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Collaborative learning in practice: A systematic review and narrative synthesis of the research evidence in nurse education

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COLLABORATIVE LEARNING IN PRACTICE: A SYSTEMATIC REVIEW AND NARRATIVE SYNTHESIS OF THE RESEARCH EVIDENCE IN NURSE EDUCATION.

Abstract

Collaborative Learning in Practice is a model of placement learning for student nurses that is currently being implemented in the United Kingdom, apparently originating in Amsterdam. Potential benefits are reported to be increased placement capacity, reduced burdens on mentors as practice assessors, improvements in qualified nurses' job satisfaction, recruitment and retention, and better-developed preparedness for registrant practice amongst student nurses. We conducted a thorough, rigorous systematic review between October and December 2018 of the literature on Collaborative Learning in Practice to discover whether there was a research evidence base for these claims. We found nothing published in English in peer reviewed journals. We found 14 related papers, although these were about the Dedicated Education Unit concept, and we have conducted a narrative synthesis of them. Key findings support the assertions related to Collaborative Learning in Practice, albeit in different models of placement learning. Further research is necessary with Collaborative Learning in Practice stakeholders including staff and students, and regarding patient care metrics, to demonstrate benefits or otherwise and until that research takes place potential gains remain unproven.

Key words

Collaborative learning in practice; learning environment; nursing, nurse education; systematic review; narrative synthesis

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Declaration of conflicting interests

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England with a responsibility for CLIP implementation, and that AK held a Fellowship with Health Education England (SW) and also had a responsibility for CLIP implementation. HP had a responsibility for CLIP implementation in her clinical area and other authors have been involved in similar projects in their local areas.

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Research data for this article

Raters' evaluations of articles and Krippendorf's alpha calculation SPSS output file can be found here

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1. Introduction

In 2019, United Kingdom (UK) nurse education providers and their placement partners are required to redesign their programmes and their arrangements for student support, supervision and assessment as a result of the publication of new standards by the professional regulator, the Nursing and Midwifery Council (NMC, 2018). The new emphasis is on the separation of supervision and assessment responsibilities and this reflects a profound shift away from the established concept of mentoring (defined as a pedagogical, individual, mutual relationship for clinical learning in practice, Jokelainen et al., 2011) as a means of supporting student nurses and establishing their competence and suitability for registrant practice. Benefits are believed to include reduction for clinical staff of the potentially onerous decision making about the student's achievement in practice, which is held responsible for 'failure to fail' (Duffy, 2003), as a student's daily practice supervision will be

summatively assessed by a different, NMC-registered nurse practice assessor, liaising with an academic assessor from the student's education institution (NMC, 2018). These developments require revised of models of placement learning, linked to different styles of student facilitation including coaching and peer learning, as opposed to mentoring (Clarke et al., 2018).

2. Background

A theme running through international literature concerning facilitating students' clinical learning in practice is the extent to which models or structures underpin clinical practice experiences. Being very clear that this is an issue of relevance across much of the world, is desirable given our international readership. This theme has evolved, with an early systematic review indicating 10 models of practice education (Budgen and Gamroth, 2008), of which three relate to supervision and assessment of students in practice settings (described by Budgen and Gamroth (2008) under broad headings of faculty-supervised practicum, preceptorship/mentorship and education units), three relate to work roles of staff actively supporting students in practice, and a further three relate to the status of students within the host organisations (which Budgen and Gamroth (2008) classify as internship, co-operative education, work-study, and undergraduate nurse employment). None of these 'status' categories resemble the 'supernumerary student' model in evidence in the UK, in which the student is in placement to learn about the role of the qualified nurse by participating in patient care and team work under supervision (Allan et al., 2011), and is not counted in the nursing staff establishment numbers in the clinical area for the purposes of safe staffing.

A more recent international systematic literature review (Forber et al., 2016) identifies a different set of placement learning models with four 'types' in evidence; these being a 'traditional' model, with groups of students rotating through areas supported by a clinical facilitator, a preceptorship (or mentorship) model with a strong 1:1 relationship between student and mentor; 'collaborative' or dedicated education units (DEUs) in which the majority of staff provide support to generate 'real world' nursing experience for students; and lastly, other models which include 'hub and spoke'

arrangements and ‘student wards’ in which pairs of students work together. For students, a positive interpersonal relationship with a nurse in the clinical environment is central to their placement learning and satisfaction, and this resonates with the evidence that unsatisfactory placement experiences are key causes of student attrition from programmes (Eick et al., 2012) (Hamshire et al., 2012) (Jack et al., 2018).

Similarly, (Jayasekara et al., 2018), in their systematic review of clinical education models, found evidence evaluating the benefits or otherwise of the six models that their search identified. For (Jayasekara et al., 2018), comparing clinical preceptor models vs clinical facilitator models, the clinical preceptor model was broadly preferable, with care organisation staff facilitation as opposed to academic appointments. Secondly, they compare clinical education unit (CEU) or dedicated education units (DEU) to a ‘standard facilitation model’, where the CEUs are established specifically to support students and are therefore, unsurprisingly, better evaluated as clinical learning environments. The last six models identified by Jayasekara et al. (2018) are collaborative placement models, in which students are supported by many staff with various levels of educational achievement and preparation to support students. This model was found to improve students’ critical thinking and theory/practice linkages. Lastly, Jayasekara et al. (2018) found ‘mentor-arranged clinical practice’ was beneficial although this is based on one paper and relates to introducing practice in year two rather than year three of a programme.

In terms of understanding the most effective models for clinical education in practice, the three systematic reviews discussed above (Budgen and Gamroth, 2008; Forber et al., 2016; Jayasekara et al., 2018) suffer from inconsistent specifications between the three research teams which therefore militates against shared understanding, particularly in applying their concepts to a UK setting: for example (Budgen and Gamroth, 2008) have no concept of supernumerary status; (Forber et al., 2016) found that no single model could be championed as more effective than another, and Jayasekara et al. (2018) report only one paper supporting two of their models. Even so, a tentative

overview from their conclusions is that a close and supportive relationship with a placement-based nurse is beneficial to students, and that some aspect of dedication to learning and collaborating with professionals is important in clinical environments; a view supported by recent primary research including Chan et al. (2018) and Papastavrou et al. (2016) and it appears that students appreciate and find value in close mentor relationships (Omer et al., 2013) compared to allocations within clinical teams. Omer et al. (2013) report similar support roles for students as do Dobrowolska et al. (2016) in their systematic review of EU and non-EU countries, categorised as staff based in academia with practice support roles, and clinical personnel based in the care organisation, but Dobrowolska et al. (2016) note that there is little consensus extant internationally about the roles or training for personnel supporting students in practise.

A model for structuring students nurses' placement learning, which is becoming popular in the UK, is Collaborative Learning in Practice (CLIP), although some speculation exits about the conceptual links to CLIP and the NMC (2018) revised standards and about the potential for more effective learning (Hill et al., 2016; Health Education and England, 2017; Clarke et al., 2018; Harvey and Uren, 2019). CLIP appears to have evolved from the VU Medical Centre, Amsterdam (the 'Amsterdam Model') (Hill et al., 2016). Some preliminary UK research evidence indicates that students in CLIP benefit from exposure to earlier responsibility for holistic patient care (Harvey and Uren, 2019) and identified team working, leadership and organisational skills (albeit in the context of mentoring). Furthermore, a Coaching and Peer-Assisted Learning (C-PAL) model, in which student facilitation (Wareing et al., 2018) takes place in teams rather than in a 1:1 mentoring context has shown benefits for in-patient mental health settings by enhancing the learning experience and increasing students' confidence.

As the UK moves away from mentoring as a result of revised standards for students support (NMC, 2018), with the need to increase capacity to support learners, and in the light of (Health Education and England, 2017) support for CLIP and its growing popularity in the UK, it appears timely to

investigate what research evidence, if any, exists concerning CLIP as a model for placement learning in nursing.

3. Aim

To conduct a systematic review and meta-analysis to explore the literature relating to Collaborative Learning in Practice models.

4. Method

The question this systematic review sought to answer is 'What is the evidence for effectiveness of CLIP models?' The search strategy was derived using PICO: Population was 'student (undergraduate, baccalaureate) nurses'; Intervention was 'CLIP models'; Comparison was 'other models of placement learning'; Outcome was 'any relevant'. We deliberately sought to include research studies from any methodology. This systematic review protocol was registered with PROSPERO as CRD42018106838.

4.1 Literature search and data retrieval

A comprehensive search was undertaken between Oct and December 2018 using the following terms. It was not possible to construct a single search string.

- collaborative Learning in Practice;
- student nurse;
- clinical learning in nursing practice;
- nursing student support;
- student satisfaction;
- attrition;
- employment destination data;
- clinical education;
- clinical supervision;
- undergraduate nurse;
- peer learning;

- learning environment;
- placement learning;
- retention;
- patient outcomes;
- training ward;
- clinical clerkship;
- dedicated education unit.

Table 1 shows the databases searched using the search terms listed above and the numbers of related records found. The search included dissertations and grey literature from SINGLE. A search using 'collaborative learning in practice in nurs*' in US clinical trials.gov, the ISRCTN registry of clinical trials, Ethos (the British Library theses database) yielded no hits. A search using 'Amsterdam model nurs*' in Google Scholar revealed no nits. Reference lists in studies were hand searched and full texts sourced where titles seemed relevant. Records that indicated only a multi professional approach were not included in this review. The reference management software Endnote X9 was used to import, sort and share records.

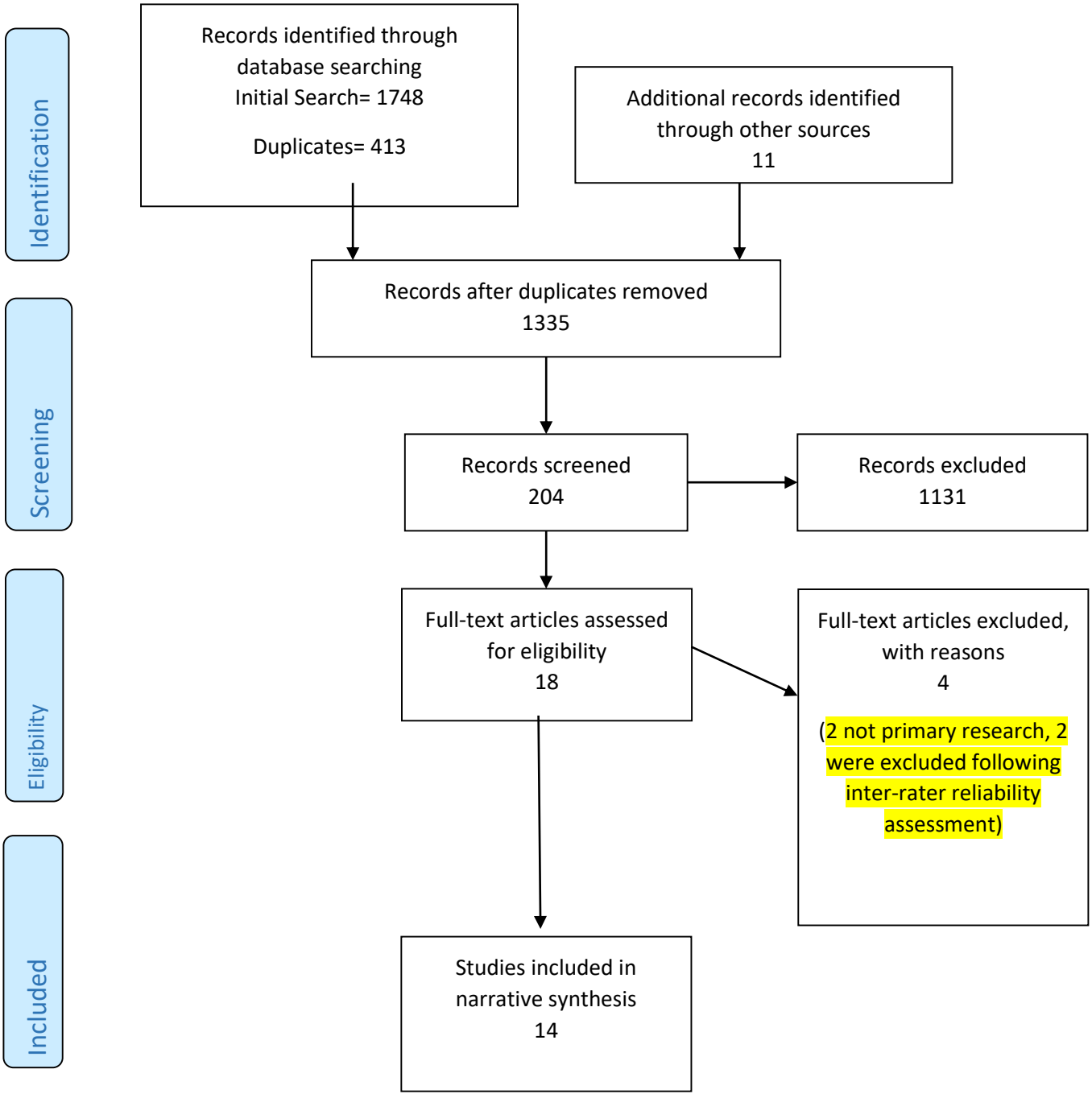
Table 1 Database Search Results

Database	Number of Records
CINAHL	697
MEDLINE	647
ERIC	76
NICE	2
EMBASE	100
COCHRANE	52
CRD	133
JBI	30
Grey Literature (including manual Search and SINGLE)	11
'Collaborative learning in practice in nurs*' • US clinical trials.gov	0

• ISRCTN registry of clinical trials • Ethos	
'Amsterdam model nurs*' • Google Scholar	0
Total	1748
Duplicates	413
Totals with duplicates removed	1335

Figure 1 shows a PRISMA diagram summarising search and assessment processes in identifying, reducing and evaluating the records found. Following the removal of duplicates 1335 records were included in the initial assessment for relevance of title by one reviewer (HP). From this 204 documents were identified as relevant. As the NMC Standards for Learning and Assessing in Practice were introduced in 2008 (NMC, 2008), records pre-2008 were also excluded on screening, along with any record where the title related only to interprofessional teamwork or interprofessional education as opposed to the student nurse experience.

Figure 1: PRISMA 2009 Flow Diagram (Moher et al., 2009)



4.2 Quality appraisal

Following a final review for eligibility by two reviewers (HP and GW) 18 articles were identified as potentially relevant and these were independently quality assessed and scored by all six reviewers, using either (Kmet et al., 2004) Standard Quality Assessment Criteria for Evaluating Primary Research Papers for the qualitative and quantitative studies, or the Mixed Methods Appraisal Tool (MMAT) for mixed methods studies (Pluye and Hong, 2014). Following this review, two studies (Forber et al., 2016; Lobo, 2018) were excluded from further analysis as they were not primary research, leaving 16 articles for discussion.

4.4 Interrater reliability

For the remaining 16 studies, using SPSS 24, Krippendorf's alpha (α) was calculated at 0.64 (95% CI 0.56 – 0.70). Krippendorf's alpha is an estimate of the reliability of scoring between raters, and is robust for use with all levels of data, with multiple raters and missing data (Krippendorff and Hayes, 2007). The raters' scores and SPSS α calculation output files are available to view here http://hdl.handle.net/10026.1/13271 . A value of 1 indicates perfect reliability of the observations and 0 indicates an absence of reliability. The interpretation of α is, however, not straightforward, as (Krippendorff and Hayes, 2007) indicate that 0.75 would be a 'modest' degree of agreement, but they also state that interpretation depends on the field of study. Elsewhere (Landis and Koch, 1977) argue that interpreting reliability is much more arbitrary. We interpreted α = 0.64 to indicate some degree of disagreement. We resolved this disagreement by team discussion and excluded two further papers (Hannon et al., 2012; Devereaux Melillo et al., 2014;) where some raters had scored them higher than 60% and others less. Of these remaining 14 papers, the percentage agreement between raters to include in the review at 60% was 81% overall. Although percentage of agreement is a crude measure (McHugh, 2012), it illustrates that there was a high degree of consensus between all raters to include the remaining 14 papers.

Findings

The results of the literature search indicate that there is no body of literature relating specifically to the use of CLIP models. Only one study (Hill et al., 2016) discusses systematic evaluation of CLIP, but that remains unpublished in a peer reviewed journal, as does any derivative of that work. After completing the literature search, another paper became available (Harvey and Uren, 2019) in an on-line early version, but this would not have met criteria for inclusion as it is not a research study, although some diary entries are reported.

Based on the inclusion criteria for this systematic review, 14 studies were identified. These were methodologically heterogeneous, comprising six mixed methods designs, one qualitative and one survey design, and six quantitative experimental or quasi-experimental designs. Table 2 shows the included studies, which are grouped by methodology, and also shows the appraisal tool used for each individual study. This heterogeneity means that any attempt at statistical meta-analysis was not possible and so the papers are discussed by methodology in a narrative synthesis.

Table 2: studies included in the systematic review

Study and country	Study aim	Study design	Population sample and context	Data collection	Outline results	Quality appraisal framework used
MIXED METHODS DESIGNS						
Barnett et al., (2010). Australia	To develop and evaluate a collaborative model of clinical education	Participatory action research	Preceptees and students in one hospital, a health service located in rural Victoria, Australia.	Surveys, individual and focus groups	45% increase in capacity. Good student satisfaction. Reported better preparation students for the realities of nursing work.	Kmet et al. (2004)
Crawford et al., (2018). New Zealand	To evaluate the impact of the DEU pilot nursing staff and nursing students	Mixed method descriptive evaluation design	All nursing staff and nursing students in the DEU	Surveys and focus groups	Students described feeling part of the health care team. Staff reported enjoying working with students. DEU structure gave them	MMAT Pluye and Hong (2014)

					more opportunity to engage with student learning.	
Galuska (2015). USA	To explore the effects of a DEU experience on students' leadership development	Mixed methods design	Two hospitals, in partnership with one university school of nursing, participated in the study.	Quasi-experimental, pretest–posttest, multisite design with control groups and qualitative focus groups	DEUs students demonstrated significant increases in leadership behaviours. Focus group themes illuminate how the experiences of the students contributed to their leadership growth	MMAT Pluye and Hong (2014)
Hill et al., (2016). England	To consider the challenges of CLIP implementation, the perception of gains and losses of students and stakeholders, consider the	Mixed methods	University of East Anglia students and partner organisations	Survey of students measuring supervisory relationships and pedagogical atmosphere; qualitative focus group data from students; individual interviews with stakeholders	Lower supervisory relationship scores; no difference in pedagogical atmosphere scores; CLIP method flexible and	MMAT Pluye and Hong (2014)

	sustainability of the new model in the context of service delivery.				showed positive ward culture; enabled student responsibility for care delivery and development of team work and leadership skills; requires clinical educator facilitation; appears sustainable	
Masters (2016). USA	To improve nursing students' knowledge of quality and safety by integrating Quality and Safety Education for Nurses into clinical nursing education	Mixed methods	16 students in one ward.	QESN questionnaire and focus groups	Students who participated in the dedicated education unit had higher scores than those with traditional clinical rotations. Five themes emerged	MMAT Pluye and Hong (2014)

					from the qualitative data including thirsting for knowledge, building teamwork and collaboration, establishing trust and decreasing anxiety, mirroring organization and time management skills, and evolving confidence in the nursing role.	
Rhodes et al., (2012). USA	To investigate students' perceived outcomes of the DEU model on the CLE and to explore staff nurses' and faculty's perceived	A longitudinal mixed methods design	DEUs were implemented on four adult medical–surgical units in two tertiary health care agencies in the Western NY area.	Likert scale relating to placement experiences. Clinical Learning Environment Scale–Revised. Focus groups	Students and DEU nurses reported high scores for satisfaction. Focus group themes for students, faculty, and DEU nurse revealed	MMAT Pluye and Hong (2014)

	outcomes of the DEU.				appreciation for the benefits of the DEU model.	
QUALITATIVE DESIGNS						
Hellström-Hyson et al., (2012). Sweden.	To describe how nursing students engaged in their clinical practice experienced two models of supervision	A descriptive design with a qualitative approach	A surgical department A convenience sample of nursing students	Semi-structured individual interviews	Two themes: 'assuming responsibility and finding one's professional role' and 'being an onlooker and having difficulties assuming responsibility'	Kmet et al. (2004)
SURVEY DESIGNS						
Lidskog et al., (2008). Sweden	To compare students' attitudes towards practice on a training ward before and after and to evaluate goal fulfilment after 3 weeks' interprofessional	Survey	68 students on one hospital ward	Students' attitude questionnaire; Retrospective goal-fulfilment questionnaire	The collaborative, experience was appreciated by the students. The most important learning experience	Kmet et al. (2004)

	education on a training ward.				was working together in a real-life setting.	
EXPERIMENTAL OR QUASI EXPERIMENTAL DESIGNS						
George et al., (2017). USA	To compare student outcomes from the traditional clinical education model with those from the DEU model.	Quasi-experimental research study	Convenience sample of students enrolled in a four-year baccalaureate program in nursing	Pre-clinical and post-clinical self-efficacy scores were measured for each group using an adapted Generalized Self-Efficacy Scale	Both groups experienced a significant increase in self-efficacy scores. The increase in self-efficacy for the DEU students was significantly greater than the increase in self-efficacy for the traditional students.	Kmet et al. (2004)
Mulready-Shick et al. (2013). USA	To evaluate Dedicated Education Units for clinical education quality	Randomized, controlled, multiyear, multisite study	Comparison of clinical education quality for students educated in either	The Student Evaluation of Clinical Education Environment (SECEE) instrument, the Growth in Clinical Learning Scale, and the Quality and Safety	Educational quality and learning gains are significantly more positive for students	Kmet et al. (2004)

			the DEU innovation or traditional clinical education model within the same nursing course.	Competency Development Scale.	clinically instructed in DEUs.	
Mulready-Shick and Flanagan (2014). USA	To evaluate the sustainability of dedicated education units within an academic-service partnership	Two-year, multisite, mixed-methods study with a randomized control trial	34 participants	Interviews	Seven themes portrayed successful participant interactions, revealing shifting roles based on mutual respect and collaboration among engaged partners working within complex adaptive systems.	Kmet et al. (2004)
O'Lynn (2013). USA	To compare the Portland model dedicated	Pilot study with students randomised	Hospital DEU DEU-LTC n = 237; 89.4% female	Simulated practice assessments and other course grades	Adult health students placed on the	Kmet et al. (2004)

	education unit in acute care and long-term care settings in meeting medical-surgical nursing course outcomes	between two wards	n = 76; 87.4% female		DEU-LTC performed equally to classmates placed on DEUs based in acute care hospitals on simulations, exams, and course grades. Long-term care staff found the adapted DEU model preferable to traditional clinical education models	
Schecter et al. (2017). USA	To explore the effect three consecutive adult health Dedicated Education Unit (DEU) clinical placements would have on baccalaureate nursing	Quasi-experimental pilot study	Eight students in a respiratory ward	A Likert-type Competence/Confidence Self-Assessment Scale was constructed as a pretest/posttest measure	Competence and confidence posttest means increased in each course.	Kmet et al. (2004)

	students' self-perception of growth in competence and confidence.					
Smyer et al. (2015). USA	To compare students in the DEU versus those in a traditional clinical setting.	Longitudinal quasi-experimental repeated measures design	A total of 144 students from 4 cohorts participated in the study (DEU, n = 90; traditional, n = 54).	Standardized student scores on critical thinking, the nursing process, and quality and safety measures were evaluated at baseline (after completion of semester 1), after completion of the DEU experience (semester 2), and at the end of the program (semester 4).	Standardized test scores showed that differences between the clinical groups were not statistically significant	Kmet et al. (2004)

4.1 Narrative synthesis by methodology

5.1.1. Mixed methodologies

The only paper to talk specifically about CLIP (Hill et al., 2016), was a Health Education East of England-sponsored study involving University of East Anglia students and stakeholders, which evaluated the implementation of CLIP, to explore the gains and losses experienced by students and stakeholders, and whether the model was sustainable. There was a recognition that 1:1 mentoring was not always effective in placement learning and could limit the extent of placement experiences, and so they redesigned some placements in May 2014 using a model from Amsterdam to implement CLIP. This was distinct from traditional mentorship as students worked collaboratively alongside other students under the guidance of a coach, not in a 1:1 relationship with a mentor, so that students were supported to take on greater responsibility for their own learning. The survey element with 220 students in CLIP areas showed students identified that they had less contact with mentors but that there was an equivalent pedagogical atmosphere in CLIP compared to non-CLIP areas; whereas the qualitative focus group data from students and individual interviews with stakeholders indicated that CLIP experiences were positive, with the method described as flexible, enabling student responsibility for care delivery and development of team work and leadership skills. Hill et al (2016) indicate that CLIP needs active facilitation by clinical educators, and it appears sustainable.

Of the remaining five mixed methods studies, four (Rhodes et al., 2012; Galuska, 2015; Masters, 2016; Crawford et al., 2018) discuss the establishment and evaluation of a means of placement organisation called Dedicated Education Units (DEUs). In these DEU studies, authors have explored some variation of setting up and evaluating how clinical area(s) might support students in conjunction with liaison staff from local higher education institutions and clinical colleagues with a dedicated student support role. The fifth study (Barnett et al., 2010) examines how a collaborative model of placement learning might improve workplace readiness (after graduation). Capacity was increased and there were some positive evaluative comments, however, ‘workplace readiness’ was

not demonstrated, only noted as a possibility. In all the mixed methods studies (Barnett et al., 2010; Rhodes et al., 2012; Galuska, 2015; Masters, 2016; Crawford et al., 2018) the collaborative elements involved collaboration between university and placement area and, once in placement, the students received what appears to be a 1:1 mentor relationship rather than any new coaching arrangement.

5.1.2 Qualitative methodology

The only qualitative study, (Hellström-Hyson et al., 2012) describes how nursing students engaged in their clinical practice experienced two models of supervision in a Swedish surgical department; these being supervision on ' student wards' as compared to 'traditional supervision'. The nature of the latter is not well-described, but in being supervised on the student wards and working more closely with their peers, nursing students assumed greater responsibility. During traditional supervision, they experienced being an onlooker and having difficulties assuming responsibility. It would appear that the 'student ward' is a similar concept to DEUs and includes hands on and management responsibilities, while traditional supervision may be similar to 1:1 mentorship.

5.1.2 Survey

The survey design, (Lidskog et al., 2008) is a study relating to a 'training ward' concept in Sweden, in which a learning opportunity of three weeks was established in an elder care facility. The authors used standard instruments, the Students' Attitude Questionnaire and the Retrospective Goal-fulfilment Questionnaire, and the responses of 65 students surveyed improved scores across the measures, indicating that they enjoyed the area and gain a lot from it. There was a specific emphasis on facilitating team skills development for students, as well as their becoming self-directed, active learners, and a supervisory stance from clinical that would allow this.

5.1.3 Quantitative experimental or quasi experimental designs

Six studies were experimental or quasi experimental designs (Mulready-Shick et al., 2013; O'Lynn, 2013; Mulready-Shick and Flanagan, 2014; Smyer et al., 2015; George et al., 2017; Schecter et al., 2017) and all investigated aspects of DEU placements. George et al. (2017) allocated students between a DEU and more traditional placements, and examined students' self-efficacy using an

adaptation of the General Self-Efficacy Scale (GSE) they called the Adapted Self-Efficacy (ASE) Scale. George et al. (2017) found that, in their sample of 193 students, groups in both areas experienced a significant increase in self-efficacy scores, however, this increase was significantly greater for the DEU students compared to the 'traditional' placement students, and this is important because high self-efficacy has been linked to making an easier transition from student to nursing professional. A similar picture of greater improvements was found in Schecter et al. (2017)'s study, in which students were placed in DEUs and tested for clinical abilities using a Competence/Confidence Self-Assessment Scale in a cross-over design. However, Smyer et al. (2015) could not demonstrate statistically significance when comparing DEU and non-DEU students on a range of measures including critical thinking, nursing process, quality and safety measures, and standardized exit examination scores. Smyer et al. (2015) did increase capacity and believed that the DEU was a superior model of organisation.

Mulready-Shick and Flanagan (2014) randomised students between DEU placements and traditional placements and utilised two measures, the Student Evaluation of Clinical Education Environment instrument and the Growth in Clinical Learning Scale, to assess differences between the two types of placements. The DEU students reported statistically significantly higher scores on all measures including greater growth in clinical learning, instructor quality and unit learning opportunities, greater opportunity for quality and safety education, competency development, and more time spent on instructional activities and coaching, compared to the 'traditional' students. In a paper from the same study, Mulready-Shick et al. (2013) interviewed 34 participants about the sustainability of their DEU, and found successful participant interactions, shifting roles based on mutual respect and collaboration among DEU partners, indicating that the DEU was sustainable. O'Lynn (2013) similarly found that adult health students placed on their long term care DEU performed equally to classmates placed on DEUs based in acute care hospitals on simulations, exams, and course grades, and that they were able to increase student capacity.

5. Discussion

6.1 Synthesis

This is not just an issue in the UK and that the literature we sourced was from all over the world. Indeed, we found nine papers from the USA, one form Australia, one from New Zealand, one from England and two from Sweden. Apart from one 'grey literature' study (Hill et al., 2016) and one that became available on-line early after our search had finished (Harvey and Uren, 2019; an outline of activity not a research study), based on our search there appears to be nothing published in peer reviewed journals in English about CLIP as a means of organising placement learning. We found papers mostly relating to aspects of DEU or similar experiences; this narrative synthesis is not a complete representation of these CLIP-related concepts and we do not claim that it is. However, similarities between DEUs and CLIP appear to be the intention to increase capacity, to facilitate exposure to expert clinical nursing practice for student nurses with concomitant clinical and related skills development, and to link care delivery organisations more formally to tertiary education providers. There are multiple differences between the two methods of organisation, most significantly that in DEUs there is not always a concept of collaboration in the sense of collaboration between students, whereas in CLIP that is a primary motivation in introducing and facilitating that method. One issue that has become apparent since the literature review ended is the extent to which UK universities and placement providers are adapting CLIP concepts and called their model something else. If these areas were publishing on these developments then that would make literature searching difficult unless three was standardisation of key words.

Studies in our review all report benefits which include 'collaboration' in all the mixed methods studies (Barnett et al., 2010; Rhodes et al., 2012; Galuska, 2015; Masters, 2016; Crawford et al., 2018) although this collaboration appears to involve collaboration between university and placement area. Models involving closer collaboration between organisational stakeholders already exist in the UK, where partnership working between universities and placement providers have been

successfully evaluated (Williamson et al., 2010; Williamson et al., 2011). In the DEU studies reviewed here, once in placement, the students received what appears to be a 1:1 mentor relationship rather than any new coaching arrangement. The qualitative study (Hellström-Hyson et al., 2012) indicates that students identified assuming earlier responsibility when problems solving with their peers. Studies using quantitative methodologies generally reported benefits to students' self-efficacy as well as other clinical practice-related metrics (Mulready-Shick et al., 2013; Mulready-Shick and Flanagan, 2014; Smyer et al., 2015; George et al., 2017; Schecter et al., 2017) except O'Lynn (2013) where no differences were found.

6.2 Limitations

Given that one potential source of evidence about CLIP is the Netherlands because of its origins as the Amsterdam Model, the major limitation of this systematic review is that it was conducted in English. Publication bias is thus a possibility but one which we could not avoid, having no Dutch speaker on the team. It is not clear the extent to which Dutch research might be published exclusively in Dutch nursing journals rather than English, although informal conversations with Dutch colleagues indicate that there is little published in the Netherlands either. Methodological heterogeneity of our findings means that it is not possible to present funnel plots to quantify publication bias and so it is possible that the studies we found represent positive results with negative results not published (Lin and Chu, 2018).

The other important limitation in interpreting the evidence about CLIP is that no quality peer reviewed research evidence currently exists. We acknowledge that we may not have fully accessed grey literature by not conducting Google Scholar searches.

6.3 Quality of evidence and strength of recommendations

This systematic review found 14 papers, which were disparate methodologies including six mixed methods, one survey, one qualitative design and six quantitative experimental or quasi experimental designs. Taking an overview of these studies in relation to an accepted hierarchy of evidence (Murad et al., 2016) the quality of evidence is very low (Guyatt et al., 2008), and therefore the strength of

any recommendations about CLIP itself would be highly tentative; particularly as the evidence we found does not relate to CLIP apart from one piece of grey literature (Hill et al., 2016).

6.4 Recommendations

Clearly, further evaluative research needs to take place concerning the benefits or otherwise of CLIP models of placement learning. If, as we have theorised (Clarke et al., 2018), CLIP might increase placement capacity, reduce the burden on mentors as practice assessors, improve qualified nurses' job satisfaction, recruitment and retention, and develop students' preparedness for registrant practice, these elements need to be systematically demonstrated, because without research evidence such as that provided by the University of East Anglia group (Hill et al., 2016), potential gains remain speculative. Clinical areas implementing CLIP will do so based on anecdote rather than as the result of a robust evidence base. Three quantitative DEU papers discussed in this systematic review (Mulready-Shick et al., 2013; George et al., 2017; Schecter et al., 2017) indicate that fruitful areas of inquiry will be the extent to which CLIP placements improve (or otherwise) students' clinical competence and confidence, self-efficacy and leadership skills compared to non-CLIP areas. We remain unconvinced as to the utility of randomising students to CLIP areas for research purposes, or that the logistics involved in 'hand-picking' students for CLIP areas would be worthwhile. (Hill et al., 2016) shows us that the clinical learning environment as a whole is also an important area for research evaluation. Linking CLIP areas to beneficial patient outcomes remains highly problematic, however, we speculate that an increase in student capacity might be beneficial to patients by reducing adverse outcomes such as falls, pressure ulcers, absent risk assessments such as malnutrition and early warning scoring, as well as medications errors and communications problems.

6. Conclusions

We have conducted a thorough and rigorous systematic review of the research literature on CLIP as a model for organising student nurses' practice placement learning and discovered that CLIP does not currently have an evidence base, at least not one written in English. CLIP therefore joins the international list of extant models of placement learning with flimsy rationales (Budgen and

Gamroth, 2008; Forber et al., 2016; Jayasekara et al., 2018). In the UK context of revised NMC standards for student supervision (NMC, 2018) and the end of 'mentoring', CLIP appears to offer potential benefits (Clarke et al., 2018) but it would be unwise to imagine that these are unqualified, or that CLIP is without dis-benefits, or that its implementation should be uncritically championed at this point.

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