


# BMJ Open How do undergraduate nursing students learn in the hospital setting? A scoping review of conceptualisations, operationalisations and learning activities

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**To cite:** Stoffels M, Peerdeman SM, Daelmans HEM, *et al*. How do undergraduate nursing students learn in the hospital setting? A scoping review of conceptualisations, operationalisations and learning activities. *BMJ Open* 2019;**9**:e029397. doi:10.1136/bmjopen-2019-029397

► Prepublication history and additional material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2019-029397>).

Received 24 January 2019  
Revised 02 October 2019  
Accepted 21 October 2019



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## ABSTRACT

**Objectives** Although clinical learning is pivotal for nursing education, the learning process itself and the terminology to address this topic remain underexposed in the literature. This study aimed to examine how concepts equivalent to ‘learning in practice’ are used and operationalised and which learning activities are reported in the nursing education literature. The final aim was to propose terminology for future studies.

**Design** The scoping framework proposed by Arksey and O’Malley was used to answer the research questions and address gaps in the literature. Two systematic searches were conducted in PubMed, EBSCO/ERIC and EBSCO/CINAHL between May and September 2018: first, to identify concepts equivalent to ‘learning in practice’ and, second, to find studies operationalising these concepts. Eligible articles were studies that examined the regular learning of undergraduate nursing students in the hospital setting. Conceptualisations, theoretical frameworks and operationalisations were mapped descriptively. Results relating to how students learn were synthesised using thematic analysis. Quality assessment was performed using the Critical Appraisal Skills Programme checklist.

**Results** From 9360 abstracts, 17 articles were included. Five studies adopted a general, yet not explained, synonym for learning in practice, and the other approaches focused on the social, unplanned or active nature of learning. All studies used a qualitative approach. The small number of studies and medium study quality hampered a thorough comparison of concepts. The synthesis of results revealed five types of learning activities, acknowledged by an expert panel, in which autonomy, interactions and cognitive processing were central themes.

**Conclusions** Both theoretical approaches and learning activities of the current body of research fit into experiential learning theories, which can be used to guide and improve future studies. Gaps in the literature include formal and informal components of learning, the relation between learning and learning outcomes and the interplay between behaviour and cognitive processing.

## Strengths and limitations of this study

- This study followed a rigorous design, using an established research framework, a comprehensive two-step search strategy and a well-documented selection process.
- The analysis of both conceptualisations, study quality and study results allowed for the identification of quantitative and qualitative gaps in the literature.
- A limitation is that the literature search only covered undergraduate nursing education in the hospital setting, while a comparison with literature on learning in practice in other health professions would enrich our understanding of potential conceptualisations.

## INTRODUCTION

Learning in the clinical setting is crucial for becoming a competent nurse.<sup>1</sup> However, although a vast body of knowledge exists on factors that influence learning, the process itself remains underexposed in the literature.<sup>2</sup> Understanding learning in the clinical setting can help design, supervise and evaluate individual learning trajectories. In the nursing education literature, just as in other health professions education literature, different terms are used to describe and study learning in clinical practice, with different underlying theoretical or conceptual frameworks.

This study aimed to examine how different concepts equivalent to ‘learning in practice’ are used and operationalised and which learning activities are reported in the nursing education literature. The final aim was to propose a terminology to guide future studies. To our knowledge, the only study that included distinct concepts of clinical learning in the health setting in a review before was a concept analysis of work-based learning in healthcare education from 2009.<sup>3</sup> The

authors identified common attributes, enabling factors and consequences of workplace learning and proposed a definition. The current review built on this work by critically examining the use of these concepts within the context of undergraduate nursing education and by analysing their outcomes.

To enable comparison of the literature, this study focused on undergraduate students in the general hospital setting. This context is the traditional setting for nursing training and offers a wide array of multidimensional learning opportunities<sup>4</sup> through the presence of different healthcare professionals and students, as well as complex and acute patients. Moreover, this study is limited to undergraduate (also called bachelor, diploma or associate degree) education, which is the initial training that prepares for registration as a nurse, in which students learn the profession and shape their identity. As a final demarcation allowing for the contrasting of concepts, we focused on studies about how students learn during their regular day to day work at the ward, instead of evaluations of specific interventions or models.

## METHODS AND ANALYSIS

The scoping review approach was chosen, as it can help understand complex concepts through clarifying definitions and conceptual boundaries<sup>5</sup> and enables to identify key concepts and gaps in the literature.<sup>6</sup> The approach developed by Arksey and O'Malley<sup>7</sup> and refined by Levac *et al*<sup>8</sup> and the Joanna Briggs Institute<sup>9</sup> was used, consisting of the six stages: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; (5) collating, summarising and reporting the results and (6) expert consultation. Reporting on this scoping review followed the PRISMA Extension for Scoping Review checklist,<sup>10</sup> as outlined in online supplementary file 1. The review followed an a priori developed research protocol<sup>11</sup> (see online supplementary file 2) with a little deviation by choosing the Critical Appraisal Skills Programme (CASP) checklist<sup>12</sup> over the quality indicators of Buckley *et al*,<sup>13</sup> as this allowed for more specific and systematic quality assessment. As anticipated, study questions and refined inclusion criteria were added during the search process.

### Stage 1. Identifying the research question

The original research question was:

'How are different concepts that are used as an equivalent to learning in the hospital setting operationalised in the undergraduate nursing education literature?'

As scoping is an iterative process,<sup>7</sup> the following research question was added based on the findings along the search process:

'Which activities do undergraduate nursing students learn from in the clinical setting?'

### Stage 2. Identifying relevant studies

As suggested by the Joanna Briggs Institute,<sup>9</sup> a comprehensive search strategy was iteratively developed (by

MS and JCFK) following the Peer Review of Electronic Search Strategies 2015 guideline statement,<sup>14</sup> starting with a broad search (search step 1) to inform the subsequent search strategy (search step 2). The different search queries were first developed for PubMed and later extended to EBSCO/ERIC and EBSCO/CINAHL. See our search strategy for both steps in online supplementary file 3.

In search step 1, from inception to May 2018, the terms 'learning in clinical practice' and 'undergraduate nursing students' were combined to identify concepts that are used as an equivalent to 'learning in clinical practice' and that could be included in the second search step. Eligible concepts were those relating to the process of clinical learning rather than specific aspects of it or associated factors. The first 200 abstracts were screened by the two reviewers (MS and RAK) independently to extract potentially eligible concepts. As the two reviewers reached full agreement on potentially eligible concepts within these first 200 abstracts, the first reviewer screened the rest of the abstracts. After all abstracts had been screened, all concepts were discussed between the two reviewers and a final selection of concepts to be included in the second search step was made. Disagreements were resolved through comparison of the concepts with the inclusion criteria, based on their use within the abstract. Potentially eligible concepts of which the meaning remained unclear after discussion were also added to the list of concepts to be used in search step 2. Other concepts coming up during the search and selection process that appeared eligible were added to the selection of concepts after discussion between the reviewers. See online supplementary file 4 for concepts and reason for inclusion/exclusion in the second search step.

In search step 2, between May and September 2018, each of the identified concepts was combined with 'undergraduate nursing students' to find studies operationalising these concepts in the literature about nursing students' learning in practice. After these two searches, reference lists of included studies were checked for additional publications meeting inclusion criteria.

### Stage 3. Study selection

Two researchers (MS and RAK) independently screened abstracts from search step two and assessed the eligibility for full text retrieval. Selected full-text studies were compared between the reviewers with disagreements being resolved through discussion and consensus and with input from the full research team.

The inclusion criteria were developed iteratively. The initial inclusion criteria were:

- ▶ Original research or reviews in peer reviewed journals that have learning in undergraduate clinical nursing practice in the hospital setting as one of their main topics, regardless of publication date and type of article.
- ▶ Studies that examine how students learn in the clinical hospital setting.

In line with the aim of the study, the inclusion criteria were refined to:

- ▶ Original research or reviews in peer reviewed journals, regardless of publication date, type of article and study quality, that examine the learning of undergraduate nursing students in the clinical hospital setting as it regularly occurs.

This results in the following exclusion criteria:

Studies:

- ▶ evaluating organisational models or interventions,
- ▶ about factors influencing learning in clinical practice, including supervision styles, teaching methods and clinical learning environment,
- ▶ outside the general hospital setting,
- ▶ about very specific student populations, patient populations or settings (eg, palliative care) generating results that might be limited to that setting,
- ▶ about interprofessional learning,
- ▶ about the acquisition of specific skills,
- ▶ about student's 'experience' of clinical learning *without explicit reference to the learning process*.

As the study aimed to examine how learning in practice is operationalised in peer-reviewed research, books, book reviews, commentaries, letters to the editor, PhD theses and reports were excluded.

#### Stage 4. Charting the data

Selected studies were documented including study characteristics (year, country, methodology, study question, study design, participants, outcomes), conceptualisation of learning in practice (definitions, theoretical underpinnings/rationale, operationalisations), results, learning activities and study quality. Two researchers piloted and refined the data extraction form on the first five studies. The completed form was discussed in the research team for accuracy and validity. Learning activities were extracted by two reviewers independently (MS and RAK), and the other variables were initially charted by the first reviewer and checked by the second reviewer. Learning activities were separated from other study results by going through the result sections of the studies and underlining findings (themes, observations, quotes) that referred to how nursing students learn in the hospital setting. When possible, the original wordings were used in the data chart. Colloquial expressions that lost meaning outside the context of the article were slightly rephrased. Although formal assessment of study quality in scoping reviews is debated,<sup>6,9</sup> quality assessment of included studies by the CASP checklist<sup>12</sup> was decided on to address qualitative gaps in the literature.<sup>8</sup>

#### Stage 5. Collating, summarising and reporting results

Data were analysed in two ways. First, descriptive accounts of concepts, theories, subsequent operationalisations and study quality were given and compared. Second, a data-driven thematic analysis of learning activities was conducted.<sup>15</sup> These findings were categorised using open

coding. All the results were compared and consolidated through consensus between MS and RAK.

#### Stage 6. Expert consultation

In order to confirm our findings, we presented our analysis of the learning activities to four experts of different institutions in the Netherlands (a senior clinical educator, a coordinator of clinical education, a head of nursing education department and a coordinator of nursing education). Short semistructured (telephone) interviews were conducted, in which a written summary of the findings was presented and respondents were asked (1) whether they recognised the findings, (2) whether they missed anything and (3) whether they had any other comments on the findings.

#### Patient and public involvement

As education is essential for improving patient care, patients will eventually benefit from the body of knowledge this study contributes to. However, specific interests of patients have not been investigated. Patients have not been involved in the design or the conduct of the study. The consulted experts can be considered participants of this study and will be informed about the results as soon as it has been published.

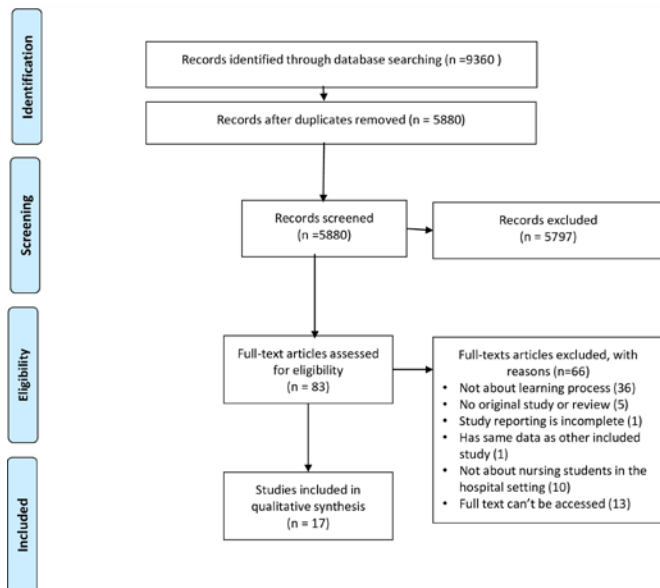
## RESULTS

### Search results

This initial search to identify concepts yielded 7211 abstracts, of which 5658 remained after removing duplicates. As the two reviewers (MS and RAK) reached full agreement on potentially eligible concepts after screening the first 200 abstracts, the remaining abstracts were screened by MS only. Seventy potentially eligible concepts were extracted. After discussion between the reviewers, 22 concepts were selected, to which 3 concepts were added later in the process, so the second search was run with 25 different concepts. See online supplementary file 4 for concepts and reason for inclusion/exclusion in search step 2. The second search, using the 25 concepts selected in the initial search, generated 9360 results of which 5880 remained after duplicates were removed. A total of 83 abstracts were selected for full text reading and 17 studies were included (see online supplementary file 5 for excluded full texts and reason for exclusion). Three pairs of studies were based on (partly) overlapping data,<sup>16-21</sup> but were all included as the results only partly overlapped. Reference list screening of the full text articles did not generate any extra results. See [figure 1](#) for a flow diagram of search step 2.

### General study characteristics

All included studies examined the process of undergraduate nursing students' learning in the clinical setting, as a result of their primary aim or as a significant secondary finding of a broader research question. Six of the studies<sup>18-23</sup> investigated undergraduate nursing students'



**Figure 1** Flow diagram article screening and selection search step 2.

learning in both the classroom setting and the clinical setting. One of the studies included nursing students and midwifery and social work students.<sup>24</sup> However, data presentation in the current study is restricted to findings concerning nursing students in the clinical setting. All were primary studies, of which 16 were qualitative studies and 1 mixed methods.<sup>21</sup> Publication year ranged from 1987 to 2018. Studies were conducted in different countries in Europe, Middle East, North America and Oceania.

### Study quality

Table 1 shows the quality of the included studies as assessed with the CASP tool.<sup>12</sup> In the only mixed method study included,<sup>21</sup> the quantitative data were analysed only descriptively and were used to inform the qualitative data. Therefore, this study was also appraised with the CASP. To summarise, in the majority of studies, it was unclear how the results answered the research question, because of a lack of clear aims, lack of clear operationalisation or both, in spite of clear descriptions of the process of data analysis and its outcomes.

### Concepts, operationalisations and learning activities

Table 2 summarises the main concepts, operationalisations, frameworks, findings and learning activities of the 17 selected studies. Findings concerning conceptualisation and operationalisation as well as the results concerning learning activities will be discussed in the following paragraphs.

### Conceptualisations

#### Main concepts

To analyse how learning in practice was approached, we compared the main concepts of study, usually reflected in the aims of the paper. Five of the papers studied a concept that was a synonym for learning in clinical practice such as

clinical learning experience or workplace learning.<sup>17 25–28</sup> However, in none of these studies the concept was defined or justified. The remaining 11 studies examined a specific concept related to learning in general, which was studied within the context of clinical practice. In four of the studies, this concept concerned social learning, either in general or from specific groups that are naturally present in the nursing ward.<sup>16 24 29 30</sup> In five of the studies, the non-conscious, unplanned nature of learning was explicitly targeted by the concepts of experiential, informal and hidden curriculum learning.<sup>20–23 31</sup> The remaining studies focused on the active role of the student in learning by investigating learning styles,<sup>32</sup> or a specific combination of both the process and effects of learning as reflected in the concept of transformative learning.<sup>18 19</sup>

### Theoretical frameworks

The five studies that used a theoretical or conceptual framework to structure the study, used Wenger's community of practice<sup>26</sup> or Mezirow's transformative learning theory.<sup>16–19</sup> Three of the studies tried to extend on existing theories using a grounded theory approach.<sup>20 21 25</sup> The remaining nine studies discussed their research questions and findings in the light of previous literature relevant for their specific study,<sup>22 23 27 28</sup> some of them referring to theories about learning such as Eraut's theory of informal learning, Melia's theory of professional socialisation,<sup>30</sup> or Kolb's learning cycle.<sup>20–22 27 32</sup>

### Operationalisations

Nine studies used interviews, narratives or both to address students' experiences of learning in general<sup>18 19 25 26 31 32</sup> or specifically learning from interactions.<sup>16 17 24</sup> The different approaches shared a semistructured nature, in which a few main topics were introduced by the researcher, to which students could bring up their ideas and experiences. Some authors<sup>20–22</sup> combined an exploration of what students understood by experiential learning, with an examination of their actual experiences in experiential learning. Finally, in three of the studies, learning was operationalised by the observation of interactions between nursing students and peers or colleagues that play a role in learning.<sup>16 29 30</sup>

### Comparison of conceptualisations and operationalisations

Most of the studies, apart from the ones that focus on social interactions, adopted a very open approach to examine learning in practice, irrespective of the concepts and theoretical frameworks used. This resulted in a variety of overlapping outcomes. Together with the small number of studies, a thorough comparison of the suitability of different concepts was difficult. However, the overarching focus on students' personal, unplanned learning experience as a result of social interactions, suggests that the use of concepts derived from constructivist and social-cultural theories are most appropriate for studying clinical learning in nursing education.<sup>33</sup>

**Table 1** Quality of the included studies as assessed with the CASP<sup>12</sup> tool

|  | Baraz et al <sup>22</sup> | Burnard <sup>20</sup> | Burnard <sup>21</sup> | Carey et al <sup>23</sup> | Dadgaran et al <sup>24</sup> | Gidman <sup>24</sup> | Greenish and Rhanse <sup>26</sup> | Green and Holloway <sup>22</sup> | Kear <sup>18</sup> | Kear <sup>19</sup> | Manninen <sup>16</sup> | Manninen et al <sup>17</sup> | Mayson and Hayward <sup>31</sup> | Roberts <sup>30</sup> | Seylani et al <sup>25</sup> | Stockhausen <sup>27</sup> | Windsor <sup>28</sup> |
|--|---------------------------|-----------------------|-----------------------|---------------------------|------------------------------|----------------------|-----------------------------------|----------------------------------|--------------------|--------------------|------------------------|------------------------------|----------------------------------|-----------------------|-----------------------------|---------------------------|-----------------------|
| Was there a clear statement of the aims of the research?                             | Yes                       | No                    | Yes                   | Yes                       | No                           | Yes                  | No                                | No                               | No                 | No                 | No                     | Yes                          | Yes                              | Yes                   | No                          | Yes                       | Yes                   |
| Is a qualitative methodology appropriate?  | Yes                       | Yes                   | Yes                   | Yes                       | Yes                          | Yes                  | Yes                               | Yes                              | Yes                | Yes                | Yes                    | Yes                          | Yes                              | Yes                   | Yes                         | Yes                       | Yes                   |
| Was the research design appropriate to address the aims of the research?             | Yes                       | Can't tell            | Yes                   | Yes                       | No                           | Yes                  | Can't tell                        | Can't tell                       | Yes                | Can't tell         | Yes                    | Yes                          | Yes                              | Yes                   | No                          | Yes                       | Yes                   |
| Was the recruitment strategy appropriate to the aims of the research?                | Yes                       | Can't tell            | Yes                   | Yes                       | Can't tell                   | Yes                  | Can't tell                        | Can't tell                       | Yes                | Can't tell         | Can't tell             | Can't tell                   | Can't tell                       | Can't tell            | Yes                         | No                        | No                    |
| Was the data collected in a way that addressed the research issue?                   | Yes                       | Can't tell            | Can't tell            | Yes                       | Yes                          | Can't tell           | Yes                               | Can't tell                       | Can't tell         | Yes                | Can't tell             | Yes                          | Yes                              | Yes                   | Can't tell                  | Yes                       | Yes                   |
| Has the relationship between researcher and participants been adequately considered? | No                        | Can't tell            | Can't tell            | Yes                       | No                           | Yes                  | Yes                               | No                               | No                 | No                 | No                     | Can't tell                   | Yes                              | Can't tell            | No                          | No                        | No                    |
| Have ethical issues been taken into consideration?                                   | Yes                       | can't tell            | Can't tell            | Yes                       | Yes                          | Yes                  | Can't tell                        | No                               | Yes                | Can't tell         | Can't tell             | Yes                          | Yes                              | Yes                   | Yes                         | Yes                       | No                    |
| Was the data analysis sufficiently rigorous?   | Yes                       | Yes                   | Yes                   | Yes                       | Yes                          | Yes                  | Yes                               | Yes                              | Yes                | Yes                | Can't tell             | Yes                          | Yes                              | Can't tell            | Yes                         | Yes                       | Yes                   |
| Is there a clear statement of findings?  | Yes                       | Yes                   | No                    | Yes                       | No                           | Yes                  | Yes                               | No                               | Yes                | Yes                | No                     | Yes                          | Yes                              | Yes                   | Yes                         | Yes                       | Yes                   |

CASP, Critical Appraisal Skills Programme.

**Table 2** Main concepts, operationalisations, frameworks, findings, learning activities of the included studies

| Conceptualisation                                  |   | Operationalisation  |  | Learning activities   |  |
|--|---|---|--|---|--|
| Main term(s) used to describe learning in practice | Main concept studied  | Theoretical or conceptual framework for interpreting results/ learning theories     | Summary of operationalisation  | Main study results, arranged according to the studies' objectives   | Learning activities for nursing students in the hospital setting, identified by the reviewers in the studies' result sections  |
| Baraz et al. <sup>22</sup><br>(2014)               | Learning process in clinical setting<br><i>Individual's preferred methods of knowledge and skill acquisition and information organisation</i>   | No theoretical framework, used, reference to Kolb's stages of experiential learning | Semistructured interviews about what and how students learn in the clinical setting  | Three clinical learning styles<br>1. Thoughtful observation<br>2. Learning by doing<br>3. Learning by thinking  | <ul style="list-style-type: none"> <li>▲ Careful observation of role models performance</li> <li>▲ Reflective observation during clinical rounds</li> <li>▲ Participating in medical rounds</li> <li>▲ Clinical rounds</li> <li>▲ Nursing rounds by instructors and classmates</li> <li>▲ Active involvement in procedures</li> <li>▲ Caring for sensitive patients</li> <li>▲ Active collaboration with peers</li> <li>▲ Maintaining continuity by making active patient contact and repeating nursing procedures</li> <li>▲ Assuming responsibility for patient care</li> <li>▲ Memorising info by history taking</li> <li>▲ Accountability for clinical homework</li> <li>▲ Inquiring staff and peers</li> <li>▲ Critical thinking</li> <li>▲ Monitoring, critiquing, avoiding unsafe practice</li> </ul> |
| Burnard <sup>21</sup>                              | Clinical experiences<br>Experiential learning 'has been used to describe many different sorts of educational approaches ranging from the use of interactive group strategies to accrediting people for their life experience when considering those people for entrance to courses' | No theoretical framework, used, reference to Kolb's stages of experiential learning | In-depth interviews about how students perceive experiential learning  | Definitions of experiential learning:<br>1. Something more than just being taught<br>2. Something that you use when you use your own experience<br>3. Learning in the clinical setting  | <ul style="list-style-type: none"> <li>▲ Just doing</li> <li>▲ Just being there</li> <li>▲ Learning by seeing</li> <li>▲ Selecting one of the nurses as a role model</li> <li>▲ Being personally involved and immersed in the learning situation</li> </ul>  |
| Burnard <sup>20</sup>                              | Clinical experiences<br>Experiential learning<br>No definition provided with justification: 'it appears that the term can be used by different people in different ways'  | No theoretical framework, used, reference to Kolb's stages of experiential learning | Interviews about how students and tutors experience experiential learning and questionnaire about perceptions of experiential learning | Experiential learning<br>1. is learning by doing<br>2. is personal learning<br>3. involves reflection<br>Students mostly relate experiential learning to learning in the clinical setting.  | <ul style="list-style-type: none"> <li>▲ Learning by taking part</li> <li>▲ Doing and reflecting.</li> <li>▲ Observing role models</li> </ul>  |
| Carey et al. <sup>23</sup>                         | Learning in clinical settings/ learning within the clinical practice environment; Clinical learning   | -   | Observation of interaction patterns between students   | Three themes contributing to impact of peer-assisted learning:<br>▲ Peers as facilitators to develop learning<br>▲ Working together as peers to develop clinical practice and deliver care<br>▲ Positive support and interaction from peers to enhance networking and develop working structure | <ul style="list-style-type: none"> <li>▲ Watching demonstrations by other students</li> <li>▲ Asking questions</li> <li>▲ Seeking advice and guidance</li> <li>▲ Discussing development plans</li> <li>▲ Discussing practice standards</li> <li>▲ Challenging each other's knowledge</li> <li>▲ Sharing roles</li> <li>▲ Sharing experiences of clinical practice</li> <li>▲ Discussing challenges of finding one's way in the clinical environment</li> </ul>   |

Continued

Table 2 Continued

|                                    | Conceptualisation                            | Operationalisation                 | Learning activities   |
|------------------------------------|--|------------------------------------|---|
| Dadgaran <i>et al</i> <sup>5</sup> | Clinical learning                            | Clinical learning                  | <p>Five categories and one 'core variable':</p> <ol style="list-style-type: none"> <li>1. Facing unfavourable clinical facts</li> <li>2. Analysis of a clinical situation and appropriate decision making in the clinical setting with a focus on interactions               <ol style="list-style-type: none"> <li>i. Bridging the gap between practice and theory</li> <li>ii. Struggle for clinical independence</li> <li>iii. Dynamism</li> <li>iv. Struggle to acquire clinical competence</li> </ol> </li> </ol> <p>Two approaches to learning:</p> <ol style="list-style-type: none"> <li>1. Microlearning</li> <li>2. Macrolearning</li> </ol>  |
| Gidman <sup>24</sup>               | Learning in practice                         | Learning from patient stories      | <p>Semistructured interviews about how students experience their clinical learning; subsequent observations of students in the clinical setting with a focus on interactions</p> <p>Conversational interviews about students' perceptions of their learning experiences of listening to patient stories</p> <p>1. Students value listening to stories for learning</p> <p>2. Students develop relationships with patients</p> <p>3. Students learn from the subjective and emotional perspective of patients</p> <p>4. Students think back to their own personal stories when caring for patients</p> <p>5. Listening to stories has a positive impact on understanding patients and a commitment to patient care</p> |
| Grealish and Ranse <sup>26</sup>   | Learning in the workplace, clinical learning | Learning in the clinical workplace | <p>Community of practice</p> <p>Students' written narratives about where they learnt while on clinical placement</p> <p>Three thematic constructs, called 'learning triggers':</p> <ol style="list-style-type: none"> <li>1. Participation (or observation) of a task or procedure that leads to (takes them into) a complex, dramatic reading of nursing work</li> <li>2. Being personally (emotionally) confronted by the work (high challenge)</li> <li>3. Meeting nurses who contribute to the development of an image of what the students wants to be as a nurse</li> </ol>   |

Continued

**Table 2** Continued

| Conceptualisation                |                                  | Operationalisation  |   | Learning activities  |  |  |
|----------------------------------|----------------------------------|---|---|--|--|--|
| Green and Holloway <sup>22</sup> | Learning in the clinical setting | Experiential learning   | No theoretical framework, used, reference to Kolb's stages of experiential learning | Non-directive interviews about students' understanding, experience and interpretation of experiential learning | <p>Six themes:</p> <ol style="list-style-type: none"> <li>1. Students were able to define experiential learning, usually encapsulating both classroom and clinical experience. The importance of the experience itself appeared fundamental</li> <li>2. Role play is identified as the main example of experiential teaching and learning</li> <li>3. Students were aware of the issues arising from the problematic relationship between theory and practice</li> <li>4. The importance of reflection as a stage in experiential learning and of reflective practice was highlighted indicating diversity in application</li> <li>5. Concerns regarding clinical practice</li> <li>6. The importance of clinical supervision viewing it as experiential learning</li> </ol> | <ul style="list-style-type: none"> <li>▶ Working with the client (including the intuitive element)</li> <li>▶ Participating interacting, shared learning with peers</li> <li>▶ Evaluating nursing models</li> <li>▶ Reflecting</li> <li>▶ Sharing experiences</li> <li>▶ Selecting from previous experience to contribute to new ones</li> <li>▶ Practicing of skills</li> <li>▶ Practicing with people</li> <li>▶ Patient care</li> <li>▶ Non-threatening supportive collaboration with a colleague</li> <li>▶ Learning from practice and reflection</li> <li>▶ Involving clients</li> <li>▶ Reflecting in the form of a portfolio</li> <li>▶ Maintaining personal journals</li> </ul>  |
| Kear <sup>18</sup>               | Clinical experience              | Transformative learning<br><i>The process of critically reflecting on previous assumptions or understandings in order to determine whether one still holds them to be true or challenges their claims (Mezirow)</i> | Transformative learning   | Students' stories about how they experienced their learning  | <p>On analysis of the narrative data, five threads emerged from the interviews with the participants:</p> <ol style="list-style-type: none"> <li>1. Stories of the multi-faceted process of learning</li> <li>2. Stories of experiential learning</li> <li>3. Stories of human interactions as central to defining nursing and caring</li> <li>4. Stories that intertwine personal life experiences and nursing</li> <li>5. Stories of transformative learning</li> </ol>  | <ul style="list-style-type: none"> <li>▶ Creating a connection between clinical experience and classroom material</li> <li>▶ Using peers</li> <li>▶ Learning how to do things</li> <li>▶ Meeting patients with their own stories</li> <li>▶ Looking things up in one's books</li> <li>▶ Providing end-of-life care</li> <li>▶ Caring for a paediatric cancer patient and seeing graduate nurses let her do it in her own way</li> <li>▶ Learning to understand the needs of patients that are unable to communicate</li> <li>▶ Observing other nurses to determine what kind of nurse they want to be (both negatively and positively)</li> <li>▶ Just spending time with patients</li> <li>▶ Observing patient situations that were unjust or nursing care that was viewed as suboptimal</li> </ul> |

Continued



Table 2 Continued

|                                     | Conceptualisation  | Operationalisation  | Learning activities   |
|-------------------------------------|--|---|---|
| Kear <sup>19</sup>                  | Clinical experiences   | Transformative learning<br>Students' stories about how they experienced their learning  | On analysis of the narrative data, five threads emerged from the interviews with the participants:<br>1. Stories of the multifaceted process of learning<br>2. Stories of experiential learning<br>3. Stories of human interactions as central to defining nursing and caring<br>4. Stories that intertwine personal life experiences and nursing<br>5. Stories of transformative learning  |
| Manninen <i>et al</i> <sup>17</sup> | Learning process in clinical practice; learning through participation and dialogue; learning in clinical practice; learning at a clinical education ward | Experiences of learning at a clinical ward<br>Authenticity and transformative learning  | Two main themes:<br>1. Mutual relationship<br>2. Belongingness  |
| Manninen <sup>16</sup>              | Learning in clinical practice  | Nursing students' learning in relation to encounters with patients, supervisors, peer students and other healthcare professionals<br>Transformative learning and concepts of authenticity and threshold | Creating a connection between clinical experiences and classroom material<br>Interacting with others in the clinical environment<br>Understanding patients' needs by interacting with them<br>Observing nurses to determine what kind of nurse they want to be<br>Providing end-of-life care<br>Creating a relationship with patients by meeting them independently<br>Listening and communicating with the patient/adjust communication to the individual patient's capacity and needs<br>Involving the patient in the nursing process by identifying the patient's own resources<br>Learning from making failures<br>Handling difficult situations and feelings<br>Collaborating with physicians, physiotherapists, other professionals and other students<br>Working together with other students, discussing patient care, sharing experiences giving support, informing and showing<br>Creating mutual relationships<br>Taking care of patients with extensive needs for nursing interventions |

Continued

**Table 2** Continued

|                                     | Conceptualisation                               | Operationalisation   | Learning activities  |
|-------------------------------------|---|--|--|
| Mayson and Hayward <sup>31</sup>    | Clinical practice experiences                   | Learning from hidden curriculum<br><i>Hidden curriculum involves the experience and application of theory and the wider social context relates to the practice development</i> | Hidden curriculum<br>Semistructured interviews about clinical areas and persons that have been beneficial for students' learning as well as descriptions of their learning   |
|                                     |   |  | <p>Given a lack of a summary of important themes, I extracted these findings myself</p> <ol style="list-style-type: none"> <li>1. Caring relationship is central for nursing; relationships with patients are significant experiences</li> <li>2. Registered nurses and tutors are contributors to students' learning if they include students</li> <li>3. Students actively seek positive experiences</li> <li>4. Peers play a significant role in learning</li> <li>5. Importance of being part of the ward team, facilitated by the ward nurse</li> <li>6. Theory-practice gap</li> </ol> |
| Roberts <sup>30</sup>               | Clinical learning; informal on-the-job learning | Peer learning<br><i>Peer learning involves students learning from each other</i>   | Observation of students in clinical practice with a focus on peer interactions   |
|                                     |   | No theoretical framework, used reference to Eraut's theory on informal learning and Mella's theory of professional socialisation   | <p>Themes:</p> <ol style="list-style-type: none"> <li>1. Value placed on friendships and learning in clinical practice.                             <ol style="list-style-type: none"> <li>i. Students learning survival skills (implicit and explicit rules)</li> </ol> </li> <li>2. Developing clinical skills</li> </ol>  |
| Seylani et al. <sup>23</sup> (2012) | Clinical experiences                            | Informal learning<br><i>Informal or indirect learning can occur as a function of observing, retaining and replicating behaviours during educational experiences</i>            | Semistructured interviews about what changes students experienced during their study apart from theoretical and practical knowledge  |
|                                     |   |  | <p>Five categories of students' experiences:</p> <ol style="list-style-type: none"> <li>1. Personal maturity and emotional growth</li> <li>2. Social development</li> <li>3. Closeness to God</li> <li>4. Alterations in value systems</li> <li>5. Ethical and professional commitments</li> </ol>   |
|                                     |   |  | <p>Working in the medical/surgical areas</p> <p>Talking with/listening to clients</p> <p>Helping/making a difference for the patient</p> <p>Looking at positive role models</p> <p>Sitting together with peers/talking to peers about experiences</p> <p>Watching supervisors on nursing skills and communication skills</p>   |
|                                     |   |  | <p>Working alongside other students.</p> <p>Passing along implicit rules</p> <p>Making mistakes/being pulled up/called about them</p> <p>Sharing clinical skills</p> <p>Asking other students for help</p> <p>Teaching other students, regardless of year of study</p>   |
|                                     |   |  | <p>Frequent personal interactions</p> <p>Developing relationships</p> <p>Frequent exposure to life and death situations interacting with others</p> <p>Caring for people with different religious beliefs</p> <p>Learning from patients struggling with chronic illness</p> <p>Continuously engaging with people who need help</p> <p>Seeing patients suffer</p> <p>Communicating with patients</p> <p>Caring for the most vulnerable</p> <p>Confronting the light and dark sides of life</p>  |

Continued

Table 2 Continued

|                           | Conceptualisation                                       | Operationalisation   | Learning activities   |
|---------------------------|---|--|---|
| Stockhausen <sup>27</sup> | Learning in the workplace                               | Learning in the workplace  | <p>No theoretical framework, used, reference to Kolb's stages of experiential learning</p> <p>Students' journals and reflective group debriefings on clinical experiences</p> <p>Themes</p> <ol style="list-style-type: none"> <li>1. Entering the world of the patient</li> <li>2. Clinicians making a difference</li> <li>3. Constructing an identity as a nurse</li> </ol>   |
| Windsor <sup>28</sup>     | Learning in the contextual setting of clinical practice | <p>Focused interviews about how nursing students perceive their clinical experiences</p> <p>Clinical learning experience</p> | <p>Learn through the patient's experience</p> <p>Reacting to and deciphering emotive non-verbal cues from the patient as they care for them</p> <p>Interacting with the patient</p> <p>Reflectively interpreting experiences with the patient</p> <p>Sharing and developing everyday nursing practices with the Resident Nurse (RN)</p> <p>Constructing their own schemata of admirable qualities the RN displays</p> <p>Picking up little tips from the RN/little things that she does</p> <p>Listening to RNs</p> <p>Confirming their nursing practices and assimilating theoretical and clinical knowledge</p> <p>Practicing skills</p> <p>Doing what it is that nurses do</p> <p>Activities such as making a bed or showering a patient when considered from a student's achievement perspective</p> <p>Engaging with the activities of nursing</p> <p>Making comparisons and discriminations of practices</p> <p>Main categories of learning: nursing skills, time management, professional socialisation. A pattern of student development through three phases</p> <p>Practicing nursing skills</p> <p>Going back to books and journals</p> <p>Poring over chart for hours</p> <p>Consulting other healthcare providers</p> <p>Writing papers</p> <p>Observing nurses and participating in nursing functions</p> <p>Preparing for clinical practice including meeting patients, reading charts, studying patients' health needs, consulting staff</p> <p>Caring for lots of different patients with different diseases, different kinds of wards, variety of instructors, working with different equipment</p> <p>Working more subsequent shifts with the same patient</p> <p>Asking question without feeling embarrassed</p> <p>Asking questions to their peers</p> |

## Learning activities

The thematic analysis allowed us to extract the following classes of activities that are observed or reported to contribute to learning during the daily presence of students in the nursing ward.

1. Working as a nurse
2. Interacting with ward staff
3. Interacting with peers
4. Interacting with patients
5. Processing information.

### 1. Working as a nurse

Students learn by actively engaging in nursing practice, including gaining responsibility for designing care plans, organising care, practicing skills and delivering patient care themselves,<sup>18 20–22 25–27 32</sup> within a supportive environment.<sup>26</sup> Several studies explicitly report how the importance of working independently evolves throughout training.<sup>16 17 25 28</sup> It should be noted that this theme may overlap with the other themes and might reflect a more general characteristic of learning in practice.

### 2. Interacting with ward staff

Students learn by observing both good and poor examples of registered nurses, listening to them and choosing which one could serve as a role model.<sup>18–21 23 26–28 31 32</sup> Students learn from other professionals on the ward, for example, by listening to their discussions during rounds<sup>17 28 32</sup> or receiving feedback.<sup>26</sup> Besides observing nurses, students learn from sharing their work experiences with resident nurses and questioning them.<sup>25 27 28 32</sup>

### 3. Interacting with peers

Students learn from peers by working together, questioning each other, sharing experiences, observing each other at work<sup>18 22 29 31 32</sup> and teaching each other.<sup>30</sup> They pass on implicit rules by asking for advice and guidance. Through discussing standards in practice, development plans and practical issues they challenge each other and expand their knowledge.<sup>29</sup> Through dividing the work between them, students optimise their exposure to different learning situations.<sup>29</sup>

### 4. Interacting with patients

Listening to patients and building relationships is reported as an activity that students learn from.<sup>16–18 22 24 26 31</sup> Providing end-of-life care contributes to students' learning,<sup>18 19 23</sup> as well as caring for specific patient groups such as those with different religious beliefs, communication problems, extensive needs, chronic illnesses or who visibly suffer.<sup>16–18 23 27 32</sup> Concrete activities that are regarded to be valuable include involving the patient in the nursing process,<sup>17</sup> assisting them with little things,<sup>26</sup> giving medication, doing postoperative observations and performing simple tasks such as making a bed as long as they can be done independently.<sup>26</sup>

### 5. Processing information

A final class of activities refers to how students look up, process and store information related to patient care and their learning process. Reflecting on nursing practice promotes learning,<sup>20–22 27 32</sup> sometimes supported by a journal or a portfolio.<sup>22</sup> More specifically, students reflect by analysing and comparing nursing practice and thinking how to improve it, making connections with theory and previous experience.<sup>18 19 25 27 32</sup> Negative experiences such as not being able to answer questions, witnessing poor practice, making mistakes and emotion evoking encounters, stimulate students to reflect and expand their knowledge and skills.<sup>17 18 23 26 30</sup> Students benefit from going through textbooks<sup>18 25 28</sup> and patient charts,<sup>28 32</sup> as a preparation for the work shift or for specific activities such as patient education.

## Summary of results

Figure 2 summarises the findings regarding conceptualisations, operationalisations and learning activities.

### Expert consultation

All four experts acknowledged the synthesised learning activities as the core of clinical training. One of them added a nuance that some activities automatically promote learning ('learning by doing'), while others require support by staff (eg, 'peer learning'). Moreover, one of them noted that experiences may only result in learning

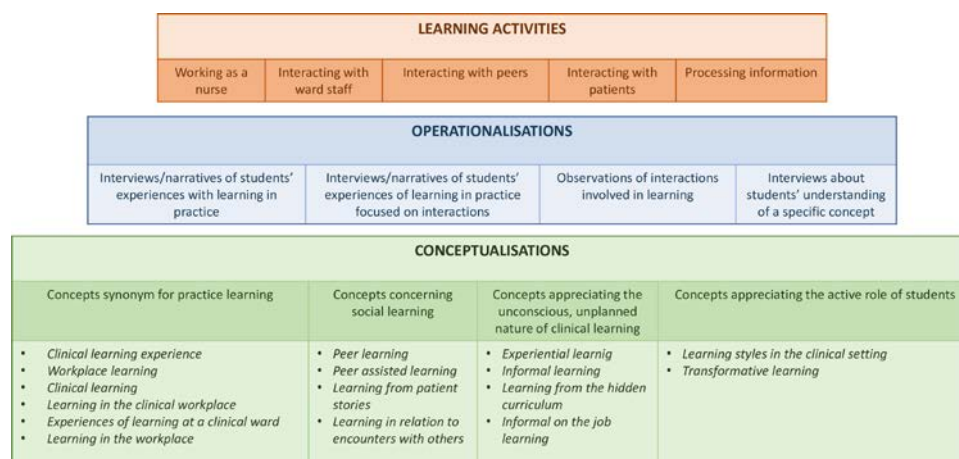


Figure 2 Conceptualisations, operationalisations, learning activities scoping review.

after the learning has been made conscious. Compared with their ideal vision of practice learning, another expert missed the active role of the student in creating learning opportunities, as well as formalised elements of learning, such as the formulation of learning goals and the elaboration of theory learnt in school. However, this was something they missed in their own daily practice as well. Finally, two experts noted that the 'supervisor' role of the resident nurse was referred to minimally; it appeared that resident nurses were primarily observed as role models. Two of the experts were surprised by the notion that negative experiences are repeatedly mentioned as learning opportunities.

## Discussion

This study aimed to examine how different concepts equivalent to 'learning in practice' are operationalised and which learning activities are reported in the nursing education literature. The final aim was to propose a terminology to guide future studies. The scoping approach allowed for identification of gaps in the current literature.<sup>7</sup> Five of the 17 reviewed studies adopted a general, yet unexplained, synonym for learning in practice as their object of study, the others approached learning in practice focusing on the social, unplanned and active nature of learning. These foci are in line with the broader literature on practice learning in healthcare education.<sup>3 34</sup> Regardless of conceptualisations, all studies adopted a qualitative approach, resulting in various, yet overlapping themes. A closer examination of learning activities that were reported throughout the results, revealed five classes of activities that are congruent with separate bodies of literature on the importance of increasing independence,<sup>35</sup> interaction with others,<sup>36</sup> learning from authentic situations with patients and reflection<sup>37</sup> as well as with experiences from our expert panel.

Our eventual aim was to make suggestions about the use of terminology in future research. The use of various terms for the same phenomenon may be inherent to the existence of different learning theories,<sup>34</sup> that each lack explanatory power to inform all aspects of clinical education.<sup>38</sup> Unfortunately, as the poor alignment within most studies resulted in similar operationalisations and results irrespective of the concepts used, specific recommendations about how to use these concepts are hard to make on the basis of the current literature. Yet, when considering overarching trends, all concepts and learning activities in the current body of research fit well into a constructivist approach to learning and more specifically experiential learning theories.<sup>34</sup> Building on educational theorists like Piaget and Dewey,<sup>33</sup> experiential learning theories cover both cognitive and sociocultural approaches to learning,<sup>34</sup> sharing the idea that learning evolves from doing, in an individual trajectory that is not predefined, in constant interaction with others, in which reflection and the interaction between theory and practice are central.<sup>3 34</sup> Although some of the studies in the current research did use experiential theories or referred to

them,<sup>20–22 27 32</sup> a more systematic and justified use of these theories and underlying concepts to frame and interpret research, would benefit future research. For instance, as was commented by one of the experts we consulted, the interactions between behaviour and cognitive processing were underexposed in the current literature. Cognitive approaches of experiential learning building on the work of Kolb<sup>39</sup> could offer useful models to study and interpret these interactions. Given the body of work on experiential learning theories including their application in different stages of (medical) education, further elaboration on these theories can add to our understanding of learning and can help design and evaluate learning interventions in and outside the ward.<sup>40 41</sup>

Although some studies demonstrated how students actively interact with their environment by discussing inconsistencies, asking questions, and reflecting on undesirable role models, few of them offered examples of students actively creating learning opportunities or negotiating what and how to learn. This is in line with literature showing that students often focus on task completion and fitting into the team at the expense of deepening, broadening and self-regulating their learning.<sup>42–44</sup> Future studies should continue to address both individual and environmental factors that affect students' ability to actively and critically navigate through their clinical placements. In line with our previous recommendations, approaching clinical learning as 'experiential learning' may help seeing it as a pathway for personal development rather than getting students adapted to the current work in the ward.<sup>45</sup> A next step would be to identify individual preferences and behaviours in appreciating learning opportunities. Caution has to be taken though in labels such as 'learning styles' as one of the studies<sup>32</sup> did, in the absence of an accurate description of how this has been interpreted.

Not surprisingly, there were frequent references to the informal or hidden nature of clinical learning. As this learning occurs partly unconsciously, it is a challenging subject to define and study.<sup>46</sup> In the reviewed studies, informal learning was addressed by what it is *not* (ie, theoretical and practical knowledge), and hidden curriculum was described by learning resources that were *not* reported by participants.<sup>31</sup> Formal or formalised activities in the clinical area (such as peer teaching and doing 'clinical homework') were not labelled as such. As both formal and informal learning coexist in the practice setting and the dichotomy between the two has been questioned,<sup>47</sup> clear definitions of these concepts are required, with which the different activities that student engage in throughout the day can be classified.

In most of the studies, potential or desirable learning outcomes were not articulated and were not separated from outcomes such as professional identity formation or well-being. Studies that did include the intended effect of learning in their definitions, as those of Kear,<sup>18 19</sup> did not critically revisit if these outcomes were indeed reported. The lack of predefined outcomes in clinical learning<sup>48</sup>



and the scope of this review excluding articles confined to skills performance<sup>49</sup> or assessment,<sup>50</sup> might explain why learning outcomes received relatively little attention in the reviewed studies. However, critically discussing the learning process in relation to actual and desirable outcomes, with reference to the body of literature on this topic, would improve our understanding of clinical learning.

In this review, clinical learning has been studied from the viewpoint of the student as a learner, as opposed to the perspective of external factors affecting students' learning. However, as both this review and previous literature have demonstrated,<sup>2</sup> learning is a social process that is highly dependent on the environment. If students feel supported by the team they will be more willing to take responsibility and actively create learning opportunities.<sup>43 51</sup> The current work adds to our understanding of the student's role within the complex structure of clinical nursing education and can be a starting point for future research on how individual interactions between students and their environment promote learning.

### Limitations

The variety of concepts, processes, definitions and outcomes associated with learning in clinical practice proved challenging in determining the boundaries of our search. The selection was influenced by choice of terminology and framing by the authors of the studies. This review therefore provides insight into the current use of terminology as well as caveats in applying it. Limiting to nursing in the hospital setting excluded us from both theoretical and experimental research on practice learning in other health professions. However, this focus enabled us to synthesise specific findings from the different studies. The approach can be of interest for other health professions and will eventually allow for comparison of the literature. Finally, our synthesis of learning activities is based on studies with heterogeneity in populations, setting and year of publication, in which the same type of activity might have a different meaning. As we reinterpreted some of the data, caution has to be taken in drawing firm conclusions.<sup>52</sup> Nevertheless, as the findings were recognised by experts and correspond with existing literature, the categories found are a good starting point for further study.

### CONCLUSION

This review provides an overview of how learning in clinical practice has been addressed in the undergraduate nursing education literature and which learning activities are reported. The studies share a constructivist approach to learning, but offer little guidance for the use of specific terminology in future studies due to a lack of alignment within the studies. Studies consistently reveal the importance of working independently, learning from peers, professionals and patients and the cognitive appraisal of learning. Both the approaches and reported

learning activities fit well into experiential learning theories. There is still uncertainty about formal and informal components of learning and how they should be studied, as well as about desirable outcomes of clinical learning and how to incorporate them in research. Given the importance of students' active engagement in learning as well as their reflection on it, behavioural and cognitive aspects of learning as well as their interactions should be explicitly addressed.

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**Contributors** MS, RAK, HEMD, SMP and JCFHK contributed to the research idea and study design and edited and revised the paper. MS and JCFHK developed the search strategy and executed the search. MS and RAK identified and agreed eligible papers and extracted the data. MS wrote the manuscript. RAK led the supervision of the project.

**Funding** The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent for publication** Not required.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All data relevant to the study are included in the article or uploaded as supplementary information.

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