point scales are used, while in Spain the scales with 5 points are common. Germans, English and Latinos tend to score at the extremes of the scale, while Japanese tend not to stray far from the intermediate score (Grande 2004). We note, therefore, that in statistical measurement the interval between the extreme valuations can vary between cultures from the anthropological point of view.

Also, the concept of metric equivalence includes the psychometric, reliability, responsiveness and construct validity aspects (Baker et al. 2010; Lauffer et al. 2013). These psychometric properties of measuring instruments usually come from the application of different statistical techniques of descriptive and inferential analysis (Tables 4.1 and 4.2). In most of the CLES and CLES + T validation studies, different versions of the IBM SPSS Statistics and AMOS Software have been used to perform these analyses (Tables 4.1 and 4.2).

Conclusions

As some authors point out, despite the existence of methodological approaches and international guidelines for translating, adapting and validating instruments for use in intercultural health research, there is still a considerable variation and arbitrariness in the methods employed in previous studies (Sousa and Rojjanasrirat 2011; Muñiz et al. 2013; Arffman 2013). Also, Lauffer et al. (2013) warn us that in the same population linguistic changes take place over time, and consequently, it is necessary to make temporary adjustments in the instruments or scales and their instructions.

From previous studies mentioned in the chapter, and as a summary, we could point out that the process of country validation of the CLES scale would imply to translate and adapt according to a protocol previously selected: (1) the instructions of the questionnaire, test or scale; (2) all items, (3) the response options and (4) the instructions for correction or score of the questionnaire. In a second phase, proceed to the assessment of the psychometric properties of the new instrument and its cross-cultural validation.

The process of translating, adapting and validating an instrument as a test or a scale for its use in a culturally different context is a fundamental time-consuming process and requires prior planning and adoption of appropriate measures to guarantee a rigorous methodological approach. Otherwise, the final instrument will not have the appropriate psychometric properties that prove it as a reliable and culturally valid measuring instrument.

References

Arffman I. Problems and issues in translating international educational achievement tests. Educ Meas Issues Pract. 2013;32(2):2–14.

Baker DL, Melnikow J, Ying Ly M, Shoultz J, Niederhauser V, Diaz-Escamilla R. Translation of health surveys using mixed methods. J Nurs Scholarsh. 2010;42(4):430–8. doi:10.1111/j.1547-5069.2010.01368.x.

Bergjan M, Hertel F. Evaluating students' perception of their clinical placements—testing the clinical learning environment and supervision and nurse teacher scale (CLES+T scale) in Germany. Nurse Educ Today. 2013;33(11):1393–8. doi:10.1016/j.nedt.2012.11.002.

Bos E, Alinaghizadeh H, Saarikoski M, Kaila P. Validating the "clinical learning environment, supervision and nurse teacher" CLES+T instrument in primary healthcare settings using confirmatory factor analysis. J Clin Nurs. 2012;21(11–12):1785–8. doi:10.1111/j.1365-2702.2011.04030.x.

De Witte N, Labeau S, De Keyzer W. The clinical learning environment and supervision instrument (CLES): validity and reliability of the Dutch version (CLES+NL). Int J Nurs Stud. 2011;48(5):568–72. doi:10.1016/j.ijnurstu.2010.09.009.

Erkut S. Developing multiple language versions of instruments for intercultural research. Child Dev Perspect. 2010;4(1):19–24. doi:10.1111/j.1750-8606.2009.00111.x.

Grande I. Cultura: concepto y dimensión. In: Grande I, editor. Marketing croscultural. Madrid: ESIC Editorial; 2004. p. 13–107.

Henriksen N, Normann HK, Skaalvik MW. Development and testing of the Norwegian version of the clinical learning environment, supervision and nurse teacher (CLES+T) evaluation scale. Int J Nurs Educ Scholarsh. 2012;9(1) doi:10.1515/1548-923X.2239. article 23

Johansson UB, Kaila P, Ahlner-Elmqvist M, Leksell J, Isoaho H, Saarikoski M. Clinical learning environment, supervision and nurse teacher evaluation scale: psychometric evaluation of the Swedish version. J Adv Nurs. 2010;66(9):2085–93. doi:10.1111/j.1365-2648.2010.05370.x.

Lauffer A, Solé L, Bernstein S, Lopes MH, Francisconi CF. Cómo minimizar errores al realizar la adaptación transcultural y la validación de los cuestionarios sobre calidad de vida: aspectos prácticos [Practical aspects for minimizing errors in the cross-cultural adaptation and validation of quality of life questionnaires]. Rev Gastroenterol Méx. 2013;78(3):159–76. doi:10.1016/j.rgmx.2013.01.008.

Lovrić R, Piskorjanac S, Pekic V, Vujanic J, Kramaric K, Luketic S, et al. Translation and validation of the clinical learning environment, supervision and nurse teacher scale (CLES+T) in Croatian language. Nurse Educ Pract. 2016;19:48–53. doi:10.1016/j.nepr.2016.05.001.

Muñiz J, Elosua P, Hambleton RK. Directrices para la traducción y adaptación de los tests: Segunda edición [International Test Commission Guidelines for test translation and adaptation: Second edition]. Psicothema. 2013;25(2):151–7. doi:10.7334/psicothema2013.24.

Öhman E, Alinaghizadeh H, Kaila P, Hult H, Nilsson GH, Salminen H. Adaptation and validation of the instrument clinical learning environment and supervision for medical students in primary health care. BMC Med Educ. 2016;16(1):308. doi:10.1186/s12909-016-0809-8.

Papastavrou E, Lambrinou E, Tsangari H, Saarikoski M, Leino-Kilpi H. Student nurses experience of learning in the clinical environment. Nurse Educ Pract. 2010;10(3):176–82. doi:10.1016/j.nepr.2009.07.003.

Papastavrou E, Dimitriadou M, Tsangari H. Psychometric testing of the greek version of the clinical learning environment-teacher (CLES+T). Glob J Health Sci. 2016;8(5):59–71. doi:10.5539/gjhs.v8n5p59.

Peña ED. Lost in translation: methodological considerations in cross-cultural research. Child Dev. 2007;78(4):1255–64. doi:10.1111/j.1467-8624.2007.01064.x.

Saarikoski M. Clinical learning environment and supervision. Development and validation of the CLES evaluation scale [Doctoral dissertation]. University of Turku, Annales Universitatis Turkuensis, Ser. D 525; 2002. http://mikkosaarikoski.fi/wp-content/uploads/summary_saarikoski.pdf. Accessed 29 May 2017.

Saarikoski M, Leino-Kilpi H. The clinical learning environment and supervision by staff nurses: developing the instrument. Int J Nurs Stud. 2002;39(3):259–67. doi:10.1016/S0020-7489(01)00031-1.

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The nurse teacher in clinical practice: developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale. Int J Nurs Stud. 2008;45(8):1233–7. doi:10.1016/j.ijnurstu.2007.07.009.

Sousa VD, Rojjanasrirat W. Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: a clear and user-friendly guideline. J Eval Clin Pract. 2011;17:268–74. doi:10.1111/j.1365-2753.2010.01434.x.

Tomietto M, Saiani L, Saarikoski M, Fabris S, Cunico L, Campagna V, et al. La valutazione della qualitè degli ambienti di apprendimento clinico: Studio di validazione del Clinical Learning Environment and Supervision (CLES) nel contesto italiano. G Ital Med Lav Ergon. 2009;31(3 suppl. B):49–55.

Vizcaya-Moreno MF, Pérez-Cañaveras RM, De Juan J, Saarikoski M. Development and psychometric testing of the clinical learning environment, supervision and nurse teacher evaluation scale (CLES+T): the Spanish version. Int J Nurs Stud. 2015;52:361–7. doi:10.1016/j.ijnurstu.2014.08.008.

Watson PB, Seaton P, Sims D, Jamieson I, Mountier J, Whittle R, et al. Exploratory factor analysis of the clinical learning environment, supervision and nurse teacher scale (CLES+T). J Nurs Meas. 2014;22(1):164–80. doi:10.1891/1061-3749.22.1.1.

The CLES Scale as a National Quality Tool for Clinical Learning and Teaching

5

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5.1 Evaluation of National Clinical Learning Environments

The meaning of quality control in student supervision is increasing all the time. With the help of good quality control, healthcare organisations can better answer to the requirements of the students and improve the organisations' attractiveness as an interesting clinical practicum and workplace. Quality control is carried out at all levels of the organisation, and the support of the management is important in using and benefiting from the use of the Clinical Learning Environment, Supervision and Nurse Teacher scale, CLES + T (Saarikoski and Leino-Kilpi 2002; Saarikoski et al. 2008), for instance, in determining the need of supervision, in the need of recourses and complementary education.

The role of the students focuses on defining quality, because the quality of the activities must meet their requirements. This quality is being assessed systematically in accordance with the foundation and needs of the student. In quality awareness, it is important that the organisation recognises the needs of students and their training places and is capable of meeting these needs. The staff and the management are committed to quality actions, for instance, in communication, quality recommendations and criteria in student supervision, as well as student feedback.

The systematic, evidence-based evaluation of the quality of the clinical learning environment started in Helsinki University Hospital in 2007. However, after this, the CLES scale was rapidly adapted for national use in order to conduct

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benchmarking for the quality of clinical learning environments and supervision in Finnish healthcare. The aim of national benchmarking is to improve the quality of the clinical learning environment and educational outcomes during clinical practicum. This data can be used in decision-making for the purposes of developing the organisation's supervisory activities.

The national benchmarking data is collected from hospital districts and community units covering the whole country. The data is collected by using different online survey tools by the healthcare organisations at the end of the students' single clinical practicum periods. Online survey is the only meaningful method in an extensive data-collecting process. Actually, there are variations in the electronic platforms used to collect the data, but all healthcare organisations use completely same format of the scale which helps to incorporate the national data for a yearly data analysis.

The national benchmarking data indicate how students, during clinical practicum, perceive the supervisory relationship with their designated staff nurse mentor and the level of cooperation with the nurse teacher. In Finland, a designated supervising staff nurse, working in a nursing team, is named to be the responsible mentor for supervision during the clinical practicum period. The overall aim of benchmarking is to provide a view on how Finnish healthcare organisations facilitate students' clinical learning and teaching during their clinical practicum. At the moment, there are 45 healthcare organisations in the CLES network. The samples collected nationwide include the data of nearly 20,000 yearly student respondents.

5.2 The Adopted Version of the CLES + T Scale

When the national CLES-network cooperation began in 2007, the national consensus group of experts from the hospital districts and the community units made minor revisions to and edited some terms of the internationally validated CLES + T scale. The purpose was to guarantee that the scale was applicable in all healthcare education programmes (nursing, physiotherapy, radiography, etc.) and usable as benchmarking data for quality assessment and development of healthcare organisations. Thus, we collect the national evaluation data using a questionnaire of 50 items and 13 background variables related to the student and the structural elements of the clinical practicum. The majority of the items come from the CLES + T scale. The proper outcome variables are divided into the following sub-elements: atmosphere on the ward (7 items), premises of learning on the ward (7 items), premises of nursing care on the ward (4 items), supervisory relationship (8 items) and the role of nurse teacher (9 items).

In the original CLES scale, a 5-point Likert scale was used, but the national quality survey utilises a 10-point Likert scale (from 1 = totally disagree to 10 = totally agree). This solution is due to the chosen Web-based survey system. The national data is gathered yearly and published at a national CLES network symposium, where good practices and new views of a quality learning environment are shared. Every participating organisation and the individual single units as well can use their own data for their analyses in developing the quality of the clinical learning environment and supervision system. The results can be utilised

by the head nurses, nurse managers, mentors, students and nurse teachers from the educational institutions.

5.3 Overall Impression During the 10-Year Evaluation Period

The findings of the 10-year evaluation show that students are generally satisfied with their clinical practicums. In other words, benchmarking of the results has offered good initiatives to the healthcare organisations to increase the quality of the pedagogical atmosphere, premises of learning, premises of nursing care and supervisory relationship on the practicum ward. Especially the individual one-to-one supervision, diverse learning opportunities and mentors' supervisory skills were experienced by students as supporting their learning. Thus, there is evidence that students' self-assessed level of competence correlates positively with the pedagogical atmosphere during the clinical practicum (Kajander-Unkuri et al. 2014).

The majority of students are very satisfied with the achievement of their own learning goals and feel that the supervision supports their professional development. However, the students are quite critical of how their earlier theoretical nursing studies supported their learning during their clinical practicum. The Finnish students offer mainly positive evaluation on their nurse teachers' role but rank it clearly lower than the rest of the CLES sub-elements. This research finding is not unique. This same observation was also made in the broader European study (Warne et al. 2010; Saarikoski et al. 2013a) which was conducted in nine Western European countries. Systematically, the students ranked a nurse teacher's role lower than the other sub-elements of the scale. This is due to the nurse teachers' different types of working models. The lowest scores came from the countries where nurse teachers' role is more academic than practice orientated. However, in the Finnish national sample, a nurse teacher's meeting frequency is linked to the scores. The students, who had three or more tutoring meetings with the nurse teacher, also evaluated all items (describing the role of the nurse teacher) with higher scores than students who only had 1–2 meetings (Saarikoski et al. 2013b).

5.4 The Benefits of the National Benchmarking

During the past 10 years, the differences in the national sample have been relatively small between the organisations. This indicates that on the national level, the students get equal supervision in learning environments with good quality. The CLES + T scale has proven to be a valid and reliable instrument for measuring the quality of the clinical learning environment and supervision of students. Overall, students have been very motivated to give feedback using the scale, and the results offer good initiatives to organisations to increase the quality elements in their supervision and learning environments. The organisational commitment of using CLES + T has been high in Finland during the whole CLES network era, providing

extensive and rich data. This data can be used in decision-making for the purposes of developing the outcomes of students' learning and units' supervisory activities. Nevertheless, other advantages of using this scale include the opportunity to conduct reliable international comparisons.

The quality of the learning environment has been identified as a crucial element when recruiting new staff to healthcare organisations (Flinkman et al. 2007; Meretoja and Koponen 2008). The CLES + T scale has proven a useful tool to benchmark the appeal of organisations among graduating students. However, the major disadvantage in using this single scale is that we only measure the students' experiences of the clinical practicums. More evidence is still needed of the learning outcomes of students during the clinical practicums. The conditions of cooperation between nurse teachers, students and supervising clinical staff should be more carefully explored. Do the all practical solutions support this process in the best possible manner? In the following chapters, a practical case example of a Finnish hospital district will be described.

5.5 Case Example: The Use of CLES + T at the Hospital District of Southwest Finland

The Hospital District of Southwest Finland is a public joint municipal authority, formed by municipalities and based on the Act on Specialized Medical Care. It represents 28 municipalities and the University of Turku. One of the fundamental duties of the Hospital District is to provide teaching for medical science and nursing, as well as conduct scientific research. The hospital district is one of the five university hospital districts in Finland, and it served a population of 867,457 people and had a staff of 7600 people at the end of 2015. The hospital district has agreements on the implementation of the healthcare students' clinical practicum periods with about 60 educational institutions around Finland. The purpose of these agreements is to ensure close cooperation with the educational institutions and working life, as well as the quality of the clinical learning environments and supervision.

The hospital district applies a one-to-one supervision model, which means that every student will be assigned a personal mentor, who is responsible for students' supervision during an individual clinical practicum. In addition, clinical teachers work part-timely at units, but their principal employment is at an educational institution. The role of the clinical teachers is to support the process of learning and professional development of the students, to strengthen the supervisory knowledge of the staff as well as to develop the quality of the clinical practicum and student supervision in an evidence-based manner in the supervision of the ward manager.

Since 2012, the hospital district has taken advantage of the national quality recommendations in student supervision. The national recommendations include criteria of good-quality learning environment and supervision. The Quality Recommendations in Student Supervision give guidance in regard to the whole clinical practicum process, from agreements between educational institutions and practicum units, all the way to assessing the clinical practicum (PSSHP 2010). In

addition to this, the hospital district has prepared a guideline called "Working tasks in clinical practicum process" where the different roles, tasks and responsibilities of the stakeholders (student, mentor, nurse teacher) of the clinical practicum are clearly described. The students' supervision processes are described at the unit level, showing the responsibilities, working methods and timetable of the practicum period in relation to patient care. This also helps students to get an overview of the learning opportunities and possibilities that a single unit and clinical practicum period may offer to them.

5.5.1 The Evaluation of Learning Environment and Student Supervision

The national CLES + T quality survey has been in use since 2008 for the evaluation of the quality of the clinical learning environment and student supervision in the hospital district. Before 2008, units used various paper-based questionnaires as an evaluation method without opportunities to make comparisons between units. At the moment, a Web-based Qpro® programme is in use for collecting data from every student at the end of the individual clinical practicum period. This means approximately 1500 yearly responses.

The Web-based Qpro® programme allows anonymous responses and a real-time analysis of the responses with different filters, e.g. the unit, length of the practicum period and degree programme, facilitating quick use of the results at the unit level. In other words, the primary data analysis can be carried out at the unit level with mentors' personal passwords, whereby the unit receives compact feedback on student supervision and is able to carry out continuous development of the quality of the student supervision and clinical learning environment.

In connection with CLES + T evaluations, students are asked to give general feedback regarding the newly conducted practicum with an open-ended question. The analysis of this feedback collected between years 2009 and 2010 ($N = 972$) in the hospital district produced six themes: (1) learning experiences in practicum, (2) student supervision, (3) student evaluation, (4) student treatment, (5) atmosphere and (6) factors connected to organisations in working life and educational institutions. These are also themes that are nowadays common in the feedback provided by students. The data received from the open-ended question has been a very important way of getting quick feedback from students, either positive or negative. Below is one example of a useful student feedback received via the open-ended question in the Web-based Qpro® programme in 2013:

> "All in all, I am very pleased with my practicum period in a hospital surgical unit. The process of student supervision was very varied, especially visits, to the outpatient clinic and other wards within the same nursing field, for example. They were very useful in offering the overall picture of patient care. The ward was exceptionally welcoming and versatile. All the nurses were ready to give guidance, and it was very easy to get answers to problems at any time. The students were included in the working community as equals and it was nice to come to work every day. Keep up the good work!"

Nevertheless, the teaching coordinator (working for the whole hospital district) conducts a yearly evaluation of the whole CLES + T data collected in the hospital district. Based on this, a yearly award is given to the unit with the best learning environment in the hospital district. The best unit is awarded a "CLES Top Unit Diploma" in a coffee-and-cake event. This award is appreciated among staff and offers additional motivation to the staff to develop the clinical learning environment and student supervision. The unit-level development starts when units compare their results with their own earlier results as well as with the best units. Units try to learn from the best units and use this know-how to improve their work. This trend can be seen also in Fig. 5.1, which shows the overall summary of sub-elements of the CLES in the hospital district in 2008–2016.

The national CLES + T quality survey has been used since 2008 for evaluating the quality of the clinical learning environment and student supervision. Nevertheless, as indicated by Fig. 5.1, all the trends are rising during the period of 2008–2016 and all the sub-elements are above the mean of 8 (on the 10-point Likert scale). This is an excellent result, showing that the organisational goal of the quality of the clinical learning environment and supervision is achieved. Specifically, the sub-element describing the quality of the supervisory relationship is notable, showing that the organisation has made appropriate investments in educating the staff in student supervision.

In a summary, with the continuous evaluation and other supportive activities based on the CLES evaluation results, the development of the quality of the clinical learning environments and supervision has received effective support in the hospital district. In addition, by making the CLES evaluation results visible for units, the staff has been successfully motivated to do their best in student supervision. Finally, the yearly CLES evaluation results can also be utilised by the other stakeholders of the clinical practicum, university of applied sciences, universities, nurse teachers and, of course, the students who will benefit from the results.

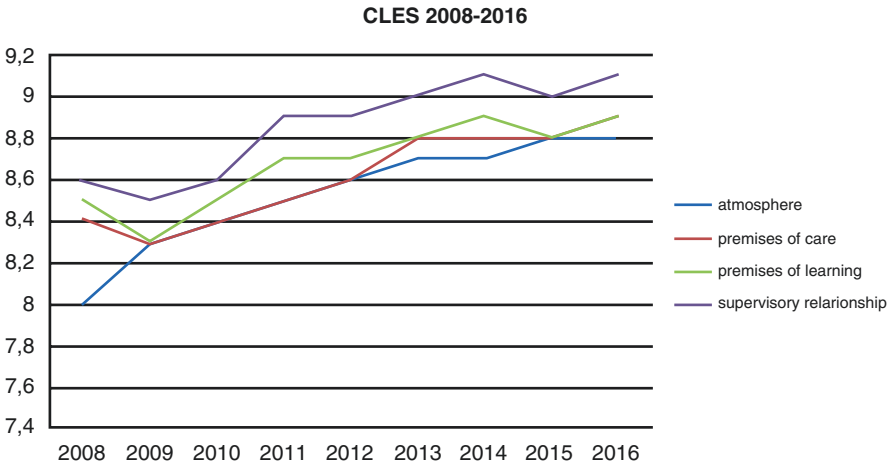

Fig. 5.1 The overall summary of sub-elements of the CLES in the Hospital District of Southwest Finland

References

Flinkman M, Laine M, Leino-Kilpi H, Hasselhorn H-M, Salanterä S. Explaining young registered Finnish nurses' intention to leave the profession: a questionnaire survey. Int J Nurs Stud. 2007;5:727–39.

Kajander-Unkuri S, Meretoja R, Katajisto J, Saarikoski M, Salminen L, Suhonen R, Leino-Kilpi H. Self-assessed level of competence of graduating nursing students and factors related to it. Nurs Educ Today. 2014;34:795–801.

Meretoja R, Koponen L. Vetovoimainen sairaala. In: Koponen L, Hopia H, editors. Vetovoimainen terveydenhuolto. Hoitotyön vuosikirja. Finland: Suomen Sairaanhoitajaliitto ry; 2008. p. 9–20. [Magnetic healthcare] (Original Finnish).

Pohjois-Savon sairaanhoitopiiri (PSSHP). Pohjois-Savon alueellinen opiskelijaohjauksen yhteistyöverkosto. Opiskelijaohjauksen laatusuositukse [The Quality Recommendations in Student Supervision] (Original Finnish). 2010.

Saarikoski M, Leino-Kilpi H. The clinical learning environment and supervision by staff nurses: developing the instrument. Int J Nurs Stud. 2002;39:259–67.

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The nurse teacher in clinical practice: developing the new sub-dimension to Clinical Learning Environment and Supervision (CLES) scale. Int J Nurs Stud. 2008;8:1233–7.

Saarikoski M, Kaila P, Lambrinou E, Pérez Cañaveras RM, Tichelaar E, Tomietto M, Warne T. Students' experiences of cooperation with nurse teacher during their clinical placements: an empirical study in a Western European context. Nurse Educ Pract. 2013a;13:78–82.

Saarikoski M, Luojus K, Taam-Ukkonen M, Tarr T, Meretoja R. Terveysalan opiskelijoiden käsitykset opettajan roolista harjoittelun ohjauksessa [Healthcare students' views of nurse teachers' role in the student supervision]. UAS Journal. 2013b. https://arkisto.uasjournal.fi/uasjournal_2013-1/1436-3131-1-CE.pdf. Accessed 10 May 2017 (Original Finnish).

Warne T, Johansson U-B, Papastavrou E, Tichelaar E, Tomietto M, Van den Bossche K, Vizcaya-Moreno M, Saarikoski M. An exploration of the clinical learning experience of nursing students in nine European countries. Nurs Educ Today. 2010;30:809–15.

Part II

Ensuring the High Quality of a Clinical Learning Environment

A Good Clinical Learning Environment as an Organizational Challenge

6

Marco Tomietto

6.1 The Student as an Organizational Newcomer

When taking up a clinical placement in the practicum, the healthcare student is required to adjust to a new environment, a new team, and new practices and rules. Students not only aim to master clinical competences and to achieve learning goals, but they also seek to integrate into the new environment. Moreover, they know that successful learning also depends on how they adjust to the clinical practicum. Thus, each student is a newcomer who interacts in the practicum not only from the point of view of clinical learning but also from the psychosocial and organizational points of view. Of course, students' clinical placements differ in length and in role management compared to the case of a newcomer employee. Nevertheless, at a different intensity and over a different timeline, student and newcomer share the same adjustment process and their experiences can be similarly explored as an organizational socialization process.

Both students and newcomers are likely to experience a transition shock when they enter their clinical practicum (Comparcini et al. 2014; Duchscher 2009). Both need to cope with the gap between theory and practice, and with the formal and informal rules in the new context, and in their relationships with mentors, coworkers, and ward manager. They also need to learn professional and organizational rules. All these processes are informed by complex dynamics, which, when understood, result in effective organizational adjustment and successful clinical learning and competence acquisition. Linking the clinical learning perspective to the main models of organizational socialization is useful in seeking the best strategies to improve students' clinical placements.

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6.1.1 Clinical Learning as a Lifelong Organizational Socialization Process

Clinical learning was originally described as a network of "interacting forces" within a clinical environment (Dunn and Burnett 1995, p. 1167). Research has since sought to define these "interacting forces" through identification of the many variables present in a clinical learning environment. Many efforts have been made to create assessment tools and to identify the main areas important for ensuring the quality of the clinical setting from a student perspective.

The previous chapters have presented an overview of these studies, showing that an established body of knowledge on clinical learning environments is currently available for undergraduate education. This chapter focuses on clinical learning as a lifelong process for health professionals and undergraduate students. This approach can be extended to include many other psychosocial variables that are involved in defining a good clinical learning environment. The clinical learning environment interacts with many other environments, and clinical learning is thus an outcome of this interaction. This perspective helps to put clinical learning in its real-life context. To summarize, clinical learning is one component, interacting with many other components, of a wider, complex psychosocial environment.

Clinical learning is a continuous process from undergraduate studies to functioning as an expert health professional. At the undergraduate level, it is essential that the student masters the basic competences of the target professional career. Newcomers to a profession start as novices and end up as experts (Benner 1984). Each workplace transition from one clinical area to another involves a new clinical learning cycle for a health professional. Moreover, healthcare services change over time and healthcare practices need to be constantly upgraded.

Clinical learning is not only about mastering clinical competences but it is also about mastering clinical competences within a specific organizational environment. This process involves many variables at the individual level (e.g., proactivity in adjusting), at the group level (e.g., support from team and mentor support), and at the organizational level (e.g., coherence of the ward or hospital mission and vision). All three levels inform the organizational environment and effectiveness of clinical learning for the student.

The role of the organizational environment strengthens on the path from undergraduate education to professional practice. It is reasonable to argue that success in adjusting to a work team during their clinical placement improves undergraduate students' possibility for effective clinical learning in the clinical practicum. This is also true for newcomer health professionals: to develop their clinical competences and to receive team support in mastering their professional role, they need to adjust to the organization they have joined (Tomietto et al. 2015).

Healthcare education is embedded in an organizational context through clinical placements. Accordingly, clinical learning is workplace based and in the clinical practicum it is influenced by organizational variables (Tomietto et al. 2014). In this chapter, clinical learning is explored as an organizational variable. Clinical learning has both organizational antecedents and organizational outcomes; these "interacting forces" can be traced in the wider network around the clinical learning career.

6.2 Clinical Learning as a Component of Organizational Socialization

Organizational socialization has been defined as "the process by which an individual acquires the social knowledge and skills necessary to assume an organizational role" (Van Maanen and Schein 1979, p. 3). This definition applies beyond the organizational entry phase; for a person entering a profession or an organizational environment, organizational socialization is a long-term process (Ashforth 2012). Through clinical learning, healthcare students start to build their professional identity. They start to adjust to their professional role and to onboard in the organizational life of work teams and healthcare institutions. Clinical learning is more than the mastering of competences to deliver healthcare: it involves a wide set of variables that define the professional growth of the students and their success in adjusting to working life. Clinical learning is an organizational socialization process that takes place within the clinical practicum. Students also assume an organizational role in the clinical setting and in this role actively interact with the work team.

Clinical learning makes a strong contribution to undergraduate education and it continues throughout the professional career of health professionals. When changing the ward or clinical specialty, a health professional's first aim is to acquire the competences required to effectively deliver the tasks required (Tomietto et al. 2015).

Organizational socialization, as well as clinical learning, is involved in every stage of the work-life span: for example, when a role change occurs in the same organization or when an experienced health professional changes organization or ward (Saks and Ashforth 1997). The most frequently studied topic in organizational socialization research, however, is the transition from undergraduate education to the work setting. Newcomers are strongly exposed to reality shock and role adjustment when starting their professional career, even in the healthcare field where intensive anticipatory socialization has already been achieved through undergraduate clinical placements (Duchscher 2009). Undergraduate students resemble newcomers in their clinical placement, even if their role in the ward is temporary. It is important to understand how undergraduate clinical learning is affected by organizational variables and how it contributes to postgraduation organizational outcomes. For example, nursing students undergo an organizational adjustment in their first clinical placement: they often face a lack of fit between their expectations and the real-world environment in which nursing care is delivered (Comparcini et al. 2014). Transition shock is commonly experienced by both undergraduate students and newcomers when starting their clinical practicum. They are exposed not only to a gap between theory and practice, but also to a new environment in which they need to deal with uncertainty and unknown variables, such as building effective relationships and gaining clinical credibility.

An effective organizational socialization process aims to reduce uncertainty and transition shock. In this light, clinical learning provides students with an opportunity to deal with uncertainty reduction and to enhance task mastery, role clarity, and organizational integration. Students and newcomers alike are actively involved in finding the right strategy for reducing uncertainty, for example through information-seeking

behaviors or proactivity (Spychala and Sonnentag 2011). Moreover, whereas undergraduate students need to reduce uncertainty, especially through successful clinical learning and thus mastery of the required competences, newcomers need to effectively integrate themselves into their work teams.

Organizational socialization leads the student (and the newcomer) to adopt behaviors consistent with the organizational setting and the ward team. If successful, this process produces effective clinical learning (for students) and effective onboarding (for newcomers). Facilitating effective adjustment in clinical learning contributes to increasing student retention and to academic success.

Clinical learning is just one aspect of a wider organizational learning process, the effectiveness of which is defined by and involves many systemic dynamics. In complex organizational and professional systems, it is useful to consider learning processes from a psychosocial perspective (Egan and Jaye 2009).

It is also necessary to better understand how clinical learning in undergraduate education is organizationally driven and how managerial choices in healthcare institutions can foster the effectiveness both of clinical learning and of organizational outcomes. Some of the theoretical frameworks used in organizational socialization research can assist in identifying the variables involved and in planning students' clinical learning experiences in the practicum. Organizational socialization models are valuable aids for mentors, teachers, and ward managers in understanding (and managing) students' expectations and needs when starting clinical practice in a new environment.

6.2.1 Organizational Socialization Models: A Key to Clinical Learning

The relation between clinical learning and organizational socialization involves complex dynamics in which different variables and mechanisms interact with each other in a specific context. The same variables and mechanisms will generate different outcome patterns in different contexts. For individuals, groups, and organizational environments, interdependence is more important than any single variable in defining an outcome (Pawson et al. 2004).

6.2.1.1 The Process Perspective

Van Maanen and Schein (1979) demonstrated that organizations use six socialization tactics to adjust newcomers. Each of these tactics forms a continuum with two poles: the collective (vs. individual) socialization tactic refers to grouping newcomers and providing them with a common set of experiences, or isolating newcomers and socializing them through individual experiences of the life of the organization; formal (vs. informal) socialization refers to a defined (or undefined) socialization period; sequential (vs. random) socialization refers to the presence of a clear sequence towards role acquisition in spite of an ambiguous or continually changing sequence; fixed (vs. variable) socialization provides (or does not provide) a precise timetable for role acquisition; serial (vs. disjunctive) socialization refers to the

availability (or unavailability) for the newcomer of an experienced role model in the organization; and investiture (vs. disinvestiture) refers to affirming, rather than disconfirming, the identity and the personal characteristics of the newcomer. Jones (1986) found that the six tactics could be grouped into three factors: context (collective-individual and formal-informal tactics), content (sequential-random and fixed-variable), and social aspects (serial-disjunctive and investiture-divestiture). Further, socialization tactics move from institutionalized to individualized tactics, as shown in Fig. 6.1. This approach is consistent with the uncertainty reduction theory: organizational socialization aims to make an environment more predictable and controllable through social interaction. It has been demonstrated that institutionalized socialization reduces uncertainty more effectively than individualized socialization (Saks and Ashforth 1997). Social aspects make the strongest contribution to turnover reduction and to improving organizational commitment and job satisfaction (Bauer et al. 2007).

This model is meaningful for undergraduate students' clinical learning on both the practical and theoretical levels. When students start a new clinical placement, they also have to deal with a new environment. In this process, they benefit from clarity about the goals to be reached, from having a timeline on the acquisition of the target competences, and from role models to follow that will enhance their clinical learning and reduce the uncertainty of the new environment. They also need to integrate into the ward team to enhance the effectiveness of social interactions useful for their clinical learning. All these factors are in line with some of the clinical learning environment tools described in the previous chapters of this book. For example, the pedagogical atmosphere in a ward is linked to the integration of the ward team, while a clear learning contract with the supervisor (e.g., defined timeline, goals, and expectations) is consistent with the supervisory relationship factor of the CLES + T model. This model helps to focus the main variables involved in a

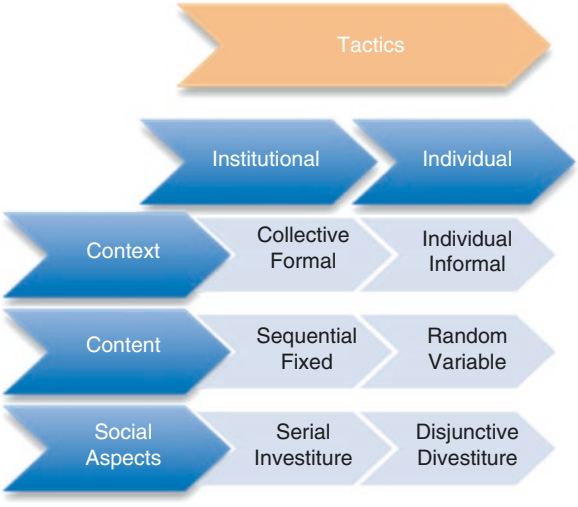

Fig. 6.1 Organizational socialization tactics

clinical practicum and to identify the organizational features that build a good clinical learning environment. Moreover, to meet students' needs and expectations, the model supports a managerial driven approach to clinical learning.

This has been the predominant model of organizational socialization research for over 25 years; however, it neglects anticipatory socialization as part of the process and lacks focus on the specific contents of organizational socialization.

The anticipatory socialization phase is particularly relevant in healthcare education research and clinical learning is the main issue in this field. Feldman (1977) was the first to focus on this phase by studying a sample of nurses. Subsequently, this phase was not widely studied, until the appearance of the socialization resource theory (Wanberg 2012).

6.2.1.2 Integrating Process and Contents

The availability of resources in an environment is key when facing demanding situations in that environment. Resources enable people to better cope in the environment and to reduce perceived stress and uncertainty (Bakker and Leiter 2010). Moreover, acquiring resources facilitates the further acquisition of resources by the individual.

In clinical learning, a good pedagogical atmosphere, good supervisory relationship, and a supportive ward team and ward manager are important resources promoting students' learning experience and adjustment in the clinical practicum. From a wider organizational perspective, these elements are important for the organizational climate: the individual characteristics of the student, the group's orientation to mentorship, and support from the ward manager can all foster clinical learning. In these areas, the socialization resource theory makes a further contribution to understanding the variables involved in the organizational learning process.

The socialization resource theory (SRT) identifies the organizational resources that are important for successful newcomer adjustment. The model considers organizational socialization from the anticipatory phase via the entry phase to the onboarding phase (Wanberg 2012). In each phase, specific resources seen as able to enhance effective organizational socialization are identified. Some of the resources mentioned in this model can help in understanding the organizational variables of relevance for clinical learning.

When students start their clinical practicum, they first pass through the organizational entry phase, including formal orientation in the functioning of the ward. Specific resources that facilitate adjustment in this phase are proactive encouragement by the team (e.g., student should feel free to ask questions or take initiatives) and formal support from the mentor. In these early phases, ward manager support and involvement in drafting a learning plan are valuable for effective clinical learning (Jokisaari 2013). Coworker support and student understanding of the formal and informal rules in the ward are important factors in adjustment in the onboarding phase as they contribute to making the student (or newcomer) feel an effective insider in the group (Tomietto et al. 2015). This commitment needs to be further supported by a clear learning plan, in which goals and expectations are explicit, and

possession of the necessary resources (e.g., sufficient time, access to information) to deal with the tasks required of the student in the placement. Finally, to enhance their competences and skills, students need to be supported by continuous feedback and advice (Wanberg 2012).

All the above-mentioned resources that help to foster newcomer adjustment are also pertinent to undergraduate student adjustment in a new clinical placement. Access to documentation and the clarity in the information flow in the ward are important variables in enhancing clinical learning. In the same way, the importance of having a clear learning contract at the beginning of the clinical placement has been widely demonstrated as necessary for successful clinical learning (Bailey and Tuohy 2009).

These elements of organizational socialization support the effectiveness of clinical learning and these two concepts are linked in the practicum. Moreover, they accord with the assumption that effective adjustment and effective clinical learning are best served by organizational socialization based on formal practices. Awareness of these elements is thus valuable when making managerial choices and organizational plans to better improve clinical learning.

6.3 Contents and Levels to Improve Clinical Learning from an Organizational Perspective

6.3.1 Individual Antecedents

Undergraduate education aims to socialize students into a specific professional role and identity. In this process, students construct an ideal identity and compare it with the real-world role models they observe in the clinical practicum. Finally, the outcome of the interaction between their expectations, the ideal role models acquired in their formal education, and the role models encountered in clinical environments will be their personal-professional identity.

In many cases, at the end of their undergraduate education, students will be more oriented to an ideal than real-world role model; the clash between the two may cause them to experience transition shock (Duchscher 2009). The conflict between the ideal and the real, which is an important factor explaining turnover intentions in newcomers, is also important in understanding organizational adjustment (Tomietto et al. 2012). Figure 6.2 shows that a newcomer who is "actual oriented" shows better organizational adjustment: along the actual role axis, organizational socialization displays significant growth, while, along the ideal role axis, growth is weak and, if the ideal dimension is too high, the effectiveness of organizational socialization diminishes. The best results are obtained where ideal and actual perceptions of the nursing role are in balance.

The clinical learning context helps the student (or newcomer) to strike a balance between the perceived ideal and the actual role: role discrepancies have been documented in undergraduate students and a good clinical learning environment is important in assisting students to manage these conflicts. An ideal-oriented student

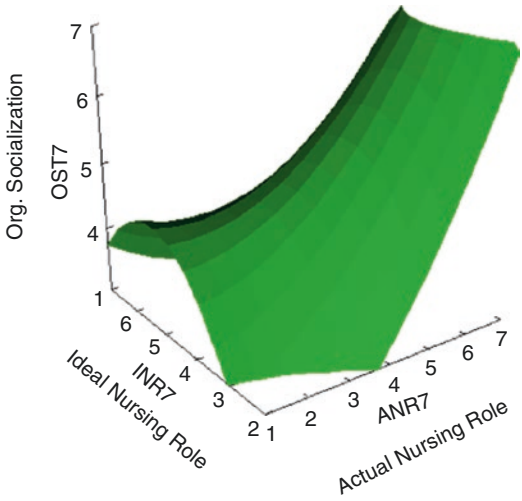

Fig. 6.2 Ideal-actual nursing role interaction in organizational socialization

easily experiences conflict when faced with the actual care practices of the mentor or ward team; this in turn impairs clinical learning. Moreover, an ideal-oriented student is more likely to quit education in the field. An actual-oriented student is more effective in adjusting, more easily integrates in the ward, and has a more satisfying clinical learning experience. For such a student, hands-on working might be more effective than critically reflecting on experience. In delivering healthcare education, it is necessary to help students find a balance between their ideal expectations and actual role models. During their first clinical placement, students experience transition shock: students who are highly motivated at the beginning of their clinical placement are often the same students who report an unsatisfactory experience in the clinical learning environment (Comparcini et al. 2014). This could be explained by ideal-actual role conflict.

A good clinical learning environment will manage the potential conflict between ideal expectations and actual professional models and promote "healthy" professional growth in undergraduate students. Moreover, taking this phenomenon into account helps to increase student retention and academic success.

Proactivity is another individual characteristic to be considered in organizational adjustment and clinical learning. Student proactivity is important for successful clinical learning (Deketelaere et al. 2006). However, research findings on proactive behaviors are mixed: proactivity is positive in integrating into a new environment but it can also manifest as a challenging attitude to the organizational status quo (Gruman et al. 2006). While proactive behaviors are effective in reducing uncertainty in the new environment, it is important for the student to know whether they are acceptable by the supervisor and the team. A proactive student may on the one hand be perceived as showing a high learning orientation and on the other as a challenging student who is critical of the mentor's learning plans, the delivery of care, and the status quo of the ward team. The same attitude or behavior can generate different responses depending on the context.

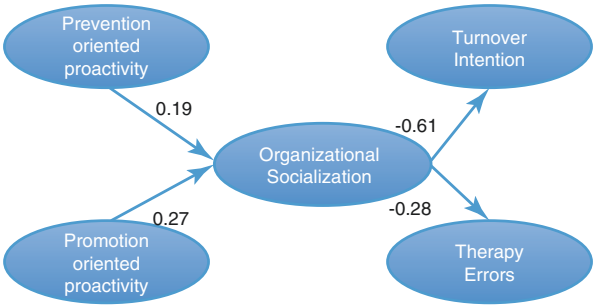

Fig. 6.3 Proactivity orientation in organizational socialization

Moreover, different proactive orientations exist: prevention-oriented proactivity is a reactive attitude to the work setting (e.g., preventing obstacles), while promotion-oriented proactivity is an active attitude manifested in making new initiatives (e.g., new procedures) (Spychala and Sonnentag 2011). While prevention-oriented proactivity is expected to be more effective in facilitating adjustment due to its orientation to the status quo, research has shown that promotion-oriented behaviors enhance organizational socialization (Tomietto et al. 2013a). The structural equation model presented in Fig. 6.3 shows a stronger positive correlation (0.27) between promotion-oriented proactivity and newcomers' organizational socialization. Furthermore, the model demonstrates that effective organizational socialization also improves newcomer retention and enhances competence mastery and patient safety.

It is important to understand the importance of both a proactivity orientation by students and proactive encouragement by the ward team in facilitating positive integration in the clinical placement and promoting effective clinical learning. While a prevention-oriented student is more aligned with the environmental status quo, such a student could be perceived as ineffective by a supervisor with a promotion-oriented proactive expectation. This type of student is well suited to ward teams with a strong identity and less open to attitudes challenging their professional and organizational culture. In contrast, a ward team open to innovation and new ideas would better appreciate a promotion-oriented student.

Healthcare students' clinical learning is shaped in fluid environments and fluid interactions between inner expectations and the external environment. The effect of individual characteristics depends on the ability of the environment to deal with them. Individual-environment fit makes an important contribution to the effectiveness of clinical learning and a ward manager, together with the university teacher, needs to mold the ward climate to support mentorship and a good pedagogical atmosphere in the group.

6.3.2 The Group-Level Dimension of Clinical Learning

Clinical learning is also group driven. While individual-level characteristics are pertinent to student variables, group-level variables are workplace based and depend on the organizational climate and on the team. Group-level variables also depend on

managerial choices, and hence the ward manager can contribute to improving them. In assessing the clinical learning environment, the leadership style of the ward manager is important as a driver of students' clinical experience. While clinical supervision is based on a dyadic relationship between mentor and student, this dyadic relationship is also embedded in the ward team and thus depends on the group climate. In deepening the clinical learning environment, it is important to consider both the supervisory relationship and the pedagogical atmosphere in the ward. Moreover, it is also useful to consider the group-level climate and the organizational variables in the team.

The motivational profile of the group influences the students' clinical learning experiences. Specifically, work-engaged teams enhance students' clinical learning (Tomietto et al. 2016). Work engagement comprises cognitive, emotional, and psychological dimensions and refers to a positive work-related state of mind characterized by feelings of vigor (persistence in work demands, work as something to which to devote time and effort), dedication (work as a meaningful pursuit), and absorption (work as something on which employees are fully concentrated) (Bakker and Leiter 2010). Work engagement is related to positive organizational outcomes such as lower burnout and stress, higher employee retention (Schaufeli 2012), and, in the present instance, improved caring behaviors and patient satisfaction (Simpson 2009).

A ward team that works in a meaningful way and in which the healthcare professionals are fully focused on their work is able to enhance students' clinical learning experience (Tomietto et al. 2016). A fully motivated group boosts motivational contagion, including among students, improving well-being and learning motivation in the ward. When students learn in a work-engaged ward team, they are in close touch with positive role models, which promotes their adjustment to their professional identity. A work-engaged team, then, is a clear asset in implementing clinical learning and ensuring student academic success.

A ward manager can improve the level of work engagement in the team in many ways. More specifically, it is necessary to balance job demands and job resources in the workplace. It is important to identify the job resources that foster motivation at work and facilitate coping with job demands from the physical, psychological, and social points of view (Schaufeli 2012). The most important resources are social support from coworkers, job autonomy, performance feedback, prospects for professional growth, alignment with organizational values, perceived equity, and organizational justice in the distribution of rewards (Leiter and Maslach 2004). These resources are important to improve work engagement and to cope with job demands such as workload, physical and psychological strain, lack of support, and lack of meaningfulness at work. Job demands and job resources interact as drivers of employee motivational improvement, or motivational loss. A ward manager aware of these interactions can seek to balance job demands and job resources to foster work-team motivation and to improve the organizational climate and outcomes, such as openness to mentorship.

Another important variable is leader-member social exchange (LMSX) (Bernerth et al. 2007). Leader-member social exchange concerns the quality of the

relationship between the leader and the leader's coworkers; it reflects the extent to which leader and coworker share support and resources at work (Jokisaari 2013). This variable is important for enhancing individual- and group-level performance, and strongly correlates with better organizational socialization in health-professional newcomers. Specifically, LMSX is more important than individual proactivity in facilitating effective adjustment: if a newcomer is proactive but not in the same way as the ward manager, organizational socialization will probably fail. In the same way, LMSX influences undergraduate students' adjustment and their clinical learning. The importance of the role of the ward manager in clinical learning has been highlighted in clinical learning environment research and has also found support in organizational socialization research. LMSX and the climate within the group depend highly on the nature of the ward manager's relationship with the coworkers and has a strong impact on the group's performance and on undergraduate clinical learning. The ward manager is key in implementing a climate conducive to mentorship in the work-team even if the ward manager's role in student supervision is indirect.

6.3.3 The Organizational Level of Clinical Learning

Each individual is embedded in a group and every group is part of a wider organization. It is necessary to consider how these levels interact in order to improve individual-group-organization fit.

When a worker's goals and values are aligned with those of the organization, that worker is likely to and have an intention to remain in, and thus be retained by the organization (Tomietto et al. 2013b). Value fit is an important variable in assessing work life (Leiter and Maslach 2004). Specifically, when personal and organizational values are congruent, organizational outcomes and individual well-being are improved. On a social constructionist view of clinical learning, undergraduate students attend their clinical placements within a specific organizational culture and its values, meaning that their learning is based on shared values and practices (Egan and Jaye 2009). In clinical learning, students' learning experiences are perceived as group-level experiences and as embedded in the organization (Tomietto et al. 2014). Undergraduate students perceive the organizational culture as value oriented (or not) to clinical learning and mentorship, and this perception results in an effective (or not) clinical learning experience.

This is important because it reveals the central role healthcare organizations have in shaping students' clinical learning and, ultimately, their professional identity. From a managerial viewpoint, it is important to create a mentorship-oriented culture in which student supervision is a shared value across the organization as well as in each ward: mentorship education should be implemented among students' mentors, while organizational models of group supervision could be useful in promoting a team attitude fostering students' clinical learning.

In summary, when students perceive alignment between their own and the organization's values, they develop a higher motivation to learn and to adjust in their clinical placement. It is important that ward managers set groups a clear value

orientation and that these values are in line both with the organization's goals and with professional values. Undergraduate students, through clinical learning, need to find confirmation of their expectations and values in the organizational real world and in real-world professional role models.

6.4 Future Perspectives and Practical Implications

This chapter explored the interaction between clinical learning and the organizational environment. Implications for clinical practice on the individual, group, and organizational levels were discussed. Some new perspectives on managing clinical learning and suggestions for further research are presented below.

The first issue concerns how to assess levels in research: this is both a theoretical and a methodological issue. Whereas, to be used in the right way and to draw reliable inferences, a concept is often theoretically linked to the individual, group or organizational level, a scale needs to be methodologically tested as a multilevel tool.

Therefore it would be important to adopt a multilevel approach in clinical learning research. Multilevel research can also improve inference reliability. Many tools in organizational research are highly reliable at the individual level; however, they could be even more reliable if used in a multilevel way. The same applies to clinical learning research. Students in the same ward are exposed to the same organizational and learning climate and they share the same group-level perception of the clinical practicum. This suggests that more reliable inferences can be made if these perceptions are aggregated (Tomietto et al. 2014). To decide whether to aggregate a measure, it is necessary to calculate the ICC (Intraclass Correlation Coefficient), as this will reveal the best way to aggregate the data and what inferential statistics best take organizational level into account. If the ICC is more than 0.10, the measure can be switched from the individual to the aggregate level of analysis.

Another issue concerns deepening the organizational and managerial variables to promote a good clinical learning environment. For example, group-level research is a promising way to open up new practical perspectives. Organizations are currently searching for strategies to build a shared climate for different aims, such as for innovation or for safety. In clinical learning, identification of the key elements for improving the "climate for mentorship" within work teams is needed. While the ward manager is key in managing the group relationship and giving support, the hospital management, together with the university, is central in setting learning plans, training mentors, and matching the academic curricula with clinical learning opportunities.

Empowering work teams and students in clinical learning is a major challenge in creating a climate favorable for mentorship. The core idea of empowerment is to give individuals or groups the power to accomplish their work in a meaningful way (Laschinger et al. 2010). Exploring what empowerment means in relation to the mentorship climate is a core managerial challenge. It would be useful to extend student empowerment in clinical learning and find ways to enhance their sense of professional awareness and responsibility in the clinical practicum. Some resources for this purpose have been discussed in this chapter, such as proactive orientations

and proactive encouragement, ward manager and team support, defining learning plans and role clarity in mentorship, and sharing common mentorship-related values and views. All these components contribute to empowering mentors, work teams, and students in clinical learning in real-life contexts.

Conclusion

This chapter approached clinical learning from an organizational perspective: clinical learning is part of wider organizational learning, which involves individual characteristics, group-level variables, and organizational fit. Improving clinical learning is also a managerial challenge. Better clinical learning helps organizational adjustment after graduation, and a better organizational environment improves clinical learning. Many variables interact in this process and ward managers and hospital policies can make an important contribution to successful clinical learning and to bettering organizational outcomes. Clinical learning offers healthcare education and healthcare institutions a valuable starting point for enhancing organizational and clinical learning environments.

References

Ashforth BE. The role of time in socialization. In: Wanberg CR, editor. The oxford handbook of organizational socialization. New York: Oxford University Press; 2012. p. 161–86.

Bailey ME, Tuohy D. Student nurses' experiences of using a learning contract as a method of assessment. Nurse Educ Today. 2009;29:758–62.

Bakker A, Leiter MP. Work engagement: a handbook of essential theory and research. New York: Psychology Press; 2010.

Bauer TN, Bodner T, Erdogan B, et al. Newcomer adjustment during organizational socialization: a meta-analytic review of antecedents, outcomes, and methods. J Appl Psychol. 2007;92:707–21.

Benner P. From novice to expert: excellence and power in clinical nursing practice. Menlo Park: Addison-Wesley; 1984.

Bernerth JB, Armenakis AA, Feild HS, et al. Leader-member social exchange (LMSX): development and validation of a scale. J Organ Behav. 2007;28:979–1003.

Comparcini D, Simonetti V, Tomietto M, et al. Nursing students' satisfaction and perception of their first clinical placement: observational study. Prof Inferm. 2014;67:41–7.

Deketelaere A, Kelchtermans G, Struyf E, et al. Disentangling clinical learning experiences: an exploratory study on the dynamic tensions in internship. Med Educ. 2006;40:908–15.

Duchscher JEB. Transition shock: the initial stage of role adaptation for newly graduated registered nurses. J Adv Nurs. 2009;65:1103–13.

Dunn SV, Burnett P. The development of a clinical learning environment scale. J Adv Nurs. 1995;22:1166–73.

Egan T, Jaye C. Communities of clinical practice: the social organization of clinical learning. Health. 2009;13:107–25.

Feldman D. Organizational socialization of hospital employees: a comparative view of occupational groups. Med Care. 1977;15(10):799–813.

Gruman JA, Saks AM, Zweig DI. Organizational socialization tactics and newcomer proactive behaviors: an integrative study. J Vocat Behav. 2006;69:90–104.

Jokisaari M. The role of leader-member and network relations in newcomers' role performance. J Vocat Behav. 2013;82:96–104.

Jones GR. Socialization tactics, self-efficacy, and newcomers' adjustments to organizations. Acad Manag J. 1986:262–79.

Laschinger HSK, Gilbert S, Smith LM, et al. Towards a comprehensive theory of nurse/patient empowerment: applying Kanter's empowerment theory to patient care. J Nurs Manag. 2010;18:4–13.

Leiter MP, Maslach C. Areas of worklife: a structured approach to organizational predictors of job burnout. In: Perrewe PL, Ganster DC, editors. Emotional and physiological processes and positive intervention strategies. Oxford: Elsevier; 2004. p. 91–134.

Pawson R, Greenhalgh T, Harvey G, et al. Realist synthesis: an introduction, ESRC research methods programme. Manchester: University of Manchester; 2004.

Saks AM, Ashforth BE. Organizational socialization: making sense of the past and present as a prologue for the future. J Vocat Behav. 1997;51:234–79.

Schaufeli WB. Work engagement. What do we know and where do we go? Rom J Appl Psychol. 2012;14:3–10.

Simpson MR. Engagement at work: a review of the literature. Int J Nurs Stud. 2009;46:1012–24.

Spychala A, Sonnentag S. The dark and the bright sides of proactive work behaviour and situational constraints: longitudinal relationships with task conflicts. Eur J Work Organ Psy. 2011;20:654–80.

Tomietto M, Rappagliosi CM, Battistelli A. The impact of undergraduate clinical experience and role orientation on post-hiring adjustment and turnover intentions. Paper presented at European Doctoral Conference in Nursing Science, University of Graz, Graz, 15 September 2012; 2012.

Tomietto M, Rappagliosi CM, Battistelli A. Prevention- vs promotion-oriented proactive behaviors and organizational socialization process: the dark side of newcomer proactivity. Paper presented at European Association of Work and Organizational Psychology Congress, University of Munster, Munster, 22–25 May 2013; 2013a.

Tomietto M, Rappagliosi CM, Battistelli A. Organizational socialization: the role of newcomer-organization values' fit. Paper presented at Italian Psychological Association Congress, University of Padova, Padova, 25–27 September 2013; 2013b.

Tomietto M, Comparcini D, Saarikoski M, et al. Multilevel perspectives in clinical learning environments' assessment: an insight on levels involved in planning nursing education. J Nurs Educ Pract. 2014;4:42–50.

Tomietto M, Rappagliosi CM, Sartori R, et al. Newcomer nurses' organisational socialisation and turnover intention during the first 2 years of employment. J Nurs Manag. 2015;23:851–8.

Tomietto M, Comparcini D, Simonetti V, et al. Work-engaged nurses for a better clinical learning environment: a ward-level analysis. J Nurs Manag. 2016;24:475–82.

Van Maanen J, Schein EH. Toward a theory of organizational socialization. Res Organ Behav. 1979;1:209–64.

Wanberg C. The oxford handbook of organizational socialization. New York: Oxford University Press; 2012.

7 Empowering the Professionalization of Nurses Through Mentorship: Implementation of the CLES Framework in an International Project

Olga Riklikienė and Erna Tichelaar

7.1 The Importance of Unified Formal Training of Mentors in Nursing Across Europe

In European countries and worldwide different mentorship models have been applied and provision made for the formal preparation of qualified nurses to act as mentors in the clinical learning environment. There is a wide range of international evidence regarding effective nursing theory and practice integration within changing healthcare needs, and the improvement of educational, psychological and managerial competencies of practicing nurses through mentorship relations (Warne et al. 2010; Tichelaar et al. 2012).

However, such a mentorship approach is not universal, as some teaching models commonly used by education institutions and healthcare facilities in one country may not apply in another; there are countries where qualified nurses do not engage in mentorship process at all (Holland et al. 2013). The nursing profession in these countries is often more focused on clinical skills and medical knowledge, and less concerned with evidence-based nursing and nursing education (Antohe et al. 2016).

Fagerström (2012) emphasises that higher education of nurses is a particular phenomenon in the former Soviet Union and aligned countries, and it is not associated only with developing clinical knowledge and skills, but also with the need for the development of professional identity and values, the acquisition of scientific knowledge and the search for its application in practice, along with humanist ideas

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and professional autonomy. In other words, a successful mentorship system strengthens the professionalisation of healthcare staff and increases the quality of the clinical learning environment and patient care in countries and institutions where traditional nurse education has undergone a transformation. This situation determined the need for more unified formal training of mentors in nursing across Europe.

7.2 Empowering the Professionalization of Nurses Through Mentorship: International Project

The EmpNURS project (2010–2013) was a transnational research and developmental project. It involved seven EU higher education institutions (HEI) and four teaching hospitals, working in collaboration with each other and striving to enhance integration of education and practice to promote congruity of European nurse education (Erasmus-ECUE 2013).

EmpNURS aimed to enhance the lifelong learning needs of the nursing workforce through the development of a training programme for mentors of students in clinical practice. The new programme was piloted in four relatively new member states of EU where the traditions of mentorship in nursing education were at the initial development stage: the Czech Republic, Hungary, Lithuania and Romania. Finland, the United Kingdom and the Netherlands provided project management, evaluation and underpinning evidence for the EmpNURS mentorship programme. During the pilot, four partners worked collaboratively with a clinical service and clinical placement provider in their country.

According to the experience and feedback from project members, the circumstances in the four pilot countries were diverse. There were differences in philosophical approaches to education and learning, in social and educational traditions, in the developmental stage of nursing education, in the positioning of nurse education in universities or colleges and in the conceptual understanding that would influence the content and delivery of one mentor training programme. Despite the differences, the clinical learning environment was generally recognised as the best place to develop skills and nursing competencies, to bring theory and practice together and to stimulate the development of the reflective practitioner.

7.3 Exploration of Students' Perceptions of Their Clinical Placement and Their Satisfaction with the Clinical Learning Environment in Pilot Countries

Before the pilot started, and the EmpNURS mentorship programme tested, research was carried out to evaluate students' perceptions of their clinical placements and their satisfaction with clinical learning environment. The sample for a cross-sectional quantitative study ($N = 418$) was drawn from students in four HEIs located

in the Czech Republic, Hungary, Lithuania and Romania. Data collection utilised an electronic questionnaire sending the web link by e-mail to the students at the end of their clinical placement.

For this survey the questionnaire utilised selected items (25 items) from a validated research instrument: the Clinical Learning Environment, Supervision and Nurse Teacher (CLES + T) scale (Saarikoski et al. 2008). The subscale associated with the teacher (T) was removed from the original CLES scale. This decision was taken because the role of the clinical teacher varies enormously across European countries (Warne et al. 2010) and this was not the focus of the project. Additionally, it must be noted that in some of the pilot countries, physicians, and not nurse teachers, are involved in mentoring student nurses.

The 25 selected items evaluate four domains: the Educational atmosphere on the ward (8 items), the Leadership style of the ward manager (4 items), the Nursing care in the ward (4 items) and the content of the Supervisory relationship (8 items). The questionnaire was translated into the languages of the survey countries using double-blind translation procedures (Bechling and Law 2000). In the cases of Lithuania and the Czech Republic, the CLES scale was translated and validated earlier during a previous project, by the Thematic European Nursing Network (TENN 2005–2007) (Saarikoski et al. 2007).

The results showed that students' own motivation for clinical practice was high, and they were mainly very satisfied with their clinical placement experiences. The most important outcome regarding mentorship was the model of supervision provided by clinical staff, as this was significantly related to students' satisfaction with clinical training. The most typical supervision model identified in the study sample was group supervision (56%) and a quarter of the sample had an individualised supervisory relationship. Although the commonest professional background of the supervisor was nursing (63%), a remarkable proportion of students (19%) had physicians as supervisors. This finding mostly relates to student nurses in Romania (55%). The remaining students (18%) had a supervisor from the university, or other person from the unit although again this relates mainly to one country, Hungary. A group supervision model was the most common model identified in the Romanian subsample, where 83% of the students were supervised in a group. A model of individualised supervision was the most common in the Lithuanian subsample, where 41% of the students were supervised in a one-to-one relationship by a member of the ward staff (Antohe et al. 2016).

The study provided an overview of current practices in four teaching hospitals in the Czech Republic, Hungary, Lithuania and Romania prior to the project interventions. The most satisfied students were those with an individualised supervisory relationship, and the most dissatisfied students were students without any supervision. The need for new educational approaches that will better meet the leaning needs of students was recognised during the study. Another important conclusion was the need for professional nurses who are trained as mentors to support learning in practice. These issues were addressed in subsequent phases of the project, when the EmpNURS mentorship programme was developed and training of nurse mentors was planned.

7.4 The EmpNURS Mentorship Programme in Nursing: Development, Delivery, Feedback and Products

7.4.1 The Underlying Theoretical Framework of the EmpNURS Mentorship Programme in Nursing

The EmpNURS mentorship programme was conceptually based and guided by a theoretical framework. This is necessary for a number of reasons:

- Firstly, concepts and frameworks help to facilitate discussions and choices around the content and planning of programme curricula. Moreover, a common understanding enables effective communication during the development process and allows for the identification of professional roles, functions and responsibilities of healthcare providers, educators and students in clinical training to be articulated.
- Secondly, a mentorship programme that is based on clear concepts will provide more coherence for all involved in the mentoring process. It is also expected that the quality of the programme will be enhanced when working in a reliable and structured way (Hamric et al. 2009; Carroll 2004; Fulton et al. 2006).
- Thirdly, the preparation of mentors differs from standard undergraduate training or CPD (continuing professional development) training, as this programme encounters experienced professionals, in terms of both their expertise on clinical issues and those of teaching students in practice.

For this last point the existing scope of knowledge, and shared individual experience of programme participants (mentors), should be taken into account and brought to the fore during teaching sessions by implementing principles of (1) *evidence-based practice*. Another reason to consider particular approaches to nurse mentor preparation relates to the characteristics of mentors on the programme. Most of them will be working as nurses, perhaps for extended periods, possibly alongside family life and other social commitments. In reflecting this profile, the underlying philosophies of (2) *flexible learning* and (3) learning at work *(work-based learning)* underpinned the programme, creating a more learner-friendly programme delivery environment. It was expected that within the concepts of work-based learning and flexible learning, learners would feel comfortable taking responsibility for their learning process and needs. Moreover learners need, as Flanagan et al. (2000) argue, a high degree of autonomy, as learning often takes place independently (at home, in practice and in small peer groups), without direct support from a course teacher. The above theoretical principles were used as guidelines when planning the mentorship training course to ensure a high-quality programme.

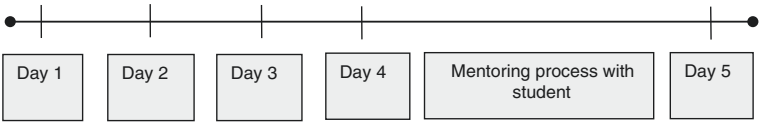
7.4.2 Structure and Content of EmpNURS Mentorship Programme in Nursing

The main themes considered for the EmpNURS mentorship programme related to the following areas:

- The content of the nursing curriculum, the concepts of mentoring and the role of the mentor
- Some basic principles on the clinical learning environment, methods in teaching and learning, coaching strategies, assessment strategies, continuous professional development and lifelong learning
- Methods of reflection and portfolio development

The different learning activities were planned in the programme to stimulate a confident, independent and self-directed future mentor. Reflection, as a critical tool for the learning and assessment process of both mentor and student, was interwoven in the whole programme.

The organisational structure of the programme consisted of 5 days, with a minimum of 6 contact hours per day, and a minimum of 2 weeks of mentoring process in practice with a student. This plan acknowledged the time needed to study, to practice and to reflect. The programme design gave freedom to participants to choose when, where and how to study, and to work on the assignments (Fig. 7.1).



Day 1: Being a mentor

Day 2: Becoming a mentor

Day 3: Doing the role of mentor: how to teach and coach the student

Day 4: Role and responsibilities in assessment

Practical Experience: Placing theory into Practice: *Mentoring experience with*students

Day 5: Reflection on undertaking the mentor role in practice and working towards the future practice as a mentor

Fig. 7.1 Structure of the EmpNURS mentorship programme in nursing (Tichelaar et al. 2013).

7.4.3 Piloting of the EmpNURS Mentorship Programme in Nursing

Each mentorship pilot addressed the cultural, professional and organisational needs of the participating partners. Before starting the pilot the course material had to be translated into the language of the four pilot countries (Czech, Hungarian, Lithuanian and Romanian). This was necessary because there was a lack of relevant national material, and sometimes the English language skills of programme participants were not reliable.

The piloting process was a collaboration between representatives from an educational institute and a hospital. The two representatives led the local pilot of the EmpNURS mentorship programme in each of those four countries. The necessary cooperation between the education and care institutions was well organised and supported the pilot process. The numbers of voluntary student-mentors and student-nurses were matched and together with the participating universities and their teaching hospitals, the EmpNURS mentorship programme reached a total 51 student-mentors and 58 student-nurses.

The assessment of achievement of the learning outcomes was mapped against the mentor's portfolio. The portfolio included compulsory evidence that provided insight into the mentor's continuing development of knowledge, skills, attitudes and understanding, in the role as professional mentor. Some examples of evidence were reflections of each teaching session, written evaluation of learning environment, Kolb's (1984) learning style test results and meaning, reflection on the total experience as a mentor during the programme and a presentation on 'being a professional mentor' with associated written handouts at the end of the programme. The course teacher assessed the portfolio which represented the integration of theory and practice, provided evidence of effective communication with students and their tutors and finally demonstrated the approach of a reflective practitioner, focussed on lifelong learning. Each mentor received a 'Certificate' from the educational institution on successful completion of the programme components.

7.4.4 Feedback on the EmpNURS Mentorship Programme in Nursing

At the end of the pilot, all participants (mentors, students, course teachers and ward managers) were asked to evaluate the content of the programme. Organisational issues were included in the feedback. To increase the trustworthiness of the evaluation, triangulation of evaluation instruments was utilised, e.g. reflective diaries, evaluation sheets and group discussion.

According to the qualitative data collected during the pilot (e.g. learning diaries and portfolios), the project provided clear evidence that strong empowerment

development processes were beginning to become evident among the clinical nurses who joined the programme. Mentors were able to carry out their role, and associated responsibilities in daily practice, to support the student's professional development—through reflection, assessment and evaluation. Mentors also acknowledged the challenge of their triple role (being a nurse, being a mentor, being a team member) but noticed that the learning process increased their personal and professional values. Other personal benefits of taking part in the programme were highlighted, particularly the benefits for their ward team where an increased collaborative spirit was highlighted.

Assessing the content of the programme, mentors argued that the most significant parts of the training were those concerned with learning styles, assessment of students, reflection techniques and feedback, along with how to cope with failing students and access support from a nurse teacher if this occurred. Also mentors expressed a desire to update their own knowledge and basic skills in nursing, and a need for more information on how to improve team work and communication. Finally, mentors' training and evaluation sessions offered clear evidence that their professional empowerment had increased during their experimental roles when acting as mentors.

The students that joined the pilots provided extremely positive feedback from their experiences as mentees. They appreciated the individualised approach where somebody near to them can provide leadership to them while also being involved in assessment, reflection and constructive feedback. Students experienced increased feelings of safety working in partnership with a mentor in the clinical learning environment, and thereby learning to resolve difficult situations (skills, expertise) more safely, not only for them personally, but also for patients. The possibility of self-evaluation was mentioned in addition to the importance of social communication with mentors (for instance spending time sharing various histories in an informal setting). They learned about feedback and reflection which is practised daily, both by students and mentors. Students described feeling empowered by their mentors (appreciation and respect of their work, constant support).

Ward managers were asked to give top three benefits of the pilot programme for their work environment. These were (1) higher quality of student teaching in the clinical learning environment, (2) higher quality of care delivered and (3) positive changes in the atmosphere of the unit.

Ward managers were appreciative of the collaboration between school and hospital. They noted a need for more time for both practical administration due to increased documentation, e.g. learning contracts and reflection sheets, and discussion and communication. Ward managers recognised that mentors need extra time in their daily routine in addition to their normal teamwork.

The course teachers who delivered the EmpNURS mentorship programme experienced mentors as active and enthusiastic, even heterogenic; they were able to enrich each other.

7.4.5 The Products of the EmpNURS Mentorship Programme

Following the programme pilot all evaluation materials were taken into account, and the final programme was prepared. The EmpNURS mentorship programme is delivered in four handbooks:

- '*Introduction to programme implementation* which can be used as a guidebook for both educational institutes and clinical organisations.
- '*Guidance for Teacher'* provides all information needed by the teachers, e.g. underpinning principles, content of the programme and examples of schedules and didactical approaches.
- '*Guidance for mentors'* can be used by mentors to support their learning process throughout the programme.
- *'Guidance for Student Nurses'* enables the student to understand the mentor's own learning process, thereby enabling them to build a good relationship with their mentor.

All books are freely available at http://julkaisut.turkuamk.fi/empnurs_start_here.pdf.

7.5 Impact of EmpNURS Project: Advancements of Mentorship in Nursing Programme 3 Years Later

Further analysis of the EmpNURS outcomes is essential for the long-term sustainability of the project. Three years following the initial pilot, the impact of this transnational project on mentorship in nursing (EmpNURS) was assessed in the four pilot countries (the Czech Republic, Hungary, Lithuania and Romania). It was established to what extent the four books issued were used for training mentors in nursing at institutional level or nationally in those countries. Information about new polices, e.g. national guidelines and regulations regarding the role and training of mentors in nursing that may have been introduced in the country since the project ended, was also requested. Additionally, it was ascertained if any of validated evaluation scale was applied to monitor the quality of clinical training.

According to the information received from the four pilot countries, educational programmes for nurses who want to become mentors are still in operation. In some cases, the EmpNURS mentorship programme was used to refresh existing continuing professional development courses on mentorship. An identified restriction on implementation of successive mentorship training programmes was the low numbers of teachers to deliver the programme, and time restrictions on their involvement.

One of the main difficulties in maintaining the original content and spirit of the EmpNURS course was the limitation of nurses' knowledge of English language, as all information and bibliography proposed by the four books were in English. Thus, some materials from the EmpNURS mentorship programme (e.g. reflection sheets and the student's learning agreement with the mentor) were translated into national languages for clinical training of students.

With regard to reflection, mentors appreciated the opportunity to use reflection sheets, especially at the end of the mentorship period at their student's clinical practicum following a duration of 3 weeks and more. For students the implications of the reflection process were more difficult to report, as they usually described the reflected situation very well but were not able to reach a deeper level of reflection (analysis of the reasons for what has happened and why, the corrective action, etc.). Students often failed to disclose their feelings and attitudes, and in particular to analyse their actions critically.

After the EmpNURS project, the topic of mentorship became more explicit, not only in the clinical setting but also in research of bachelor and masters students (Riklikiene and Nalivaikiene 2013). Some policy changes were also implemented as trends to unify mentorship in nursing programmes in a particular country. The EmpNURS project experience was also replicated in other non-EU countries (like Kazakhstan) where the concept of mentorship was almost unfamiliar, and the nursing profession was under development with the transformation of nurse training from diploma level to higher education.

In summary, after the implementation of the EmpNURS mentorship programme, training of mentors in the pilot countries increased together with the acknowledgement of the importance of mentorship in nursing. In some cases the EmpNURS project provoked discussion, and necessary practical or political solutions at national level. At the same time, the expansion of mentorship in nursing is slow and based mainly on educational institutions or hospitals that cooperated in the EmpNURS project. In some of those four countries there is still limited interest amongst registered nurses in planning mentorship training, and relatively small number of mentors, if any, in peripheral healthcare facilities. Still, despite the extensive translation of the course material into native languages the main difficulty in maintaining the original content and spirit of the course is nurses' lack of English language knowledge as the most part of up-to-date references are in English.

Conclusions

The EmpNURS mentorship programme as a final intellectual output of the EmpNURS project is recommended to educate qualified nurses and other healthcare professionals to become mentors for students in the clinical learning environment. Of course, in educational practice it is important to acknowledge that all qualified practitioners and teachers involved are required to practice within their country's Code of Ethical or Professional Conduct, and also to ensure that students can then learn by example from their mentors. Nurses in practice, empowered to serve as a mentors for students, expand their duties and increase professionalism. Moreover it should be possible for other health professionals in education and training (medical programs, programs of social work, physical therapy, occupational therapy and so on) to adapt the programme or its elements. Application of the EmpNURS mentorship programme in different countries will assure more equity and quality in nursing and healthcare education, which in turn contribute to higher standards of patient care.

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References

Antohe I, Riklikiene O, Tichelaar E, Saarikoski M. Clinical education and training of student nurses in four moderately new European Union countries: assessment of students' satisfaction with the learning environment. Nurse Educ Pract. 2016;17:139–44.

Bechling O, Law KS. Translating questionnaires and other research instruments: problems and solutions. Thousand Oaks: Saga Publications Inc.; 2000.

Carroll K. Mentoring: a human becoming perspective. Nurs Sci Q. 2004;17(4):318–22. Retrieved January 23, 2017, from Medline Review database. In: Resource guide for implementing nursing mentorship in Public Heath units in Ontario, 2005.

Erasmus-ECUE. Empowering the Professionalization of Nurses through Mentorship (EmpNURS), Final report, 510111-LLP-1-FI. 2013. http://eacea.ec.europa.eu/LLp/project_reports/documents/erasmus/ECUE/eras_ecue_510111_fr.pdf

Fagerström L. Nursing—an essential human resource for the sustainable development of health care. NERP. 2012;2:45–7.

Flanagan J, Baldwin S, Clarke D. Work-based learning as a means of developing and assessing nursing competence. J Clin Nurs. 2000;9(3):360–8.

Fulton J, Bohler A, Storm Hansen G, Kauffeldt A, Welander E, Reis Santos M, Thorarinsdottir K, Ziarko E. Mentorship: an international perspective. Nurse Educ Pract. 2006;7:399–406.

Hamric A, Spross J, Hanso C. Advanced nursing practice: an integrative approach. 4th ed. Philadelphia: Saunders; 2009. p. 267.

Holland K, Tichelaar E, Pokorna A, Riklikiene O, Antohe I, Saarikoski M. Empowering the nursing profession through mentorship, Handbook 1: Introduction to programme implementation. EmpNURS project/TUAS, Course Material 76; 2013.

Kolb DA. Experiential learning: experience as the source of learning and development. Upper Saddle River: Prentice Hall; 1984.

Riklikiene O, Nalivaikiene R. Student nurses' assessment of pedagogical atmosphere on the ward during practical placement at a University Hospital in Lithuania. NERP. 2013;5:182–8.

Saarikoski M, Marrow C, Abreu W, Riklikiene O, Özbicakçi S. Student nurses' experience of supervision and mentorship in clinical practice: a cross cultural perspective. Nurse Educ Pract. 2007;7:407–15.

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The nurse teacher in clinical practice: developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale. Int J Nurs Stud. 2008;45:1233–7.

Tichelaar E, Harps-Timmerman A, Docter M, Janmaat N. Dutch student nurses experience with clinical learning environment: a challenge for the changing role of the nurse teacher. NERP. 2012;2:55–61.

Tichelaar E, Riklikiene O, Holland K, Pokorna A, Antohe I, Nagy E. et al. Empowering the nursing profession through mentorship. Handbook 2: Guidance for programme teacher. EmpNURS project/TUAS, Course Material 37; 2013. p. 28.

Warne T, Johannson UB, Papastavrou E, Tichelaar E, Tomietto M, Van den Bossche K, Moreno MFV, Saarikoski M. An exploration of the clinical learning experience of nursing students in nine European countries. Nurse Educ Today. 2010;30:809–15. doi:10.1016/j/nedt.2010.03.003.

Cooperation Between Clinical Staff and Nurse Teachers

8

Leena Salminen and Camilla Strandell-Laine

8.1 Introduction

The main purpose of cooperation between teachers and clinical staff is to promote and support the education of students training to become nurses. However, despite their role in teaching nursing students, the role of teachers in a clinical practicum is currently unclear. The responsibilities and the kind of role teachers have in a clinical practicum have been discussed (Saarikoski et al. 2009). The role of the teacher has changed from being the clinical expert to being a provider of the circumstances and arenas in which students can have strong learning environments. This means that the actions and ideas of the teacher do not always match the expectations of mentors (or other clinical personnel). The amount of teachers who teach theory, carry out academic activities, provide clinical teaching and supervise is increasing. However, there is a need for teachers who work between those roles or work in both of those roles. Overall, teachers have expressed an overwhelming intention to remain academic nurse teachers and clinical teaching has become their minor role. Nonetheless, teachers are still important in clinical learning environments—where they can facilitate the education of students in authentic learning environments and in assisting students to implement theory in practice.

The future orientation of teachers and healthcare education has undergone and is undergoing large changes (Barrett 2007; Saarikoski et al. 2009). When considering the increasing demands of twenty-first-century healthcare, there can be seen a need to create general minimum requirements for teachers, or even a common EU directive to set a competence qualification for teachers in Europe. The World Health Organization (WHO 2016) has published a framework of the core competencies required for nurse teachers all over the world. This framework gives only recommendations and has no legal power. The main goal of this chapter (WHO 2016) is

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to strengthen the competence of teachers by setting the core competencies they should fulfil when teaching in nursing education, thus making nursing education more standard throughout the world. Naturally, different societies and countries, health legislation and health and education policies and so on set specific requirements. It can be asked, "Can one teacher perform teaching, research, clinical and managerial roles?" (Salminen et al. 2010).

A competent teacher should have the knowledge, skills and attitudes to adopt new approaches when planning, organising, implementing and evaluating nurse education programmes (WHO 2016). Regarding cooperation between clinical staff and the teacher it is necessary to look at the competence domains of nursing practice, communication, collaboration and partnership (WHO 2016) (Fig. 8.1).

Nursing practice core competency contains nurse teachers who maintain their current knowledge and skills in theory and practice—based on the best available evidence. This competence domain has been divided into three subdomains which are (1) maintain competence in nursing practice; (2) practice nursing in ways that reflect evidence-based, up-to-date knowledge and (3) plan a variety of teaching and learning activities that foster creativity and innovation within the nursing and healthcare environment (WHO 2016).

Communication, collaboration and partnership core competency contains nurse teachers who must demonstrate effective communication skills that promote collaborative teamwork and enhance partnerships between education for the healthcare profession and clinical practice. This competence domain has been divided into three subdomains: (1) demonstrate intercultural and interdisciplinary competence in the development of curricula, course design, teaching and nursing practice; (2) communicate best practices in nursing education with peers, students and other stakeholders and (3) facilitate and foster teamwork and collaboration at educational and clinical institutions both locally and with the wider regional and international community (WHO 2016).

8.2 Nurse Teachers as Collaborators

Collaboration has been mentioned as one of the most important roles of teachers (Davis et al. 2005; WHO 2016). Davis et al. (2005) state that the validated competencies of teachers should be broad enough to encompass the expected requirements of nurse teachers in many different work settings. They note that teachers do not only work in academic institutions and colleges (though, of course, that depends on the healthcare education system), but they also work in clinical settings, hospital education programmes and community agencies. In a similar way to Davis et al. (2005), Huntly (2008) describes competence as containing the specific capabilities of teachers. The required capabilities are professional knowledge, professional practice and professional commitment. Thus, when summarising the role of teachers, it is clear that collaboration is a part of professional competence.

The collaborator role of teachers provides them with the possibility to act as experts in nursing science and as a partner in cooperation with mentors and leaders

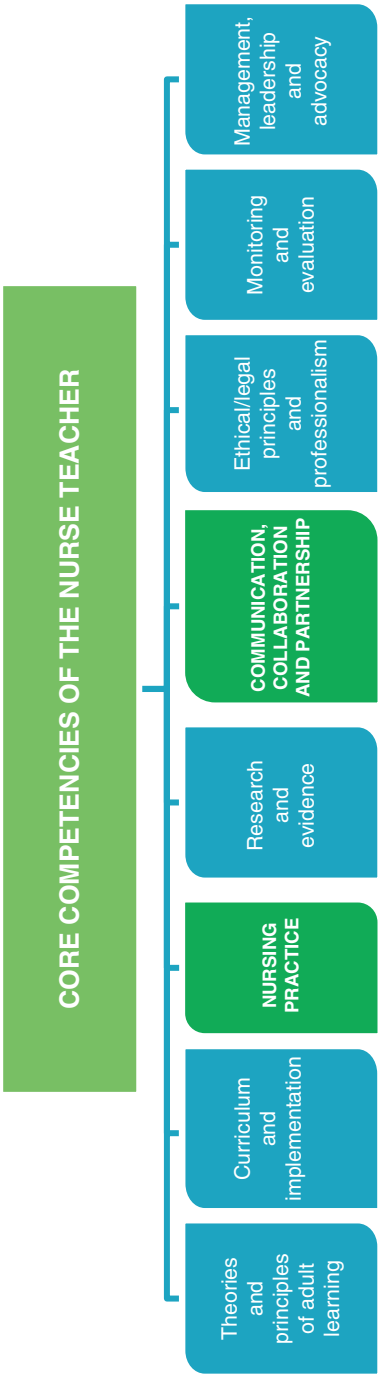

Fig. 8.1 The core competencies of the nurse teacher

developing nursing and healthcare education (Davis et al. 2005; WHO 2016). This is not a new thing, but—for many reasons—collaboration is not always easy to establish and has even been described as problematic (Lehna and Byrne 1995; Salminen et al. 2013), which might be one reason for the unclear roles of teachers. Lancaster (1985) describes the elements of successful collaboration as being communication, contribution, commitment, consensus, compatibility and credit but how these are fulfilled is unclear (Salminen et al. 2013).

Salminen et al. (2013) state that more than half of all nursing leaders assessed their cooperation with teachers as good or extremely good. However, half of the mentors rated cooperation with teachers as quite poor. The content of the cooperation between teachers and nursing leaders is different to that between teachers and mentors. The nursing leaders cooperated with teachers mostly on matters related to clinical training, but also on matters related to research, development and innovation activities and staff training. Most of the mentors cooperated with teachers on an irregular basis and the topic of the discussions was mostly about the content of student supervision and the evaluation of students. Almost 20% of the mentors said that they do not cooperate with teachers at all. Moreover, nearly half of the mentors reported that they received no support for their mentoring work from teachers (Salminen et al. 2013). In the special healthcare sector in Finland, advanced-practice nurses or academic clinical teachers have taken a greater role in supervising students during clinical practicums and while working as a resource for mentors. This may be one reason why mentors are not familiar with the work of teachers and only see teachers as visitors to hospitals. Moreover, mentors are unable to witness the role of teachers in a clinical practicum, which is another possible reason why mentors feel that teachers do not cooperate with them (Salminen et al. 2013).

8.3 The Role of Nurse Teachers in a Clinical Practicum

The role of nurse teachers in a clinical practicum can be divided into clinical skilled practitioner, liaison person, pedagogical expert, researcher, project leader, integrator of theoretical and practical knowledge and networker. Regardless, mentors would like to cooperate with teachers more than teachers do with mentors (Salminen et al. 2013); thus we need to discover more beneficial ways to cooperate while also clarifying the role of teachers in clinical practice.

The opportunities of teachers to participate in their students' clinical practicum have been reduced in Finland and other European countries (Saarikoski et al. 2009). Moreover, the role of the teachers has altered throughout Europe during the 2000s. Despite general recommendations, teacher participation in clinical practicums has faced obstacles due to time constraints and heavy workloads (Williams and Taylor 2008; Saarikoski et al. 2013). For example, in 2015, only about 25% of nursing students in one university hospital in Finland met their teacher during their clinical practicum (Tarr 2016), but 20 years before the percentage was roughly 95% (Saarikoski 2007). The change has been huge. The main reason is the change in the healthcare education system from diploma level to bachelor level in higher

education institutions. Of course, practices vary depending on the hospital districts or healthcare organisations and nursing programmes. Overall, intensive cooperation has been seen as very important, even if there is limited cooperation otherwise. The role of the teacher has been seen as a supporter of both students in their learning and mentors in their supervising.

Saarikoski et al. (2009) state that there are three main categories found in literature concerning the cooperation of teachers: cooperation with students, mentors and clinical placement. Cooperation with students and with a mentor consists of support, interpersonal relationships and group dynamic skills which are based on the social skills of the teacher. Cooperation with a unit where students train and practice their clinical competencies are categorised as falling under a teacher's cooperation skills rather than social skills. However, it is known that a good relationship with clinical staff is essential for effective liaison. The results of research by Saarikoski et al. (2009) on cooperation between clinical placement staff and a teacher found that cooperation was not highly valued and that the teacher was not seen a member of the nursing team. One reason for this could be that teachers do not know the personnel of the clinical placements well enough or that they might be too theoretically orientated. This can lead to a situation where all are frustrated and the teacher moves further away from nursing practice, which is an undesirable and unwanted situation because teachers and mentors need each other to facilitate student learning. Methods of cooperation can, of course, change; a teacher does not always need to physically visit medical units because they can use modern mobile or social media applications (see Chap. 10).

Current literature on the issue emphasizes the role of teachers in supporting mentors (Helminen 2017). This is because responsibility for the education of students may be too demanding due to the fact that mentors have to care for patients at the same time as supervising students. Some mentors reported receiving little or no job satisfaction in being a mentor while others like to mentor nursing students. Thus, improving this situation may raise job satisfaction among registered nurses and prevent nurses from leaving the field (Omansky 2010).

The role of teachers in supporting mentors is thus increasingly important. Mentors need both clinical and academic support in their role (Omansky 2010); however, mentors are not always eager to work as mentors and supervise nursing students (Luhanga et al. 2010; Omansky 2010) and may have negative values and beliefs about students (Newton et al. 2012). Furthermore, they do not always have abilities to supervise, teach (Luhanga et al. 2010) and evaluate students (Walsh et al. 2008), nor do mentors always know or understand the curriculum and the evaluation criteria and they can thus feel that they do not have enough pedagogical competence (Omansky 2010). Hence, teachers can support mentors in clinical placements in these critical points.

Mentors like to cooperate with teachers before a clinical practicum and they also always wish to meet the teacher during it and at the beginning of the training period and during the midterm evaluation sessions as well as at the end of the clinical practicum period. Recent studies emphasise the importance of being in the midterm evaluation conversation rather than in the final evaluation of the clinical practicum

period (e.g. Helminen et al. 2016). If everything goes well, mentors do not need teachers' visits or cooperation, but when they have problems related to students, then mentors want to discuss and solve the problems with the teachers.

Teachers are encouraged to build strong partnerships within the industry in order to establish a trusting relationship that fosters a sense of positivity towards students. Furthermore, students should be encouraged to be prepared for clinical medical work and be able to demonstrate resilience and emotional intelligence. The responsibility for any student's learning is ultimately the student's and this is no different in clinical education (Doyle et al. 2017).

Students value the clinical practicum and the possibilities it offers in the process of growing to become a nurse and a professional. A good clinical learning environment is established through good cooperation between a nursing school (university or university of applied sciences) and clinical staff. It has been concluded that it is important to provide a suitable clinical learning environment at the right time, so that theory and practice can complement each other. The teacher is the educational expert and sets the target for each practice for students and the development of their skills, but the mentor knows the wards on which the students are practising, which is why collaboration between mentors and teachers is necessary for student nurses.

The clinical environment, on the other hand, is very hard to control. There are many stimuli, which makes it hard for students to grasp what is essential. Teachers should therefore prepare students and their mentors in advance for encountering the enormous amount of different stimuli that a clinical environment offers. Teachers must be in charge of the clinical practice because they are the ones ultimately responsible for the learning outcomes of the clinical practicum.

8.4 Good Cooperation Between Teacher and Clinical Staff Promotes Students' Learning

Students value a welcoming workplace where staff and teachers are happy to help and have positive attitudes to a student present on the wards. More than any other factors these ward-based factors appear to have the strongest influence on student satisfaction (Doyle et al. 2017).

"The happy to help" component explained more than half of the variance in the satisfaction rates of the students' perceptions of placement. The most important variable for making students feel welcome was that the staff on the unit were perceived to be happy to help students in their clinical practicum. This finding was unexpected as it is usually said that factors such as the shifts, availability of transport, type of patient or acuity of the unit influenced student satisfaction. In contrast, it has been discovered that a lack of support for students correlates with the unit staff being perceived as having negative attitudes (Lamont et al. 2015).

8.5 Summary and Future Recommendations

There is a lack of strategic management regarding the role of teachers. Also, it is unrealistic to expect teachers to perform the teaching, research, clinical and managerial roles that may be prescribed for them. Furthermore, a lack of strategic management can result in difficulties between academic and clinical practice. The importance of collaboration between mentors and teachers is, however, emphasised.

When considering the increasing demands of twenty-first-century healthcare, there might be a need to create general minimum requirements for teachers or even a common EU directive to dictate a competence qualification for teachers in Europe. Naturally, the needs of different societies and countries and their health and education policies as well as the time dimension set specific requirements. Also, future requirements should be taken into consideration.

Faculty qualifications and core competencies—the competence of teachers—are more important than ever before. Healthcare is complex and the diseases of patients is complicated. Teachers must have up-to-date professional knowledge and high-level pedagogical competence when teaching nursing. They must understand the way new generations live and learn. By analysing the requirements of future healthcare we can understand what the future of nursing education requires. Overall, the cooperation of clinical staff with mentors will be increasingly important in the future. We need to find suitable methods and tools for cooperation as only in this way can we ensure that new nurses have the competencies they require.

References

Barrett D. The clinical role of nurse lecturer: past, present and future. Nurse Educ Today. 2007;27:367–74.

Davis D, Stullenbarger E, Dearman C, Kelley J. Proposed nurse teacher competencies: development and validation of a model. Nurs Outlook. 2005;49:206–11.

Doyle K, Saisbury K, Cleary S, Parkinson L, Vindigni D. Happy to help/happy to be here: identifying components of successful clinical placements for undergraduate nursing students. Nurse Educ Today. 2017;49:27–32.

Helminen K. Nursing students' final assessment in clinical practice. Perceptions of teachers, students and mentors. Doctoral dissertation in health sciences, number 403. Publication of the University of Eastern Finland. 2017. https://www.uef.fi/en/-/asianmukainen-osaamisen-arviointi-sairaanhoitajaopiskelijan-harjoittelun-lopussa-vaatii-opettajan-ja-ohjaajan-tiivista-yhteistyota

Helminen K, Coco K, Johnson M, Turunen H, Tossavainen K. Summative assessment of clinical practice of student nurses: a review of the literature. Int J Nurs Stud. 2016;53:308–19.

Huntly H. Teachers' work: beginning teachers' conceptions of competence. Aust Educ Res. 2008;35(1):125–45.

Lamont S, Brunero S, Woods KP. Satisfaction with clinical placement—the perspective of nursing students from multiple universities. Collegian. 2015;22:125–33.

Lancaster J. The perils and joys of collaborative research. Nurs Outlook. 1985;33:231–3.
Lehna C, Byrne A. An example of a successful collaboration effort between a nurse educator and a hospice clinical nurse specialist/director. J Prof Nurs. 1995;11(39):175–82.
Luhanga FL, Billay D, Grundy Q, Myric F, Yonge O. The one-to-one relationship: is it really key to an effective Preceptorship experience? A review of the literature. Int J Nurs Educ Scholarsh. 2010;7(1):1–15.
Newton JM, Jolly BC, Ockerby CM, Cross WM. Student centredness in clinical learning: the influence of the clinical teacher. J Adv Nurs. 2012;68(10):2331–40.
Omansky G. Staff nurses' experiences as preceptors and mentors: an integrative review. J Nurs Manag. 2010;18(6):697–703.
Saarikoski M, Marrow C, Abreu W, Riklikiene O, Özbicakçi S. Student nurses' experience of supervision and mentorship in clinical practice: a cross-cultural perspective. Nurse Educ Pract. 2007;7(6):407–15.
Saarikoski M, Warne T, Kaila P, Leino-Kilpi H. The role of the nurse teacher in clinical practice: an empirical study of Finnish student nurse experiences. Nurse Educ Today. 2009;29(6):595–600.
Saarikoski M, Kaila P, Lambrinou E, Perez Canaveras RM, Tichelaar E, Tomietto M, Warne T. Students' experiences of cooperation with nurse teacher during their clinical placements: an empirical study in a western European context. Nurse Educ Pract. 2013;13:78–82.
Salminen L, Stolt M, Saarikoski M, Suikkala A, Vaartio H, Leino-Kilpi H. Future challenges for nursing education—European perspective. Nurse Educ Today. 2010;30(3):233–8.
Salminen L, Stolt M, Koskinen S, Leino-Kilpi H. The competence and the cooperation of Finnish nurse teachers. Nurse Educ Today. 2013;33(11):1376–81.
Tarr T. Statistic of clinical practicum. University Hospital of Turku. Education cordinator. Personal communication; 2016.
Walsh CM, Seldomridge LA, Badros KK. Developing a practical evaluation tool for preceptor use. Nurse Educ. 2008;33(3):113–7.
WHO. The core competencies for nurse teachers. Geneva: WHO; 2016.
Williams A, Taylor C. An investigation of nurse teacher's perceptions and experiences of undertaking clinical practice. Nurse Educ Today. 2008;28(8):899–908.

Part III

The CLES Framework: New Perspectives and Areas for Development

How Can Patient Relationships and Patient Experiences Be Better Utilised in Students' Clinical Learning?

9

Arja Suikkala

9.1 Patients Should Be at the Core of Students' Clinical Learning

In the context of healthcare education, actual contacts with patients are crucial in developing the skills that students need in working with patients. The language of patient involvement in healthcare education is, however, confusing and controversial. In the literature, the words *user, service user, client, consumer, people with a certain condition, disease, disability,* and *expert by experience* often replaced the term *patient* in relation to involvement in education. Furthermore, not all of those who have perspectives and experiences valuable to healthcare professionals' learning are indeed patients. Valuable views can be obtained also from people such as specific age groups or ethnic groups, people who are marginalised or disadvantaged, or carers (Spencer et al. 2010; Towle et al. 2010). In this chapter, the widely used term *patient* is used to describe people with health problems who are engaged in real contexts of healthcare in students' clinical learning environments, who have expertise and experiences relating to health, illness, or disability, and who are aware of their involvement in students' clinical learning and assessment processes.

All across Europe, patients are becoming increasingly involved, as equal and full partners, in their own health or social care or both of these types of care (Spencer et al. 2010; Dent and Pahor 2015). There is an ethos of partnership that includes patient-centred care, shared decision-making, and promotion of self-care, highlighting the value of the expertise of patients. Such partnerships should form the foundation of healthcare education. They make concrete the advance from traditional paternalistic approaches to modern, enhanced patient involvement and patient-centred approaches which we currently note in pedagogical strategies and clinical

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learning environments that also contribute to the changes to the suggested direction (Le Var 2002; Wykurz and Kelly 2002; Towle et al. 2010).

Traditionally, clinical learning environments have prioritised students' and professionals' concerns. Patient involvement in healthcare education has, however, greatly expanded over the past 20 years. Patients themselves have also campaigned for a voice in health services and professional education. (Lathlean et al. 2006). Patient involvement now extends throughout the educational continuum and across different healthcare professions. Patients assume different roles with various degrees of involvement in the education of healthcare students (Suikkala and Leino-Kilpi 2005; Spencer et al. 2010; Towle et al. 2010). The Cambridge framework developed by Spencer et al. (2000), for example, provides an overview and offers hints for the involvement of patients in clinical education. Tew et al. (2004) describe degrees of patient involvement in the learning and teaching of mental health issues in higher education. There exists, however, limited literature with any emphasis on patients as active participants in students' clinical learning or on patients engaged in the teaching and assessment of students on the basis of their expertise and experiences of health and illness (Suikkala and Leino-Kilpi 2001; Suikkala 2007; Manninen 2014).

Patients are accustomed to the presence of students but historically their role has been passive and their knowledge and experience have been underutilised in clinical learning. The concept of learning from patients has emerged only recently and it has caused a shift in focus: learning has shifted from learning from professionals as role models, or from learning *about* patients, to learning *with* and *from* patients in the relationship between the patient and the student. The patient–student relationship is, however, essentially different from the relationship between the patient and the qualified professional. The relationship between the patient and the student is always one between parties from different worlds, different generations, and different cultures, including the professional culture, the world of lived experience, and often also the presence or absence of a mentor. In the clinical learning environment, the patient's role as a teacher is almost always informal, and it is complicated by the fact that the patient's primary reason for being in the place of care is to receive care, not to teach (Suikkala 2007).

The power imbalance is challenged through the attention to patients' views and experiences when patients are involved in students' learning, collaboratively contributing to clinical teaching. Students' actual contacts with patients, who are experts in their own illness and have an insight into the sharing of the human experience of healthcare, are seen as feasible, beneficial, and pivotal in developing the skills that students need in working with patients. Patient expertise is derived from each patient's unique experience of his or her illness, disability, or the effects of the social determinants of health. Patient involvement occurs when students learn from, through, and with the patients in clinical settings. In addition, through teaching students about their experiences, patients help students develop the skills needed for shared decision-making and empathic and caring relationships. It is evident that through this type of educational experience, students benefit from patients' experience and expertise. They adopt core competencies to provide care in partnership with patients, putting the patients' experience, perspective, and priorities at the

centre and contributing to the high quality of healthcare (Le Var 2002; Morgan and Jones 2009).

In the existing CLES framework, the patients' perspective is almost completely lacking. Contacts with patients are, however, considered by students to be the core component of high-quality healthcare and students emphasise the positive nature of their encounters with even unprepared patients. Real patients as experts of their own situation have valuable perspectives with which to enrich and facilitate students' clinical learning and assessment (Wykurz and Kelly 2002; Repper and Breeze 2006; Suikkala 2007). Patients usually provide a safe learning environment in which students feel less pressured to 'perform' because in a patient–student situation there is a reduced power differential compared to a student–mentor situation. Thus, caring relationships between patients and students add a barely explored perspective to the CLES framework, one that has much more potential than is currently being realised.

9.2 Preconditions for Patient Involvement

Patients generally appreciate their involvement in the students' learning process. They are willing to help improve the training of future health professionals and thereby also help improve services (Repper and Breeze 2006). When students manage to create a good atmosphere and positive patient–student encounters, patients participate quite actively and support students' learning (Suikkala 2007; Manninen 2014). Patients emphasise students' interaction with them, especially the caring qualities of students, such as the right kind of personality or attitude for the job, over and above education, knowledge level, or competence (Morgan and Sanggaran 1997; Mossop and Wilkinson 2006). Further conditions for beneficial patient–student relationships include sufficiently long clinical placements and sustained interaction with the same patients. As clinical learning environments often cause students to experience stress and anxiety in their relationships with patients, students need to be supported and given opportunities for dialogue with their mentors, teachers, and peer students (Suikkala and Leino-Kilpi 2005; Koh 2012). A student highlights the importance of mentors' guidance and emotional support: *"As a student, my experience in a good patient–nurse relationship has been related to how much my current mentor gives me responsibility and freedom to provide holistic patient care. The further we progress in studies, the more we gain confidence and get encouragement and feedback about our actions and we dare and want to seek even more contacts with patients. I still highlight the importance of a good mentor and receiving feedback. A mentor with good interpersonal skills is an excellent role model and encourages one to develop one's own patient–caregiver relationship"*.

In general, patients usually are strongly in favour of taking part in students' clinical learning. Some patients are, however, reluctant and would object if they only knew how to do so or had the opportunity to do so. The reasons for their reluctance are usually based on students' young age, gender, personality or behaviour, or possibly cultural reasons or the intimacy of care. Because patients are concerned about matters of consent and confidentiality especially when their own consent is

requested, it is the mentor's responsibility to make sure that a patient's consent to the presence and involvement of students in his or her care is requested in a way that allows the patient to say either yes or no (Suikkala et al. 2009). It is paramount that every patient's right to self-determination is respected. Consent should be requested in advance by the mentor in a situation in which the student concerned is not present, as well as before every subsequent care situation if there is even a slight possibility that student involvement may cause any additional burden to the patient. Patients' informed consent should be requested in a way that ensures that patients have a clear understanding about their role and their rights and the various aspects of confidentiality. They should also clearly understand what students are allowed to do and how the mentor will guarantee patient safety in all circumstances (Repper and Breeze 2006; Suikkala 2007; Jha et al. 2009).

Students benefit if mentors and teachers regard the clinical ward as a context for the promotion of patient-centred learning, not as a showroom for maximum performance in the delivery of daily care routines. This view of the clinical ward enables the students to develop relationships with patients. They have enough time for acquiring hands-on experience and for learning without the pressures of ward routines or the constant assessment of their performance. The clinical staffs' high esteem of their field and the way the staff value their own performance as positive role-models help the students understand that the caretaker–patient relationship is the core substance in this field as well as one of their key challenges. This understanding helps students juxtapose the theoretical elements of their studies and the practice (Suikkala and Leino-Kilpi 2005; Manninen 2014; Suikkala et al. 2016). The extent of patient involvement depends, to a significant extent, on the pedagogical activities that take place in the mutual relationships between patients, students, and mentors. In clinical learning, in which students learn from and with patients and in which patients are considered experts by experience, it is important to enhance the patients' autonomous and authentic voice with the mentors acting as facilitators. This means that the patients are a part of the educational team and that the clinical learning environment is required to support both the learning process and the caring process (Suikkala 2007; Manninen 2014; Eskilsson et al. 2015).

9.3 Patient–Student Relationships in Clinical Learning Environments

The patient–health professional relationship has been described and studied in several theories and frameworks (e.g. Peplau 1988; Emanuel and Emanuel 1992; Leino-Kilpi 1990). However, the patient–healthcare student relationship is essentially different from that between a patient and a qualified professional. Even though students take care of their own patients and patients provide the reality of practice for students, it is mentors who are responsible for both patient safety and students' learning (Suikkala et al. 2009; Manninen 2014). Contacts with patients are considered by students to be the most important health care function and the relationship between a student and a patient is seen as an important part of meaningful learning

(Suikkala 2007). The idea of learning from patients has now emerged and spread, shifting the focus of learning from professionals as role models to patients, calling patients to adopt more active roles in healthcare education. Progress is being made towards patient-centred learning and increased involvement of patients. The extent to which patients are involved is, however, variable. The continuum of patient involvement ranges from activities that are completely patient led to those in which patients are merely passive participants (Suikkala 2007; Towle et al. 2010; Manninen et al. 2014). A study into the patient–student relationship revealed, in an ascending order of involvement, *mechanistic*, *authoritative*, and *facilitative* relationships (Suikkala 2007). The main features of these relationships and the roles of patients and students in them, including selected extracts from patients' and students' interviews, are described per type of relationship in Table 9.1 and the more detailed characterisations below it.

A *mechanistic* relationship is externally directed by daily routines and mentors' directions, focusing on the students' needs to acquire knowledge and learn technical skills. Students and patients do not know each other and there is no interaction, or cursory interaction only, between them. In a mechanistic relationship, students are passive observers who listen to mentors' explanations and regard mentors as role models, or they are active trainees in technical skills and concentrate on performing

Table 9.1 Patient–student relationship

Types of relationship			
Characteristics of relationship	Mechanistic (MR)	Authoritative (AR)	Facilitative (FR)
Main features of the relationship	Focus on student's learning	Student's assumptions about what is best for patient	Common good of both student and patient
	Directed externally according to daily routines Do not know each other Perfunctory interaction	Directed by student's perceptions of patient needs and care methods Know each other superficially Talking centred on care issues and some chatting	Directed by patient's expectations and requirements of care Know each other personally Open and confidential interaction
Activities and actors in the relationship			
Student	Observes role models and follows mentor's advice Practises technical skills by performing tasks	Plans and provides care and patient education Activates patient	Attentive to patient's wishes and needs and acts according to them Supports patient's use of own resources
Patient	Observes student's actions as an outsider	Expresses no opinions concerning care Participates in care by asking for help or advice	Directs own care as concerns own health and care Contributes to student's learning

single tasks or sets of tasks. Patients are passive objects in the role of outsiders, quietly observing students' actions and benefiting from them (Suikkala 2007). *"Of course the relationship changes in the presence of the mentor. If the patient is aware of the fact that one of us is a nurse and the other one is a student, of course, the nurse is the expert and the student, just performs a single task, and the communication takes place between the nurse and the student"*.

In *authoritative* relationships, students focus on what they assume is in the best interest of their patients, planning and providing care and patient education. Students and patients know each other superficially and the interaction, initiated by either party, is mainly related to patients' needs, care, and instruction even though there also are characteristics of informal conversation. Students are seen as possessing the expertise needed to help patients satisfy their needs, whereas patients are seen to prefer to simply accept the help and advice offered rather than to express their opinions concerning care (Suikkala 2007). *"I've been able to take care of a familiar patient almost alone. I have been able to do things at my own pace and in my own way"*.

A *facilitative* relationship is characterised by mutuality and a focus on the common good of students and patients. Students and patients know each other personally and the relationship is based on a genuine interest in the other. Students are attentive with regard to patients' preferences, life circumstances, needs, and concerns. Through consideration and responding to their patients, students learn about how to best provide care and support to their individual patients. *"I have had a good relationship with a student, and she has helped me in difficult situations, if there was a chance. During a severe illness, we experienced moments of fun"*. Patients as experts in their own well-being have an active and responsible role in their care and decision-making insofar as their personal resources allow. As a learning resource, patients contribute to students' learning by advising students on issues related to illness and care and giving them positive and encouraging feedback (Suikkala 2007). *"Well, I do things together with the patient and she says it's okay if you cannot do it, now I'll show you. Then she showed me and said that, you will do it next time and at that time I knew how. It was very nice that it was the patient who said that I will show you how to do this. And then you can do it"*.

As the previous description of a patient–student relationship reveals, in clinical learning environments and in view of students' growing clinical and communications skills, patients can have both educational and assessment-related roles which bring the patients' voice into clinical learning (Jha et al. 2009). Especially patients with a high level of education and patients who have a chronic physical or mental health illness in a stable state and, respectively, extensive experience of healthcare are likely to have the interest, the capacity, and the expertise to become active participants. Such patients, in particular, are ready to share their knowledge of and expertise in their illness and care with students (Howe 2006; Suikkala et al. 2009). Diabetic patients, for example, who are typically responsible for monitoring their own well-being themselves tend to be ready to share their experiences with students and to give them feedback. In the limited amount of research that includes the patients' perspective on what should be taught and what skills future healthcare

professionals should have, the emphasis has been, consistently, on the humanistic and interpersonal components of caring rather than on the clinical or technical competences (Suikkala and Leino-Kilpi 2001; Repper and Breeze 2006; Suikkala 2007). As experts, patients should be involved in teaching about their health condition and its impact on their lifestyle, their psychological and personal well-being, and socio-economic status, and how to best deal with different situations (Jha et al. 2009; Suikkala et al. 2009).

In clinical learning environments, both patients and students agree that patients have a role in providing feedback about students' learning. Feedback from patients is rewarding to students. Patients' feedback about students' performance might, however, reflect their contradictory attitudes, as patients easily consider students as healthcare professionals with power over patients; that is, they perceive an authoritative relationship as described previously, but at the same time, they place themselves in a position of power as assessors (Suikkala and Leino-Kilpi 2005; Happell et al. 2014). Patients assess students' performance and give them direct or indirect feedback, although they usually are reluctant to give critical feedback. Some students, for their part, question the validity of patient feedback considering it inaccurate and too general, therefore not contributing substantially to their learning (Morgan and Sanggaran 1997; Suikkala and Leino-Kilpi 2001; Happell et al. 2014).

9.4 Benefits to Students' Learning

There is some evidence in literature that patients, in their capacity as experts in their own situations, have had a lasting impact on healthcare education in several areas of students' learning. As an educational concept, the patient–student relationship helps students integrate their academic learning in a real-life context and thus improve the quality of their clinical learning. Some studies have shown that students who hear about personal experiences directly from patients themselves may profess improved proficiency in skills and theoretical and practical knowledge about diseases and health conditions as well as increased sensitivity in encounters with patients who have a range of biopsychosocial needs and care needs (Wykurz and Kelly 2002; Repper and Breeze 2006; Jha et al. 2009).

Students benefit the most from sustained relationships with patients. They perceive sustained relationships as relevant, because these relationships enhance their understanding of patient perspectives and teach them empathic understanding and communication and co-operation skills (Suikkala and Leino-Kilpi 2005; Jha et al. 2009; Towle and Godolphin 2015). The provision of care in relationships with patients helps students gain new insights into and an improved understanding of patients' needs, and enhances students' positive and patient-centred attitudes. The provision of care also gives students insights into how health services could be improved (Wykurz and Kelly 2002; Towle et al. 2010; Towle and Godolphin 2015). Through their relationships with patients, students learn to facilitate patients' choices regarding their care and learn to act as patients' advocates (Suikkala and Leino-Kilpi 2005). As students learn equality they resort to less interpersonal

distancing and start using less professional terminology and jargon in their interactions with patients (Le Var 2002).

The involvement of patients in students' learning and assessment in facilitative relationships, as described above, enables students to learn in safe learning environments in which they feel less pressured to perform. The pressure on them is weaker because the power difference in a patient–student relationship is reduced compared to a mentor–student relationship (Suikkala and Leino-Kilpi 2005; Jha et al. 2009). Learning clinical skills from patients reduces students' anxiety and increases their confidence and retention of learning, and also reinforces their motivation to pursue a career in healthcare (Wykurz and Kelly 2002; Suikkala 2007; Towle et al. 2010). Learning from patients provides students with immediate patient feedback regarding their performance in helping patients with their needs. Students also learn whether they are considered kind, full of human warmth, and empathetic towards patients. According to literature, students' interpersonal skills and empathic understanding are features that patients prioritise (Suikkala and Leino-Kilpi 2001; Repper and Breeze 2006). Thus, patient feedback is advantageous whether students work on their own or together with a mentor (Suikkala 2007).

9.5 Challenges and Opportunities

Real patients as experts in their own situations have valuable perspectives with which to enrich health care students' clinical learning and assessment, but their active involvement is still not well established in everyday clinical practice. The unthinking routine delivery of care, task orientation, and daily workload pressures easily leave little opportunity for interaction with patients. This results in undesirable real-life experiences for students—experiences that are in a direct opposition to idealistic views about individualised care (Suikkala 2007; Koh 2012; Suikkala et al. 2016). Because mentors are often involved as a third, more or less active party in the collaboration of patients and students, the patient–student relationship can easily become a one-way relationship in which patients are passive and let students perform single tasks or sets of tasks without engaging in any dialogue with students (Suikkala and Leino-Kilpi 2005; Manninen et al. 2014). In addition, some mentors may remain unconvinced about the benefits of patient involvement. They may worry that patient involvement would threaten their own role as teachers and that patients may advocate something that would compromise the mentors' professional accountability (Repper and Breeze 2006).

Students usually prefer to care for patients who are communicative, comply happily with the role of a patient, and respond positively to students' presence and help, and who thereby show their willingness to establish a relationship with the student. Although excellent interpersonal and communication skills may be important for students' learning, these preferences may lead to the exclusion of patients who do not possess these qualities but may nevertheless be willing to act as experts of experience and to support clinical learning. These preferences may also exclude other patients who would need to be given a voice in education, such

as elderly patients, patients belonging to ethnic or linguistic minorities, and patients with a low level of education. Patients with new acute conditions and young people may be interested and may have the capacity but not yet the expertise to be involved in the clinical learning of students or to comment on the behaviour of students (Howe 2006). On the other hand, the experience of caring for and interacting with vulnerable patients such as acutely or seriously ill patients or patients with an impaired consciousness level, memory disorder or mental disorder, or decreased functional ability often causes students to have feelings of uncertainty. Such experiences can be emotionally distressing, especially if the situation is new to the student and the patient's state of health deteriorates. In these situations, students may feel unprepared for the situation and unsure about what to say to the patient. Students may even adopt avoidance behaviours in order to cope with the situation. For instance, they may perform unnecessary duties to limit the amount of time they must spend with the patient, or withdraw from the situation or otherwise maintain their distance in order to reduce their anxiety levels in the face of the unknown (Suikkala and Leino-Kilpi 2001; Suikkala 2007; Towle et al. 2010). Community settings allow students to observe their patients in a broader social context and to interact with them in order to learn about a variety of chronic conditions in the wider community context (Suikkala and Leino-Kilpi 2001). Even there, sometimes, a patient's role is simply to allow himself or herself to be interviewed by a student who then translates the patient's story into a life history (Suikkala et al. 2016).

In clinical education, greater emphasis should be placed on creating learning content and learning activities that guide students from task orientation towards a deeper understanding of their patients. This would facilitate the development of students' conceptualisation of health care as responsive to the individual wishes and needs expressed by patients. Therefore, not only mentors but also entire staff, when acting in a patient-centred mode, serve as positive role models for students and contribute to good patient–student relationships (Suikkala 2007; Happell et al. 2014). Healthcare teachers, for their part, should be familiar with clinical environments and offer their pedagogical expertise to students and clinical teams in order to support students' orientation towards collaborative relationships with patients (Suikkala et al. 2016).

Patients are the core of healthcare education and they provide the reality of practice for students. There is a growing need to develop clinical learning environments with the purpose of supporting the learning process as well as the caring process. These environments should inspire the supervision of students with the patient in focus (Manninen et al. 2014; Eskilsson et al. 2015; Suikkala et al. 2016). Many studies support the view that the patient perspective could enrich the existing CLES framework. In the future, items describing the facilitative relationship that emphasises the patient-centred approach could be added to the framework as a new subdimension (Suikkala 2007). Giving the patient dimension a role, the CLES+T evaluation scale could offer a more comprehensive understanding of the clinical learning environment. In addition, it could contribute to patients' active roles as experts of experience in students' learning and assessment processes.

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References

Dent M, Pahor M. Patient involvement in Europe - a comparative framework. J Health Organ Manag. 2015;29(5):546–55. doi:10.1108/JHOM-05-2015-0078

Emanuel EJ, Emanuel LL. Four models of the physician-patient relationship. JAMA. 1992;267:2221–6.

Eskilsson C, Carlsson G, Ekebergh M, Hörberg U. The experiences of patients receiving care from nursing students at a Dedicated Education Unit: a phenomenological study. Nurse Educ Pract. 2015;15(5):353–8.

Happell B, Byrne L, McAllister M, Lampshire D, Roper C, Gaskin CJ, Martin G, Wynaden D, McKenna B, Lakeman R, Platania-Phung C, Hamer H. Consumer involvement in the tertiary-level education of mental health professionals. A systematic review. Int J Ment Health Nurs. 2014;23(1):3–16.

Howe A. Can the patient be on our team? An operational approach to patient involvement in inter-professional approaches to safe care. J Interprof Care. 2006;20(5):527–34.

Jha V, Quinton ND, Bekker HL, Roberts TE. Strategies and interventions for the involvement of real patients in medical education: a systematic review. Med Educ. 2009;43(1):10–20.

Koh LC. Student attitudes and educational support in caring for older people—a review of literature. Nurse Educ Pract. 2012;12(1):16e20. doi:10.1016/j.nepr.2011.04.007.

Lathlean J, Burgess A, Coldham T, Gibson C, Herbert L, Levett-Jones T, Simons L, Tee S. Experiences of service user and carer participation in health care education. Nurse Educ Today. 2006;26(8):732–7.

Le Var RMH. Patient involvement in education for enhanced quality of care. Int Nurs Rev. 2002;49(4):219–25.

Leino-Kilpi H. Good nursing care. On what basis? Annales Universitatis Turkuensis, D 49. Turku: University of Turku; 1990.

Manninen K. Experiencing authenticity: the core of student learning in clinical practice [Thesis for Doctoral Degree]. Stockholm: Karolinska Institutet; 2014. https://openarchive.ki.se/xmlui/handle/10616/41988. Accessed 17 March 2017.

Manninen K, Henriksson EW, Scheja M, Silén C. Patients' approaches to students' learning at a clinical education ward—an ethnographic study. BMC Med Educ. 2014;14:131. doi:10.1186/1472-6920-14-131.

Morgan A, Jones D. Perceptions of service user and carer involvement in healthcare education and impact on students' knowledge and practice: a literature review. Med Teach. 2009;31(2):82–95.

Morgan S, Sanggaran R. Client-centred approach to student nurse education in mental health practicum: An inquiry. J Psychiatr Ment Health Nurs. 1997;4:423–34.

Mossop M, Wilkinson T. Nursing education in gerontological clinical settings: what do elderly patients think of student-rendered care? J Gerontol Nurs. 2006;32(6):49e55.

Peplau HE. Interpersonal relations in nursing. London: The MacMillan; 1988.

Repper J, Breeze J. User and carer involvement in the training and education of health professionals. A review of the literature. Int J Nurs Stud. 2006;44(3):511–9.

Spencer J, Blackmore D, Heard S, McCrorie P, McHaffie D, Scherpbier A, Gupta TS, Singh K, Southgate L. Patient-oriented learning: a review of the role of the patient in the education of medical students. Med Educ. 2000;34:851–7.

Spencer J, Godolphin W, Karpenko N, Towle A. Can patients be teachers? Involving patients and service users in healthcare professionals' education. A report of The Health Foundation London, UK. 2010. http://www.health.org.uk/sites/health/files/CanPatientsBeTeachers.pdf. Accessed 5 Jan 2017.

Suikkala A. Nursing student-patient relationship and associated factors. Annales Universitatis Turkuensis D 788. Turku: University of Turku; 2007. http://urn.fi/URN. Accessed 17 Dec 2016. ISBN:978-951-29-3463-8.

Suikkala A, Leino-Kilpi H. Nursing student-patient relationship: a review of the literature from 1984 to 1998. J Adv Nurs. 2001;33(1):42–50.

Suikkala A, Leino-Kilpi H. Nursing student-patient relationship: experiences of students and patients themselves. Nurse Educ Today. 2005;25(5):344–54.

Suikkala A, Leino-Kilpi H, Katajisto J. Factors related to the nursing student–patient relationship: the patients' perspective. Scand J Caring Sci. 2009;23(4):625–34.

Suikkala A, Kivelä E, Käyhkö P. Collaborative learning in gerontological clinical settings: the students' perspective. Nurse Educ Pract. 2016;17:229–34. doi:10.1016/j.nepr.2016.02.006. Accessed 5 Jan 2017.

Tew J, Gell C, Foster S. Learning from experience. Involving service users and carers in mental health education and training. Mental Health in Higher Education. National Institute for Mental Health in England. 2004. http://www.swapbox.ac.uk/692/1/learning-from-experience-whole-guide.pdf. Accessed 17 Dec 2016.

Towle A, Godolphin W. Patients as teachers: promoting their authentic and autonomous voices. Clin Teach. 2015;12:149–54.

Towle A, Bainbridge L, Godolphin W, Katz A, Kline C, Lown B, Madularu I, Solomon P, Thistlethwaite J. Active patient involvement in the education of health professionals. Med Educ. 2010;44(1):64–74.

Wykurz G, Kelly D. Developing the role of patients as teachers: literature review. BMJ. 2002;325:818–21.

New Ways and Environments for Using the CLES Framework

10

Kristina Mikkonen and Olga Riklikiene

10.1 Healthcare and Medical Students

In order to ensure the quality of the clinical learning environment and supervision of healthcare students, Clinical Learning Environment and Supervision (CLES) scale has been used and validated for various professional contexts. Three examples of original studies examining the use of the CLES scale include nursing students (Bos et al. 2012) and medical students (Öhman et al. 2016) in primary healthcare in Sweden, and midwifery students in primary and specialized healthcare in Lithuania (Kontrimaite 2017).

10.1.1 Example from Sweden: Nursing Students in Primary Healthcare

The investigation examined nursing and medical students' perspectives on the clinical learning environment in primary healthcare settings in Sweden (Bos 2014; Öhman et al. 2016). Students' perceptions on primary healthcare as a learning environment were measured using the CLES+T scale on nursing students (Bos et al. 2012) and CLES scale on medical students (Öhman et al. 2016). The purpose was to identify factors that promote a constructive clinical learning environment in primary healthcare settings. This was the first time the scale was used and validated in a new learning environment. Table 10.1 presents the newly validated CLES+T scale for nursing students for primary healthcare settings.

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Table 10.1 CLES+T scale for nursing students and CLES scale for medical students in primary healthcare

CLES+T scale (34 items) for nursing students (n = 356) in primary healthcare (Bos et al. 2012)	Cronbach's alpha	CLES scale (25 items) for medical students (n = 394) in primary healthcare (Öhman et al. 2016)	Cronbach's alpha
Factor 1—Supervisory relationship	0.92	Factor 1—Supervisory relationship	0.91
Factor 2—Pedagogical atmosphere	0.93	Factor 2—Pedagogical atmosphere at the PHC center	0.92
Factor 3—Role of nurse teacher	0.95	Factor 3—Leadership style of the manager of the PHC center	0.95
Factor 4—Leadership style	0.95	Factor 4—Premises of patients	0.95
Factor 5—Premises of nursing	0.94		

The evaluation of CLES+T scale in the Swedish version (Johansson et al. 2010) for nursing students at primary healthcare demonstrated the scale as adequately relevant after the face and content validity analysis was performed by an expert panel of seven district nurses (Bos et al. 2012). The original items of the CLES+T scale (Saarikoski et al. 2008) were not modified for primary healthcare in the study. The experts evaluated each item in the CLES+T scale for their relevance in the Swedish primary healthcare context and for comprehensibility regarding all items. Construct validity with a confirmatory factor analysis was tested after data collection in a survey with 356 undergraduate nursing students (Bos et al. 2012). The CLES+T scale comprised of a five-factor model with 34 items. The results of the confirmatory factor analysis indicated that *supervisory relationship* was the most important factor. *Supervisory relationship* correlated strongly with *pedagogical atmosphere* and *premises of nursing*, moderately with the *leadership style of ward manager* and marginally with the *role of the nurse teacher*. The results confirmed good internal reliability of the CLES+T scale in investigating students' perceptions of the clinical learning environment and supervision in primary healthcare (Bos et al. 2012; Bos 2014).

The study highlighted that while different clinical settings make different demands on nursing students, each unique feature of that environment should be taken into account when designing learning programs and educational strategies. Moreover, it was evident that assessing supportive factors collectively rather than individually generates new information for the effective evaluation of the clinical learning environment of students (Bos et al. 2012).

10.1.2 Example from Sweden: Medical Students in Primary Healthcare

This validation of the CLES scale in its Swedish version (Johansson et al. 2010) was performed for medical students at the primary healthcare. The version was shown to be both adequately relevant and important for the context (Öhman et al. 2016). The

original items of the CLES+T scale (Saarikoski et al. 2008) were modified specifically for primary healthcare. Connected with this, the subdimension *role of nurse teacher* was removed. After the modification of the items of the scale, an expert panel of physicians evaluated face and content validity of the CLES scale. Construct validity with explorative factor analysis was tested in a survey with 394 medical students after the data collection. The CLES scale comprised of a four-factor model with 25 items. The subdimensions of the newly validated CLES scale were further confirmed with a confirmatory factor analysis. Construct validity was established with outcomes closely comparable to the original CLES+T scale (Saarikoski et al. 2008). One item of the original scale loaded on a different subdimension, which was possibly caused by rephrasing of an original item in the study. Reliability and internal consistency of the newly validated CLES for medical students in primary healthcare settings were estimated as high. The scale was shown to be well applicable for measuring the clinical learning environment and supervision of medical students in primary healthcare (Öhman et al. 2016). Table 10.1 presents the newly validated CLES scale for medical students for primary healthcare settings. The results of the study made on the clinical learning environment and supervision of medical students in primary healthcare were not reported (Öhman et al. 2016).

10.1.3 Example from Lithuania: Midwifery Students' Clinical Learning Assessment

The investigation was made on midwifery students' perspectives and their perceptions of the clinical learning environment in primary and specialized healthcare settings in Lithuania (Kontrimaite 2017). The Lithuanian version of the CLES scale, which had been previously validated for nursing students (Riklikiene and Nalivaikiene 2013), was used for midwifery students in the study. The original items of the CLES scale (Saarikoski 2002) were modified by changing the wording from mentor nurse to nurse/midwife. This double position was used due to the organization of clinical training for midwifery students in Lithuania. During different clinical training periods, the students practice in different hospital units, achieving learning outcomes that relate to general nursing practice and midwifery practice. In these situations both nurses and midwives serve as mentors, together with those nurse/midwifery ward managers who participate in organizing clinical training. All available students ($N = 125$) from the midwifery program at the university (55 students) (160 ECTS, 4-year degree program) and in college (70 students) (120 ECTS, 3-year degree program) participated in the survey just after they finished their clinical practicum period in primary or specialized healthcare settings. Reliability and internal consistency of CLES for midwifery students were estimated (see Table 10.2). The value of split half test (Spearman–Brown correlation) was—0.62 (Kontrimaite 2017).

The CLES scale created a possibility to conduct the first ever study in Lithuanian investigating the clinical training of midwifery students. This gave an opportunity to provide helpful information about the quality of clinical learning in the university

Table 10.2 CLES scale for midwifery students in primary and specialized healthcare settings

CLES scale (25 items) for midwifery students in primary and specialized healthcare settings (n = 125) (Kontrimaite 2017)	Cronbach's alpha
Factor 1—Supervisory relationship	0.73
Factor 2—Pedagogical atmosphere	0.65
Factor 3—Leadership style of the manager	0.65
Factor 4—Premises of patients	0.68

hospital and other facilities (maternity, primary healthcare settings). The study revealed that midwifery students who were 22 or older evaluated their relationship with their supervisor during clinical learning as more positive than the younger students. Students at surgical and gynecological wards expressed greater satisfaction with their clinical practicum than students at any other ward. Also, students who were supervised under an individual mentorship model rated their satisfaction with clinical training as higher than those who had no supervisory relationship. Students in the final term of the midwifery program gave higher ratings for their relationship with their mentor compared with first-year students. Similarly, graduates assessed individual supervision and feedback and equality in their supervisory relationship more positively than first-year students. Also, midwifery students in their last study year preferred having a midwife as their mentor to any other healthcare professional at their clinical placement. When evaluating the pedagogical atmosphere on the ward, student midwives in their last study year more often felt comfortable at the start of their shift, during meetings, and when taking part in discussions, and appreciated staff interest in student supervision. Graduates, too, regarded the ward as a good learning environment. However, the results were significantly lower for first-year student midwives (Kontrimaite 2017).

10.2 International Nursing Students

An evaluation of the theoretical framework of the CLES+T scale demonstrated adequate relevance and importance relating to international students (Mikkonen et al. 2017a). With regard to international students' education, five areas in the CLES+T scale, *the content of supervisory relationship*, *pedagogical atmosphere*, *premises of nursing on the ward*, *leadership style of the ward manager*, and *role of the nurse teacher*, were complemented with additional five areas important specifically for them. These specific areas included *cultural diversity in the clinical learning*, *role of the student*, *orientation into the clinical placement*, *culturally diverse pedagogical atmosphere*, and *linguistic diversity in the clinical learning environment* (Mikkonen et al. 2017a).

The scales have been tested for face and content validity, and for construct validity with two explorative factor analyses on the CLES+T scale and the newly created Cultural and Linguistic Diversity scale (CALDs). The tests were made with 231 international students in a cross-sectional study (Mikkonen et al. 2017a). After

psychometric testing, CLES+T scale changed from an original five-factor model into an eight-factor model with 34 items remaining. CALDs comprised of a five-factor model with 21 items. Reliability and internal consistency of the newly validated CLES+T scale and CALDs for international nursing students were estimated as satisfactory. The Cronbach's alpha for each factor varied between 0.77 and 0.97 (Mikkonen et al. 2017a). Table 10.3 presents the newly validated CLES+T scale and CALDs for international nursing.

The newly created CALDs adds subdimensions related to international nursing students' clinical learning environment and supervision to the CLES+T scale. The *cultural and linguistic diversity in the clinical learning environment* adds to the original CLES+T scale, acknowledgment of the international student's cultural and linguistic diversity, and receiving the international student positively by treating them like other students (Mikkonen et al. 2017a). Awareness of the other person's culture includes an acknowledgement of the other person's differing language skills. Skills in the native language were demonstrated as having a strong effect upon the students' success in learning and in feeling welcomed at the clinical practicum. Students with lower language skills perceived the pedagogical atmosphere of the ward as more negative than their peers at a more advanced level. The students with low language skills experienced more discrimination, social isolation, and stress because of their diverse background. This also led them to have to prove their competence to others (Mikkonen et al. 2017b). The learning environment needs to be offered to international students at the same level of quality as for national students, and it needs to include multidimensional and meaningful learning situations.

Table 10.3 CLES+T scale and CALDs for international nursing students

CLES+T scale (34 items) (n = 208) (Mikkonen et al. 2017a)	Cronbach's alpha	CALDs (21-items) (n = 214) (Mikkonen et al. 2017a)	Cronbach's alpha
Factor 1—Content of supervisory relationship	0.97	Factor 1—Cultural diversity in the clinical learning environment	0.85
Factor 2—Pedagogical atmosphere	0.79	Factor 2—Role of the student	0.79
Factor 3—Nursing care on the ward	0.87	Factor 3—Orientation into the clinical placement	0.86
Factor 4—Role of the nurse teacher: cooperation between placement staff and nurse teacher	0.91	Factor 4—Culturally diverse pedagogical atmosphere	0.80
Factor 5—Role of the nurse teacher: nurse teacher as enabling the integration of theory and practice	0.90	Factor 5—Linguistic diversity in the clinical learning environment	0.77
Factor 6—Leadership style of the ward manager	0.84		
Factor 7—Role of the nurse teacher: relationship between student, mentor, and nurse teacher	0.89		
Factor 8—Learning environment	0.87		

Student supervision should be developed by giving pedagogical education on mentoring international students. The education should encompass the essential elements of cultural competence with an emphasis on pedagogical approaches, which facilitate students' learning and growth in professionalism (Mackay et al. 2012; Scheele et al. 2011; Thompson 2012). These elements include planning and guiding the student's learning process, evaluating the learning outcomes, creating a safe environment to learn and to reflect while allowing students to verbalize their learning process and possible questions, and involving students in teamwork and professional decision making.

It has been shown that international students go through major challenges in the beginning of their clinical practicum and they need additional time to orientate into the clinical learning environment of a different culture (Sedgwick et al. 2014). For these reasons the subdimension *orientation into clinical placements* was added in CALDs. Orientation was found to be essential for students in introducing them to the clinical culture, routines, and timetables and to show the students what is expected of them by mentors and clinical staff (Mikkonen et al. 2016a). Orientation is an important aspect of supervision because it relates to the pedagogical approach of introducing students to a new learning environment and guiding the students through their learning process (Mikkonen et al. 2017a).

Due to reducing human resources in academia, the role of a nurse teacher has been limited to visiting the student's clinical practicum (Jokelainen 2013). International students saw the role of the nurse teacher as more essential than native students. Language proficiency of the students had a strong effect upon how essential role the nurse teacher plays in collaboration between the clinical practicum and higher education institutions. Students with low language skills in the native language required significantly more support by their nurse teachers (Mikkonen et al. 2017b). Collaboration between the clinical practicum and higher education institutions has been shown to play an essential role in the student's success in the clinical learning environment (Barnett et al. 2010). One of the responsibilities given to higher education institutions is to prepare international students in the local language so that they are ready to enter their clinical practicum. The mentors need to receive sufficient knowledge about the students' background, curriculum of their degree program, level of the set learning outcomes, evaluation process, and clear guidance on how to deal with challenging situations. The role of the nurse teacher does not have to be limited to visits, but can include integrating versatile pedagogical approaches (reflection diaries, regular feedback) and guidance of students also from distance.

The role of the student was measured in a subdimension of CALDs. The result was that *the role of the student* was essential also for international students' success in learning. The students' perseverance, motivation, and goal orientation have been shown to be an important aspect for success in international students' learning (Mikkonen et al. 2016b). Students' differing cultural backgrounds can lead to wrong interpretations on the basis of mentors' and other staffs' nonverbal communication during the practicum. Culturally diverse behaviors may also be interpreted as a sign

of not being willing to learn and as being unmotivated as students (Thompson 2012). Students need to be introduced to the concept of being active and independent learners with the distinctive meanings of the native country. Mentors would like students to be committed to their work schedules and show initiative in their learning (San Miguel and Rogan 2012). It has been previously emphasized that the students' own initiative in speaking the native language to patients and staff was received positively by their mentors (Koskinen and Tossavainen 2003). Encouraging students to be independent learners, with professional guidance from their mentors, can help international students to adapt to a new cultural reality and gain understanding of healthcare decisions made on the micro and macro levels of their host country.

10.3 Conclusions and Suggestions

The validated instruments presented in the chapter may be implemented and used for improving healthcare and medical students' clinical learning environment and supervision. The validation of the instruments for multi-professional purposes in different learning environments involved minor adjustments of terminology relevant to each field of study. The terminology on clinical learning environments was exchanged from specialized clinical settings into primary healthcare settings. The measurement of the outcomes of medical education did not require to include the subdimension *role of nurse teacher*. All versions of CLES+T and CLES discussed in the chapter presented sufficient validity in the studies. The reliability of CLES scale with midwifery students scored low, possibly because the sample used in the study was small.

Also, the framework of the CLES+T scale was confirmed as important for the clinical learning environment and supervision of international nursing students. However, there were additional aspects, which were missing in the CLES+T scale relating to international students learning' in the clinical environment. The CLES+T scale did not include cultural and linguistic diversity issues, which involve measuring the students' stressful experiences relating to their cultural backgrounds, language barriers relating to their learning outcomes, and their own role and initiative in learning when exposed to diversity and orientation in the clinical environment. An additional CALDs scale including all these aspects was created as a supplementary part to complement the theoretical framework of the CLES+T scale when measuring the outcomes of the international students' clinical learning environment and supervision.

Students require a safe learning environment in order to succeed in their clinical practicum. The collaboration systems between the clinical practicum and higher education institutions need to be improved. The suggested improvements include supporting the students' learning by clear clinical practicum procedures, evaluation systems, sufficient information provided about the students, and sufficient guidance on how to deal with challenging situations. The CLES+T scale was shown to be an excellent instrument which may be used in healthcare and medical

education in order to improve the clinical learning environment and supervision of students. The CLES+T scale, together with CALDs, can further improve international students' learning outcomes in clinical practicum and possibly be integrated into the orientation process of newly employed international staff in clinical environments.

References

Barnett T, Cross M, Shahwan-Akl L, Jacob E. The evaluation of a successful collaborative education model to expand student clinical placements. Nurse Educ Pract. 2010;10:71–21.

Bos E. A good learning environment for nursing students in primary health care [Theses for doctoral degree]. Stockholm, Sweden: Karolinska Institute; 2014.

Bos E, Alinaghizadeh H, Saarikoski M, Kaila P. Validating the 'clinical learning environment, supervision and nurse teacher' CLES+T instrument in primary healthcare settings using confirmatory factor analysis. J Clin Nurs. 2012;21:1785–8.

Johansson U-B, Kaila P, Ahlner-Elmqvist M, Leksell J, Isoaho H, Saarikoski M. Clinical learning environment, supervision and nurse teacher evaluation scale: psychometric evaluation of the Swedish version. J Adv Nurs. 2010;66:2085–93.

Jokelainen M. The elements of effective student nurse mentorship in placement learning environments. Systematic review and Finnish and British mentors' conceptions [Doctoral dissertation in health sciences]. University of Eastern Finland, Publications of the University of Eastern Finland; 2013.

Kontrimaite R. Evaluation of clinical learning and teaching of midwifery students [Bachelor's theses]. Kaunas: Lithuanian University of Health Sciences; 2017.

Koskinen L, Tossavainen K. Relationships with undergraduate nursing exchange students—a tutor perspective. J Adv Nurs. 2003;41(5):499–508.

Mackay B, Harding T, Jurlina L, Scobie N, Khan R. Utilising the Hand Model to promote a culturally safe environment for international nursing students. Nurs Prax N Z. 2012;12(2):120–6.

Mikkonen K, Elo S, Kuivila HM, Tuomikoski AM, Kääriäinen M. Culturally and linguistically diverse healthcare students' experiences of learning in a clinical environment: a systematic review of qualitative studies. Int J Nurs Stud. 2016a;54:173–87.

Mikkonen K, Elo S, Tuomikoski AM, Kääriäinen M. Mentor experiences of international healthcare students' learning in a clinical environment: a systematic review. Nurse Educ Today. 2016b;40:87–94.

Mikkonen K, Elo S, Miettunen J, Saarikoski M, Kääriäinen M. Development and testing of the CALDs and CLES+T scales for international nursing students' clinical learning environments. J Adv Nurs. 2017a; doi: 10.1111/jan.13268.

Mikkonen K, Elo S, Miettunen J, Saarikoski M, Kääriäinen M. Clinical learning environment and supervision of international nursing students: a cross-sectional study. Nurse Educ Today. 2017b;52:73–80.

Öhman E, Alinaghizadeh H, Kaila P, Hult H, Nilsson GH, Salminen H. Adaptation and validation of the instrument Clinical Learning Environment and Supervision for medical students in primary health care. BMC Med Educ. 2016;16:308.

Riklikiene O, Nalivaikiene R. Student nurses' assessment of pedagogical atmosphere on the ward during practical placement at a University Hospital in Lithuania. NERP. 2013;5:182–8.

Saarikoski M. Clinical Learning Environment and Supervision. Development and validation of the CLES evaluation scale [Doctoral dissertation]. Annales Universitatis Turkuensis, University of Turku; 2002.

Saarikoski M, Isoaho H, Warne T, Leino-Kilpi H. The nurse teacher in clinical practice: developing the new sub-dimension to the clinical learning environment and supervision (CLES) scale. Int J Nurs Stud. 2008;45:1233–37.

San Miguel C, Rogan F. Clinical expectations: what facilitators expect from ESL students on clinical placement. Nurse Educ Pract. 2012;12(2):115–9.
Scheele TH, Pruitt R, Johnson A, Xu Y. What do we know about educating Asian ESL nursing students? A literature review. Nurse Educ Pract. 2011;32(4):244.
Sedgwick M, Oosterbroek T, Ponoma V. "It all depends": how minority nursing students experience belonging during clinical experiences. Nurs Educ Perspect. 2014;35(2):89–93.
Thompson CJ. Improving the educational experience for international clinical nurse specialist students, part II. Clin Nurse Spec. 2012;11(12):336–40.

Possibilities of m-Learning and New Technologies in Clinical Teaching

11

Camilla Strandell-Laine and Leena Salminen

11.1 Role of the Clinical Teacher

Broadly speaking, the traditional role of the nurse teacher as a clinical teacher (henceforth teacher) is to cooperate with both students and mentors as a provider of pedagogical support. More specifically, however, the main responsibility of the teacher is to support the clinical learning of students during the clinical practicum. This chapter focuses on this area.

The clinical role of the teacher has been variously described and named. The descriptions used in the international literature include *clinical educator, clinical lecturer, clinical instructor, clinical facilitator, nurse educator, nurse teacher, nurse supervisor, link teacher, and link tutor* (Strandell-Laine et al. 2015). Furthermore, multiple terms are also used on the national level. This variation is understandable if we look at the different ways in which this role is implemented both internationally and domestically (Saarikoski et al. 2013).

On the one hand, in the United States, Canada, Australia, and Taiwan teachers are members of the nursing staff in the clinical practicum ward and typically work together with their students at the bedside. In such cases, student supervision is mainly conducted face-to-face. On the other hand, in many European countries, the teacher increasingly functions within the educational institution; in other words, the teacher's role as a pedagogical supporter in clinical practice has declined in many countries (Saarikoski et al. 2013), including New Zealand. These changes owe their origin more to political and financial pressures than to the pedagogical choices.

In Europe and New Zealand, the teacher typically cooperates at a distance, more in a liaison capacity, directly from the educational institution, and has little or no face-to-face contact with students and mentors. This cooperation is increasingly

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being conducted via e-mail, telephone, or virtual learning environments (Saarikoski et al. 2013). Another reason for the change in how the teachers' clinical role is implemented may be the fact that teachers are no longer allowed to participate as intensively in real patient care as earlier, with the result that, owing to the rapid changes taking place in healthcare environments along with increasingly complex competence demands, they are gradually losing their clinical touch. However, the implementation of student supervision at a distance has not been trouble free. Previous studies have reported that the existing methods of supervision neither meet students' needs nor take advantage of the possibilities offered by the new technologies, despite the fact that mobile technologies have been seen as a possible facilitator of this supervisory process (Saarikoski et al. 2013; O'Connor and Andrews 2015; Strandell-Laine et al. 2015).

11.2 Mobile Technologies in Clinical Teaching

Since the introduction of mobile technologies in the 1990s, their use has rapidly increased in society at large. Mobile devices such as smart phones, tablet computers, and wireless touch-screen readers are nowadays important tools in healthcare units, as these too are undergoing rapid technological changes, i.e., digitalization. Healthcare education is not immune to this process: multiple recent reviews have shown that mobile technologies are increasingly being used in healthcare education in general (Guo et al. 2015; Raman 2015), including in the clinical teaching of healthcare students (O'Connor and Andrews 2015; Strandell-Laine et al. 2015).

Mobile learning (m-learning) in the area of clinical teaching has developed alongside the rapid development in mobile technologies in general. Thus, m-learning via mobile devices is one of the key focal areas in novel educational applications and has the potential to significantly change the whole nursing curriculum and in more detail the clinical teaching. The growing interest in m-learning may relate to the fact that mobile technologies enable wholly new modes of learning and have the potential to support students' learning in new ways. Moreover, the use of mobile technologies responds to the communication needs of today's technology-literate students, millennials for whom mobile technologies are part of everyday technology and daily life. M-learning is variously described in the literature according to what features are in focus; terms used include *mobile technologies, mobility, individualism, ubiquitous, or e-learning*.

A key point in m-learning is that it is at least the student and in many cases also the teacher who are mobile, not the technology. In m-learning, the main focus should be on meaningful interaction between student, teacher, and content. However, in clinical teaching, a variety of learning platforms and mobile applications have been used in the student supervision. In the very early studies on the use of mobile technology in healthcare education, e-portfolios (Garrett and Jackson 2006), reflective journals, discussion forums (Wu and Lai 2009), and SMS text messaging (MacKay and Harding 2009) were prominent in clinical teaching. In the

latest studies, following the smart phone and tablet PC revolution in the 2010s, social networking services, integrating mobile applications for cooperation, positioning and route planning, and posting and sharing different learning materials have been used as learning platforms for students during the clinical practicum (Wu and Sung 2014).

11.3 Advantages of New Technologies in Clinical Learning

In the very early studies on the use of mobile technology in healthcare education, findings on students' views of the advantages of the use of new technologies in nursing education tended to be conflicting (MacKay and Harding 2009). Nevertheless, the most recent review by Strandell-Laine et al. (2015) shows that mobile technologies are positively perceived by students, who have found that they have several advantages. This trend runs parallel with the positive attitudes of healthcare students to information and communication technology (ICT) in general.

Moreover, it is evident, based on the recent reviews, that mobile technologies are useful pedagogical tools in both theoretical teaching (Guo et al. 2015; Raman 2015) and clinical teaching during the clinical practicum (O'Connor and Andrews 2015; Strandell-Laine et al. 2015). Mobile technologies allow students on-the-go flexibility and convenience and both synchronous and asynchronous cooperation with the teacher outside of the frames of time and place during the clinical practicum. Valuable support tools that mobile technologies can offer students during the clinical practicum include the following:

- Cooperation with the teacher (Strandell-Laine et al. 2015)
- Clinical decision making (Johansson et al. 2013)
- Immediate access to relevant information (Johansson et al. 2013), e.g., drug databases
- Information management (Raman 2015), e.g., in checking prescriptions and administering drugs
- Individual learning possibilities (Clay 2011)
- Feelings of confidence in the clinical learning situation (Clay 2011; Johansson et al. 2013; O'Connor and Andrews 2015)

11.4 Challenges Posed by New Technologies in Clinical Learning

The use of mobile technologies during the clinical practicum of students raises various ethical and pedagogical challenges; these are discussed in the sections below.

The laws, policies, and guidelines pertaining to the use of mobile technologies vary across countries and also locally between healthcare organizations and educational institutions. It is important that all these contexts are taken into consideration

when planning to use mobile technologies in the clinical domain, i.e., in the present instance during the clinical practicum of students, who are in direct contact with patients whose rights to privacy must be respected.

Because mobile technologies are connected to the World Wide Web, they allow the rapid and often uncontrolled spread of information. This is a significant risk factor particularly associated with social media use: in March 2017, Facebook was the most popular social networking site with 1.94 billion active users monthly (Kallas 2017). Nevertheless, Facebook has also been seen a potential tool facilitating cooperation between students and teacher as well as a facilitator of peer support between students. It has been argued that conversations in Facebook groups increase student awareness of their learning needs (Morley 2014).

Possible misuse of the following features of mobile technologies on social networking sites, e.g., Facebook, Youtube, Instagram, Twitter, Reddit, Ask.fm, Vine, Tumblr, Flickr, Google+, Linkedin, VK, ClassMates, Meetup, Pinterest, WhatsApp, and Snapchat (Kallas 2017), should be dealt within the students' orientation phase of the clinical practicum:

- Social media updates
- Audio/video recordings (voice and picture)
- Photographs
- Written information

Educational institutions must respond to the challenges presented by m-learning by ensuring that already in the very beginning of their studies, before entering clinical practice, where they meet vulnerable patients, that students have a sufficient level of technology literacy and social media competence. The use of social media must also be considered during the clinical practicum. One practical action is to ask students to sign a legally binding informed consent form on the acceptable use of mobile technology and social media at the beginning of their degree studies.

Mobile technologies and m-learning are constantly proliferating, imposing new technology competence demands on teachers and students alike. Nevertheless, students have reported positive attitudes to the application of m-learning and mainly show good readiness for this. Among nurse teachers, however, the situation is more complicated, as they perceive several barriers to the use of mobile technologies; these barriers listed below, are, however, solvable:

- Lack of training and experience in the use of mobile technologies (Tuominen et al. 2014)
- Lack of mobile technology skills in comparison with different generations of students (Fleming et al. 2011)
- Lack of understanding about the use of mobile technology for professional purposes (May et al. 2013)
- Lack of knowledge on how to evaluate the pedagogical usability of digital learning material (Duncan et al. 2013)

Competence and commitment to the use of mobile technologies among teachers and students are of paramount importance in education as it is in working life. Therefore, alongside its use, training and up-to-date technological support for mobile technology is also needed both for students and teachers to ensure the full use of these technologies (Strandell-Laine et al. 2015). Furthermore, different mobile applications require different skills from teachers, both technological and pedagogical (Tuominen et al. 2014). This, however, raises the issue of a need for noneducational staff with technical competences (Strandell-Laine et al. 2015). Moreover, teachers should also be offered possibilities for further education in the utilization of mobile technologies and their more effective integration into their clinical teaching to ensure that teachers maintain their level of technology literacy with respect to their pedagogical competences. Furthermore, it is recommended that teachers accept, and support, safe online interaction that promotes the trustworthiness, authenticity, and credibility of information and the safeguarding of data that are private and confidential.

11.5 Blogging as a Cooperation Tool During the Clinical Learning

While the use of mobile technologies has increased in clinical practicums (Mather et al. 2013), blogging has been found to be a good tool for mutual cooperation between students (Ross and Myers 2017). It has been found that blogging encourages students to use self-reflection as well as develop their nursing skills. In addition, blogging is believed to help cooperation between teachers and mentors. Teachers, students, and mentors can use blogs to discuss students' learning experiences and problems that emerge during the clinical practicum (Ross and Myers 2017).

In a recent study by Karapuu et al. (2016), mentors wrote a blog with both teachers and students on issues related to the practicum and noticed that after the blogging it was easier to prepare for the midterm evaluations. Interestingly, however, preparation for the final evaluation was no easier after blogging. Maybe this was because the final evaluation is much wider and is based on demanding evaluation criteria. Also, as the mentors received no advice from the teacher via blogging, the final evaluation situation was considered more difficult than the midterm evaluation. Some mentors did not see blog writing as a convenient tool during a student's clinical practicum. In fact, they were quite critical of blogging—perhaps seeing it as time consuming and, even with adequate instructions, they may still have perceived a lack of clarity about what they were supposed to write for the blog. The workload may also have been too heavy, especially if they had more than one student to mentor at a time.

In some other studies, blog writing has been seen as a positive and useful tool for communication (Lin et al. 2013), although in these studies the data were collected from students not from mentors. Moreover, Myrick et al. (2012) found that mentors regarded blogging as a good tool for cooperation with other mentors during training

courses for instructors. In other words, mobile technologies have helped to create new forms of cooperation among mentors and programs for work environments that can help nurses to be better mentors of students. It has also been found that mentors in different healthcare environments have expressed the wish to cooperate and develop stronger partnerships with each other, making it desirable that the leader of a ward encourages mentors to freely use different digital communication tools to cooperate (Mather et al. 2013).

11.6 Emerging Technologies in Future Supervision and Clinical Learning

It is extremely difficult to predict the features of future mobile technologies. It is evident, however, that the educational and political decisions made concerning the use of mobile technology in healthcare education will fundamentally influence the character of future m-learning in the field. In the near future, it is likely that the supervision of healthcare students will increasingly be conducted with the help of application such as OmniTouch, as well as technologies such as artificial intelligence, augmented reality, virtual reality, and big data. Such innovations will make it possible, among other things, to start keeping track of students' personal data in a whole new way. Nevertheless, the implications for healthcare education of the currently emerging technologies remain largely unknown.

The existing, and especially the still unknown, features of the emerging technologies may revolutionize the supervision, and also the clinical learning, of students by generating student data on the individual level, something that has not thus far been possible in the supervision process. The extent to which healthcare education can take advantage of these emerging technologies and the digitalization of society as a whole depends on having an innovative imagination, daring to take a leap in the dark, and, by harnessing the enormous potential of the emerging technologies, building even more effective cooperation between educational institutions and other disciplines.

References

Clay C. Exploring the use of mobile technologies for the acquisition of clinical skills. Nurs Educ Today. 2011;31(6):582–6.

Duncan I, Yarwood-Ross L, Haigh C. YouTube as a source of clinical skills education. Nurse Educ Today. 2013;33(12):1576–80.

Fleming S, McKee G, Huntley-Moore S. Undergraduate nursing students' learning styles: a longitudinal study. Nurse Educ Today. 2011;31(5):444–9.

Garrett BM, Jackson C. A mobile clinical e-portfolio for nursing and medical students, using wireless personal digital assistants (PDAs). Nurse Educ Today. 2006;26(8):647–54.

Guo P, Watts K, Wharrad H. An integrative review of the impact of mobile technologies used by healthcare professionals to support education and practice. Nurs Open. 2015;3(2):66–78.

Johansson PE, Petersson GI, Nilsson GC. Nursing students' experience of using a personal digital assistant (PDA) in clinical practice—an intervention study. Nurse Educ Today. 2013;33(10):1246–51.

Kallas P. Top 15 Most Popular Social Networking Sites (and 10 Apps!). 2017. https://www.dreamgrow.com/top-15-most-popular-social-networking-sites/. Accessed 1 June 2017.

Karapuu A-M, Gustafsson M-L, Kanerva A-M, Hannula E, Salminen L. Blogistako opettajan ja ohjaajan yhteydenpidon väline. Pro Terveys. 2016;42(4):16–17. [Can blogging be the new co-operation tool between nurse teacher and mentor] (original Finnish).

Lin KY, Shen YF. The nursing students' attitude toward using blogs in a nursing clinical practicum in Taiwan: A 3-R framework. Nurs Educ Today. 2013;33(9):1079–82.

MacKay B, Harding T. M-support: keeping in touch on placement in primary health care settings. Nurs Prax N Z. 2009;25(2):30–40.

Mather C, Marlow A, Cummings E. Digital communication to support clinical supervision: considering the human factors. Stud Health Technol Inform. 2013;194(13):160–5.

May OW, Wedgeworth MG, Bigham AB. Technology in nursing education: YouTube as a teaching strategy. J Pediatr Nurs. 2013;28(4):408–10.

Morley DA. Supporting student nurses in practice with additional communication tools. Nurse Educ Pract. 2014;14(1):69–75.

Myrick F, Caplan W, Smitten J, Rusk K. Preceptor/mentor education: A world of possibilities through e-learning technology. Nurs Educ Today. 2011;31(3):263–7.

O'Connor S, Andrews T. Mobile technology and its use in clinical nursing education: a literature review. J Nurs Educ. 2015;54(3):137–44.

Raman J. Mobile technology in nursing education: where do we go from here? A review of the literature. Nurse Educ Today. 2015;35(5):663–72.

Ross JG, Myers SM. The Current Use of Social Media in Undergraduate Nursing Education: A Review of the Literature. Comput Inform Nurs. 2017; doi: 10.1097/CIN.0000000000000342.

Saarikoski M, Kaila P, Lambrinou E, Pérez Cañaveras RM, Tichelaar E, Tomietto M, Warne T. Students' experiences of cooperation with nurse teacher during their clinical placements: an empirical study in a Western European context. Nurse Educ Pract. 2013;13(2):78–82.

Strandell-Laine C, Stolt M, Leino-Kilpi H, Saarikoski M. Use of mobile devices in nursing student–nurse teacher cooperation during the clinical practicum: an integrative review. Nurse Educ Today. 2015;35(3):493–9.

Tuominen R, Stolt M, Salminen L. Social media in nursing education—the view of the students. Educ Res Int. 2014;2014:6. doi:10.1155/2014/929245.

Wu C-C, Lai C-Y. Wireless handhelds to support clinical nursing practicum. Educ Technol Soc. 2009;12(2):190–204.

Wu TT, Sung TW. Public health practice course using Google plus. Comput Inform Nurs. 2014;32(3):144–52.