Assessing the Effects of Clinical Placement Models on Undergraduate Nursing Students in a Private University in Ghana

Ninon P. Amertil[1], Elikem Keli Ayitey[2], Doris Grace Kpongboe[3]

[1]PhD, RN, Dean, School of Nursing and Midwifery, Valley View University, Accra, Ghana.
[2]MSc, Data Specialist, DPL Data Consult, Accra, Ghana
[3]MPH, RN, Lecturer, School of Nursing and Midwifery, Valley View University, Accra, Ghana.

Corresponding Author: Elikem Keli Ayitey

ABSTRACT

Background: Two vital clinical placement models adopted in the training of undergraduate nursing students in Ghana are the block and distributed models. While there is no global consensus in the nursing literature on which of the models is better suited to the competency development of nursing students during clinical practice, there are also inadequate studies on these models in the context of Sub-Saharan Africa in particular.

Purpose: To assess the effects of block and distributed clinical placement models on competency development of undergraduate nursing students in a private university in Ghana.

Methods: A cross sectional mixed research design was adopted. The purposive and convenience non-probability sampling techniques were used to collect data from 380 nursing students. A structured 5-point Likert scale survey instrument was used to collect data. Also, the descriptive analytical approach and mean scores were used to analyze data.

Results: From the findings, the block model received higher positive and mean scores among third and fourth year nursing students than the distributed model. The inference is that there was a higher level of satisfaction among respondents with the block model relative to the distributed model from both the quantitative and qualitative analyses.

Conclusion/Implication for Future Practice: The study revealed a degree of preference for the block model over the distributed model, as the former was consistently rated higher by students in final stages of the nursing program. By implication the block model by its structure facilitates better development of competency and therefore helps students in final stages of nursing curriculum integrate into professional practice than the distributed model.

Keywords: Clinical practicum, Block and distributed models, Undergraduate nurses, Competency development, Sub-Saharan Africa

INTRODUCTION

Nursing education is known to combine theoretical learning with practical experience to provide comprehensive professional education to student nurses. Theoretical training provides student nurses with the knowledge base for critical thinking as well as translating classroom learning to practice. A previous study observed that exposing undergraduate nurses to clinical experience is essential to developing their professional competence [1]. Over the years, a variety of clinical placement models have been utilized to train students nurses acquire practical skills for career. Evidence from various studies has demonstrated that these clinical placement models and setting are critical in the competency development and professional socialization of undergraduate nurses [2, 3]. The clinical models include the block and the non-block (distributed) models [4].

The block model is characterized by full time placement in health institutions or hospitals for a number of weeks. This could range from two to several weeks. The non-block placement on the other hand involves students' participation in classes and clinical placement simultaneously [4, 5]. An example is students attending lectures for three days in a week and using two days for practice in clinical setting. The non-block model, also called the distributed or continuous model usually takes an extended duration than the block model. It is known for its integration of theory and practice simultaneously [6, 7]. The block and non-block models have global applications. For instance, [5] observed that nursing schools in Canada adopt the models. In the United Kingdom (UK) also, student nurses undergo clinical placement for a consecutive period of six weeks, helping them to gain self-confidence and improved communication with patients and nursing staff [8]. In relation to the African continent, [9] reported that South African baccalaureate nurses spent just about 2 weeks in clinical placement, a duration considered limited. Academic studies on clinical placement identify factors which engender quality clinical learning and they include work attitudes, relationships between students and nurses, students' clinical practice duration and feelings of belongingness [2, 3]. Other factors are organizational design and resourcefulness of ward nurses [1]. Another study also identified two way communication with supervising ward nurses and feeling welcome or acceptance to the clinical setting [10].

In the context of Ghana, the Nursing and Midwifery Council (NMC) by its curriculum requires nursing programs to use both the inter-semester practicum (block model) and intra-semester practicum (non-block model) as pedagogical approaches [11]. This study involved students from Valley View University (VVU) in Ghana, a private Christian university which commenced undergraduate nursing studies in 2007. Currently, the nursing program has 4 years

duration and students altogether spend a total of 1608 hours in clinical placement through the block and non-block modes. This implies about 50 percent of total time allocated for training is spent in hospitals and related health care settings.

The overall aim of the study was to explore the effects of the two models on competency development of undergraduate nurses in the university. A search through the nursing literature shows there are not many studies which examined the impact the two models have on undergraduate nurses [4, 3, 5]. As such, there is no consensus in the literature on which model is superior in terms of student learning outcomes and competency development. The question directing the study was this: which of the major clinical models employed in Ghana is better suited to the competency development of student nurses in the university?

Objective of Study

The objective of the study was to assess the effects of the block and non-block placement models on competency development of undergraduate nurses in a private university (Valley View University) in Ghana.

MATERIALS AND METHODS
Study Design

The study used a mixed method design, consisting of quantitative and qualitative approaches [12]. For the quantitative data, a descriptive analytical approach was adopted. The method involved the use of structured questionnaire administered to nursing students in second to fourth year of the program. The questionnaire had 5 point likert scale responses ranging from 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree). By this rule, higher scores of 4 and 5 represent agreement, while lower scores of 1 and 2 indicate disagreement. A score of 3 indicates neither agree nor disagree. The questions focused on students' clinical experience and tasks performed during clinical study in the

second semester of 2018. The respondents were required to rank responses to the questions. The qualitative data consisted of free text. On the study questionnaire, an empty space was provided urging the respondents to make additional comments on their clinical experience. This was optional and some of the students provided comments constituting the qualitative data.

Participants

The purposive and convenience non-probability sampling techniques were used to collect data from respondents. For the breakdown, the second year non-block model had 207 participants while the non-block model for third year had 72. For the block model, 48 students were interviewed for the third year model while the fourth year block model had 52 participants. The total number of respondents selected for each clinical group was proportionate to total students' population in the group. The responses were coded using social science statistical software SPSS version 22 and analyzed by means of frequencies, percentages and mean scores.

Eligibility Criteria

To be considered for participation in the study, participants were expected to be VVU undergraduate students in second to fourth year of the nursing program. Participants were also required to have completed at least two clinical placements. This helped to ensure that only students with the necessary clinical experience participated in the study.

Ethical Approval

Permission to conduct the study was received from School of Nursing and Midwifery (SONM-VVU) Research Ethics Committee (Project no. 2018-04-011). Additionally, consent form was served to the potential respondents, explaining the aim of the study to them. Respondents were told participation in the study was voluntary and confidential. They were not expected to disclose names on the survey instrument. Two research assistants and class representatives in the School of Nursing explained to participants in class during the last week of the second semester. Questionnaire was distributed to participants and completion and submission of the questionnaire indicated consent.

Validity and Reliability of Instrument

The survey instrument consisted of 7 items to help students make an objective assessment of their clinical practice. The Cronbach's alpha technique was used to measure instrument reliability. The items having 5-point Likert scale responses were scrutinized to ensure they captured fully the major activities undertaken by students during clinical placement. The instrument was distributed to a sample of 20 students for pretest prior to final distribution. In terms of the alpha values, the fourth year block scale produced a score of .91, while the third year block scale yielded .92. The third year non-block scale had an alpha value of .90 relative to .92 for second year non-block scale.

Setting

The university considered is Valley View University (VVU), a private tertiary institution in Ghana. VVU has an undergraduate nursing program commenced in September 2007. Students in first and second year adopt an integrated 2 days per week intra-semester practicum for a period of 14 weeks maximum and weekly lectures for 3 days. On the other hand, students in fourth year use inter-semester practicum lasting for 4 weeks. Furthermore, students in third year adopt the hybrid model, implying they use the block mode in first semester and non-block mode in second semester. The latter has two different schedules and incorporates 2 days a week for community nursing for 7 weeks, and thereafter 2 days a week for mental health nursing also for another 7 weeks.

In order to promote the competency development of nursing students, the NMC in Ghana by its curriculum obliges undergraduate nursing programs to ensure that their students fulfill a required amount of time (hours) in clinical placement. Accordingly, students at VVU do a total of 1608 hours for the 4 years allocated to the

program. This satisfies the minimum requirement demanded by the NMC. For the break-down, first year nursing students do a minimum of 120 hours in the second semester and 216 hours during long vacation (summer). Students in second and third year spend the same amount of time in clinical placement. This consists of 120 hours each for both first and second semesters, and 216 hours in the summer. The time spent in summer implies that students spend 6 days a week, 6 hours per day for 6 weeks in the clinical environment. Lastly, students in the fourth year do a minimum of 120 hours each in first and second semesters, and the same amount of time during Christmas vacation.

Besides the aforementioned, nursing students in the university are required to participate in laboratory supervised in-house skills acquisition sessions. This spans 2 hours per week for 20 weeks in an academic year, constituting an aggregate of 280 hours for the 7 semesters allocated to clinical placement. During the in-house skills acquisition session, which is conducted by nursing department laboratory instructors, students are distributed in work teams to collaborate and learn from one another. These demonstrate that nursing students at VVU spend an inordinate amount of time in clinical placement and laboratory sessions for their competency development. The university generally adopts the group supervisory model.

RESULTS
Quantitative Findings

Table 1 shows the results for fourth year block model.

Table 1: Responses for Fourth Year Block Model   Students (N=52)

Questions	Disagree Strongly (%)	Disagree (%)	Neutral (%)	Agree (%)	Agree Strongly (%)	Mean	SD
Q1. Performed simple procedures	1.9	-	17.3	48.1	32.7	4.03	1.03
Q2. Performed complex procedures	3.8	1.9	46.1	32.7	15.4	3.21	1.41
Q3. Experience in vital signs etc.	1.9	-	7.7	23.1	67.3	4.50	1.0
Q4. Patients and family needs etc.	1.9	5.8	36.6	46.2	9.6	3.27	1.33
Q5.Assessment findings	1.9	1.9	19.3	48.1	28.8	3.86	1.20
Q6. Changes in health status	1.9	5.8	28.8	36.5	26.9	3.52	1.50
Q7. Refined nursing skills	1.9	-	15.4	59.6	23.1	3.98	0.94

Total Mean = 3.76   Source: Research Data

From Table 1, when asked if they were able to perform simple procedures without supervision to meet patients' needs, the majority of respondents selected agree, agree strongly and neutral responses higher than the others. From the statistics, 48.1 percent of respondents nominated agree, 32.7 percent nominated agree strongly and 17.3 percent nominated neutral. This means that majority of fourth year students were able to perform simple tasks assigned without requiring supervision. The neutral responses suggest the outcome for some of the students was not positive. On the second question if they were able to perform more complex procedures under supervision of clinical instructors, the respondents rated neutral, agree and agree strongly higher than the others. The results showed a split response from respondents. While some of the respondents had favorable opinion, others were negative in response. The high neutral response points to a lack of absolute confidence in the ability of 46 percent of the respondents in performing more complex tasks. Some of the respondents also nominated disagree and disagree strongly responses meaning they could not perform complex procedures. On the third question if they gained more experience in collecting and recording vital signs and other patient's biodata, 67.3 percent of respondents nominated agree strongly, 23.1 percent nominated agree while 7.7 percent nominated neutral. The results showed majority of respondents had confidence performing the required tasks. Concerning the fourth question which asked if respondents were able to identify patient and family learning needs and teach them with the help of the instructor, a majority of 46.2 percent rated agree first, followed by

neutral (36.6%) and agree strongly (9.6%). A few of the respondents nominated disagree and disagree strongly also. For question 5 which asked if they were able to document assessment findings accurately in appropriate records, the responses selected followed the pattern observed with the preceding ones. The responses for agree, agree strongly and neutral were high while a few of them also selected disagree strongly and disagree responses. Question 6 asked them if they were able to identify changes in patient's health status and took action with the aid of clinical instructor. For the responses, 36.5 percent of the respondents selected agree, 26.9 percent agree strongly and 28.8 percent neutral. There were a few responses in the disagree categories also. The results implied while the majority of respondents could identify changes in patients' health status, there were others who could not do this. Question 7 asked if the clinical experience helped refined nursing skills and improved responsibility in meeting patients' needs. The results showed majority of respondents affirmed the question as seen in the proportion of score for agree (59.6%), strongly agree (23.1%)

and neutral (15.4%). Altogether, 82.7 percent of the respondents fell in agree categories meaning the outcome was positive.

Table 2 presents the findings for respondents who participated in third year block clinical study. For these clinical study participants, their responses were generally similar to respondents in fourth year block model. The trend revealed that respondents rated strongly agree and agree more than the other response categories. As can be seen from the table, this is true for all the items surveyed except for item 4, which has more neutral responses (56.3%) than strongly agree and agree combined. For item 4 in particular, the neutral and disagree categories add up to 64.7 percent, implying a large number of students could not perform this task. Though most participants scored favorably strongly agree and agree options for most of the items surveyed, there were also respectable scores for neutral, disagree and strongly disagree options, indicating the responses were not absolutely positive and respondents could not confidently perform those specific tasks.

Table 2: Responses for Third Year Block Model   Students (N=48)

Questions	Disagree Strongly (%)	Disagree (%)	Neutral (%)	Agree (%)	Agree Strongly (%)	Mean	SD
Q1. Performed simple procedures	-	2.1	20.8	45.8	31.3	3.93	1.08
Q2. Performed complex procedures	2.1	2.1	45.8	39.6	10.4	3.12	1.37
Q3. Experience in vital signs etc.	2.1	2.1	14.6	37.5	43.8	4.08	1.23
Q4. Patients and family needs etc.	2.1	6.3	56.3	20.8	14.6	2.81	1.53
Q5. Assessment findings	2.1	2.1	37.5	37.5	20.8	3.48	1.32
Q6. Changes in health status	2.1	4.2	33.4	41.7	18.8	3.40	1.42
Q7. Refined nursing skills	2.1	-	37.5	37.5	22.9	3.56	1.25

Total Mean = 3.48   Source: Research Data

Table 3: Responses for Third Year Distributed Model   Students (N=72)

Questions	Disagree Strongly (%)	Disagree (%)	Neutral (%)	Agree (%)	Agree Strongly (%)	Mean	SD
Q1. Performed simple procedures	-	2.8	65.3	22.2	9.7	2.73	1.31
Q2. Performed complex procedures	-	6.9	68.1	22.2	2.8	2.54	1.25
Q3. Experience in vital signs etc.	5.6	5.6	51.4	22.2	15.3	2.82	1.66
Q4. Patients and family needs etc.	1.4	4.2	70.9	20.8	2.8	2.52	1.23
Q5. Assessment findings	1.4	8.3	57	20.8	12.5	2.77	1.50
Q6. Changes in health status	-	5.6	73.6	16.7	4.2	2.65	1.15
Q7. Refined nursing skills	4.2	5.6	55.6	25	9.7	2.83	1.48

Total Mean = 2.69   Source: Research Data

Table 3 shows the results for respondents in third year who undertook the non-block (distributed) clinical model. The results showed a high increase in neutral

responses relative to responses for agree and disagree categories. For instance, on question 1, the neutral option accounted for 65.3 percent of total respondents. The

inference is a decrease in competence and confidence among the respondents in undertaking these basic tasks on their own. This pattern was repeated in questions 2, 3, 4, 5 and 6. For all these questions, respondents in the neutral option were more than those in the other categories. The same outcome was recorded for question 7.

Results for Second Year Distributed Model

The last model discussed is the second year non-block model. The findings are displayed in Table 4. For this model, the survey responses were more distributed compared to the responses for the models on students in third and fourth year. The results showed an increase in the scores for neutral, disagree and strongly disagree options. For example, items 2, 4 and 6 recorded scores for neutral above 50 percent.

Table 4: Results for Second Year Distributed Model   Students (N=207)

Questions	Disagree Strongly (%)	Disagree (%)	Neutral (%)	Agree (%)	Agree Strongly (%)	Mean	SD
Q1. Performed simple procedures	1.4	2.9	34.8	30.9	30	3.58	1.38
Q2. Performed complex procedures	12.6	6.3	57.9	16.9	6.3	2.15	1.73
Q3. Experience in vital signs etc.	1.4	2.4	15.4	28.5	52.2	4.09	1.33
Q4. Patients and family needs etc.	6.3	8.2	57.5	17.4	10.6	2.45	1.63
Q5.Assessment findings	6.3	3.9	33.3	28.5	28	3.27	1.73
Q6. Changes in health status	5.3	6.3	51.1	26.6	10.6	2.67	1.62
Q7. Refined nursing skills	3.9	3.9	35.8	36.7	19.8	3.26	1.54

Total Mean =3.06   Source: Research Data

The mean and total mean scores were computed to further compare the responses quantitatively. The total mean score result was 3.76 for fourth year block model, 3.48 for third year block model, 2.69 for third year non-block model and 3.06 for second year non-block model. Thus, the block models had higher total mean score than the non-block models.

Qualitative Findings

Some of the respondents provided voluntary comments in addition to the quantitative data collected. Most of the respondents came from the fourth year cohort and about 50 percent of them were involved. The qualitative responses provided further insight into the students' clinical practicum experiences. The major themes elicited from the responses concerned clinical instructors, skills development, format of clinical placement and stress.

Clinical Instructors

The role of the clinical instructor is to facilitate students learning during placement. The responses on clinical instructors were generally not positive. Some of the students expressed their opinions:

"*The clinical experience was very helpful except that instructors never spent enough time with us.*"
"*I would humbly request we have increased access to the clinical instructors when we go the ward to help boost our confidence level, but the entire experience was great.*"

Skills Development

One objective of clinical practicum is to help students transfer classroom theories and skills to real life professional environment. Some of the respondents commented:

"*Because we were frequent in the ward, the placement helped us to gain more skills.*"
"*I was able to monitor a client on admission at the ward. She was on oxygen and her oxygen saturation decreased. I was there and I did everything. In fact, I was able to provide care to many clients on admission.*"

Structure/Format of Placement

The students expressed their views on the block format and its advantages. Students in the fourth year have had the benefit of using the two models hence have a basis to compare the two. Some of the opinions were:

"*To me, the block clinical is relatively more effective than the intra-semester two times a week clinical.*"

"*The block method provides a good experience and I want more of it.*"

Stress

Stress was identified by the respondents as a problem. This was attributed to the long distance traveled to the hospital daily. They put it this way in their own words:

"*Distance of travel makes it stressful. One has to leave campus early morning and be in traffic for about one hour or more. This is repeated for consecutive days so it is stressful. Distance should be considered.*"

"*We leave early morning and return very late. The place is far and sometimes one has night duties. It can be stressful.*"

DISCUSSION

From the analysis of results, the majority of responses for participants in fourth year block model fell into agree categories. This finding shows a high level of satisfaction among respondents with this block model. The only aberration here was item 2, which asked the respondents if they were able to perform complex tasks under supervision. To this, the majority of respondents scored neutral category higher than the others. The high neutral score denotes a reduced level of competence and confidence in undertaking those specific tasks. The largest number of responses for third year block model also fell into agree categories than disagree and neutral options. The findings for the block models for respondents in fourth and third year revealed a pattern. That is, there was a higher number of respondents in agree categories than neutral and disagree options. In particular, majority of respondents rated agree or agree strongly options.

The findings from the study helped to directly compare the block model for third year students with the distributed model at the same level. Unlike the pattern which characterized the block models, the findings for third year distributed model demonstrated a decrease in scores for agree categories and an increase in that of neutral and disagree categories. In particular, the findings showed the respondents scored the neutral option consistently higher for all the seven items. The suggestion is that respondents who participated in this clinical model had lower satisfaction in the performance of tasks compared to the block clinical model. It also implies by extension reduced competence and confidence in undertaking the tasks. The higher scores for the block model among fourth and third year students are supported by findings in the literature. It was found by [13] that the block model by its structure allows for assimilation and consolidation of skills. [4] also found the block approach was reasoned by respondents to support consistency in teaching and learning hence more favorable for clinical learning. The non-block model is associated with shorter clinical placement which does not favor learning compared to the block model [4, 14]. Given the problems respondents in this study had with clinical nurses, the higher satisfaction with the block mode could be attributed to its longer duration. As one student stated "*because we were frequent in the ward, the placement helped us to gain more skills.*" The longer duration advantage in clinical placement with the block mode is supported by other studies [4, 14]. These studies disclosed that an important factor influencing the satisfaction of clinical practice among student nurses is duration of practice. One study also found the block model helped to improve technical skills, development of proficiency in clinical analysis and general problem solving. All these in addition to inspiring confidence and greater autonomy after a clinical placement experience [13]. The finding for nursing students who participated in second year distributed model is closely similar to that for third year distributed model. Notably also, the mean and total mean scores computed for the two models underscored the major finding from the study – an apparent preference for the block model relative to the non-block model.

The qualitative findings importantly revealed that student nurses did not enjoy excellent working relationship with their

clinical instructors. It appeared the clinical instructors were unfriendly and inaccessible to the students. This finding corroborates a previous study conducted in Ghana which found that staff nurses in hospital wards used student nurses for menial jobs instead of productive engagement [15]. A study by [16] discovered staff nurses have a poor working relationship with undergraduate nurses and called them "WhatsApp nurses" for checking text messages. The finding from the present study contradicts the literature from more developed countries such as Australia, Canada, United States, European Union etc. The literature shows that students report feeling accepted in the ward team, which boosts their confidence and competence [4, 1, 10]. However, a study conducted by [17] disclosed 24.8 percent of participants reported unsatisfactory supervisory experience. This problem was attributed to the group supervisory model in use in Slovakia, considered less effective than the individualized model used in most of Western Europe. The poor relationship between clinical nurses and students in the present study among other reasons could be attributed to pressure on nurses at work due to a high nurse-patient ratio in most of sub-Saharan Africa [15]. It could also be caused by the group supervisory model which is used for clinical practice by the university [17, 18, 19].

CONCLUSION

The overall findings revealed that nursing students in third and fourth year who participated in clinical placement rated the block model higher in relation to the distributed model. The suggestion is that the block model provides better learning outcomes, skill and competency development for the students. Evidence from the third year students who used both block and distributed models in the same academic year also revealed a degree of preference for the block model as this was rated higher. An analysis of the mean and total mean scores of the models also strengthened this perspective. The study by

[4] observed the block model offered realistic and pragmatic experience to student nurses hence was found more conducive to clinical learning. The underlying factor was consistency associated with the block placement [4, 10]. Consistency in the context of the present study implies students nurses are allocated to one hospital for several weeks, as such learn better and improve competence. By its structure, the block model allowed students to focus exclusively on clinical practice, facilitated continuity in patient care and following patients through the nursing process unlike the non-block model [13].

Implications for Nursing Education

The findings from this study revealed that the structure of clinical placement has an effect on clinical learning and competency development. The key findings from this research conform to precedent studies in the nursing literature which found a preference for the block model over the non-block model among undergraduate nurses in final stages of nursing program [13]. The inference from the findings is that the block model by its structure facilitates better development of skills and therefore helps students integrate into professional practice. As this study was restricted to one university, there is a need for additional studies comparing the block and non-block models across private universities in Ghana, to help identify and adopt the most effective model(s) to improve learning outcomes and competency development.

Limitations

The limitations of this study are that results are restricted to one university, hence cannot be generalized to other nursing programs in the country. Additionally, staff nurses and clinical instructors working in teaching hospitals and other hospitals involved in clinical placement were not included in this study. It will be appropriate to sample the views of staff nurses in future

studies to help improve nurse students' clinical experience in Ghana.

Data Availability

Data used for the study is available from the corresponding author upon request.

Authors' Contributions

Criteria	Author
Study conception and design	Ninon, Elikem
Data collection	Ninon, Elikem, Doris
Data analysis and interpretation	Ninon, Elikem, Doris
Drafting article	Ninon, Elikem, Doris
Critical revision	Ninon, Elikem, Doris

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