Kristina Mikkonen

CLINICAL LEARNING ENVIRONMENT AND MENTORING OF CULTURALLY AND LINGUISTICALLY DIVERSE NURSING STUDENTS

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AND MENTORING OF CULTURALLY
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Academic dissertation to be presented with the assent of the Doctoral Training Committee of Health and Biosciences of the University of Oulu for public defence in the Leena Palottie auditorium (101A) of the Faculty of Medicine (Aapistie 5 A), on 28 June 2017, at 12 noon
Abstract

The purpose of this study was to describe perceptions and explain background factors relating to the clinical learning environment and mentoring of culturally and linguistically diverse nursing students.

The study included two phases: instrument development and a cross-sectional study. The instrument development phase consisted of a conceptualization process, which included two systematic reviews with thematic synthesis; generation of items for two new instruments, Cultural and Linguistic Diversity scale and Cultural and Linguistic Diversity in Mentoring scale, and psychometric testing of these newly developed scales.

The cross-sectional phase was completed by collecting data from: (a) students \( n = 329 \) studying in English-language nursing degree programmes from eight Finnish universities of applied sciences during autumn 2015 and spring 2016; and (b) mentors \( n = 323 \) of culturally and linguistically diverse students from five Finnish university hospitals during spring 2016. In addition to the two newly developed instruments, two commonly used instruments Clinical Learning Environment, Supervision and Nurse Teacher scale and Mentors’ Competence Instrument were used for the main data collection. The data was analyzed using descriptive statistics, a nonparametric test and a binary logistic regression analysis.

The psychometric properties of the instruments had good validity and reliability. Students’ perceptions on the level of their clinical learning environment and mentoring were lower than their mentors’ perceptions of their own mentoring competence. The level of language was the most common factor relating to the outcomes of culturally and linguistically diverse students’ clinical learning environment and mentoring.

Future studies on culturally and linguistically diverse nursing students in the clinical environment should have a marked emphasis on improving proficiency in the native language, which should be implemented in the organizational structure of the clinical placements. This should include providing additional education for clinical mentors to enhance their mentoring competence with culturally and linguistically diverse students.

Keywords: clinical facilitator, clinical learning environment, cultural and linguistic diversity, internationalism, mentor, mentoring, nurse teacher, nursing students, supervision
Mikkonen, Kristina, Eri kulttuurillisista ja kielellisistä taustoista tulevien opiskelijoiden kliininen oppimisympäristö ja ohjaus.
Oulun yliopisto, Lääketieteellinen tiedekunta; Medical Research Center of Oulu; Oulun yliopistollinen sairaala

Tiivistelmä
Tämän tutkimuksen tarkoituksena oli kuvata ja selittää eri kulttuureista ja kielellisistä taustoista tulevien hoitotyön opiskelijoiden kliinistä oppimisympäristöä ja ohjausta.


Poikkileikkaustutkimus toteutettiin keräämällä kyselyaineisto (a) opiskelijoilta, jotka opiskelivat englannin kiellellä opetettavissa sairaanhoitotutkinta-ohjelmissa suomalaisessa ammattikorkeakoulussa syksyn 2015 ja kevään 2016 aikana (n = 329); sekä (b) eri kulttuureista tulevien opiskelijoiden ohjaajilta viidestä suomalaista yliopistosairaalasta kevään 2016 aikana (n = 323). Aineistot kerättiin ensimmäisessä vaiheessa kehitettyihin mittareihin sekä kahdella yleisesti käytössä olevalla mittarilla, Terveysalan koulutukseen liittyvän harjoittelun ohjauksen laatu -mittarilla sekä Opiskelijanohjausosaaminen -mittarilla. Aineisto analysoitiin käyttämällä kuvailevaa tilastoanalyysiä, ei-parametrisiä testejä ja binääristä logistista regressioanalyysia.


Englannin kiellellä opetettavissa tutkinto-ohjelmissa tulisi painottaa opiskelijoiden riittävä paikallisen kielen kieltäitöä. Tämän lisäksi kliinisen harjoittelun ohjaajien tulisi saada koulutusta eri kulttuurillisista taustoista tulevien opiskelijoiden ohjaukseen.

Asiakanat: hoitotyön opiskelija, kansainvälyys, kieli, kliininen oppimisympäristö, kulttuuri, mentori, monikulttuurisuus, ohjaus, opiskelijaohjaaja, osaaminen
To my family that I love the most
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Oulu, 1st of May 2017

Kristina Mikkonen
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BTS</td>
<td>Bartlett’s Test of Sphericity</td>
</tr>
<tr>
<td>CALD</td>
<td>Culturally and linguistically diverse</td>
</tr>
<tr>
<td>CALDs</td>
<td>Cultural and Linguistic Diversity scale</td>
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<tr>
<td>CALD+Ms</td>
<td>Cultural and Linguistic Diversity in Mentoring scale</td>
</tr>
<tr>
<td>CLES+T</td>
<td>Clinical Learning Environment, Supervision and Nurse Teacher scale</td>
</tr>
<tr>
<td>CVI</td>
<td>Content Validity Index</td>
</tr>
<tr>
<td>ECTS</td>
<td>European Credit Transfer System</td>
</tr>
<tr>
<td>EFA</td>
<td>Explorative factor analysis</td>
</tr>
<tr>
<td>IBM SPSS</td>
<td>Statistical software package (V 23.0)</td>
</tr>
<tr>
<td>I-CVI</td>
<td>Individual item method of content validity index testing</td>
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<tr>
<td>KMO</td>
<td>Kaiser Meyer-Olkin test</td>
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<tr>
<td>MCI</td>
<td>Mentors’ Competence Instrument</td>
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<tr>
<td>MTMM</td>
<td>Multitrait-Multimethod Matrix Method</td>
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<tr>
<td>OECD</td>
<td>The Organisation for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OR</td>
<td>Odds ratios</td>
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<tr>
<td>PAF</td>
<td>Principal Axis Factoring</td>
</tr>
<tr>
<td>PICoS</td>
<td>Elements for a systematic review protocol defined by participants, phenomenon of interest, context and study design</td>
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<tr>
<td>QARI</td>
<td>Qualitative Assessment Research Instrument</td>
</tr>
<tr>
<td>S-CVI/Ave</td>
<td>Averaging method of Content Validity Index</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
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Original publications

This thesis is based on the following publications, which are referred to throughout the text by their Roman numerals (I–V):


(*) Equal contribution.
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1 Introduction

The process of globalization has led nations worldwide to open the borders of their countries. This is linked to economic factors, the global markets, political challenges, convenience of travelling and knowledge-sharing through developed technology. According to a report from the United Nations, there was a total of 232 million international migrants in the world in 2013. The number of international migrants grew by 50% between 1990 and 2013 (United Nations 2013). Current internationalization is characterized by a global process where nations autonomously interact with each other without necessarily compromising their own cultural inheritance. Education has become an important element in internationally connecting countries. It has, as its globally-shared common objective, to resolve global issues relating to political troubles and the environment (Allen & Ogilvie 2004). Education in nursing and healthcare plays a significant part in the process of internationalization. It strives to educate excellent professionals who are able to understand global needs in healthcare (Ong-Flaherty 2015). These professionals are able to be competitive in the growing global markets, possessing not only sufficient skills in nursing, but also cultural competence in the humanistically-oriented profession of nursing (Allen & Ogilvie 2004, Robinson et al. 2006, Parker & McMillan 2007, Visovsky et al. 2016).

Finland has become actively involved in the international co-operation of education, which is visible in: (a) its involvement in the Bologna process in higher education degree transferability and students’ mobility (Ministry of Education 2005); (b) the Nordic Agreement of Higher Education (1996) for wider possibilities of education and exchange of labour; (c) the local involvement in the organizations connected with UNESCO (2016), which promote cultural diversity, protect human rights and enhance equal rights for education for everyone; and (d) the implementation of OECD (2016) refining education policies and global competitiveness (Ministry of Education and Culture 2016). The Bologna process has enhanced mobility and thus brought wider international opportunities for professional employment (Bologna Declaration 1999), provided possibilities for continuous learning, improved research collaboration among European countries and helped to ensure more controlled quality in education (Bologna Process 2003, Davies 2008, Dante et al. 2013). The objective has been to develop global professional competitiveness and provide a nursing workforce because of acute nurse shortages in aging European countries (Zabalegui et al. 2006, Davies 2008),
notwithstanding the prediction that migration alone would not be able to sustain professional replacement in aging populations according to the OECD (2012).

Finland has created a strategy for the internationalization of higher education. It has set as its objectives to: (a) create an international community in higher education; (b) advance expertise exchange and mobility in education and research; (c) support the creation of a multicultural society in Finnish communities; and (d) create global responsibility by engaging educational strategies in solution-finding (Ministry of Education 2009, Government Programme 2015). One of the ways to enhance internationalism in Finnish education is to provide English-language degree programmes for international nursing students nationwide. The English-language-taught degree programmes in nursing are provided in universities of applied sciences. The programmes lead to a qualification to practice registered nursing in accordance with Finnish legislation (Health Care Professionals Act 559/1994) and the regulations of the European Parliament and the European Council (EC 2005/36, EU 2013/55). Nursing education places a great emphasis on professional conduct, with a view to developing skills that are applicable in real professional working environments (University of Applied Sciences Act 2014/932). It is noteworthy that up to 50% of nursing education should be completed as clinical education (EEC 77/452/EEC, EEC 89/595/EEC).

International students undertaking English-language nursing degree programmes found that the clinical learning in clinical placements was the most challenging part of their studies (Pitkäjärvi 2012). When examining English-language nursing degree programmes in Finland, Pitkäjärvi (2012) reported that the curriculum planned for international students included student-centred methods, which were applicable to a culturally diverse population. The outcome was that there were mainly positive experiences for international students (Pitkäjärvi et al. 2012a) and their teachers (Pitkäjärvi et al. 2011) in the academic environment (Pitkäjärvi et al. 2013). However, the clinical placements were found to be unsupportive at times. In these cases, nurses’ attitudes towards cultural diversity caused negative outcomes in the students’ learning experience (Pitkäjärvi 2012, Pitkäjärvi et al. 2012b). One significant aspect affecting their experience – the language barrier – was claimed not to have a great influence on students’ learning outcomes when nurses had a positive attitude towards international students (Pitkäjärvi 2012). When the clinical environment was seen as unsupportive, it included the elements of social isolation, lack of trust and having to prove one’s competence to the staff (Pitkäjärvi et al. 2012b). Also, when compared with their Finnish peers in general, international students were less satisfied with their lives.
in Finland (Pitkäjärvi 2012). The same challenges experienced by international nursing students in clinical placements have been identified internationally in nursing education (Newton et al. 2016).

Other studies in Finland on cultural and linguistic diversity in nursing have focused on immigrant new mothers (Wikberg et al. 2012), the workplace orientation of immigrant nurses (Hartikainen 2016) and the cultural competence of graduating national nursing students (Repo et al. 2017). Wikberg et al. (2012) reported that immigrant mothers were satisfied with the Finnish maternity care, but were nevertheless in a vulnerable situation with outcomes of social isolation and discrimination when experiencing communication problems. Hartikainen (2016) examined the workplace orientation of immigrant nurses into Finnish elderly care. The outcome was that as a result of the orientation the immigrant nurses found it easier to integrate into Finnish working culture with increased efficiency in their professional performance. Cultural competence of graduating national nursing students, however, was linked to moderate outcomes with positive relations identified with linguistic skills, being involved in exchange studies and frequency of interaction with different cultures (Repo et al. 2017).

While internationalization, as part of the Finnish national strategy, brings greater opportunities for the future by increasing the cultural diversity of the country, it is important that the standards and quality of nursing education and practicing should remain (Herdman 2004, Cutcliffe et al. 2011). This study was motivated by the need to identify important aspects and background factors relating to the challenges faced by culturally and linguistically diverse (CALD) nursing students in the clinical learning environment and in their clinical mentoring. The purpose of the study was to describe perceptions and explain background factors relating to the clinical learning environment and mentoring of culturally and linguistically diverse nursing students. The first aim was to provide new evidence for developing nursing curricula for educational degree programmes for CALD students. The second aim was to cater for the education and increasing competence of CALD students’ mentors so that the new findings could be implemented into the structure and practice of the clinical placements.
2 Clinical Learning Environment and Mentoring of Nursing Students with a Cultural Perspective

This chapter is introduced with a focus on the main concepts relating to the study. Education in nursing degree programmes is looked at from the perspective of the clinical learning environment and the role of mentoring. Cultural and linguistic diversity is defined in such a way that it relates to the context within Finnish society and internationalization of education.

2.1 Education in the nursing degree programme

A key focus in nursing education is to pursue excellence in safe and patient-centred care while acting as healthcare providers (Griffiths et al. 2012, Ferguson et al. 2013, Fawcett & Rhynas 2014). Nursing degree programmes are provided by Finnish universities of applied sciences. Their curricula include 210 ECTS credits equaling 3.5 years of full-time studies. The education provides the students with a bachelor’s degree and a professional qualification to practice as a registered nurse (Ministry of Education and Culture 2017). English-language-taught degree programmes in nursing are also open to international students through the joint national application system (Study info 2016). English-language-taught degree programmes in nursing in Finland consist of mixed classrooms where both international and national students complete their studies together (Pitkäjärvi et al. 2012a). These kinds of integrational programmes are designed to enhance cultural diversity and cater for future healthcare providers’ growth in cultural competence (Ryan & Dogbey 2012).

The current curricula are based on the view that in order to best support the professional development of undergraduate nurses, their education needs to include both theoretical and practical training, ensuring that increasing relevance is given to working life (University of Applied Sciences Act A1129/2014, L 2015/325) in authentic clinical settings (FINHEEC 2012a, FINHEEC 2012b). The clinical competence of a future nurse professional includes competencies in knowledge and skills in psycho-social support of a patient, procedures and diagnostic tests, nursing interventions, infection control, pharmacological treatment, anatomy and physiology, pathophysiology, nutrition therapy and additional field-specific

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1 ECTS: European Credit Transfer System.
specializations in the relevant healthcare sectors (for example, medical nursing, surgical nursing, etc.) (Eriksson et al. 2015, pp. 63–65). Nursing students have an opportunity to apply their knowledge, practice, psychomotor, cognitive and affective skills in various clinical settings (Hooven 2014, D'Souza et al. 2015), the opportunity for which is organized by higher education institutions. This includes integration programmes and collaborative agreements between higher educational institutions and clinical placements. The goal is to help students transfer into real working environments (Sand-Jecklin 2009, Babenko-Mould et al. 2012, Hall-Lord et al. 2013, Killam & Heerschap 2013).

When teaching nursing students, the clinical settings for practicing clinical competencies may consist of simulative environments and clinical skills laboratories (Ayers et al. 2015, Ewertsson et al. 2015, Haraldseid et al. 2015). Students are able to develop their skills by putting theory into practice and improve their clinical competence (D'Souza et al. 2015, Lejonqvist et al. 2016) with simulation methods without having to face the risk of causing harm to patients during their learning process (Harder 2010). However, the clinical competencies in nursing clearly develop best in authentic clinical settings where students encounter real patients under the mentoring of staff nurses (Puppe & Neal 2014). Also, nursing students find their own professional identity most easily when undertaking clinical placements in real clinical settings (Maranon & Pera 2015). When a comparison was made between a nursing skills laboratory, standardized patient laboratory and clinical practice for the development of students’ clinical competence, it was observed that students’ psychomotor and communication skills increased more with each upgrade of the clinical learning environment towards authentic clinical settings (Terzioglu et al. 2016). In real clinical settings students gain a deeper understanding of the importance of providing equal rights and good quality healthcare towards patients (Act on the Status and Rights of Patients 785/1992) while assuring patient safety (Health Care Act 1326/2010, Patient Safety Regulation 341/2011, Dawson et al. 2013, Lukewich et al. 2015, Stevanin et al. 2015, Tella et al. 2015, Walton & Barraclough 2016).

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2 Standardized patient represents a healthy person acting out a scenario of an individualized case (Cochran et al. 2016).

3 Psychomotor skills include the cognitive connection of movement and orientation skills (Oermann 1990).
2.1.1 Clinical learning environment

Clinical learning environment in clinical settings involves nursing students coming closer to real patients (D’Souza et al. 2015, Sandars & Patel 2015). This provides them with the opportunity to integrate theory with practice and helps them develop clinical competencies, generic skills in decision making, ethical reasoning (Tiwari et al. 2005, Sandvik et al. 2014), critical thinking (Mamhidir et al. 2014, Walker et al. 2014) and professional communication (Doulatabad et al. 2015). Learning involves the development of cognitive reasoning, which helps to bring about positive changes in the person’s behaviour and produce growth in professional competencies (Newton et al. 2010, Bjørk et al. 2014). The learning needs to take place in an open and safe clinical environment (Twigg & McCullough 2014), which also includes the elements of student-centredness (Newton et al. 2012) and diverse learning opportunities (Chuan & Barnett 2012, Bisholt et al. 2014). Cultural and contextual factors create the environment of learning (Hegenbarth et al. 2015, Flott & Linden 2016) and provide versatile learning spaces. This includes active learning tasks, enough time provided to learn (Blomberg et al. 2014) and reflect upon learning (Dawson et al. 2012), inclusion of technology (McColgan & Rice 2012, Ferenchick et al. 2013, Fotheringham et al. 2015) and professional or interprofessional collaboration integrated in the daily business of clinical placements (Bines & Jamieson 2013, Bowker et al. 2013, Laksov et al. 2015). The atmosphere of the clinical learning environment is influenced by staff attitudes towards the students, managers’ involvement in teamwork (Warne et al. 2010, Flott & Linden 2016) and organizational structures linked with the students’ integration process during placement orientation (Papathanasiou et al. 2014). Nevertheless, the students also find peer support to be important (Walker et al. 2014) when experiencing group mentoring (Taylor 2014) and in being able to reflect on their learning face to face or virtually (Mettinen & Vähämaa 2013).

In this study, clinical learning environment is defined as an authentic clinical space with real patients where students practice their clinical skills with the outcome of professional competence development and an eventual readiness to become registered nurses. The essential elements of a clinical learning environment for nursing students are seen as the following: the atmosphere, relationships

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*Keywords used for searching peer-reviewed articles in the database (EBSCO) between 2012 and 2017 with an outcome of 741 articles: clinical learning environment OR clinical environment OR clinical education AND definition or meaning or define AND student nurses or nursing students NOT medical education or medical school or medical curricula.*

2.1.2 Clinical mentoring

Clinical mentoring includes varying roles and incorporates different parties into mentoring students in different countries. The process of clinical learning involves several relevant parties, including (a) faculty teachers teaching theoretical knowledge and the practicing of clinical skills (Durham & Baker 2015), (b) nurse teachers/clinical facilitators responsible for the integration of the students’ clinical competence with clinical practice (Saarikoski et al. 2008, Woodley 2015), and (c) staff nurses supervising or mentoring students within the clinical practice (Saarikoski et al. 2008, Jokelainen 2013, Roberts-Turner et al. 2014, Vinales 2015). Nurse teachers have different roles in mentoring students. In some countries they play an essential role in students’ learning, including both learning process and outcomes (Courtney-Pratt et al. 2012, Maguire et al. 2012, Broadbent et al. 2014). In other countries their role is limited to merely playing an organizational part during clinical placements (Warne et al. 2010). In most countries, however, the nurse teachers are seen as experts of healthcare education who play a key role in the learning process of the students within the degree programme (Warne et al. 2010). They are also seen as essential collaborators between higher education institutions and clinical placements (Myler et al. 2014, Mather et al. 2015, O’Brien 2015). Involving clinical staff in mentoring students in addition to nurse teachers, who refer to clinical facilitators coming to teach from universities, results in better outcomes in the development of clinical skills of students in their clinical placements (Rahnavard et al. 2013, Dimitriadou et al. 2015). However, the staff nurses responsible for mentoring students do not necessarily have prior education on mentoring (Luojus 2011, Jokelainen 2013) but rather, practice mentoring based on their own experiences in mentoring students (Audetat et al. 2012, O’Brien et al. 2014, Wilson 2014).

The terms mentoring and supervising have been used interchangeably relating to the clinical learning environment of nursing students despite the different meanings of the terms (Jokelainen et al. 2011). Supervision is defined as a pedagogical activity between the supervising nurse and the student to support the
professional development of the student (Saarikoski 2002). The definition does not go deeper into the students’ learning process in order to offer a wider understanding on what kind of activities are involved in the pedagogical approach (Mellon & Murdoch-Eaton 2016). Mentoring, on the other hand, involves the facilitation of students’ learning and strengthening students’ professionalism (Jokelainen et al. 2011). The facilitation involves the creating of an effective learning environment and enhancing students’ learning process with learning evaluation (Luojus 2011, Berglund et al. 2012, Esmaeili et al. 2014, Kelton 2014, Dimitriadou et al. 2015). This is accomplished using innovative teaching approaches (Henderson et al. 2012, Pinto Zipp & Kolber 2014), task orientation, clear instructions and reflection upon practicing of the skills (Löfmark et al. 2012, Stayt & Merriman 2013, Lovecchio et al. 2015) as well as helping students to integrate into the nursing team (McIntosh et al. 2014). Learning evaluation also requires clearly-set learning goals and versatile assessment methods. The learning evaluation, in turn, needs evaluation criteria in tune with the curriculum goals of the students’ degree programme. The participation of nurse teachers in the process is also essential (Luojus 2011).

Additionally, mentors’ role-modelling helps students to determine what professional nursing and moral reasoning means in their situations (Babenko-Mould et al. 2012, Walker et al. 2014) and strengthens the students’ professionalism by supporting the development of their professional identity and professional competence (Jokelainen et al. 2011, Lindquist et al. 2012, Knox et al. 2014). The role-modelling requires interpersonal skills (Bambling & King 2014) and mentors’ nonthreatening behaviours so that students are allowed the sufficient space to learn as they are taking on their future role within the caring profession (Clarke et al. 2012).

A professional relationship with mentors had a marked influence on students’ learning opportunities and consequently a positive impact on their learning outcomes and professional development (Brown et al. 2014, Puppe & Neal 2014, O’Mara et al. 2014). The student-mentor professional relationship includes a student-centred approach and embraces mutual trust, respect, support in learning (Jokelainen et al. 2013, Kristofferzon et al. 2013, Walker et al. 2013), professional equality and constructive feedback in students’ clinical mentoring (Saarikoski et al. 2008). Supportive and consistent clinical mentoring influenced students’ learning outcomes positively and allowed them to grow in professional confidence and satisfaction (Koivu et al. 2012, Sundler et al. 2014, Hegenbarth et al. 2015, Lovecchio et al. 2015, Flott & Linden 2016).
In this study, mentoring is defined as facilitation of students’ learning (Jokelainen et al. 2011) by a mentor who is creating an open and safe learning environment for the students. It also includes guiding students through their learning process (Luojus 2011, Berglund et al. 2012, Esmaeili et al. 2014, Kelton 2014, Dimitriadou et al. 2015, Tuomikoski & Kääriäinen 2016) and strengthening the students’ professionalism (Jokelainen et al. 2011, Lindquist et al. 2012, Knox et al. 2014). The parties involved in students’ mentoring in this study are mentors working as staff nurses, and nurse teachers representing staff from universities of applied sciences who are responsible for the students’ clinical placements.

2.2 Cultural and linguistic diversity in students

Finland is a fairly homogenous country with a migrant population of only 5% in comparison with the average of 12% within other OECD countries. Notable immigration in Finland began in 1990 and became much faster in 2005 (OECD 2015). Out of all foreign nationals living in Finland in 2011, 16% were students (The future of immigration 2014). The English-language degree programmes offer their studies in English and comprise up to 40% international students in culturally-diverse classrooms mixed with native students (Pitkäjärvi 2012).

Culture is defined as including the essential aspects of existence such as age groups, political and religious beliefs, human values and behaviours, languages and geographical position of living (Banks 2006, Gollnick & Chinn 2006, Kleinman & Benson 2006, Garneau & Pepin 2015). Cultural diversity involves significant difference in a number of these aspects compared with the mainstream population of the country. Language is closely interlinked with culture. It encompasses developing a person’s cultural identity and integration in a cultural group (Gollnick & Chin 2006, Terry & Irving 2010). Culturally and linguistically diverse (CALD) nursing students in this study are foreign citizens (Aliens Act 301/2004, 1152/2010) or foreign-born immigrants living or studying in another country than their own (United Nations 2013). CALD students may include a small group of students who have the citizenship of the host country but are foreign-born or were raised in a cultural environment different from the mainstream culture and language (Kleinman & Benson 2006, Robinson & Clardy 2011, Akombo 2013).

Keywords used for searching peer-reviewed articles in database (EBSCO) between 2012 and 2017 with an outcome of 714 articles: clinical mentor* OR clinical supervis* OR clinical facilitat* AND definition or meaning or define AND student nurses or nursing students NOT medical education or medical school or medical curricula.

5 Keywords used for searching peer-reviewed articles in database (EBSCO) between 2012 and 2017 with an outcome of 714 articles: clinical mentor* OR clinical supervis* OR clinical facilitat* AND definition or meaning or define AND student nurses or nursing students NOT medical education or medical school or medical curricula.
Cultural and linguistic diversity among students provides an opportunity for the students to enhance their understanding of culture and healthcare needs on an international level (Repo et al. 2017). It was shown that cultural diversity among students in clinical placements supported the independence of students in taking care of culturally diverse patients. It also helped them in their professional development by opening wider opportunities in their professional future as registered nurses (Hvalič-Touzery et al. 2017). Handling linguistic diversity has been shown to increase cultural sensitivity (Yilmaz et al. 2017) and it also increased ethical decision-making in patient care (Bessette & Camden 2017).

2.3 Cultural competence of mentors

Mentors of CALD students need to face cultural and linguistic diversity, which requires them to possess a certain level of cultural competence. This is needed so that they are able to enhance CALD students’ professional growth and use culturally sensitive communication in student-mentor professional relationships (Mareno & Hart 2014, Miskin et al. 2015, Kohl Bryant 2016). Garneau and Pepin (2015) define cultural competence in nursing as:

a complex know-act grounded in critical reflection and action, which the health care professional draws upon to provide culturally safe, congruent, and effective care in partnership with individuals, families, and communities living health experiences, and which takes into account the social and political dimensions of care (p.12).

Cultural competence in mentors ensures safety in student-mentor professional relationships and helps to avoid misunderstandings in communication (Almutairi et al. 2015). CALD students’ understanding of care towards patients can vary because it is influenced by their personal culture (Apesoa-Varano et al. 2015, Haynes 2016). This necessitates mentors’ guidance and role modelling in culturally acceptable care (Miskin et al. 2015). In this study, the cultural competence of mentors includes cultural awareness, knowledge, communication and skills in mentoring CALD students in a culturally safe environment (Garneau & Pepin 2015, Alizadeh & Chavan 2016, Harkess & Kaddoura 2016, Wong et al. 2016).

2.4 Summary of literature

Figure 1 presents a summary of the defined concepts. The students are required to develop their professional identity in practicing their clinical skills when meeting real patients in authentic clinical settings in order to become professional nurses. The students require a safe clinical learning environment so that they can succeed in clinical learning. This includes the elements of a learner permissive atmosphere, a professional relationship between students and clinical staff, manager involvement, diverse learning opportunities in clinical care, mentoring of pedagogical practices and students’ active and motivated role in learning. Mentors play an essential role in this process by facilitating students’ learning, creating an open and safe learning environment, guiding students through their learning process and helping them to build a professional identity. The mentoring of CALD students requires mentors to possess cultural competence, which includes the elements of cultural awareness, cultural knowledge, cultural communication and cultural skills, which ensures a safe environment for student learning.
Fig. 1. Summary of main concepts of the study.
3 Purpose and Research Questions of the Study

The purpose of this study was to describe perceptions and explain background factors relating to the clinical learning environment and mentoring of CALD nursing students. The first aim was to provide new evidence for developing nursing curricula for educational degree programmes for CALD nursing students. The second aim was to cater for the education and increasing competence of CALD students’ mentors so that the new findings can be implemented into the structure and practice of the clinical placements. The study was conducted in two phases, each with their own respective research questions and hypotheses.

Phase I: Instrument development

1. Which aspects influence the clinical learning environment and mentoring of CALD nursing students? (Original publications I and II)
2. What is the validity and reliability of the CALDs, CLES+T and CALD+Ms for CALD nursing students and their mentors in Finland? (Original publications III and V)

Phase II: Cross-sectional study

3. What perceptions relating to the clinical learning environment and mentoring do CALD nursing students have in comparison with Finnish students? (Original publication IV)
4. What competencies do CALD nursing students’ mentors have in the clinical learning environment? (Original publication V)
5. What background factors relate to the clinical learning environment and mentoring of CALD nursing students? (Original publications IV and V)
   a) Hypothesis: Cultural diversity influences students’ success in the clinical learning environment and in how much the students benefit from mentoring.
   b) Hypothesis: Language skills of CALD students and their mentors influence the outcome of the clinical learning environment and mentoring.
4 Study Design and Methods

This study included two phases, each with their own research process and methodology. The results were reported in five publications (I–V). The first phase was completed by developing instruments. This included the stages of conceptualization, generation of items, pilot testing and the testing of the validity and reliability of the instruments. The first phase is presented in Table 1.

Table 1. The research process of the first phase of the study.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Purpose</th>
<th>Participants</th>
<th>Data collection</th>
<th>Data analysis</th>
<th>Publ.¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conceptualization</td>
<td>To identify factors influencing the clinical learning environment and mentoring of CALD students</td>
<td>CALD healthcare students (n = 428) and their mentors (n = 65) in original studies (2000–2014) from 7 databases</td>
<td>Systematic review of 12 and 5 original studies</td>
<td>Thematic synthesis</td>
<td>I &amp; II</td>
</tr>
<tr>
<td>Generation of items</td>
<td>To generate items into new CALDs and CALD+Ms scales on the basis of a systematic review and expert evaluation</td>
<td>CALD students for CALDs (n = 14) Experts for CALDs (n = 12) Experts for CALD+Ms (n = 8)</td>
<td>Face validity in 2 focus groups Content validity with experts</td>
<td>Evaluation of face validity Content validity Index method</td>
<td>III &amp; V</td>
</tr>
<tr>
<td>Pilot testing</td>
<td>To examine administration, completion, understanding of questions and technical challenges relating to the CALDs, CLES+T and CALD+Ms scale</td>
<td>CALD students (n = 10) Mentors of CALD students (n = 37)</td>
<td>Pilot test by administering the scales</td>
<td>Evaluation of pilot test results</td>
<td>III &amp; V</td>
</tr>
<tr>
<td>Validity and reliability testing</td>
<td>To test the psychometric properties of the CALDs and CLES+T scales, and CALDs and MCI</td>
<td>CALD nursing students (n = 208–214) Mentors of CALD nursing students (n = 323)</td>
<td>Survey from 8 universities of applied sciences nationwide Survey from 5 university hospitals nationwide</td>
<td>Construct validity with an exploratory factor analysis of CALDs, CLES+T and CALD+Ms</td>
<td>III &amp; V</td>
</tr>
</tbody>
</table>

¹ Publ.: Publications

The second phase was completed by performing cross-sectional studies. These studies included data collection from: (a) nursing students in English-language
degree programmes in eight universities of applied sciences, and (b) their mentors 
in five university hospitals nationwide. The phase is presented in Table 2.

Table 2. The research process of the second phase of the studies.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Purpose</th>
<th>Participants</th>
<th>Data collection</th>
<th>Data analysis</th>
<th>Publ.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey with CALD and Finnish</td>
<td>To describe perceptions of CALD students and their mentors and explain nursing background factors relating to the clinical learning environment and mentoring of CALD nursing students</td>
<td>Survey with CALD and Finnish nursing students</td>
<td>Survey from 8 universities of applied sciences</td>
<td>Descriptive statistics Fisher’s measure of skewness</td>
<td>IV &amp; V</td>
</tr>
<tr>
<td>Survey with CALD nursing and mentoring of CALD students</td>
<td>To describe perceptions of nurses’ content validity evaluation</td>
<td>Survey from 5 university hospitals</td>
<td>Descriptive statistics Fisher’s measure of skewness</td>
<td>Chi-square</td>
<td></td>
</tr>
<tr>
<td>Survey with CALD nursing mentors</td>
<td>To describe perceptions of nurses’ content validity evaluation</td>
<td>Survey from 5 university hospitals</td>
<td>Descriptive statistics Fisher’s measure of skewness</td>
<td>Chi-square</td>
<td></td>
</tr>
</tbody>
</table>

4.1 Instrument development

The first phase, instrument development, was completed by performing conceptualization on the basis of two systematic reviews. Both reviews were based on original studies. The method used for performing conceptualization was descriptive inductive thematic synthesis. The items for the new Cultural and Linguistic Diversity scale (CALDs) and Cultural and Linguistic Diversity in Mentoring scale (CALD+Ms) were generated from a synthesis of the systematic reviews and experts’ content validity evaluation. Pilot testing was performed by instrument administration and evaluation of understandability and technical functioning. Additionally, two commonly used instruments, Clinical Learning Environment, Supervision and Nurse Teacher scale (CLES+T) and Mentors’ Competence Instrument (MCI) were used for the main data collection. The validity and reliability testing was conducted after the national surveys from eight universities of applied sciences and five university hospitals nationwide had been completed. The psychometric properties were tested with construct validity, reliability and convergence and discriminability validity.
4.1.1 Conceptualization of main concepts (Publications I & II)

The conceptualization of the first phase of the study was completed by a descriptive inductive study, that itself was completed by a thematic synthesis of qualitative research in systematic reviews. This is reported in publications I and II. The research questions were defined in PICoS (participants, phenomena of interest, context and study design) format (CRD 2009). The inclusion and exclusion criteria were chosen for the purpose of determining the eligibility of original studies for the reviews (Porritt et al. 2014, Stern & McArthur 2014). These are presented in Table 3.

Table 3. Inclusion and exclusion criteria for the search strategy.

<table>
<thead>
<tr>
<th>PICoS</th>
<th>Participants</th>
<th>Phenomena of interest</th>
<th>Context</th>
<th>Study design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion criteria</td>
<td>CALD undergraduate healthcare students (I)</td>
<td>Students’ experiences (I)</td>
<td>Clinical learning environment and supervision (I &amp; II)</td>
<td>Qualitative original peer-reviewed studies, systematic reviews, 2000–2014 (I &amp; II)</td>
</tr>
<tr>
<td></td>
<td>Mentors of CALD undergraduate healthcare students (II)</td>
<td>Mentors’ experiences with students’ learning (II)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exclusion criteria</td>
<td>Not CALD healthcare students, postgraduate healthcare students, CALD healthcare professionals, CALD patients (I)</td>
<td>Cultural competence in nursing education, empirical studies involving other elements of measurement than cultural and linguistic diversity in the clinical learning environment (I &amp; II)</td>
<td>Not clinical learning environment in clinical settings Mentoring involving other than clinical learning environment (I &amp; II)</td>
<td>Quantitative research methods, literature review, editorials, single case studies, personal narratives (I &amp; II)</td>
</tr>
<tr>
<td></td>
<td>Not mentors of CALD healthcare students, not mentors of healthcare students (II)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 (I): Publication I  
2 (II): Publication II

The combination of search terms used in every database is presented in Table 4. Seven electronic databases (CINAHL (EBSCO), Medline Ovid, Scopus, Web of Science (ISI), Academic Search Premiere (EBSCO), Eric (ProQuest) and Cochrane Library) were used to conduct the search. The references in the chosen original
studies for the reviews were additionally searched. They were chosen, if relevant, for the research questions. The results of the grey literature search were excluded. After the main search, two researchers completed the screening process separately by title, abstract and full-text on the basis of the research question. Then the two researchers agreed upon studies to be chosen (CRD 2009).

In the search process, 156 original studies were discovered on CALD healthcare students’ experiences (Publication I) and 106 original studies were discovered on their mentors’ experiences (Publication II). The screening process by title (156 (I) & 106 (II)), abstract (33 (I) & 35 (II)), full text (11 (I) & 10 (II)) and critical appraisal (13 (I) & 6 (II)) resulted in the final choice of 12 (I) and 5 (II) original studies. The screening process and critical appraisals were completed separately by two researchers, and agreed upon by them at the end. The participants in the original studies included 428 CALD students (Publication I) and 65 mentors (Publication II). Out of the CALD healthcare students (nursing, midwifery, physiotherapy) that were searched for, the original studies included only nursing students.

Table 4. Keywords of the search strategy.

<table>
<thead>
<tr>
<th>Publication</th>
<th>Combination of search words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication I</td>
<td>(students, nursing) OR (students, midwifery) OR (students, physical therapy) AND (cultural diversity) OR (language diversity) OR (English as a second language) OR (students, foreign) AND (learning environment, clinical) OR (education, clinical) OR (“clinical practice” or “clinical placement” or “clinical rotation”) and (educat* or teach*)</td>
</tr>
<tr>
<td>Publication II</td>
<td>(mentor*) OR (teach*) OR (facilitator) OR (tutor*) OR (educator) OR (instructor) OR (supervisor) OR (preceptor) OR (coach) OR (trainer). The second group consisted of the keywords (students, nursing) OR (students, midwifery) OR (students, physical therapy) AND (cultural diversity) OR (language diversity) OR (English as a second language) OR (students, foreign) OR (students, international) AND (learning environment, clinical) OR (education, clinical) OR (“clinical practice” or “clinical placement” or “clinical rotation”) and (educat* or teach*)</td>
</tr>
</tbody>
</table>

The quality of the chosen studies was assessed by a Qualitative Assessment Research Instrument (QARI) with the cut-off set to be <5 points out of 10 (JBI 2014). The chosen original studies were extracted into a table with information on them. The information included the year of publication, purpose, participants, methodology, key findings and quality assessment of the original studies (Publication I, Table 4, pp. 178–181; Publication II, Table 1, p. 90).
The method of synthesis was a thematic synthesis of qualitative research in systematic reviews. The purpose of the study was presenting the reality of CALD students’ and their mentors’ experiences based on their own beliefs and perspectives (Tong et al. 2012, Munn et al. 2014). The data synthesis was performed with an inductive approach of a thematic analysis by categorizing fragmented data into larger concepts describing the phenomenon (Elo & Kyngäs 2008, Thomas & Harden 2008, Elo et al. 2013). The inductive approach of the thematic synthesis produced codes (315 (I-see footnote6) & 105 (II-see footnote7)), descriptive themes (74 (I) & 27 (II)), and analytical themes (19 (I) & 5 (II)). The analytical themes of the first review were further split into seven categories and three main aspects for the purpose of easier interpretation and reporting (Publication I).

The synthesis was performed by one researcher and re-examined by another researcher for the purpose of accuracy and trustworthiness (Polit & Beck 2008). The results of all of the chosen original studies were analyzed. The search strategy, screening process and synthesis were reported in great detail for the purpose of reproduction and transparency of both reviews (JBI 2014, Robertson-Malt 2014) (Publications I & II).

4.1.2 Generation of items (Publications III & V)

The generation of items during the first phase of the study was completed by operationalizing the key concepts of the descriptive inductive thematic synthesis into empirically measurable entities (Meleis 2007). These were reported in Publications III and V. The systematic review outcomes were applied in the new instruments of: (a) Cultural and Linguistic Diversity scale (CALDs) to be used with Clinical Learning Environment, Supervision and Nurse Teacher (CLES+T) scale measuring CALD students’ perceptions; and (b) Cultural and Linguistic Diversity in Mentoring scale (CALD+Ms) to be used with Mentors’ Competence Instrument (MCI) measuring mentors’ competence to mentor CALD students. The instruments CALDs and CLES+T scale were used in the English version, and CALD+Ms and MCI in the Finnish version.

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6 (I): Publication I
7 (II): Publication II
Cultural and Linguistic Diversity scale and the newly validated Clinical Learning Environment, Supervision and Nurse Teacher scale

The commonly used Clinical Learning Environment, Supervision and Nurse Teacher (CLES+T) scale (Saarikoski et al. 2008) for nursing education was compared with the 101 descriptive themes of both systematic reviews (Publications I & II). The themes that were not recognized in CLES+T scale were further operationalized (Meleis 2007) and translated into the new Cultural and Linguistic Diversity scale (CALDs). Table 5 presents the main sub-dimensions of both scales prior to psychometric testing. The CLES+T scale is a combination of five sub-dimensions and 34 items: the content of supervisory relationship (8 items), pedagogical atmosphere (9 items), role of the nurse teacher (9 items), leadership style of the ward manager (4 items), and premises of nursing care on the ward (4 items) (Saarikoski et al. 2008). During the process of item generation, four new sub-dimensions with 27 items were merged under a new CALDs scale: orientation into clinical placement (4 items), role of student (7 items), cultural diversity in the clinical learning environment (10 items), and linguistic diversity in the clinical learning environment (6 items). Both scales included 5 Likert-scale ratings (1 fully disagree, 2 disagree to some extent, 3 neither agree nor disagree, 4 agree to some extent, 5 fully agree).

Table 5. Sub-dimensions of CALDs and CLES+T scale prior to psychometric testing.

<table>
<thead>
<tr>
<th>Cultural and Linguistic Diversity scale (CALDs)</th>
<th>Clinical learning environment, Supervision and Nurse Teacher scale (CLES+T) (Saarikoski et al. 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orientation into the clinical placement (4 items)</td>
<td>The content of supervisory relationship (8 items)</td>
</tr>
<tr>
<td>Role of the student (7 items)</td>
<td>Pedagogical atmosphere (9 items)</td>
</tr>
<tr>
<td>Cultural diversity in the clinical learning environment (10 items)</td>
<td>Role of the nurse teacher (9 items)</td>
</tr>
<tr>
<td>Linguistic diversity in the clinical learning environment (6 items)</td>
<td>Leadership style of the ward manager (4 items)</td>
</tr>
<tr>
<td></td>
<td>Premises of nursing care on the ward (4 items)</td>
</tr>
</tbody>
</table>

The face validity was tested with 14 CALD students in two focus groups on CALDs (DeVon et al. 2007). The content validity was tested with the Content Validity Index (CVI) with 12 experts (Lynn 1986, Cook and Beckman 2006). Experts were asked to rate each item by their relevance and clarity with a four-level rating scale (1 not relevant/clear, 2 somewhat relevant/clear, 3 quite relevant/clear, 4 highly relevant/clear).
relevant/clear). The scores of experts rating at level three and/or four were summed up and divided by the total number of experts evaluating items. The cut-off of item retention in the individual item method of Content Validity Index testing (I-CVI) was set to be $\geq 0.78$ in order to ensure that all irrelevant or unclear items are further modified or removed from the scale (Polit et al. 2007). The score averaging method in CVI (S-CVI/Ave) was counted by summing up all I-CVI outcomes of each item and dividing the outcomes by the sum of total items of the scale. The S-CVI/Ave was interpreted as $\geq 0.90$ excellent and $0.70–0.80$ good (Grant & Davis 1997).

Cultural and Linguistic Diversity in Mentoring scale and Mentors’ Competence Instrument

The Mentors’ Competence Instrument (MCI) (Karjalainen et al. 2015, Kälkäjä et al. 2016) for nursing education was compared with the 101 descriptive themes of both systematic reviews (Publications I& II). The themes that were not recognized in MCI were further operationalized (Meleis 2007) and translated into the new Cultural and Linguistic Diversity in Mentoring scale (CALD+Ms). Table 6 presents the main sub-dimensions of both scales prior to psychometric testing. The MCI is combined of nine sub-dimensions and 55 items: mentor characteristics (7 items), identifying students’ level of competence (4 items), motivation of the mentor (5 items), motivating the student (4 items), supporting the learning process of the students (7 items), goal-orientation in mentoring (8 items), reflection during mentoring (6 items), student-centred feedback and evaluation (9 items), and constructive feedback and evaluation (5 items). During the process of item generation, two new sub-dimensions with 14 items were merged into a new CALD+Ms scale: cultural diversity in clinical mentoring (8 items), and linguistic diversity in clinical mentoring (6 items). Both scales include 4 Likert-scale ratings (1 fully disagree, 2 disagree to some extent, 3 agree to some extent, 4 fully agree).
Table 6. Sub-dimensions of CALD+Ms prior to psychometric testing and MCI.

<table>
<thead>
<tr>
<th>Sub-dimension</th>
<th>The Mentor’s Competence Instrument (MCI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultural and Linguistic Diversity in Mentoring Scale (CALD+Ms)</td>
<td>The Mentor’s Competence Instrument (MCI) (Karjalainen et al. 2015, Kälkäjä et al. 2016)</td>
</tr>
<tr>
<td>Cultural diversity in clinical mentoring (8 items)</td>
<td>Mentor characteristics (7 items)</td>
</tr>
<tr>
<td>Linguistic diversity in clinical mentoring (6 items)</td>
<td>Identifying student’s level of competence (4 items)</td>
</tr>
<tr>
<td></td>
<td>Motivation of the mentor (5 items)</td>
</tr>
<tr>
<td></td>
<td>Motivating the student (4 items)</td>
</tr>
<tr>
<td></td>
<td>Supporting the learning process of the students (7 items)</td>
</tr>
<tr>
<td></td>
<td>Goal-orientation in mentoring (8 items)</td>
</tr>
<tr>
<td></td>
<td>Reflection during mentoring (6 items)</td>
</tr>
<tr>
<td></td>
<td>Student-centered feedback and evaluation (9 items)</td>
</tr>
<tr>
<td></td>
<td>Constructive feedback and evaluation (5 items)</td>
</tr>
</tbody>
</table>

The face and content validity on CALD+Ms was tested with the CVI with eight experts (DeVon et al. 2007, Kimberlin & Winterstein 2008). The cut-off of item retention in the individual item method of content validity index testing (I-CVI) was set to be the same as with CALDs.

4.1.3 Pilot testing, validity and reliability (Publications III & V)

CALDs and CLES+T scale were tested for their psychometric properties (DeVellis 2012). The psychometric methods and data of CALD nursing students used in the process are presented in Table 7. CALD+Ms was tested for its psychometric properties without having to newly validate MCI since the instrument has been developed for nurses mentoring nursing students in general and it has been previously demonstrated as having adequate validity and reliability (Karjalainen et al. 2015, Kälkäjä et al. 2016). The psychometric methods and data on mentors of CALD students used in the process are presented in Table 8.
Table 7. Psychometric testing of CALDs and CLES+T scales.

<table>
<thead>
<tr>
<th>Psychometric testing</th>
<th>Participants</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face validity of CALDs</td>
<td>International nursing students (n = 14)</td>
<td>Focus groups, filling in a questionnaire with comments, open discussions</td>
</tr>
<tr>
<td>Content validity of CALDs</td>
<td>Experts involved in international nursing education and research methodology (n = 12)</td>
<td>Content Validity Index testing (CVI) in the four-level rating scale with an individual item method (I-CVI) and total score averaging method (S-CVI/Ave)</td>
</tr>
<tr>
<td>Pilot test</td>
<td>International nursing students (n = 10)</td>
<td>Online survey</td>
</tr>
<tr>
<td>Construct validity of CALDs and CLES+T</td>
<td>International nursing students who completed the CLES+T scale (n = 210)</td>
<td>IBM SPSS (V 23.0)</td>
</tr>
<tr>
<td></td>
<td>International nursing students who completed CALDs (n = 214)</td>
<td>Explorative factor analysis with the Kaiser Meyer-Okin (KMO) test, Bartlett’s Test of Sphericity (BTS), scree plot, eigenvalue &gt;1, Principal Axis Factoring (PAF), Promax rotation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensitivity testing: Varimax rotation, EFA with replaced missing values</td>
</tr>
<tr>
<td>Convergence and discriminability validity of CALDs and CLES+T</td>
<td>International nursing students (n = 231)</td>
<td>Multitrait-Multimethod Matrix Method (MTMM)</td>
</tr>
<tr>
<td>Internal consistency reliability of CALDs and CLES+T</td>
<td>International nursing students (n = 231)</td>
<td>Spearman correlation matrix</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cronbach’s alpha coefficient</td>
</tr>
</tbody>
</table>

After content validity, pilot tests were performed with 10 CALD students and with 37 mentors (Sue & Ritter 2007, Polit & Beck 2008). Construct validity was tested with an explorative factor analysis (Pett et al. 2003, Cook & Beckman 2006, Kimberlin & Winterstein 2008, DeVellis 2012, Williams et al. 2012). CALDs and CALD+Ms were assessed with the Spearman correlation matrix in order to examine items individually for the purpose of identifying item overloading (>0.70) and small correlations between the items (<0.40) (Pett et al. 2003). The cut-off of items in the explorative factor analysis of rotated loading in the promax rotation was set to be ≤0.30 for CALDs and CLES+T scale, and ≤0.40 for CALD+Ms (Yong & Pearce 2013). The explorative factor analysis was performed with scree plot and eigenvalue >1, and Principal Axis Factoring (PAF) with a promax rotation set to estimate the number of factors (Pett et al. 2003, Yong & Pearce 2013). The factors
of CALDs and CLES+T scale inter-correlated with each other at >.20, the reason promax rotation was chosen for the explorative factor analysis (Miettunen 2004). The convergence and discriminability validity, and consistency reliability were examined on the instruments. These are presented in more detail in the discussion within the section ‘Validity and reliability of the study’.

Table 8. Psychometric testing of CALD+Ms and MCI.

<table>
<thead>
<tr>
<th>Psychometric testing</th>
<th>Participants</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face and content validity of CALD+Ms</td>
<td>Experts involved in CALD students’ mentoring and research methodology ( (n = 8) )</td>
<td>Content Validity Index testing (CVI) in the four-level rating scale with an individual item method (I-CVI) and total score averaging method (S-CVI/Ave)</td>
</tr>
<tr>
<td>Pilot test</td>
<td>Mentors ( (n = 37) )</td>
<td>Paper version and online survey</td>
</tr>
<tr>
<td>Construct validity of CALD+Ms</td>
<td>Mentors of CALD nursing students ( (n = 323) )</td>
<td>IBM SPSS (V 23.0) Explorative factor analysis with the Kaiser Meyer-Olkin (KMO) test, Bartlett’s Test of Sphericity (BTS), scree plot, eigenvalue &gt;1, Principal Axis Factoring (PAF), Promax rotation</td>
</tr>
<tr>
<td>Internal consistency reliability of CALD+Ms and MCI</td>
<td>Mentors of CALD nursing students ( (n = 323) )</td>
<td>Cronbach’s alpha coefficient</td>
</tr>
</tbody>
</table>

4.2 Cross-sectional studies

The second phase of the study was completed by conducting cross-sectional studies with CALD nursing students and with CALD nursing students’ mentors. First, data was collected from students undertaking English-language degree programmes in nursing from eight universities of applied sciences during the academic year 2015–2016. Then, data was collected from mentors of CALD nursing students from five university hospitals in spring 2016.
4.2.1 Survey with culturally and linguistically diverse and Finnish nursing students (Publication III)

Data

All nursing students (N = 664) undertaking the degree programmes in Finland fulfilling the study inclusion criteria were invited to participate. Only nursing degree programmes for CALD students were included, since there was only one English-language degree programme in physiotherapy (Study info 2016). An inclusion of a single programme would have made drawing conclusions and making comparisons difficult. Thus, purposive sampling was used (Polit & Beck 2008). The invitation to participate into the national survey was directed to those nursing students who had completed at least one clinical placement during their studies. Finnish students undertaking the English-language degree programme were also included into the survey so that a comparison could be made between them and CALD students. Students were invited first by email to participate, and then reminded twice after the first invitation if they did not complete the survey. Due to the low response rate (10%), students were then invited in person to participate in the study, primarily by the researcher and in a few cases by their teacher tutors. Thus the data collection involved a number of visits to universities of applied sciences where meetings had been arranged with students during autumn 2015 and spring 2016.

The survey included socio-demographic questions (6 items), background questions (9 items), and self-administered questions of the CALDs and CLES+T scales (61 items). The questions were quantitatively structured. The total number of questions was 76. The socio-demographic part included questions on age, gender, country of origin, years lived in Finland, level of Finnish language and level of previous education. The background questions dealt with the term/year of the student’s study, current/last clinical placement, duration of the clinical placement, language of mentoring, prior education in Finnish, overall experience, title of mentor/s, frequency of mentoring and participation in possible separate unscheduled meetings with a mentor.

Analysis of the data

IBM SPSS (V 23.0) was used to analyze the data. The socio-demographic questions and background questions were analyzed by comparing data between CALD and
Finnish nursing students with descriptive statistics. The results were then reported in percentages, means and standard deviation. The significant p-value was set to be <0.5 for all statistical methods. Parametric continuous data was analyzed using an independent samples t-test. The sub-dimensions of CALDs and CLES+T were analyzed with the aim of identifying the perceptions of CALD nursing students in comparison with Finnish students regarding clinical learning environment and mentoring. A Chi-square test was used to test the similarities and differences observed in CALD and Finnish students’ background information. Nonparametric ordinal data was analyzed using Mann-Whitney U-test when comparing the two groups, and Kruskal-Wallis H-test when comparing more than two groups. In case of significant p values in the comparison, the groups were further compared pairwise and examined for type I error by applying the Bonferroni correction test (Munro 2005).

All outcome variables having significant difference among the groups were eventually tested by building binary logistic regression models in order to identify background factors relating to the clinical learning environment and mentoring of CALD nursing students (Munro 2005, Davis 2013). The independent and relevant outcome variables were first examined by using Spearman’s correlation matrix and then further tested for the best fitting models with a binary logistic regression analysis. The outcome variables were transferred from 5 Likert-scale ratings into a dichotomous variable (0 = 1–3.49 disagree; 1 = 3.50–5 agree). The models for binary logistic regression were chosen by using the following methods, log of likelihood -2times, Omnibus test, Hosmer and Lemeshow test, Cox & Snell test, and Nagelkerke R square test (Munro 2005). Two models were found to be the most fitting: one model including CALD and national students’ data, and the second including CALD students’ data alone. The effect sizes were counted and reported according to Cohen’s d effect size estimation and odds ratios (ORs) estimation (Cohen 1992, Lakens 2013) (see Table 9). The effect size varied from moderate to large in binary logistic models demonstrating efficient sample size in the study (Publication IV).

<table>
<thead>
<tr>
<th>Effect size</th>
<th>Small</th>
<th>Moderate</th>
<th>Large</th>
<th>Very large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohen’s d</td>
<td>0.2</td>
<td>0.5</td>
<td>0.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Odd’s ratios</td>
<td>1.5</td>
<td>2.5</td>
<td>4</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 9. The interpretation values of effect size estimates.
4.2.2 Survey with mentors of culturally and linguistically diverse nursing students (Publication V)

Data

Participants were selected by stratified randomized sampling (Grove et al. 2013). Stratified sampling was performed by: (a) counting the total number of registered nurses working at all five university hospitals in Finland ($N = 13,342$), (b) categorizing nurses into groups based on the hospitals they worked in, and (c) using randomized sampling alphabetically in each hospital. Mentors ($n = 3355$) involved in clinical mentoring of nursing students were invited to participate in the study from all the five university hospitals. The invitation to participate into the national survey was directed to those clinical staff who had mentored a student at least once during their clinical placement. Mentors who had experience of mentoring only national nursing students were also included into the survey, but they were excluded in the data analysis and the report of this study. Mentors were invited by email with two further reminders in two hospitals and three reminders in three hospitals. The reminders were sent two weeks after the first invitation if the mentors had not completed the survey.

The survey included socio-demographic questions (5 items) and background questions (13 items), and self-administered questions of the CALD+Ms and MCI scales (69 items). The questions were quantatively structured. The total number of questions was 87. The socio-demographic questions included questions on age, gender, country of origin, native language and level of previous education. The background questions dealt with the current clinical position and hospital, language used in mentoring CALD students, language skills, frequency of mentoring CALD students, experiences of living/working abroad and additional pedagogical practices in mentoring students.

Analysis of the data

The data was analyzed with descriptive statistics and then reported in percentages, means and standard deviation. The significant $p$ value was set to be $<0.5$ for all statistical methods. All socio-demographic and background variables showing a significant relationship in Spearman’s correlation matrix with CALD+Ms and MCI sub-dimensions were tested by building a binary logistic regression model (Munro 2005, Davis 2013). In order to find best fitting models, the same methods were used.
as for the CALDs and CLES+T scales (see section 4.2.1). The outcome variables were transferred from 4 Likert-scale ratings into a dichotomous variable (0 = 1–2.49 disagree; 1 = 2.50–4 agree). One model was found to be the most fitting in explaining factors influencing the outcome of linguistic diversity in mentoring. The effect size was counted and reported with the same methods and interpretational values as with the previous instruments of this study (see Table 9). The effect size varied from moderate to large in binary logistic models demonstrating efficient sample size in the study (Publication V).
5 Results

The results are presented concurrently with the description of the progress of the research process. This includes the two research phases of instrument development and a cross-sectional study. The first two research questions are answered in the first phase: first, identifying aspects influencing the clinical learning environment and mentoring of CALD nursing students (Publications I & II), and second, testing the validity and reliability of the CALDs and CLES+T and CALD+Ms and MCI (Publications III & V). The last three research questions are answered in the second phase. First, describing the perceptions of CALD nursing students on clinical learning environment and mentoring (Publication IV), second, examining mentors’ competence in the clinical learning environment of CALD nursing students (Publication V), and third, identifying the background factors relating to the clinical learning environment and mentoring of CALD nursing students (Publications IV & V).

5.1 Conceptualization and measurement of the clinical learning environment and mentoring of culturally and linguistically diverse students

5.1.1 Aspects influencing the clinical learning environment and mentoring of culturally and linguistically diverse students (Publications I & II)

The aspects influencing the clinical learning environment and mentoring of CALD nursing students were researched by conducting two systematic reviews (Publications I & II). The CALD students were either in the role of an exchange student, immigrant student or an international student undertaking an international degree programme in a foreign country (Publication I). Additional background information of the participants is presented in Table 10.
Table 10. CALD nursing students \((n = 428)\) in original studies of the systematic review.

<table>
<thead>
<tr>
<th>Original studies</th>
<th>CALD nursing students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arieli (2013), Israel</td>
<td>Arabs, Jews, Circassian ((n = 20))</td>
</tr>
<tr>
<td>Grant and McKenna (2003), Australia</td>
<td>Australian ((n = 9))</td>
</tr>
<tr>
<td>Green et al. (2008), Sweden &amp; UK</td>
<td>Swedish, English ((n = 32))</td>
</tr>
<tr>
<td>Mattila et al. (2010), Finland</td>
<td>African, Asian ((n = 14))</td>
</tr>
<tr>
<td>Miguel &amp; Rogan (2009), Australia</td>
<td>Chinese, Hong Kong, Taiwan, Vietnamese ((n = 10))</td>
</tr>
<tr>
<td>Myhre (2011), Norway</td>
<td>European ((n = 3))</td>
</tr>
<tr>
<td>Pitkäjärvi et al. (2012b), Finland</td>
<td>International ((n = 21))</td>
</tr>
<tr>
<td>Rogan et al. (2006), Australia</td>
<td>Non-English speaking ((n = 15))</td>
</tr>
<tr>
<td>Rogan &amp; San Miguel (2013), Australia</td>
<td>Chinese, Korean, Nepalese, Vietnamese ((n = 266))</td>
</tr>
<tr>
<td>Sedgwick et al. (2014), Canada</td>
<td>Indigenous Australians, Asian, Black Americans, Latino, Indians ((n = 7))</td>
</tr>
<tr>
<td>Seibold et al. (2007), Australia</td>
<td>Hong Kong, Indians, Japanese, Korean, Singapore, Thai ((n = 20))</td>
</tr>
<tr>
<td>Jeong et al. (2011), Australia</td>
<td>Botswanese, Chinese, Philippines ((n = 11))</td>
</tr>
</tbody>
</table>

Mentors in the review included all parties involved in CALD students’ clinical learning environment and mentoring including clinical staff, clinical facilitators and nurse teachers (Publication II). Additional background information of the participants is presented in Table 11.

Table 11. CALD nursing students’ mentors \((n = 65)\) in original studies.

<table>
<thead>
<tr>
<th>Original studies</th>
<th>Mentors of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeong et al. (2011), Australia</td>
<td>Clinical facilitators ((n = 3)), nurse teachers ((n = 4))</td>
</tr>
<tr>
<td>Koskinen &amp; Tossavainen (2003a), Finland</td>
<td>Nurse teachers ((n = 7))</td>
</tr>
<tr>
<td>Koskinen &amp; Tossavainen (2003b), Finland</td>
<td>Mentors ((n = 23))</td>
</tr>
<tr>
<td>Pitkäjärvi et al. (2011), Finland</td>
<td>Teachers ((n = 18))</td>
</tr>
<tr>
<td>San Miguel &amp; Rogan (2012), Australia</td>
<td>Clinical facilitators ((n = 10))</td>
</tr>
</tbody>
</table>

The aspects describing the clinical learning environment and mentoring of CALD students included the implementation of learning and provisions for learning, peer and mentor association with learning, and university support and instructions for learning in the clinical environment (Publication I). The thematic synthesis on mentors’ experiences was completed by defining analytical themes. No further categorizations were needed (Publication II). Mentors’ experiences of CALD students’ clinical learning environment included the following aspects: positive intercultural mentors’ role upon the success of students’ learning, mentor-student encounters on needed resources and support upon mentoring CALD students,
student’s own role in learning, language competence, and importance of students’ integration with domestic students (Publication II). The analytical themes on mentors’ experiences were integrated conceptually into the outcomes of the thematic synthesis of CALD students’ experiences. They are presented in Figure 2.

Implementation of learning was defined as the process of orientation. This included challenges experienced especially in the beginning of the clinical placement (Miguel & Rogan 2009, Myhre 2011) and involved slow cultural adjustments and growth towards appropriate changes in behaviour at the later stages of the placement (Grant & McKenna 2003, Green et al. 2008). It was shown that a constructive pre-planned orientation enhanced students’ learning (Mattila et al. 2010, Jeong et al. 2011) and helped them to integrate into the clinical placement (Grant & McKenna 2003).

Provisions of learning consisted of self-determining and prohibiting aspects. Self-determination was demonstrated by students by being independent (Koskinen & Tossavainen 2003a, San Miguel & Rogan 2012), responsible in one’s own learning (Grand & McKenna 2003, Rogan et al. 2006, Jeong et al. 2011) and managing communication and language skills in their clinical placements (Seibold et al. 2007). Prohibiting aspects in learning included a lack of recognition of the students’ motivation to learn by mentors and staff with an attitude of distrust towards them (Mattila et al. 2010, Sedgwick et al. 2014), students’ feeling strain in being different (Pitkäjärvi et al. 2012a) and the feeling of a disadvantage in learning because of language difficulties (Pitkäjärvi et al. 2011, Arieli 2013).

Peer and mentor association with learning included social aspects and mentoring aspects. A supportive relationship with peers produced positive experiences in learning (Arieli 2013, Sedgwick et al. 2014) whereas discrimination had the opposite consequences for the students’ wellbeing and learning outcomes (Jeong et al. 2011). Mentors saw the integration of native students with CALD students as producing mutual learning experiences (Koskinen & Tossavainen 2003a, Jeong et al. 2011). Aspects positively affecting mentoring included a positive attitude in mentors towards their students (Rogan et al. 2006, Myhre 2011), involving students in decision-making (Miguel & Rogan 2009), creating support for mentors with resources for education in mentoring, providing additional time to mentor and providing educational tools for daily practice (Koskinen & Tossavainen 2003b, Jeong et al. 2011, Pitkäjärvi et al. 2011). Unsuccessful mentoring, termed conflicting mentoring, obstructed the students’ learning by only permitting students to be observers rather than active learners (Miguel & Rogan 2009, Mattila et al. 2010, Jeong et al. 2011). By way of contrast, a positive
intercultural mentor’s role was characterized by the mentors’ cultural sensitivity towards the students’ diverse backgrounds with elements of empathetic communication and a permissive atmosphere for students to learn (Jeong et al. 2011, Pitkäjärvi et al. 2011).

University support and instructions on learning in the clinical environment involved providing the students with education in clinical communication prior to the clinical placements (Rogan & San Miguel 2013) and cooperation between the clinical placements of students and higher education institutions (Koskinen & Tossavainen 2003b, Mattila et al. 2010). Challenges in the clinical learning environment caused students additional stress and even led to failing their clinical placements (Mattila et al. 2010, Pitkäjärvi et al. 2012b). Nevertheless, the clinical placements of the international degree programmes brought professional and personal enrichment and growth for the students (Grant & McKenna 2003, Green et al. 2008).

Communication management and language skills were seen to be an important component in students’ learning by both parties. Additionally, social aspects such as peer support and a risk of social isolation were mentioned by CALD students and their mentors. The mentoring aspects were emphasized by both parties. There was a difference, however, in that mentors placed more emphasis on the responsibility of CALD students in their own learning. A more detailed report on the outcomes of the thematic synthesis of CALD students (Publication I, Table 5, p. 182) and their mentors’ experiences (Publication II, Table 3, p. 91) on students’ learning in the clinical environment can be found in the two systematic reviews.
<table>
<thead>
<tr>
<th>Implementing education</th>
<th>Self-determining aspects</th>
<th>Prohibiting aspects</th>
<th>Social aspects</th>
<th>Mentoring aspects</th>
<th>Influence of university</th>
<th>Opportunities in international degree programmes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Process of adaptation experienced as challenging in the beginning</td>
<td>Independent learning and building of coping skills</td>
<td>Net recognized and trusted as motivated learner</td>
<td>Supportive relationships with peers produce positive experiences and reciprocal learning</td>
<td>A positive attitude in mentoring and permissive environment</td>
<td>Prior education in clinical communication</td>
<td>Cultural and linguistic diversity brings professional enrichment and growth</td>
</tr>
<tr>
<td>Adjustment and growth towards new cultural clinical environment experienced as rewarding</td>
<td>Communication management and language skills</td>
<td>Strain of being different</td>
<td>Discrimination produces social isolation</td>
<td></td>
<td>Cooperating between clinical mentors and university clinical facilitators</td>
<td>Cultural and linguistic diversity enhances personal growth</td>
</tr>
<tr>
<td>Constructive orientation and reflection enhanced in students’ learning</td>
<td>Students’ own role in learning</td>
<td>Dis-advantages in learning possibilities because of language</td>
<td></td>
<td></td>
<td>Challenges caused students additional stress and failing of courses</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 2. The summary of the thematic synthesis on learning in the clinical environment.

* Publication I; ** Publication II
5.1.2 Cultural and Linguistic Diversity scale with Clinical Learning Environment, Supervision and Nurse Teacher scale (Publication III)

The main aspects identified in the thematic analysis were conceptualized into the theoretical framework of CALDs and CLES+T scales including: (a) culturally and linguistically diverse clinical learning environment, (b) mentoring, and (c) nurse teacher representing the educational institution of the student (Publication III). Both the newly developed Cultural and Linguistic Diversity scale (CALDs) and the Clinical Learning Environment, Supervision and Nurse Teacher (CLES+T) scale were tested for validity and reliability. Only the newly developed CALDs was tested for face and content validity. The outcomes of the test for face validity of CALDs (27 items) resulted in modifications for four items in language. The content validity of CALDs in I-CVI\(^8\) scores varied from .75 to 1 and resulted in a S-CVI/Ave\(^9\) total of .97. As a result, the language of 11 items was modified and three extra items were created so that there were 30 items in total in the scale. The pilot test for both scales led to minor revisions relating to technical issues of the survey.

After the main data collection and testing of item correlation, 9 overloading items were removed from CALDs. EFA\(^10\) was completed on both scales resulting in the outcome of a five-factor model (21 items) for CALDs, and an eight-factor model (34 items) for the CLES+T scale (see Table 12). The individual item loadings on both scales can be seen in detail in Publication III (see Table 3, pp. 8–9 & Table 4, p. 10). The CLES+T original scale changed from a five-factor model into an eight-factor model with all original items remaining the same. The MTMM\(^11\) showed that both scales have significant convergence validity with a significant correlation between CALDs third factor (orientation into the clinical placement) and CLES+T scale first factor (the content of supervisory relationship) (p < 0.001), CALDs fourth factor (culturally diverse pedagogical atmosphere) and CLES+T scale second factor (pedagogical atmosphere) (p < 0.001). The discriminability validity was not confirmed with a significant negative correlation between the factors of both scales. The Cronbach’s alpha for CALDs varied from 0.79 to 0.86 and from 0.79 to 0.97 for CLES+T scale demonstrating a well-established self-assessment scale. A sensitivity analysis was performed with the varimax rotation.

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\(^8\) I-CVI: content validity index testing of an individual item.
\(^9\) S-CVI/Ave: score averaging method in the content validity index.
\(^10\) EFA: Explorative factor analysis.
\(^11\) MTMM: Multitrait-Multimethod Matrix Method.
of EFA\textsuperscript{12} resulting in the same item loadings as in the promax rotation on both scales. Additionally, EFA was performed with replaced missing values resulting in a five-factor loading on CALDs and eight-factor loading on the CLES+T scale.

**Table 12. Explorative factor analysis of CALDs (n = 214) and CLES+T scales (n = 208).**

<table>
<thead>
<tr>
<th>Factor nr.</th>
<th>CALDs (cumulative % of variance)</th>
<th>Factor nr.</th>
<th>CLES+T scale (cumulative % of variance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Cultural diversity in the clinical learning environment (30.9%)</td>
<td>I</td>
<td>The content of supervisory relationship (41.5%)</td>
</tr>
<tr>
<td>II</td>
<td>Role of the student (15.3%)</td>
<td>II</td>
<td>Pedagogical atmosphere (9.7%)</td>
</tr>
<tr>
<td>III</td>
<td>Orientation into the clinical placement (10.5%)</td>
<td>III</td>
<td>Premises of nursing care on the ward (7.1%)</td>
</tr>
<tr>
<td>IV</td>
<td>Culturally diverse pedagogical atmosphere (6.0%)</td>
<td>IV</td>
<td>Role of the nurse teacher: Cooperation between placement staff and nurse teacher (5.6%)</td>
</tr>
<tr>
<td>V</td>
<td>Linguistic diversity in the clinical learning environment (5.0%)</td>
<td>V</td>
<td>Role of the nurse teacher: Nurse teacher as enabling the integration of theory and practice (4.4%)</td>
</tr>
<tr>
<td>VI</td>
<td>Leadership style of the ward manager (3.6%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII</td>
<td>Role of the nurse teacher: Relationship between the student mentor and nurse teacher (3.1%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIII</td>
<td>Learning environment (3.0%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

KMO\textsuperscript{1} = .88

BTS\textsuperscript{2} = 2221.354 (p < 0.001)

Cumulative % of the total variance

<table>
<thead>
<tr>
<th>KMO\textsuperscript{1}</th>
<th>.88</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTS\textsuperscript{2}</td>
<td>2221.354 (p &lt; 0.001)</td>
</tr>
</tbody>
</table>

\textsuperscript{1} Kaiser Meyer-Olkin
\textsuperscript{2} Bartlett’s Test of Sphericity

### 5.1.3 Cultural and Linguistic Diversity in Mentoring scale with Mentors’ Competence Instrument (Publication V)

The main aspects relating to mentors’ competence in mentoring CALD students found in thematic analysis were conceptualized into the theoretical framework of...

\textsuperscript{12} EFA: explorative factor analysis.
CALD+Ms and MCI including: (a) cultural and linguistic diversity in clinical mentoring, and (b) mentoring competence required to mentor nursing students (Publication V). The newly developed CALD+Ms was tested for validity and reliability. The results of the test on the face validity of CALD+Ms (14 items) led to language modifications in all items. The content validity of CALD+Ms in I-CVI\textsuperscript{13} scores ranged from .75 to 1 and gave a S-CVI/Ave\textsuperscript{14} total of .95. The pilot test of both scales led to minor revisions of technical issues in the survey. EFA\textsuperscript{15} on CALD+Ms resulted in an outcome of a two-factor model (8 items) (see Table 13). The individual item loadings on the scales can be seen in detail in the Publication V (see Table 1). The Cronbach’s alpha for CALD+Ms varied from 0.75 to 0.77, and for MCI from 0.75 to 0.92, demonstrating good reliability for a newly developed instrument.

Table 13. Explorative factor analysis of CALD+Ms (n = 323).

<table>
<thead>
<tr>
<th>Factor nr.</th>
<th>CALD+Ms (cumulative % of variance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Cultural diversity in clinical mentoring (30.9%)</td>
</tr>
<tr>
<td>II</td>
<td>Linguistic diversity in clinical mentoring (19.8%)</td>
</tr>
<tr>
<td>KMO\textsuperscript{1}</td>
<td>.75</td>
</tr>
<tr>
<td>BTS\textsuperscript{2}</td>
<td>751.941 (p &lt; 0.001)</td>
</tr>
<tr>
<td>Cumulative % of the total variance</td>
<td>59%</td>
</tr>
</tbody>
</table>

\textsuperscript{1} Kaiser Meyer-Olkin
\textsuperscript{2} Bartlett's Test of Sphericity

5.2 Clinical learning environment and mentoring of culturally and linguistically diverse nursing students

5.2.1 Participants

CALD and Finnish nursing students

The participants in the study included 231 CALD and 98 Finnish nursing students undertaking an English-language degree programme in one of the eight universities of applied sciences nationwide (see Table 14). The response rate was 50%. A

\textsuperscript{13} I-CVI: content validity index testing of an individual item.
\textsuperscript{14} S-CVI/Ave: score averaging method in the content validity index.
\textsuperscript{15} EFA: Explorative factor analysis.
detailed report of the students’ socio-demographic and background data can be found in the Publication IV (see Table 1, p. 76 and Table 2, p. 77).

Table 14. The distribution of participants \((n = 323)\) from eight universities of applied sciences.

<table>
<thead>
<tr>
<th>University of applied sciences</th>
<th>CALD students (n (%))</th>
<th>Finnish students (n (%))</th>
<th>Total (n (%))</th>
</tr>
</thead>
<tbody>
<tr>
<td>METROPOLIA</td>
<td>34 (14.7)</td>
<td>38 (38.8)</td>
<td>72 (21.9)</td>
</tr>
<tr>
<td>JAMK</td>
<td>46 (19.9)</td>
<td>22 (22.4)</td>
<td>68 (20.7)</td>
</tr>
<tr>
<td>LAUREA</td>
<td>48 (20.8)</td>
<td>10 (10.2)</td>
<td>58 (17.6)</td>
</tr>
<tr>
<td>TURKU UAS</td>
<td>22 (9.5)</td>
<td>13 (13.3)</td>
<td>35 (10.6)</td>
</tr>
<tr>
<td>LAMK</td>
<td>26 (11.3)</td>
<td>5 (5.1)</td>
<td>31 (9.4)</td>
</tr>
<tr>
<td>CENTRIA</td>
<td>23 (10.0)</td>
<td>6 (6.1)</td>
<td>29 (8.8)</td>
</tr>
<tr>
<td>Lapland UAS</td>
<td>19 (8.2)</td>
<td>4 (4.1)</td>
<td>23 (7.0)</td>
</tr>
<tr>
<td>ARGADA</td>
<td>12 (5.2)</td>
<td>0 (0.0)</td>
<td>12 (3.6)</td>
</tr>
<tr>
<td>Missing value</td>
<td>1 (0.4)</td>
<td>0 (0.0)</td>
<td>1 (0.3)</td>
</tr>
<tr>
<td>Total</td>
<td>231 (100.0)</td>
<td>98 (100.0)</td>
<td>329 (100.0)</td>
</tr>
</tbody>
</table>

The CALD students were significantly older \((p = 0.04)\) (mean 28, standard deviation 6.68) than Finnish students (mean 26, standard deviation 8.01). CALD students had lived an average of 5 years in Finland (standard deviation 4.34) and 54.1% of them had higher degree education previously. The majority of CALD students evaluated their skills in Finnish language to be beginner (43.7%) and intermediate (42.0%) level. Students who assessed themselves as being at the beginner level included the greatest percentage of Africans (45.5%) and Asians (28.7%). There were proportionately the most North Americans (13.4%) at the intermediate level, and Europeans (31.3%) and culturally and linguistically diverse immigrants with Finnish nationality (CALD Finns) (18.8%) at the advanced level (see Figure 3).
Fig. 3. Level of Finnish language among CALD students (n =231).

The main language in mentoring in the clinical placements according to the CALD students was Finnish (57.6%) and Finnish mixed with English (31.2%). Students’ education in Finnish prior to clinical placements was reported as average\(^{16}\) among students at beginner (mean 3.26, standard deviation 1.41), intermediate (mean 3.40, standard deviation 1.48), and advanced (mean 3.52, standard deviation 1.46) levels. Students’ knowledge in clinical vocabulary improved significantly with their level

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\(^{16}\) Measured in Likert scale (1 fully disagree, 2 disagree to some extent, 3 neither agree nor disagree, 4 agree to some extent, 5 fully agree).
of language ($p = 0.01$). Among the students, participants were mostly third (38.5% CALD vs. 43.9% Finnish) or second year students (35.9% CALD vs. 32.7% Finnish). More clinical placements were conducted in specialized medical care (52.4% CALD vs. 62.2% Finnish) than in primary healthcare (47.2% CALD vs. 36.7% Finnish). The students were mostly mentored by registered nurses (79.7% CALD students vs. 82.7% Finnish students).

**CALD students’ mentors**

The participants in the study included 576 mentors from five university hospitals nationwide. The response rate was 17%. Out of the total number, 323 (56.1%) had mentored CALD students in the past. Their data was used for the study (see Table 15).

**Table 15. The distribution of participants ($n = 323$) from five university hospitals.**

<table>
<thead>
<tr>
<th>University hospitals</th>
<th>CALD students’ mentors $n$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helsinki University Hospital</td>
<td>143 (44.3)</td>
</tr>
<tr>
<td>Oulu University Hospital</td>
<td>70 (21.7)</td>
</tr>
<tr>
<td>Tampere University Hospital</td>
<td>40 (12.4)</td>
</tr>
<tr>
<td>Kuopio University Hospital</td>
<td>39 (12.1)</td>
</tr>
<tr>
<td>Turku University Hospital</td>
<td>31 (9.6)</td>
</tr>
<tr>
<td>Missing value</td>
<td>1 (0.1)</td>
</tr>
<tr>
<td>Total</td>
<td>323 (100.0)</td>
</tr>
</tbody>
</table>

A detailed report of CALD students’ mentors’ socio-demographic and background data can be found in Publication V (see Table 1). The mentors’ average age was 42 years (standard deviation 10.91) with an average of 16 years working experience in the healthcare sector (standard deviation 10.00). The majority of mentors were Finnish (97.8%), female (86.0%), and mentored CALD students in the capital area of Finland (44.3%). Most mentors worked in clinical ward settings (53.6%) and mentored students on a monthly (33.7%) or a weekly (38.1%) basis. However, the frequency of mentoring CALD students was evaluated to be yearly or less than yearly on average (see Figure 4).
Fig. 4. Frequency in mentoring CALD nursing students (n = 323).

The most commonly used language in mentoring CALD students was a combination of the national language (Finnish/Swedish) and English. Those CALD students who studied in Finnish degree programmes were mentored significantly more in Finnish (35.9%) than the CALD students who were exchange students or who studied in international degree programmes (see Figure 5). The planned time for reflection in student mentoring per day averaged at 38 minutes. More than half of the mentors (57.9%) reported as having no previous education in mentoring nursing students, but nevertheless, evaluated their overall competence level in
mentoring students as good (72.8%). Mentors evaluated their language skills to be sufficient to mentor students (80.5%). However, half of the mentors evaluated that they did not have sufficient information about the students’ cultural background (52.6%). Half of the mentors evaluated that they did not need more support from their colleagues when mentoring CALD students (50.8%). Many evaluated that when needed they had received help from their colleagues (76.2%).

Fig. 5. Language of mentoring CALD students (n = 231).
5.2.2 Culturally and linguistically diverse nursing students’ perceptions of the clinical learning environment and mentoring (Publication IV)

CALD nursing students’ perceptions in comparison to Finnish nursing students’ perceptions

The CALD students’ and Finnish nursing students’ perceptions of the clinical learning environment and mentoring were compared (see Figure 6). The results are reported in more detail in Publication IV (see Table 3, p. 77). Both groups evaluated role of student (CALD mean 4.63 vs. 4.72), leadership style of the ward manager (CALD mean 4.14 vs. Finnish 4.03), the content of supervisory relationship (CALD mean 4.01 vs. Finnish mean 4.19), orientation into the clinical placement (CALD mean 3.99 vs. Finnish mean 3.88), and premises of nursing on the ward (CALD mean 3.90 vs. 3.88) to be within the range of positive or strongly positive (Likert scale: agree or strongly agree). The role of nurse teacher (CALD mean 3.61 vs. Finnish 3.57) as mediator in the relationship of the students with their mentor scored average. There was no significant difference among CALD and Finnish students between the sub-dimensions.

In the sub-dimension on the role of the student the commitment to working schedules of the ward was evaluated highest (CALD mean 4.69 vs. Finnish mean 4.87) while showing initiative in one’s own learning scored the lowest within the sub-dimension (CALD mean 4.48 vs. Finnish mean 4.48). The leadership style of the ward manager was evaluated as best in seeing the manager as a team member (CALD mean 4.37 vs. Finnish mean 4.35), while the item on ward manager treating ward staff as a key resource was perceived somewhat less favourable (CALD mean 3.95 vs. Finnish mean 3.88). With regard to the content of supervisory relationship, all students perceived the mentors’ attitude towards mentoring as most positive within the sub-dimension (CALD mean 4.14 vs. Finnish 4.32). Continuous feedback received from the mentors was evaluated as lowest in the whole sub-dimension (CALD mean 3.90 vs. Finnish mean 3.67).

Orientation into the clinical placement was seen as highest within the sub-dimension on the introduction to the ward routines in the beginning of the students’ clinical placement (CALD mean 4.18 vs. Finnish mean 4.12). The lowest score was given to knowing what was expected of the student on the ward (CALD mean 3.83 vs. Finnish 3.67). The premises of nursing on the ward were seen as the most positive within the sub-dimension on a clear definition of nursing philosophy on
the ward (CALD mean 4.00 vs. Finnish mean 4.05). The information received by students related to patient care was evaluated as lowest (CALD mean 3.72 vs. Finnish mean 3.62). Relating to the sub-dimension of the role of nurse teacher in relationship among student, mentor and nurse teacher, the focus on meeting students’ learning needs was evaluated as most positive by all students (CALD mean 3.81 vs. Finnish mean 3.78). The response on being recognized as a colleague in the meetings between students’ mentors and nurse teachers scored the lowest (CALD mean 3.36 vs. Finnish mean 3.27).

Most significant differences between the two groups were found relating to learning environment (CALD mean 4.01 vs. Finnish mean 4.26; p = 0.02), role of the nurse teacher as enabler of the integration between theory and practice (CALD mean 3.90 vs. Finnish mean 3.68; p = 0.04), pedagogical atmosphere (CALD mean 3.65 vs. Finnish mean 4.14; p < 0.001), and the role of nurse teacher as a co-operator between placement staff and the nurse teacher (CALD mean 3.42 vs. Finnish mean 2.66; p < 0.001).

The learning environment was seen as good (CALD mean 4.15 vs. Finnish mean 4.31) with less satisfaction identified in multi-dimensional learning opportunities (CALD mean 3.87 vs. Finnish mean 4.13). Within the sub-dimension role of nurse teacher as being capable to enable the integration of theory and practice in everyday practice of nursing was evaluated most positively (CALD mean 3.97 vs. Finnish mean 3.74). The helping role of the nurse teacher in reducing the gap between theory and practice was evaluated lowest (CALD mean 3.72 vs. Finnish mean 3.49). The pedagogical atmosphere was perceived as most positive by CALD students when the staff learned the students’ personal names (CALD mean 4.16 vs. Finnish mean 4.15). Finnish students perceived the pedagogical atmosphere as most positive with the staff being easily approachable (CALD mean 3.84 vs. Finnish mean 4.35). All students felt least comfortable when taking part in the discussion during staff meetings (CALD mean 2.91 vs. Finnish mean 3.87). The role of nurse teacher as a co-operator between the clinical placement and nurse teacher was evaluated the highest within the sub-dimension on working together as a team to support students’ learning (CALD mean 3.54 vs. Finnish mean 2.90). Evaluation on nurse teachers’ as being members of the nursing team received the lowest score (CALD mean 3.33 vs. Finnish mean 2.47).
CALD students’ perceptions

The CALD students additionally completed CALDs sub-dimensions culturally diverse pedagogical atmosphere (mean 3.98), cultural diversity in the clinical learning environment (mean 3.53), and linguistic diversity in the clinical learning environment (mean 2.39) (Publication IV, Table 4, p.78). The culturally diverse pedagogical atmosphere was evaluated positively by all country groups of CALD
students. All CALD students perceived constructive feedback promoting their learning most positively (mean 4.32) and being treated just as other students least positively (mean 3.86). A significant difference between the different country groups of CALD students was found in their perception of cultural diversity in the clinical learning environment (p < 0.001) and linguistic diversity in the clinical learning environment (p < 0.001) (see Figure 7).

![CALD students' perceptions of culturally and linguistically diverse clinical learning environment (n = 231).](image-url)
In the sub-dimension *cultural diversity*, Asian (p = 0.01) and African (p < 0.001) students had significantly worse evaluation on discrimination (Asian mean 3.94, African mean 3.63 vs. European mean 4.39), social isolation (Asian mean 3.23, African mean 3.10 vs. European mean 3.84), stress due to one’s cultural background (Asian mean 3.67, African mean 3.34 vs. European mean 4.18) and limitations in learning (Asian mean 3.69, African mean 3.22 vs. European mean 4.04) when compared to European students. In the sub-dimension *linguistic diversity* CALD Finns (mean 4.05) saw language as not being a limitation to learning, which differed considerably from North American (mean 2.18; p = 0.03), Asian (mean 2.25; p = 0.02) and African (mean 2.13; p = 0.009) students, who gave much lower scores to this item. Similarly, European students had significantly less limitation in learning relating to diversity in language than African students did (European mean 2.88 vs. African mean 2.13; p = 0.003).

5.2.3 Mentors’ competencies in mentoring culturally and linguistically diverse nursing students (Publication V)

The mentors’ competencies in mentoring CALD nursing students were measured in the areas of reflection during mentoring (mean 3.72), identifying student’s level of competence (mean 3.68), mentor characteristics (mean 3.57), supporting the learning process of the students (mean 3.52), cultural diversity (mean 3.52) motivating the student (mean 3.49), constructive feedback and evaluation (mean 3.48), goal-orientation in mentoring (mean 3.45), motivation of the mentor (mean 3.42), student-centred feedback and evaluation (mean 3.18), and linguistic diversity in clinical mentoring (mean 2.58). All of the sub-dimensions except *linguistic diversity* were evaluated as strongly positive (Likert scale “fully agree”)\(^\text{17}\) by mentors (see Figure 8). A detailed report can be found in Publication V (see Table 2).

\(^{17}\) Measured in Likert scale (1 fully disagree, 2 disagree to some extent, 3 agree to some extent, 4 fully agree).
Fig. 8. Mentors’ competencies in mentoring CALD nursing students (n = 323).

Reflection during mentoring was seen as highest within the sub-dimension on creating a safe environment for students to discuss their learning needs (mean 3.76) and lowest on feeling empathy towards the students’ experiences (mean 3.66). Identifying student's level of competence was evaluated highest within the sub-dimension guiding the students to perform concrete tasks in their practice (mean 3.78) and lowest on decreasing the mentors’ involvement with increasing student skills (mean 3.45). Mentor characteristics were evaluated highest within the sub-dimension on fair treatment of different students (mean 3.69) and lowest on being
patient in mentoring students (mean 3.48). **Supporting the learning process of the students** was seen as highest by mentors within the sub-dimension on giving reasons to the students for their own actions in nursing (mean 3.66) while evaluating their own style of learning was the least meaningful aspect (mean 3.31). **Cultural diversity in clinical mentoring** was evaluated as highest within the sub-dimension on treating CALD students equally with native students (mean 3.67) and lowest on not stereotyping CALD students relating to their cultural background (mean 3.34).

**Motivating the student** was perceived as best in the sub-dimension on listening and discussing with the student in order to understand one’s own needs (mean 3.57). Mentors perceived finding things to interest students in their clinical placements less positive (mean 3.33). **Constructive feedback and evaluation** was evaluated as highest in giving feedback to students on the areas of development (mean 3.63) and lowest in taking a more active role than students in the beginning of the reflection time (mean 3.28). **Goal-orientation in mentoring** was evaluated as highest within the sub-dimension on examining learning outcomes at the end of students’ clinical placements (mean 3.68). Mentors’ evaluated the finding out of students’ curricula outcomes and the outcomes set by them in clinical placement as lower (mean 3.03). **Motivation of the mentor** was evaluated highest within the sub-dimension on wanting to develop and learn mentoring competencies (mean 3.60) and lowest on encouragement of colleagues for increasing enthusiasm to mentor students (mean 3.17).

**Student-centred feedback and evaluation** scored the best in the area of supporting students in the evaluation of their own activities (mean 3.47). Mentors perceived expressing the essentials of their own learning to the student as least important within this sub-dimension (mean 2.96). **Linguistic diversity in clinical mentoring** was evaluated with a lower total score when compared with the other sub-dimensions. The mentors perceived that language barriers prevented their interaction with CALD students (mean 2.42) and had a negative influence on the relationship with CALD students (mean 2.67).
5.2.4 Background factors relating to the clinical learning environment and mentoring of culturally and linguistically diverse students

The following outcome variables were tested with binary logistic regression: CLES+T scale – pedagogical atmosphere, role of nurse teacher as collaborator with placement staff, role of nurse teacher as enabler in integrating theory and practice, learning environment; CALDs – cultural diversity in the clinical learning environment, linguistic diversity in the clinical learning environment; CALD+Ms – linguistic diversity in clinical mentoring; and students’ total experience in clinical learning environment and mentoring. First, all outcome variables were examined with socio-demographic and background information in the correlation matrix in order to identify factors relating to CALD students’ clinical learning environment and mentoring.

In the students’ data, the data on years lived in Finland, level of Finnish language and the country of origin highly correlated with one another ($r > 0.70$). Thus, these were not used together in the same model. The level of Finnish was the most fitting factor in each of the two models presented in detail in Publication IV (see Table 5, p. 78 and Table 6, p.79). The first model included independent variables on the level of Finnish, gender and education within the outcome variables pedagogical atmosphere, role of nurse teacher, and the evaluation of the total experience. The model was created using CALD and Finnish students’ data ($n = 329$). The second model included independent variables on the level of Finnish and gender with the outcome variables cultural diversity and linguistic diversity. The model was created using CALD students’ data ($n = 231$).

The students’ lower level of Finnish, when compared to the level of native speakers, had a significant negative effect on pedagogical atmosphere at the beginner level ($p < 0.001$) and at the intermediate level ($p < 0.001$). CALD students at the beginner ($p < 0.001$) and intermediate levels ($p = 0.007$) required the nurse teacher to play a significantly more active role of cooperation with the clinical placement than native speakers did. The beginners’ total experience in the clinical learning environment scored significantly lower ($p < 0.001$) when compared with native students. Similarly, those at an intermediate level of Finnish had significantly better outcomes on cultural diversity in the clinical learning environment compared to those at the beginner level ($p = 0.008$). Additionally, CALD females experienced the reception of cultural diversity in the clinical learning environment more negatively than males ($p = 0.021$). Finally, the linguistic
diversity in the clinical learning environment produced significantly higher scores for students at the intermediate level than for beginners \( (p = 0.013) \).

A model with the outcome variable linguistic diversity in clinical mentoring was created by using data of CALD students’ mentors \( n = 323 \). The independent variables on the level of English living/working abroad, frequency in mentoring exchange students, possessing sufficient knowledge of the students’ cultural background, spending time discussing the students’ cultural differences, integrating CALD and Finnish students to work together and needed support by colleagues while mentoring students were the most fitting factors for the model. Detailed information of the model can be found in Publication V (see Table 4). Being at an advanced level in English helped mentors to support students in their learning significantly more than those mentors who were at the basic level in English \( (p < 0.001) \). Living or working abroad in the past \( (p = 0.049) \) and frequency in mentoring exchange students \( (p = 0.002) \) helped mentors to increase their competence. Furthermore, a higher level of competence in linguistic diversity was linked with the mentors’ sufficient knowledge of the students’ cultural background \( (p = 0.002) \), time spent discussing cultural differences with students \( (p = 0.03) \), and ensuring that CALD students work together with national students \( (p = 0.012) \). Also, mentors with a higher level of competence in linguistic diversity needed less support in mentoring from their colleagues \( (p < 0.001) \).

The hypothesis (1) that cultural diversity influences the students’ success in the clinical learning environment and mentoring was rejected since the models with this background factor did not demonstrate any significant evidence in the analysis. The hypothesis (2) was confirmed, namely, that language skills of CALD students and their mentors influenced the outcome of the clinical learning environment and mentoring.

5.3 Summary of the results

The main influential aspects on students’ and their mentors’ experiences relating to learning in the clinical environment were: (a) implementing learning and provisions for learning, (b) mentor and peer association in learning, and (c) university support and instructions pertaining to learning. The main aspects found in the thematic analysis were conceptualized into the theoretical framework of CALDs and CLES+T and CALD+Ms and MCI instruments. The CALDs and CLES+T scale included the concepts: (a) culturally and linguistically diverse clinical learning environment, (b) mentoring, and (c) nurse teacher. The CALD+Ms and MCI
included the concepts: (a) cultural and linguistic diversity in clinical mentoring, and (b) mentoring competence required to mentor nursing students.

The participants included students undertaking English-language degree programmes in nursing from eight universities of applied sciences and staff nurses mentoring CALD students from five university hospitals nationwide. The most common language in mentoring CALD students was Finnish, according to CALD students and, by way of contrast, English according to CALD students’ mentors. CALD students’ perception on the outcome of their clinical learning environment and mentoring was lower than the perception in the self-evaluation of CALD students’ mentors on their mentoring competence. The outcome of CALD students’ answers on the clinical learning environment and mentoring differed from Finnish students statistically, significantly on pedagogical atmosphere, role of nurse teacher in cooperation between placement staff and nurse teacher, role of nurse teacher as enabler of integration of theory and practice, and learning environment. The answers of those CALD students whose level of Finnish was beginner or intermediate resulted in more negative outcomes. Furthermore, CALD students at a beginner level in Finnish perceived cultural and linguistic diversity in clinical learning environment and mentoring as more negative.

CALD students’ mentors evaluated their competence in mentoring as strongly positive, excluding linguistic diversity in mentoring. Linguistic diversity was perceived more negatively by those mentors who evaluated their English language skills to be at the basic level and had less experience working or living abroad. With increasing competence in linguistic diversity the mentors evaluated that they had more knowledge of students’ cultural background, and spent more time discussing cultural differences with students. They also ensured that CALD students work together with native students and they needed less support from colleagues in mentoring CALD students.
6 Discussion

The discussion presents the main results emphasizing those relating to the clinical learning environment and mentoring of CALD nursing students and highlighting essential factors relating to the outcomes of clinical learning in nursing degree programmes. In addition, the discussion includes ethical considerations and an evaluation of the reliability and validity of the study, implications of the study and suggestions for future research.

6.1 Discussion of the main results

Cultural and linguistic diversity in nursing education is increasingly present both in Finland and globally. In this study it was shown that the concepts, which are important for the clinical learning environment and mentoring of Finnish students, are just as important for CALD nursing students (Publication IV). Students in this study performed their clinical placements equally well in both primary and specialized healthcare. In order to achieve clinical competence in nursing, students need to complete their clinical placements with real patients (Terzioglu et al. 2016) in authentic clinical spaces (Puppe & Neal 2014). This is where students can practice their clinical skills the best (Sandvik et al. 2014) and develop their professional competence (Bjørk et al. 2014). In this study, both CALD and Finnish students had registered nurses as mentors. A majority of the students had a named mentor. It was shown that the clinical learning environment needs to be adapted in such a way that it facilitates students’ learning. There also needs to be sufficient guidance for students’ learning process by mentors (Jokelainen et al. 2011).

This study has demonstrated that students with lower competence in Finnish language were not able to achieve the same outcomes in clinical learning environments and mentoring as students with a higher competence. Students who had lower competence experienced the pedagogical atmosphere, students’ inclusion in decision-making and the total experience more negatively than students who knew Finnish better. The essential elements of the clinical learning environment involve a safe atmosphere to learn, a good relationship between students and clinical staff, managers’ involvement, students’ inclusion in clinical care, well-functioning mentoring practices and students’ own active role in learning (Dunn & Burnett 1995, Chan 2001, Chan 2003, Hosada 2006, Saarikoski et al. 2008, Saarikoski et al. 2009, Hooven 2014). Previously, it has been suggested that the language barrier is not necessarily to be seen as an obstacle for learning in case the
staff has a positive attitude towards the international students (Pitkäjärvi 2012). However, in this study the language factor was demonstrated as having a significant effect on students’ clinical learning environment and mentoring (Publications IV & V). The different outcomes between this study and Pitkäjärvi’s (2012) study can be possibly explained by two studies using different methods of data analysis. In this study the data analysis methods included finding predictor variables explaining the outcomes, which was not a part of the study of Pitkäjärvi (2012). Similarly to this study, a number of other studies have reported that communication has been shown to be a special challenge to international students in the clinical environment. The outcome was that staff were not making enough effort to speak to those students who had a lower level of proficiency in the native language, and this caused a lot of stress for the students (Pitkäjärvi et al. 2012b). Similarly, it has been shown in earlier studies that language barriers have caused students to experience anxiety and stress (Choi 2005), discrimination and ridiculing (Sanner & Wilson 2008, Scammell & Olumide 2012), to miss out on learning opportunities (Goodman et al. 2008, Kent-Wilkinson et al. 2015) because of nervousness around talking in the foreign language (Bolderston et al. 2008) while also experiencing pressure about being different (O’Reilly & Milner 2015).

In this study, the level of Finnish was also found to be a main factor, which related to the outcome of clinical learning for students coming from a culturally diverse background. This included the elements of discrimination, social isolation, stress, having to prove oneself, and limitations in learning (Publication IV). The OECD (2015) evaluation report emphasizes that Finnish migrants scored 51 points less than other OECD countries in literacy, which is the second highest score in the evaluation for language difficulties. The recommendation by OECD was to develop personalized training for migrants that would combine Finnish language, professional skills and work experience (OECD 2015). However, only two out of ten universities of applied sciences had Finnish language included in the eligibility criteria for admission in English-language nursing degree programmes (Study info 2016).

Additionally, in this study, students reported that the main mentoring language was Finnish. Interestingly, the mentors reported a contradictory finding according to which the main mentoring language was English (Publications IV & V). The reasons for the contradiction should be further examined in order to ensure that both CALD students and their mentors have sufficient language skills. Education in language prior to clinical placements was evaluated as average by CALD students in this study. Knowledge in clinical vocabulary increased with their rising
level of Finnish (Publication IV). Based on CALD students’ previous experiences, university influence upon students’ success in learning involved prior education in language (Seibold et al. 2007, Miguel & Rogan 2009) and cooperation between higher education institution and clinical placements (Mattila et al. 2010) (Publication I). Careful language assessment, appropriate language education and training in clinical vocabulary need to be effectively implemented in higher education institutions of nursing so that students are sufficiently prepared to enter clinical placements (Terwijn et al. 2012, Chan et al. 2016).

There are several educational methods that have been used in CALD students’ nursing education. These methods: integrate technology, which provides students with a possibility to learn clinical vocabulary and communication in a virtual environment (Rogan & San Miguel 2013); incorporate subject-specific vocabulary into students’ contact teaching, reading and writing (Crawford & Candlin 2013); include teaching of national slangs in order to help students to understand patients (Edgecombe et al. 2013; Philip et al. 2015); involve using oral presentations and role-playing by CALD students (Olson 2012); assimilate visual aids in mentoring and teaching; and include educating mentors in mentoring CALD students (O’Reilly & Milner 2015). Integration of native students with CALD students, thus creating mixed cultural classrooms, has been shown to be an evidence-based teaching strategy with marked success in education (Ryan & Dogbey 2012). Evermore, assessment tools have been developed to evaluate students’ readiness for a professional level of communication in clinical placements, which provide support to clinical facilitators (San Miguel & Rogan 2015). The development of education units or training wards could offer CALD students more diverse opportunities of integration with native students. These kinds of units differ from traditional clinical units by allowing students to take professional roles in inter-professional collaborative learning. This method has mentors acting as coaches and guides instead of traditional mentors providing role modelling to the students (Moore & Nahigian 2013, Mulready-Shick et al. 2013, Hood et al. 2014, Anderson et al. 2014, Claeys et al. 2015).

Moreover, regarding language competence, it was further demonstrated in this study that CALD students with a lower level of Finnish required the collaboration of nurse teachers more than students with better skills in Finnish (Publication IV). Previously, it has been shown that the collaboration with the nurse teacher or clinical facilitators coming from higher education institutions played an essential role for those students who faced challenges in their learning in clinical environments (Luhanga et al. 2008, Juntunen et al. 2016). However, the challenges
faced by national nursing students were largely different from those faced by CALD students and related to students’ motivation, unprofessional behaviour of mentors (Killam et al. 2010, Heaslip & Scammell 2012) and students’ concentration issues with professional un-readiness to enter clinical placements (Juntunen et al. 2016). National students also face difficulties in the clinical learning environment, experiencing uncertainty due to ineffective program organization (Killam & Heerschap 2013). These issues are not closely related to CALD students’ challenges with cultural and linguistic barriers. In several studies, CALD students were found to have high motivation (Pitkäjärvi 2012), had made a great effort to succeed professionally despite facing challenges (Terwijn et al. 2012) and produced higher scores than native students in the assessments of nursing degree courses (Anionwu et al. 2005, Salamonson et al. 2008, Pitt et al. 2012). Collaboration between the nurse teacher and mentor, and support for CALD students by higher education institutions, is essential. In connection with this, integration programmes in clinical practice require careful planning. In this study, more than half of the mentors saw themselves as not having enough information about CALD students’ background. This background knowledge is important for the mentors so that they can best facilitate the education process of students entering the clinical placements (Barnett et al. 2008, Barnett et al. 2010). Collaborative systems should be developed to reduce risks resulting from a lack of communication and essential information needed for CALD mentors about their students.

Another important factor the study identified was cultural diversity. Cultural diversity correlated strongly with the length of living in the country. This study did not confirm the hypothesis that cultural diversity relates to the students’ success in the clinical learning environment and mentoring. Instead, language was the significant factor in predicting the outcomes of the clinical learning environment and mentoring for CALD students. Interestingly, in this study it was evident that European students were more confident in the clinical learning environment. This related to a more positive evaluation of their language skills and a perception of their learning environment where they saw themselves as experiencing less discrimination, social isolation and stress relating to their cultural background than Asian and African students did (Publication IV). Cultural diversity is seen to be inseparable from linguistic diversity in that language is a necessity in integrating into a new culture (Terry & Irving 2010).

Although mentors had great confidence in their competence to mentor CALD nursing students, it was shown that stereotyping of students was evaluated lower
Previously, nursing practice has been shown to run the risk of racist attitudes when issues are examined through the lens of the white race (Scammel & Olumide 2012). The discrimination examples can vary from patients rejecting care from ethnically diverse nurses (Moceri 2014), overloading culturally diverse nurses with work (Kishi et al. 2014), having security at work threatened, isolation from the professional team (Walsh & O’Shea 2010), and lack of tolerance towards CALD nurses (Nichols et al. 2015, Pung & Goh 2017). Students’ mentors may shy away from challenging situations in nursing education when they are afraid to be misunderstood as being discriminating, when it is open communication that is needed to discuss the more challenging educational situations (Wilson-Mitchell & Handa 2016). Embracing cultural and linguistic diversity in nursing education helps to introduce essential cultural knowledge and awareness. This, in turn, enhances open communication about cultural similarities and differences and helps reduce stereotyping and cultural prejudice (Caputi et al. 2006, Greatrex-White 2008, Keogh & Russel-Roberts 2009, Adeniran & Smith-Glasgow 2010, Wilson-Mitchell & Handa 2016).

In this study, the essential fundamentals of mentoring practice, including an open and safe learning environment for students, sufficient guidance in the students’ learning process and enhancing the students’ professionalism, were evaluated as highly satisfactory by CALD students’ mentors. Only linguistic diversity was evaluated as more challenging (Publication V). Cultural and linguistic awareness can be introduced to CALD students’ mentors through education of cultural variability (Xu & Davidhizar 2005, Ackerman-Barger 2010), intercultural communication (Xu et al. 2004), cultural interaction and ways of reaching out to minority groups (Abriam-Yago et al. 1999, Choi 2005, Scheele et al. 2011), and practical ways of embracing and acknowledging culture in clinical settings (Mackay et al. 2012, Terada & Thompson 2012, Thompson 2012). Cultural knowledge is seen to be one of the highlights and key emphases in future education (UNESCO-IBE 2010/11, EURYDICE 2013). Finding key elements of importance in incorporating cultural diversity in education can help in creating a culturally safe environment for learning. This is focal when integrating CALD students with national students (Abriam-Yago et al. 1999, Choi 2005, Brown 2008), in building cultural awareness of differences among culturally diverse parties (Xu et al. 2004, Xu & Davidhizar 2005, Mareno & Hart 2014, Harkess & Kaddoura 2016, Young & Guo 2016), and in finding shared meanings when building safe nursing practices (Mackay et al. 2012). Preparation for mentoring CALD nursing students in the form of mentoring education, clear guidance and practical tools may help staff
nurses to be more confident in their mentoring. These practices require organizational structures that include collaboration with higher educational institutions, managers’ involvement, providing sufficient resources and equipment in the clinical learning environment for students and pedagogical competence of mentors (Jokelainen 2013).

Competence of nurse professionals in foreign languages is an essential prerequisite for providing culturally and linguistically diverse care to patients. English-language proficiency was an important factor, which related to mentors’ and CALD students’ interaction in the clinical learning environment. When clinical mentors had lower competence in linguistic diversity, they had less knowledge of the students’ cultural background, spent less time discussing cultural differences with the students and integrated CALD students less with national students when compared with those mentors who had a higher level of competence in linguistic diversity. The need for sufficient language skills is increasing as a result of international mobility between countries (Ali & Johnson 2017). That is why language skills, including effective communication skills, should be taken into consideration already at the beginning stage of nursing education (Chan et al. 2016). In addition, international mobility of professionals should be encouraged in order to gain more experience using foreign language in diverse situations (Hvalič-Touzery et al. 2017).

### 6.2 Ethical considerations

Conducting research requires both comprehensive planning and sufficient resources. Research is seen to be unethical if new evidence does not bring any social benefit (Stang 2015). The research phenomenon in this study was seen as important for two primary purposes, for the improvement of international nursing education and for enhancing internationalization within Finnish society. Previous research on international nursing students in Finland had identified a lack of research relating to their clinical learning environment and mentoring (Pitkäjärvi 2012). It was important to recognize the benefit of the study to society for the purpose of justifying the resources utilized during the process (Stang 2015). Prior to completion of the study, precise research planning and evaluation of the resources needed to conduct the study was performed (Medical Research Act 488/1999). The research conducted for this dissertation involved human phenomena directly involving nursing students and their mentors.
Research permissions were obtained from eight universities of applied sciences and from five university hospitals prior to the main data collection. Ethical permission to conduct the study was not required according to the regulation of Medical Research Act (488/1999, 295/2004, 794/2010) because the study did not involve direct or indirect physical or psychological harm to the participant, and because it did not include clinical trials.

The research methods for this study were chosen according to their relevance and appropriateness for the specific researched field (Stang 2015). The research questions were formulated in line with the research purpose. The quality of research methods used in the study was evaluated by using scientifically valid tools and further enhanced by ensuring the quality of the used methods (STROBE 2007, JBI 2014). The aim of the study has been to report the methods and results clearly for the purposes of convenient reproduction and reduction of bias (Stang 2015).

The systematic review data (Publications I & II) was handled with respect and the authors of original studies included in the thematic analysis were all acknowledged in the referencing (RCR 2012). Each article was assessed on the basis of the evidence for ethical approval presented by each study (JBI 2014) in the critical appraisal QARI of original studies. The systematic review was reported truthfully and in a transparent way, with the aim of giving the possibility for other researchers to be able to reproduce the process (CRD 2009).

During the instrument development and adaptation phase (Publication III), the participants in the test for face and content validity were clearly informed about the research purpose and aim, the lack of research knowledge in this area, and their role in the instrument validation process. Permission to adapt the CLES+T scale and MCI for CALD nursing students and their mentors was obtained from the authors of the scales. Written invitation to participate in the survey was sent by email and/or as a paper questionnaire. At the same time, the email address functioned as an informative email for each participant choosing to answer the survey (RCR 2012). The invitation letter included full disclosure of the purpose and aim of the study, the details of voluntary participation, anonymity, confidentiality and handling of the data. Participants were informed about their rights to withdraw from the research at any time (Gallagher et al. 2015).

The informative email also included details for the time required for answering, contact information for the main researcher and a link to the survey. The research was conducted without identification of the participants in the study (Personal Data Act 523/1999). The collected data are stored and protected from outsiders not belonging to the project. All participants under the study were treated according to
the principles of beneficence and respect for human dignity and justice, without causing physical or psychological harm to human beings (Declaration of Helsinki 2013, Doody & Noonan 2016). The survey participants’ emails were kept on a password-protected computer and were destroyed after the survey was completed. The data will be destroyed when there will be no further use for it for research purposes (Personal Data Act 523/1999).

Ethical considerations for the purposes of research were adopted from the guidelines of Responsible Conduct of Research and Procedure for Handling Allegations of Misconduct in Finland (RCR 2012). The premises of integrity, accuracy in conducting research, communication of scientific results in an open way, acknowledgment of other people’s achievements, clear agreements about authorship and work input were followed in line with the responsible conduct of research (RCR 2012).

6.3 Validity and reliability of the studies

The validity and reliability of the studies are assessed and reported here in connection with each research phase with the purpose of critically evaluating the suitability of the chosen validity and reliability methods. In addition to a consideration of scientific rigour in this study, this part of the chapter also discusses the generalizability of the study results and reflects on their relevance to CALD nursing students’ clinical education.

Phase I: Instrument development

The validity of instrument development refers to the degree to which an instrument measures what it claims to be measuring (Rattray & Jones 2007). The validity during the development phase of the instrument in this study was enhanced by doing the following: two systematic reviews were conducted following the appropriate research process for systematic reviews rigorously, and face and content validity, construct validity and convergence, and discriminability validity of the instruments used in this study were completed. Reliability involves accuracy, consistency and reproducibility of the scores in the instrument measuring the attributes it is supposed to measure (Cook & Beckman 2006; DeVon et al. 2007). Reliability in this study was measured by Cronbach’s alpha coefficient.

The two systematic reviews were performed with the aim of identifying and evaluating the existing evidence related to the phenomenon of CALD students’
clinical learning environment and mentoring. The eventual aim was to receive
guidance for decision-making for further phases of the research process with the
most valid and reliable means currently available (Averis & Pearson 2003,
Aromataris & Pearson 2014, Aromataris & Rittano 2014). In order to enhance the
scientific rigour and transparency of the study, both systematic reviews on the
experiences of CALD students and their mentors were written following the
guidelines of the Centre for Reviews and Dissemination (CRD 2009). The
methodology of the systematic reviews was assessed by using the AMSTAR
measurement tool as a guide for the methodological quality. According to the tool,
11 items scored full points in both reviews (Shea et al. 2007). The study was
conducted and performed in a transparent way and with a clear structure. This
accords with the open process required of reliable research methods. The synthesis
of qualitative research in the reviews was enhanced by using Enhancing
Transparency in Reporting the Synthesis for qualitative research (ENTREQ) as a
tool. According to the tool, 21 statements scored full points in both reviews (Tong
et al. 2012). A potential limitation was identified in the search strategy where there
was a challenge in identifying important studies by title alone. Qualitative research
titles can be interpretive and descriptive so that essential concepts are not included
within the title (Pope et al. 2007), which might have resulted in missing out on
important studies.

The PICoS format was used in formatting research purposes and questions, in
defining inclusion and exclusion criteria, and in performing the search strategy
systematically and transparently. The objectivity of the study was ensured by
performing search screening. The search screening was completed by two
researchers separately who then agreed on the final objectivity. The objectivity of
the thematic synthesis was strengthened by having another researcher examine the
process of the synthesis. The quality appraisal (QARI) was additionally used for
assessing the selective criteria for the chosen articles (Averis & Pearson 2003;
Porritt et al. 2014). Eventually, the research was continued with conceptualization
and measurement of concepts used for developing the instrument (Shea et al. 2007).

The psychometric properties of the newly designed scales CALDs and
CALD+Ms were tested by face and content validity; CALDs and CLES+T scale
and CALD+Ms by construct validity; CALDs and CLES+T scale by convergence
and discriminability validity; and all instruments by internal consistency reliability.
The psychometric testing was performed by evaluating the quality of the two
instruments that were designed for the purposes of nursing education, including
variables as part of a broader theoretical framework (DeVellis 2012). Both scales
were tested with the purpose of enhancing the quality and applicability of the instruments in the clinical learning environment and in mentoring of CALD nursing students (DeVellis 2012). Face validity was confirmed on CALDs and CALD+Ms by developing the cultural appropriateness, item understandability and the purpose of the scale (DeVon et al. 2007). Content validity for CALDs and CALD+Ms was examined for the relevance of sampling adequacy relating to the content for items (Lynn 1986, Cook & Beckman 2006, Kimberlin & Winterstein 2008). The cut-off for item retention was set according to the recommendations for evidence-based knowledge to enhance validity (Cook & Beckman 2006, Kimberlin & Winterstein 2008). The choice of experts were strictly selected for the relevance of the study for evaluating content validity (Grant & Davis 1997).

A pilot test was performed in order to examine CALDs and CLES+T scale and CALD+Ms with regard to their administration, possible bias, understanding of questions and meanings, instructions on completion and technical challenges (Sue & Ritter 2007). Construct validity was confirmed for the purpose of measuring the extent to which the scale measures the quantities that it supposed to measure and identifies factors that belong to certain groups of items (Pett et al. 2003, Cook & Beckman 2006, Kimberlin & Winterstein 2008, DeVellis 2012, Williams et al. 2012). A sensitivity analysis was performed on CALDs and CLES+T scale with different methods of explorative factor analysis in order to strengthen the validity of the primary methodological choices (Munro 2005). The alternatives of varimax rotation and replacing of missing values with the mean values were tested with the outcomes of same factor loadings on both scales. The cut-off for factor loadings was set at .30 (Yong & Pearce 2013). A theoretical understanding of the phenomenon was taken as a guide to select factor models produced with a lower cut-off value (Pett et al. 2003).

Convergence and discriminability validity was examined to find relationships in the CALDs and CLES+T scale in order to identify factors measuring the same attribute within the phenomenon (Polit & Beck 2008). The correlation between the factors of the two scales was interpreted as large with the cut-off as ≥.60 (Polit & Beck 2008). An option would have been to perform one explorative factor analysis on all items of both scales in order to create one scale for examining CALD students’ nursing education. However, it would have been challenging to reach a sufficient sample size for the chosen methods of research. This, in turn, would have caused problems for content validity and resulted in research bias (Devane et al. 2004).

At the end, internal consistency reliability was tested on all instruments for accuracy, consistency and reproducibility of the items. This was done in order to
ensure the instruments were measuring the attribute they were meant to measure (Munro 2005, Cook & Beckman 2006, Waltz et al. 2010). The Cronbach’s alpha coefficient was interpreted with the values of 0.70–0.79 for a newly developed scale, 0.80–0.89 for a well-established instrument, and greater than 0.90– for clinically reliable tools (DeVon et al. 2007, Rattray & Jones 2007). The result of Cronbach’s alpha coefficient indicated that the instruments were sufficiently reliable (DeVon et al. 2007, Rattray & Jones 2007). Psychometric testing of the instruments in a different context, with different participants, and with a larger sample size, would strengthen the generalizability of both newly developed scales (Devane et al. 2004).

**Phase II: Cross-sectional study**

The instruments were used in a cross-sectional study with the purpose of collecting data describing the perceptions of: (a) CALD nursing students studying in English-language degree programmes in eight universities of applied sciences, and (b) CALD nursing students’ mentors working as registered nurses in five university hospitals in Finland. A cross-sectional design involves data collection during a certain period of time, once per participant, with the purpose of exploring phenomena and possible factors influencing the outcomes (Flanders et al. 2016). The attempt to reach CALD students by email resulted in a low response rate (10%), which resulted in the method of data collection being changed. In most cases, the data was collected by the main researcher during visits to universities of applied sciences, which could have caused research bias on induced revelations of research emphasis (Sue & Ritter 2007). In cases where data was collected by the main researcher, the researcher’s objectivity and neutrality was kept consciously obtainable.

The statistical methods for the data analysis were chosen based on assumptions of data distribution of the variables in the population. Multiple methods enhanced the scientific rigour of the study and further helped the researcher to make decisions on determining factors relating to the probability of particular outcomes (Munro 2005). Power analysis was built on the basis of effect size estimation (Polit & Beck 2008). An effect size estimation predicted the strength of relationships between study variables. The values of size estimation were interpreted according to set values by Cohen’s d and Odds ratios. Despite the low response rate (17%) of CALD students’ mentors, the outcome of effect size estimates in the data analysis varied from moderate to large (Cohen 1992, Lakens 2013). The quality of the cross-
sectional studies was assessed using the STROBE (2007) statement checklist, with all items scoring full points (22 in total).

The participants invited to participate in the study represented the CALD student population studying English-language degree programmes and mentors working in university hospitals nationwide. The study did not include CALD students studying in Finnish-language degree programmes. The educational context in different countries with a varying clinical learning environment and mentoring needs to be taken into consideration when applying the same study design (Flanders et al. 2016). Nevertheless, the results are seen as essentially relevant and can be generalized for CALD students’ nursing education in English-language degree programmes in Finland.

6.4 Implications of the study

The implications of the study are presented with a view of nursing practice, nursing education and society.

All instruments were shown to have sufficient validity and reliability. The instruments can be used for CALD students’ nursing education to enhance the quality of clinical learning environment and mentoring. The instruments could be integrated in a continuous evaluation of CALD students’ clinical learning and be utilized with CLES+T scale, which is already used in all five university hospitals.

A stronger emphasis on language education and language assessment in CALD nursing studies should be implemented into the curricula and organizational structure of clinical placements in order to optimize the students’ clinical learning. Students need to be assessed in their Finnish language competence prior to entering their first clinical placement. This ought to be done in order to avoid language barriers, which may cause distress to students and even lead to failure in their clinical placements.

Mentors of CALD students should be offered training opportunities to develop their pedagogical and cultural mentoring competence with CALD students. Mentors should be encouraged to develop their foreign language skills and gain experience in using foreign language with CALD nursing students. Open communication about cultural diversity increases awareness of variant human values and behaviours, which can help minimize prejudice and discrimination between the involved parties.

Collaboration between nursing placements and educational institutions is essential for creating clear educational strategies for mentoring CALD nursing
students. CALD students’ mentors should receive clear and organized guidance from the students’ higher education institutions regarding how CALD nursing students’ clinical placements are to be completed and monitored throughout the process.

On the basis of the main results, it is recommended that support systems will be devised for both nurse teachers and CALD students, especially for those at a beginner level in their foreign language competence when entering clinical placements.

Based on the results, it is seen that CALD nursing students’ better competence in the native language could bring about a greater number of well-prepared future professionals. They will be needed for employment within the Finnish healthcare system, which is facing the challenge of providing sufficient care for the aging Finnish population.

6.5 Suggestions for future research

The suggestions for future research below are based on this study and are postulated in view of future research, theory development and education in clinical practice.

1. An additional observational comparative and possibly cross-cultural study should be performed including CALD students studying in Finnish degree programmes. The study could provide an opportunity to examine connections between cultural diversity, discrimination and social isolation and make it possible to draw comparisons between different groups of CALD students in the clinical learning environment and mentoring.

2. The theoretical framework of the newly developed CALDs and CLES+T scale should be further tested with a new set of data. Additional multivariate statistical methods of a confirmatory factor analysis could be used to examine the relationships between the concepts of both scales. This would provide an additional step towards validating a new hypothetical model.

3. Language education with a focus on the clinical environment should be further developed and enhanced with appropriate educational technology. An experimental study could be performed on CALD nursing students’ education in order to measure the causal effect of language education on clinical learning environment and mentoring.
4. An experimental study could be performed to educate CALD students’ mentors to mentor CALD students in the clinical placements and measure the effect of the education upon mentoring practice.
7 Conclusions

1. Previous studies performed on CALD nursing students and their mentors have mainly utilized qualitative research methods. According to the experiences of CALD nursing students and their mentors, cultural and linguistic background influenced nursing students’ success both in the clinical learning environment and in their benefiting from mentoring.

2. Two new instruments were developed and validated together with two commonly-used instruments. The instruments measure the perceptions of CALD nursing students on the clinical learning environment and mentoring, and of their mentors’ competence to mentor CALD students.

3. This study showed that CALD students’ perceptions of the clinical learning environment and mentoring were reasonably close to those of Finnish students. Differences were identified in: (a) the effect of language in the students’ clinical learning environment and mentoring; (b) how the students perceived staff receiving them within pedagogical atmosphere; and (c) how the staff accepted their cultural diversity. CALD students’ skills in the native language were observed to have a marked significance for their outcome of the clinical environment. The better the skills in the language, the better their outcomes of learning was with the clinical environment and mentoring. Similarly, with increasing skills in the native language, less need was felt for nurse teachers to act as collaborators between the universities of applied sciences and their placement.

4. Mentors evaluated their own competence in mentoring CALD students as very high. Nevertheless, they evaluated their low language competence to be an obstacle in mentoring, which resulted in not having sufficient knowledge of their students, not spending enough time discussing cultural differences with students, not ensuring that CALD and native students worked together, and requiring more support from their colleagues in mentoring CALD students.

5. The mentors with an advanced level of English, longer work experience and with experience of living and/or working abroad had a more confident attitude towards facing linguistic diversity when mentoring CALD nursing students.
List of references


Original publications


(*) Equal contribution.

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Original publications are not included in the electronic version of the dissertation.
1400. Podlipská, Jana (2016) Non-invasive semi-quantitative and quantitative ultrasound imaging for diagnostics of knee osteoarthritis
1401. Akural, Ibrahim Ethem (2016) Pain management options after tonsillectomy and third molar extraction
1402. Hynninen, Nina (2016) Ikääntyvä muisitsitairas potilas kirurgisella vuodeosastolla
1403. Siponen, Maria (2017) Oral lichen planus – etiopathogenesis and management
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1410. Försti, Anna-Kaisa (2017) Incidence, mortality, comorbidities, and treatment of bullous pemphigoid in Finland
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CLINICAL LEARNING ENVIRONMENT AND MENTORING OF CULTURALLY AND LINGUISTICALLY DIVERSE NURSING STUDENTS