

Scoping Review

Nurse education models and frameworks

Citation Yap G. & Melder A. 2018. Nurse education models and frameworks: A Scoping Review. Centre for Clinical Effectiveness, Monash Health, Melbourne, Australia.

Executive Summary

Background

The Nursing and Midwifery Education and Strategy is reviewing and revising their education framework to support organisational developments and uphold contemporary nursing and midwifery education planning and delivery across Monash Health. The Center for Clinical Effectiveness (CCE) was commissioned to undertake a literature review to inform the development of knowledge and understanding of education frameworks. This includes contemporary planning and delivery of nursing and midwifery education models that may be used as a benchmark to support the development of a revised framework at Monash Health.

Objective

The literature review will aim to address the following sub-topics within nurse education delivery models:

- 1) Site vs ward based delivery;
- 2) Informal vs formal education;
- 3) Evaluation of education programs;
- 4) Benchmarking of professional education models.

Search Strategy

Two medical databases and four other internet sources were searched using key words related to “nurse education” and “models”. Details and results of the search are included in Appendix 1 Table 5 and 6. Papers identified were screened using inclusion and exclusion criteria established *a priori*.

Results

Five items of peer-reviewed literature and one item of grey literature was selected for inclusion in the review.

Peer-reviewed evidence included in this review was limited to a few descriptive studies subject to high risk of bias, and articles written on the topic of nurse education. Most of the models were proposed or newly designed, only two models were evaluated for its effectiveness.

Summary of Findings

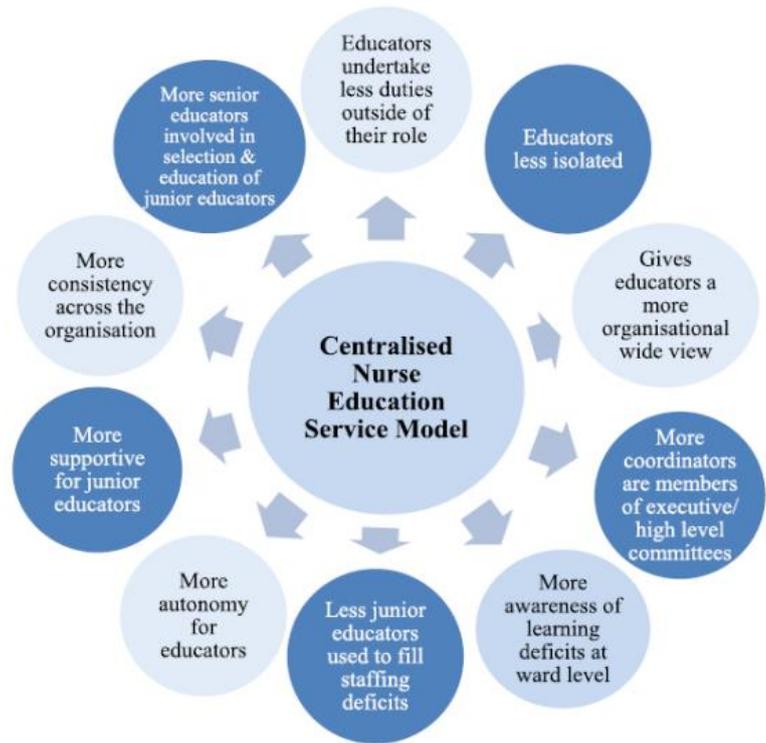
1. Nurse education models used across Australia (Site and ward based delivery)

The literature describes models of education that are centralised, decentralised or a combination of the two. Site and ward-based education delivery appears to be consistent with a decentralised model of nurse education. In a recent study a ‘centralised nurse education service model’ reported to have more responsibilities and functions within an organisation than other service models, that is, decentralised or combination models ^[1]

In comparing the three models, nurse educators from a ‘centralised nurse education service model’ agreed the most common functions included:

1. Supports formal training programs
2. Coordinates the graduate nurse program
3. Coordinates student nurse placements
4. Supports service redesign
5. Mentors staff undertaking new roles

A centralised model has a number of advantages over a combination or decentralised model [1]. These advantages are depicted in the figure:



2. Learning models in nursing education (Informal and formal education)

A number of models have been summarised to look at how learning, teaching and assessment can be integrated to benefit the learner and the benefits this may have in nursing education and continuing professional development courses. [4] These domains refer to specific element of skill acquisition, knowledge creation or value and attitude development that happens during formal and informal learning. Furthermore, learning in nursing was divided into three distinct domains;

Cognitive domain – refers to the theoretical knowledge underpinning clinical practice, contextualising and consolidating existing theoretical knowledge is used in the context of working as a mentor in clinical practice. Figure 9 explains the components of the Cognitive domain.

Psychomotor domain – increase in skill base where an aspect of practice becomes “second nature” and no conscious effort is required. This includes, situated learning, work-based or experiential learning, and social learning. This also reflects what is also known as the 70-20-10 model (described further in a separate report). Figure 10 explains the components of the Psychomotor domain.

Affective domain – places emphasis on values. The affective learning domain learning theory has been implemented as a means of considering how students can relate to values and beliefs in health care. (i.e., in the context of breaking bad news to family members, which happens through reflective processes). This domain encompasses actions described in Figure 11 [4]

Empowering education model in nursing

Empowering education is a model devised for in-service training of nurses that can desirably match the training programs with learning needs for the nursing staff. The new empowering education model composes of self-directed learning and practical learning. Owing to its practical nature, the empowering education model can facilitate occupational tasks and achieving greater mastery of professional skills among the nurses [2]

3. Evaluation of education programs – Kirkpatrick model of evaluation ^[5]

Since Kirkpatrick first published his evaluation model, many continuing nursing education providers have used it. ^[5]

The 'Kirkpatrick model of evaluation' includes four levels for evaluation: (a) reaction, (b) learning, (c) behavior, and (d) results. Levels of evaluation were built in a step-wise fashion. The value of the evaluation methods have been discussed in the context of continuing nursing education. Four levels of evaluation in the revised Kirkpatrick model of evaluation (2016) ^[5]

Level 1 (Reaction): The data equate to customer satisfaction and confirm the quality of the activity and the satisfaction with the instructor.

Level 2 (Learning): Evaluation on this level can be accomplished through the use of a test, an audience response system, a case study, or through questions.

Level 3 (Behaviour): The information collected here provides helpful information on how or whether participants have been able to use or apply what they have learned in practice questions.

Level 4 (Results): Focus can be on cost analysis, financial value, quality, or output. Data can be used to guide executive decision-making. The results at this level are not only influenced by the educational experience, but by other intervening variables, such as the physical environment, the culture of the practice site, reminder systems for participants, or being held accountable by managers or supervisors.

4. Benchmarking

4.1. Department of Health (Queensland) ^[6]

The registered nurse professional practice in Queensland use the Benner's practice pathway

Benner (1984) proposed that nursing knowledge develops through research and integration into clinical practice and experience. Importantly, experience is not a time based activity, but can only develop in the context of education and knowledge acquisition.

Characteristics acquired throughout the registered nurse professional career contribute towards a sustainable profession through:

- Role modelling
- Clinical leadership
- Mentoring and coaching
- Supervision
- Teaching
- Research

4.2. Banner Health Professional Practice Model ^[3]

Professional practice models (PPMs) are an integral part of any organisation on the Magnet journey, whether initial designation or redesignation. Through the journey, the PPM should become embedded within the nursing culture.

Banner Health embeds the Professional Practice Model (PPM) into all areas of nursing practice to support and elevate nursing practice and patient care.

Strategies to support a high level of embeddedness of the PPM include:

- Integration into position descriptions
- New employee orientation for nurses (clinical and leaders)
- Support for the evidence-based practice (EBP) model
- Nursing awards and recognition programs,
- A structure for the clinical ladder and leadership models at the department/facility and system level,
- Nursing peer review (NPR)
- Documentation supporting Magnet designation and resignation

Conclusions

There is limited peer-reviewed literature comparing the effectiveness of nurse education models and approaches. Subsequently, this makes it difficult to draw conclusions on the most effective models or approach. There was a paucity of evidence offering insight to informal vs formal or site vs ward-based approaches; however, results from a qualitative study of mixed methods suggest that a centralised service model is advantageous over a decentralised or combination model in the Australian context, and it is suggested that healthcare organisations adopt a centralised model. ^[1] An empowering education model can also facilitate occupational tasks and achieving greater mastery of professional skills among the nurses. ^[2]

Hayes (2016) presents three learning domains (cognitive, psychosocial and affective) and mechanisms by which educational and mentorship provision might be delivered within Nursing and Midwifery contexts, and provide an insight into the practicalities of its implementation. Understanding the overlap between the domains and the alignment of the three domains to processes of teaching, learning and assessment is the key to successful curriculum design. [4]

Applying principles from the updated Kirkpatrick model (2016) may enhance positive outcomes not only for education planners, but also for participants, organisations, and stakeholders. The four levels of evaluation may guide in measuring and evaluating nursing education outcomes. [5]

The review has identified two professional practice models (Benner's model, Banner Health model) for benchmarking purposes. [3,6]

FULL REPORT

Background

The Nursing and Midwifery Education and Strategy is reviewing and revising their education framework to support organisational developments and uphold contemporary nursing and midwifery education planning and delivery across Monash Health. The Center for Clinical Effectiveness (CCE) was commissioned to undertake a literature review to inform the development of knowledge and understanding of education frameworks. This includes contemporary planning and delivery of nursing and midwifery education models that may be used as a benchmark to support the development of a revised framework.

Objectives

The literature review will aim to address the following sub-topics within nurse education delivery models:

- 1) Site vs ward based delivery;
- 2) Informal vs formal education;
- 3) Evaluation of education programs;
- 4) Benchmarking of professional education models.

Search strategy

Inclusion/Exclusion Criteria

Table 1. Inclusion/Exclusion criteria

Population	Include: Graduated nurses, nurses in practice Exclude: Undergraduate or postgraduate training; mixed medical
Interventions	Include: Overarching models and frameworks for nurse education Exclude: Strategies or models for individual programs/specialties
Outcomes	1) Sub topics of education delivery models: <ul style="list-style-type: none">• Site vs ward based delivery• Informal vs formal education (particular focus on 70-20-10)• Evaluation of education planning 2) Professional education models in nursing for benchmarking
Context	Include: Health services Exclude: Primary health or schools
Types of evidence	Include: All (only the best available will be presented)
Databases	PubMed, CINAHL, JBI, Google, Kings Fund, Health Foundation
Limits	Date: 2013-2018 Language: Publications in English.

Search strategy

Two medical databases, and four other internet sources were searched using key words related to “nurse education” and “models”. Details and results of the search are included in Appendix 1 Table 5 and 6. Due to the large number of articles identified in PubMed, it was an *a priori* decision to limit the search to articles published from 2017 onwards.

Study Selection

Titles and abstracts identified were exported to EndNote X7 (Thompson, Reuters, Carlsbad, California, USA). Papers identified were screened using inclusion and exclusion criteria established *a priori*. Searches medical and internet databases were screened by one reviewer in consultation with colleagues as necessary. Literature was included based on the above criteria.

Results

Figure 1. Flow Chart of articles selected for inclusion

This diagram indicates the flow of identified and included articles from the different sources searched.

Five items of peer-reviewed literature and one item of grey literature was selected for inclusion in the review.

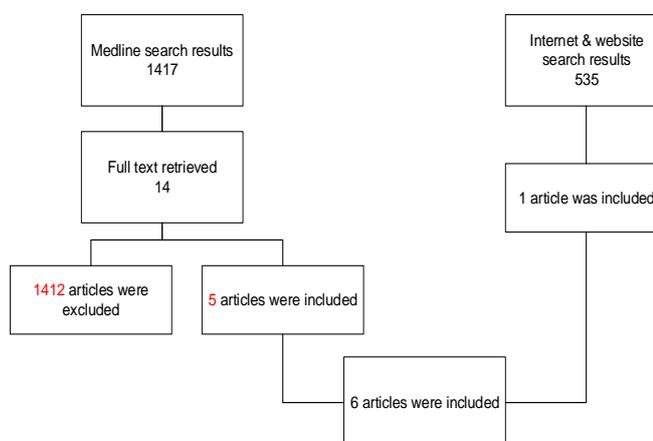


Table 2. Summary of articles included in the review

References	Type of publication	Objective	Setting
Keane C. & Allix S. (2018) ^[1]	Peer-reviewed; Mixed methods research study	Investigate nurse education service models	Metropolitan hospitals in Australia
Chaghari M <i>et al</i> (2017) ^[2]	Peer-reviewed; Qualitative study	Design of new optimal model for in-service training of nurses	Baqiyatallah University of Medical Sciences hospitals in Tehran
Mensik J.S. <i>at al.</i> (2017) ^[3]	Peer-reviewed; Article	Embedding a nursing professional practice model across a system	Non-profit, private hospital with Magnet® designation award
Hayes C. (2016) ^[4]	Peer-reviewed; Article	Overview of approaches to and models of education to assist nurses involved in the delivery of education and continuing professional development.	Nursing
DeSilets L. (2018) ^[5]	Peer-reviewed; Article	Discuss the value of Kirkpatrick methods of evaluation in nursing education	Nursing
Department of Health (Queensland) (2013)	Grey literature; Government document	Identify key elements relevant to registered nurses practicing to their full scope. A practice framework is provided to inform individual registered nurses and service providers how to support and deliver effective, high-quality nursing and healthcare.	Nursing and healthcare Queensland, Australia

Summary of Findings

1. Nurse education models used across Australia (Site vs ward based delivery)

In a survey of nurse educators in all Australian states, results (completed surveys n= 393; response rate of 26%) demonstrate that majority of nurse educators across Australia work within a combination service model (57%; n =225). Thirty-two per cent (n = 125) worked within a centralised service model, and 4% (n = 14) worked in a decentralised service model. The number of participants working within a decentralised model was very low at 14 (n = 4%) compared to the other two models [1] Site and ward-based education delivery appear to be consistent with a decentralised model of nurse education.

Figure 2. Nurse educator service models across Australia

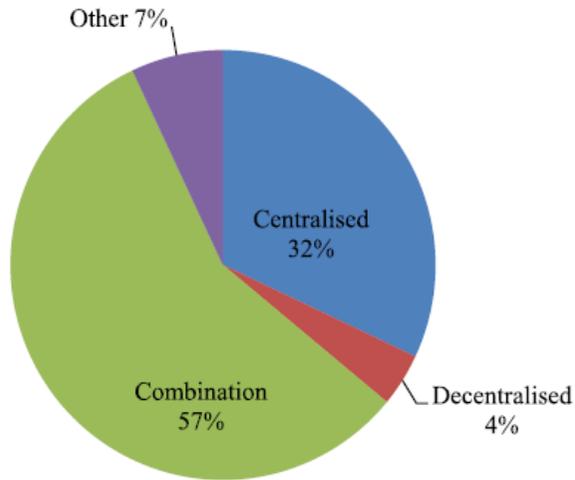


Figure 4. Decentralised model of nurse education

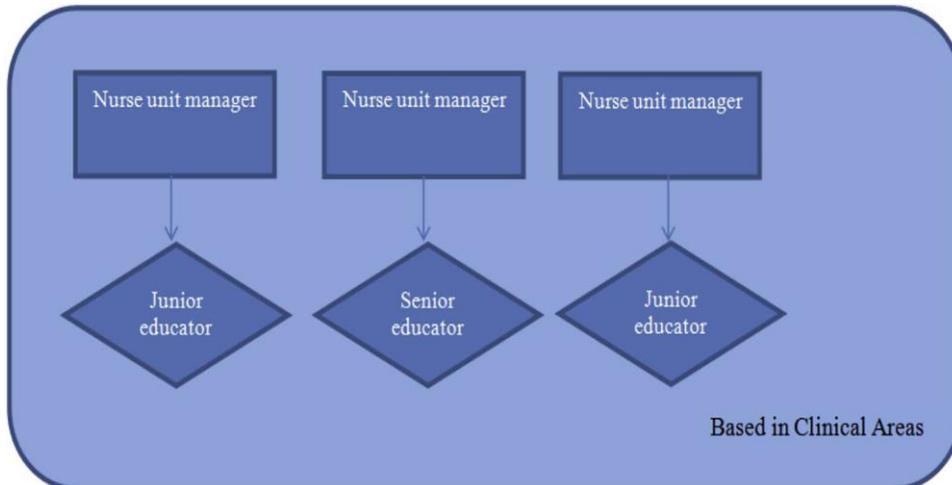


Figure 3. Centralised model of nurse education

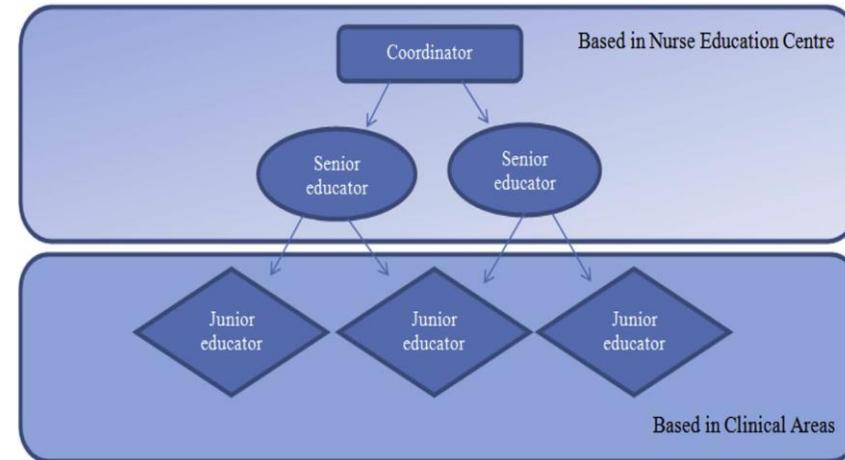
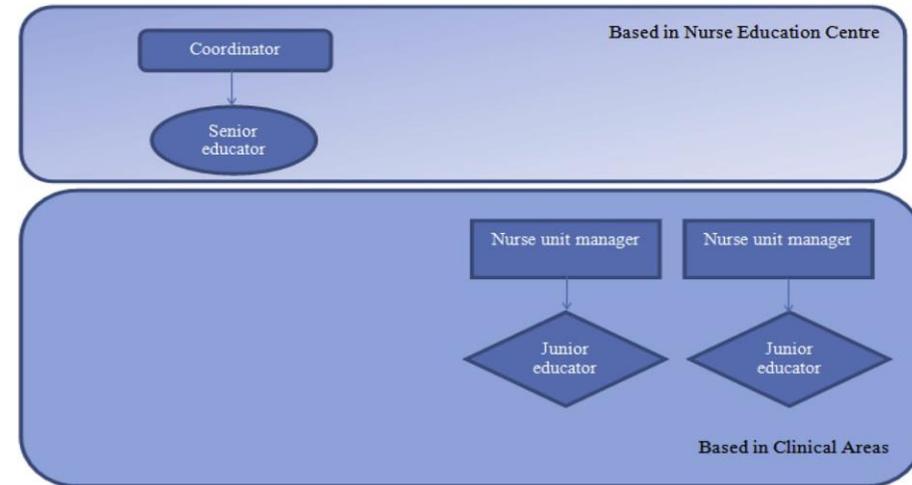


Figure 5. Combination model of nurse education



A 'centralised nurse education service model' undertakes more responsibilities and functions within an organisation than the other two service models, decentralised or combination models [1]

In comparing the three models, nurse educators from a 'centralised nurse education service model' indicate that the most agreed upon functions (n = 5) include:

6. Supports formal training programs (94%, n = 118),
7. Coordinates the graduate nurse program (91%, n = 114),
8. Coordinates student nurse placements (89%, n = 111),
9. Supports service redesign (87%, n = 109) and
10. Mentors staff undertaking new roles (87%, n = 195).

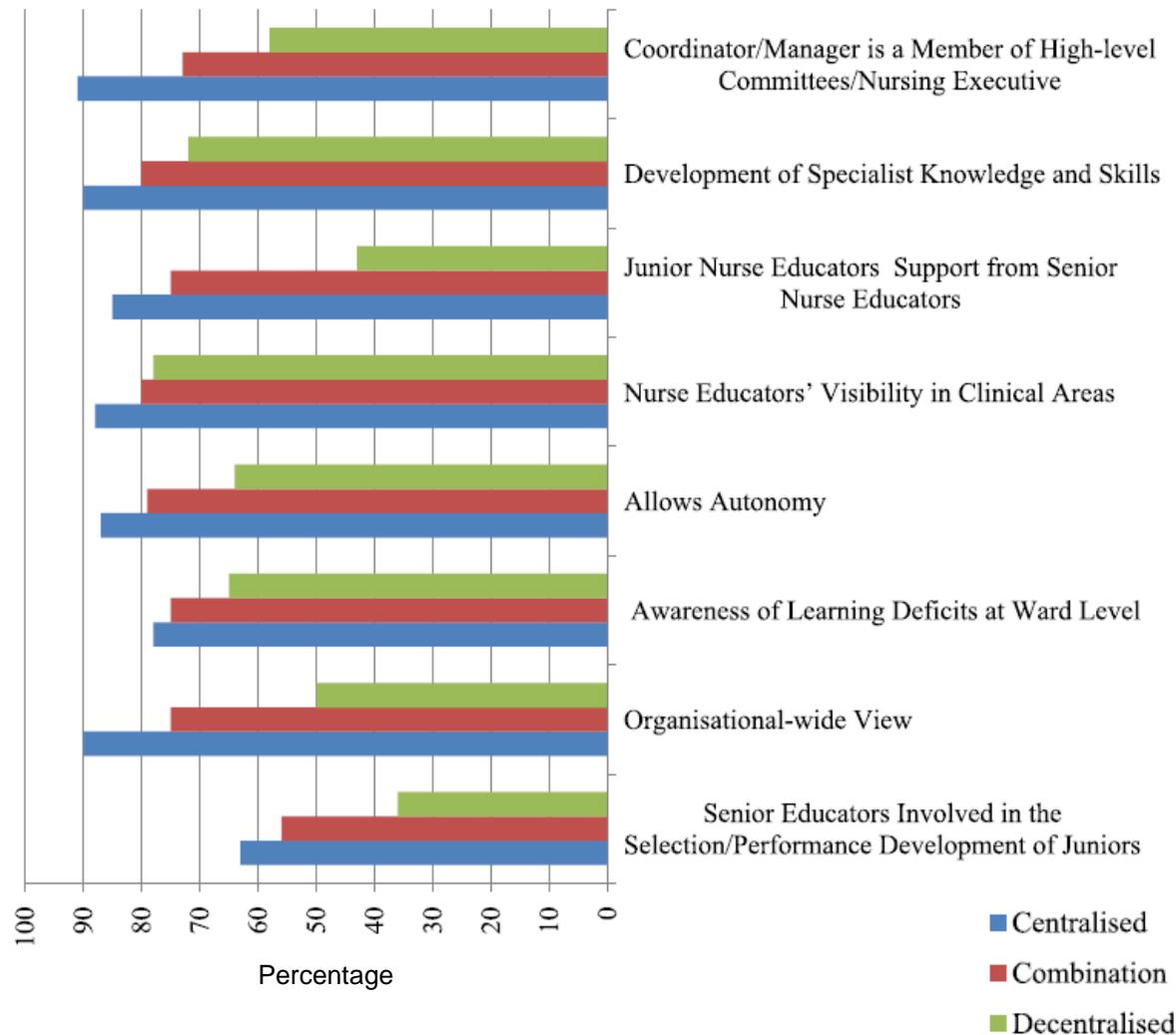


Figure 6. Positive statements on nurse education model

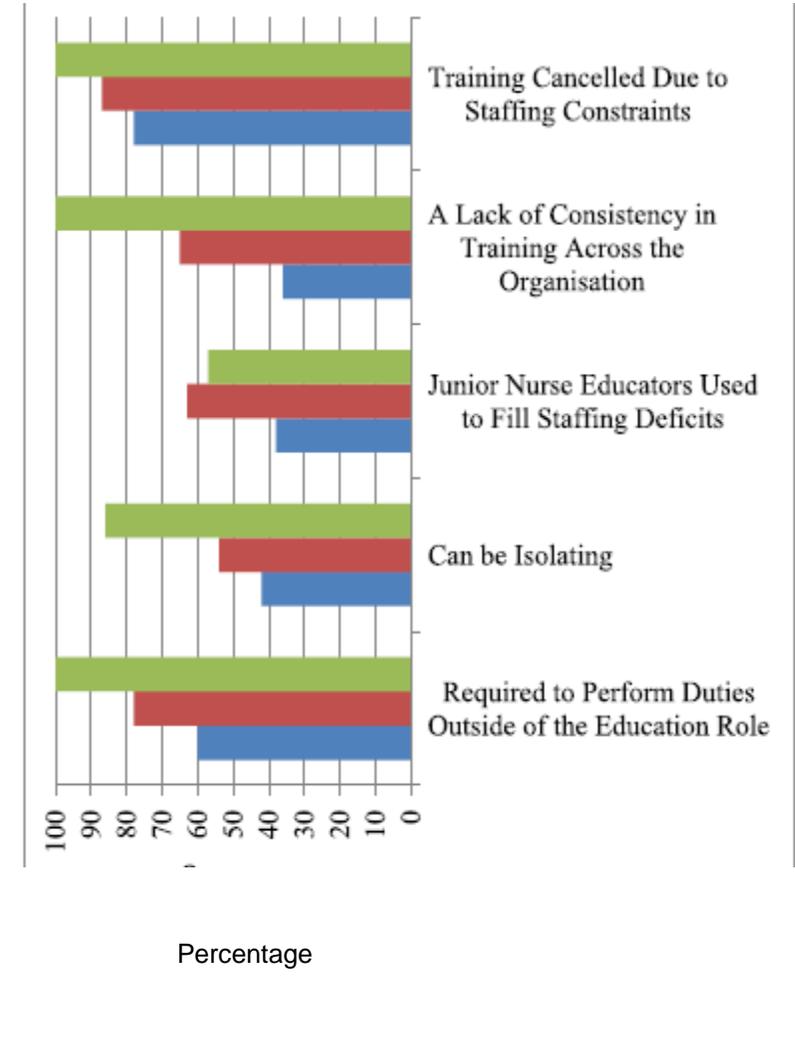


Figure 7. Negative statements on nurse education models

Results from respondents indicated that a centralised model had a number of advantages over a combination or decentralised model [1]

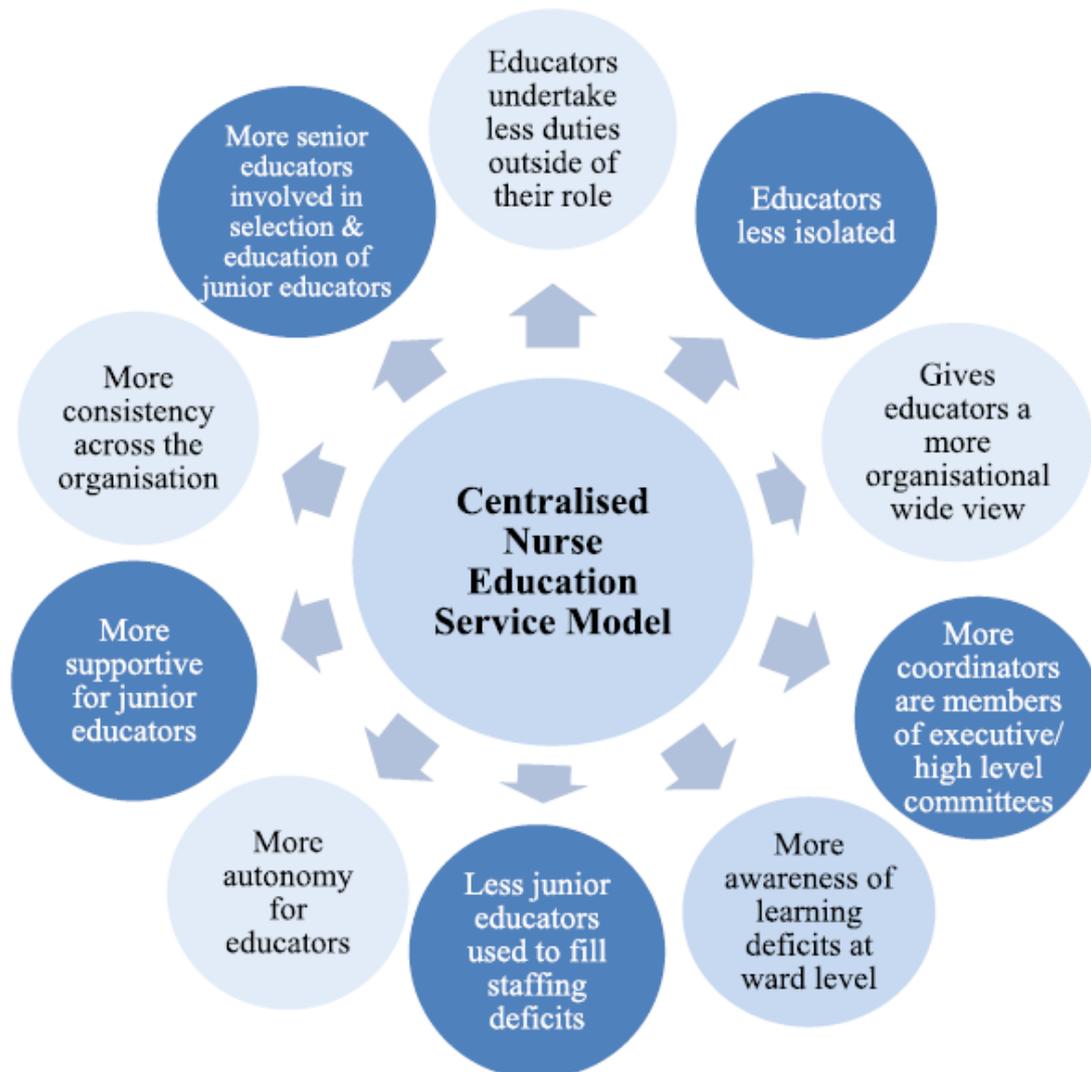


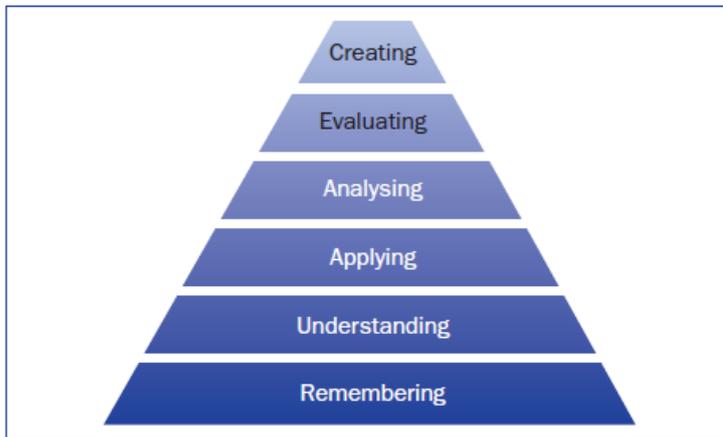
Figure 8. Ten advantages of centralised nurse education service model

2. Learning models in nursing education (Informal and formal education)

A number of models have been summarised to look at how learning, teaching and assessment can be integrated to benefit the learner and the benefits this may have in nursing education and continuing professional development courses. [4] These domains refer to specific element of skill acquisition, knowledge creation or value and attitude development that happens during formal and informal learning.

2.1. Learning domains

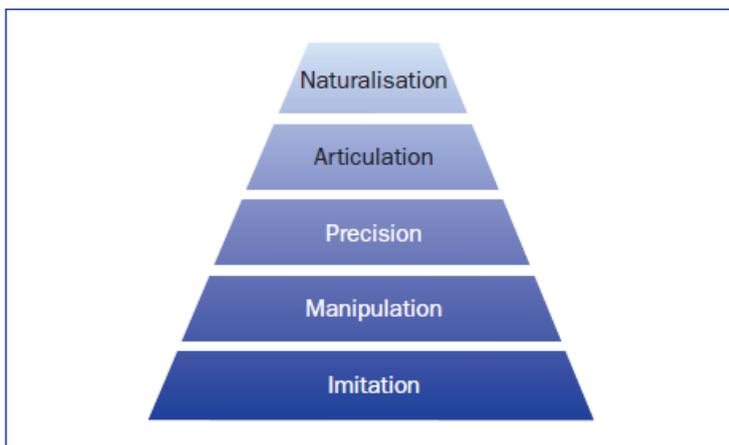
Learning in nursing can be divided into three distinct domains: [4]



2.1.1 Cognitive domain – refers to the theoretical knowledge underpinning clinical practice, contextualising and consolidating existing theoretical knowledge is used in the context of working as a mentor in clinical practice

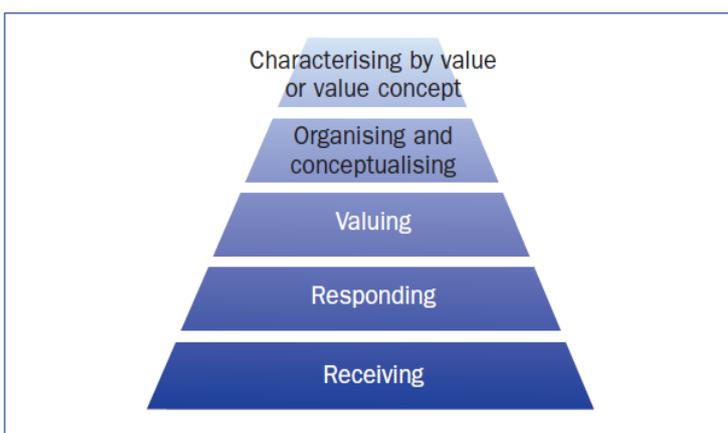
The cognitive domain is made up of the components (depicted in Figure 9) that require attention for nursing education to be successful.

Figure 9. Cognitive domain (originally adapted from Anderson and Krathwohl, 2001)



2.1.2. Psychomotor domain – increase in skill base where an aspect of practice becomes “second nature” and no conscious effort is required. This includes, situated learning, work-based or experiential learning, and social learning. This also reflects what is also known as the 70-20-10 model (described further in a separate report).

Figure 10. Psychomotor domain (originally adapted from Dave, 1975)



2.1.3. Affective domain – places emphasis on values. The affective learning domain learning theory has been implemented as a means of considering how students can relate to values and beliefs in health care. (i.e., in the context of breaking bad news to family members, which happens through reflective processes). This domain encompasses actions described in Figure 11.

Figure 11. Affective domain (originally adapted from Krathwohl et al, 1964)

The following approaches are also mentioned in the review by Hayes (2016): [4]

- **Social constructivist approaches** [Page 4; Hayes 2016]
 - Communities of practice and situated learning
 - Community
 - Domain
 - Practice

➤ **Problem based learning approach**

- The learning problem

Further details about these different approaches are described in the article. [4]

2.2. Empowering education model in nursing [2]

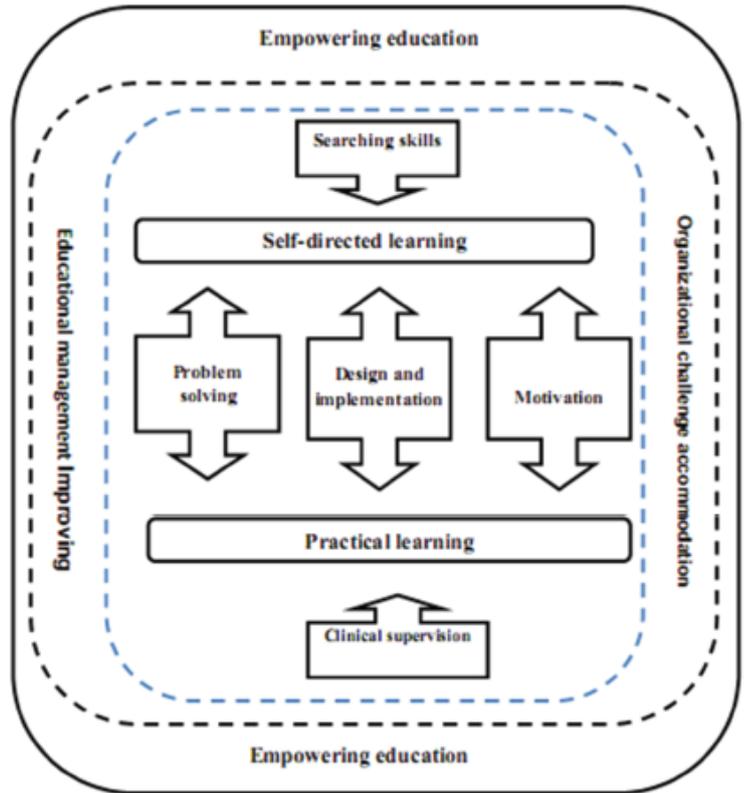
Empowering education is a model devised for in-service training of nurses that can desirably match the training programs with learning needs for the nursing staff. Owing to its practical nature, the empowering education can facilitate occupational tasks and achieving greater mastery of professional skills among the nurses. [2]

The new empowering education model composes of self-directed learning and practical learning.

Figure 12. Empowering education model

Strategies to achieve empowering education: [2]

- Fostering of searching skills
- Clinical performance monitoring
- Motivational factors
- Participation in the design and implementation
- Problem-solving approach.



3. Evaluation of education programs – Kirkpatrick model of evaluation

Since Kirkpatrick first published his evaluation model, many continuing nursing education providers have used it. [5]

The 'Kirkpatrick model of evaluation' includes four levels for evaluation: (a) reaction, (b) learning, (c) behavior, and (d) results. Levels of evaluation were built in a step-wise fashion. The value of the evaluation methods have been discussed in the context of continuing nursing education. [5]

Table 3. Four levels of evaluation in the revised Kirkpatrick model of evaluation (2016) [5]

Levels	Evaluation questions
Level 1 (Reaction): The data equate to customer satisfaction and confirm the quality of the activity and the satisfaction with the instructor.	<ul style="list-style-type: none"> Was the speaker knowledgeable? Did you find the program held your interest? Were you able to meet the objectives?
Level 2 (Learning): Evaluation on this level can be accomplished through the use of a test, an audience response system, a case study, or through questions.	<ul style="list-style-type: none"> What did you learn during the activity?
Level 3 (Behaviour): The information collected here provides helpful information on how or whether participants have been able to use or apply what they have learned in practice.	<ul style="list-style-type: none"> How do you plan to apply what you learned in your work? How has your practice changed since participating in this course?
Level 4 (Results): Focus can be on cost analysis, financial value, quality, or output. Data can be used to guide executive decision making. The results at this level are not only influenced by the educational experience, but by other intervening variables, such as the physical environment, the culture of the practice site, reminder systems for participants, or being held accountable by managers or supervisors.	<ul style="list-style-type: none"> What was the impact of the learning on the organisation? Collect data: Staff turnover, infection rates, length of stay, cost savings, patient indicators, job satisfaction, retention rates, other quality measures.

Applying principles from the updated Kirkpatrick model (2016) will enhance positive outcomes not only for planners, but also for participants, organisations, and stakeholders.

Table 4. Five principles that have been added to guide the application of the revised model [5]

5 Principles	Explanation
The end is the beginning	<ul style="list-style-type: none"> Desired results serve as the first step in the planning process. Identify the professional practice gap, and identify what is required in order to achieve these results.
Return on expectations is the ultimate indicator of value	<ul style="list-style-type: none"> Understanding what stakeholders' expectations are. Identify the value of the activity and allows for the attainment of measurable results. Stakeholders (business partners, managers, supervisors) will also have key roles to play in reinforcing the application of the newly acquired knowledge and skills.
Business partnership is necessary to bring about positive return on expectations	<ul style="list-style-type: none"> Learning activity itself will typically result in just 15% of on-the-job application. Stakeholders are important in preparing participants for the education, as well as in reinforcing the new skills or knowledge.
Value must be created before it can be demonstrated.	<ul style="list-style-type: none"> Providers should redefine their roles to focus more on the achievement of behavior change.
A compelling chain of evidence demonstrates your bottom-line value.	<ul style="list-style-type: none"> Qualitative or quantitative, can be measured and shared with stakeholders and the organisation. This is an important way for educators to demonstrate their value to the organisation.

4. Benchmarking

4.1. Department of Health (Queensland) [6]

The registered nurse professional practice in Queensland use the Benner's practice pathway

Benner (1984) proposed that nursing knowledge develops through research and integration into clinical practice and experience. Importantly, experience is not a time based activity, but can only develop in the context of education and knowledge acquisition.

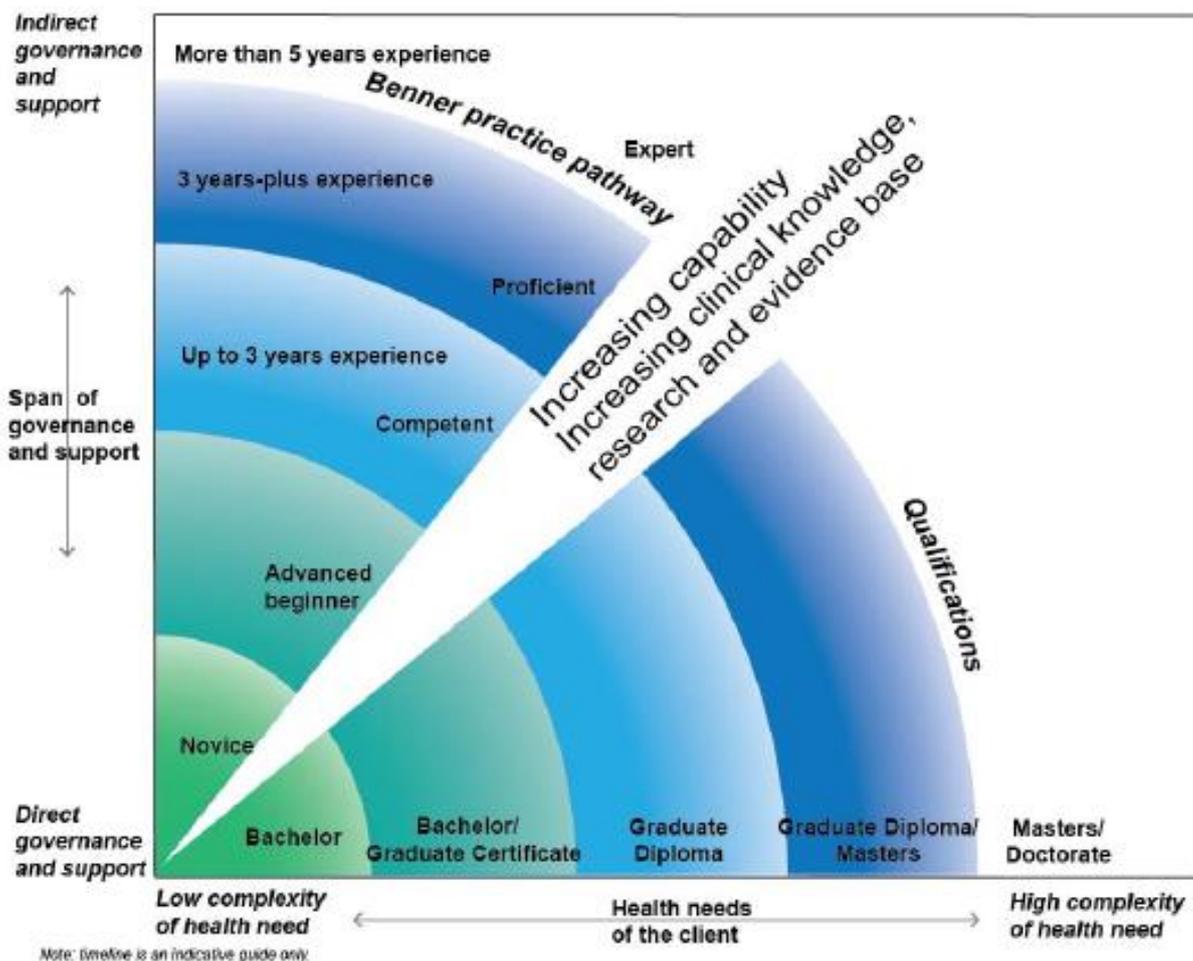
Characteristics acquired throughout the registered nurse professional career contribute towards a sustainable profession through:

- Role modelling
- Clinical leadership
- Mentoring and coaching
- Supervision
- Teaching
- Research

4.1.1 Pathway to optimised practice

Building on the identified guiding principles, the Australian qualification framework [7], Benner's model, and with consideration of enablers and barriers to practice, optimised practice can be achieved at each progression point through Benner's practice pathway. The novice, advanced beginner, competent, proficient and expert registered nurse is able to optimise their practice regardless of whether they intend to continue along the practice pathway or if they are professionally and personally content with their current role. [6]

Figure 13. An idealised pathway through which the optimisation of nursing will be achieved

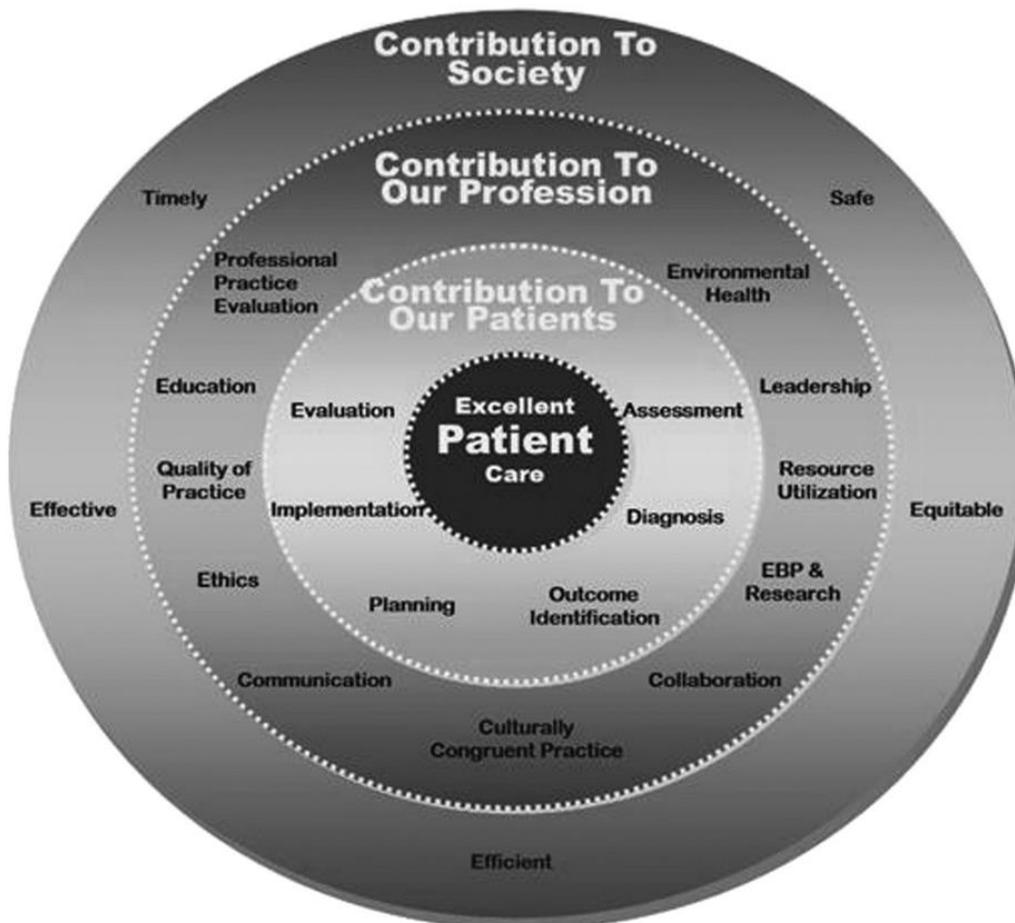


4.2. Banner Health ^[3]

4.2.1. Banner Health Professional Practice Model

Professional practice models (PPMs) are an integral part of any organisation on the Magnet journey, whether initial designation or redesignation. Through the journey, the PPM should become embedded within the nursing culture. Banner Health embeds the Professional Practice Model (PPM) into all areas of nursing practice to support and elevate nursing practice and patient care. (Figure 14)

Figure 14. Banner Health Professional Practice Model ^[3]



Strategies to support a high level of embeddedness of the PPM include:

- Integration into position descriptions
- New employee orientation for nurses (clinical and leaders)
- Support for the evidence-based practice (EBP) model
- Nursing awards and recognition programs,
- A structure for the clinical ladder and leadership models at the department/facility and system level,
- Nursing peer review (NPR)
- Documentation supporting Magnet designation and resignation

A common goal for integration and support in each of these areas in each facility was a key accountability of each Chief Nursing Officer and adopted universally.

Leadership at multiple levels is crucial to ensure successful adoption and implementation of the PPM.

4.2.2. Evaluation of the model

Most of the clinical nurses and nurse leaders/managers agreed that the PPM enables them to articulate nursing contributions to patient care, that the model helps them to understand the elements that contribute to high-quality patient care, and that the model outlines the expectations of the professional role of the registered nurse.

Discussion

Limited peer-reviewed literature compared the effectiveness of nurse education models and approaches making it difficult to draw conclusions on the most effective models or approach. Results from one qualitative study of mixed methods suggest that a centralised service model is advantageous over a decentralised or combination model. Although it did not compare site vs ward based education, it suggests that healthcare organisations adopt a centralised model to gain the advantages identified by this study. ^[1] The evaluation of the Banner Health Professional Practice Model within its health service showed that staff agreed that the model outlines the expectations of their professional role. The Department of Health (Queensland) bases its guidance on the Benner's model and Australian qualification framework.

From the articles identified, there was a lack of evidence that compared specific components of education delivery i.e., ward vs site based, or informal vs formal training; moreover the 70-20-10 model was also not mentioned in the nursing context. The 70-20-10 learning philosophy has been adopted by the Public Sector Commission of the government of Western Australia ^[11], however there was a lack of evidence of its application within the context of nurse education. Nevertheless the three components in the 70-20-10 framework (namely formal learning, social leaning and experiential learning) were mentioned within the domains of learning in a literature review by Hayes (2016). Hayes states that recognising and understanding the overlap between the three domains serves to ensure that teaching can be mapped and aligned against recognised processes of teaching and learning, and their subsequent learning outcomes. ^[4]

Understanding the alignment of the three domains to processes of teaching, learning and assessment is the key to successful curriculum design, and that inquiry-based learning affords students the opportunity to learn without decontextualising or prioritising domains of learning outside of the focus of their work.

^[4]

Limitations

Peer-reviewed evidence included in this review was limited to a few descriptive studies subject to high risk of bias, and articles written on the topic of nurse education.

Most of the models were proposed or newly designed, only two models were evaluated for its effectiveness. The scope of the search was limited and there was a lack of evidence identified on this topic. Two studies identified used a qualitative approach and mixed methods approach. Findings from the qualitative study was confined to one hospital in Tehran which limits its generalisability and applicability in other settings. ^[2] The other study using a mixed methods approach, although conducted across multiple states in Australia, had a low response rate (26%) which allowed for the potential of non-response bias. ^[1]

Conclusions

Limited peer-reviewed literature compared the effectiveness of nurse education models and approaches making it difficult to draw conclusions on the most effective models or approach. There was a paucity of evidence offering insight to informal vs formal or site vs ward-based approaches, however results from a qualitative study of mixed methods suggest that a centralised service model is advantageous over a decentralised or combination model in the Australian context, and it is suggested that healthcare organisations adopt a centralised model. ^[1] An empowering education model can also facilitate occupational tasks and achieving greater mastery of professional skills among the nurses. ^[2]

Hayes (2016) presents three learning domains (cognitive, psychosocial and affective) and mechanisms by which educational and mentorship provision might be delivered within Nursing and Midwifery contexts, and provide an insight into the practicalities of its implementation. Understanding the overlap between the domains and the alignment of the three domains to processes of teaching, learning and assessment is the key to successful curriculum design. ^[4]

Applying principles from the updated Kirkpatrick model (2016) may enhance positive outcomes not only for education planners, but also for participants, organisations, and stakeholders. The four levels of evaluation may guide in measuring and evaluating nursing education outcomes. ^[5]

The review has identified two professional practice models (Benner's model, Banner Health model) for benchmarking purposes. ^[3,6]

References

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Appendix 1

Table 5. Information sources and search terms

Information sources (results)		
Cumulative Index to Nursing and Allied Health Literature; CINAHL (340)	Kings Fund (98)	Joanna Briggs Institute (299)
Google (131)	Health Foundation (7)	PubMed (1,077)
Search Terms		
Any of these words – “nurse” or “nursing” Exact words – “education delivery model”		

Table 6. CINAHL and PubMed Search Terms and Results

Search terms		CINAHL results	PubMed results
1	Nurse OR nursing	794,692	818, 116
2	Education model	1,418	12,766
3	#1 AND #2 Limit to 2013-2018; English, Humans	340	3,727
4	Limit #3 in PubMed to 2017-2018	-	1,077