



Evaluation of the Community Health Nursing Course of First Year Proficiency Certificate Level Nursing in Nepal

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ABSTRACT

INTRODUCTION Community health is very much important in nursing education. It is essential because it maximizes the health status of individuals, families, groups and the community through direct approach with them. The main purpose of the study was to identify the gap in Community Health Nursing I course in Proficiency Certificate Level first year nursing program in Nepal.

METHODS Mix methods of research having qualitative and quantitative method were used in the study.

Data were collected from 12 subject teachers, 35 nursing graduates and 61 Proficiency Certificate Level first year nursing students. The study used structured, five-point rating scale and open ended questions according to Strengths, Weaknesses, Opportunities and Threats analysis for the self-administered questionnaire.

FINDINGS Common view points of the three sector's respondents (student, nursing graduate and teachers) regarding the strengths of curriculum are: curriculum is based on Primary Health Care approach and covers preventive and promotive aspects of health. Regarding weaknesses, they said that there is inadequate time for practice, there is lack of innovative methods and materials, the course didn't cover new trends of environmental pollution and changes, global warming, greenhouse effect, climate change and deforestation etc. Similarly, they added that curriculum is not revised regularly and there is insufficient supervision in field. Likewise, regarding opportunities, they said that there is job opportunity in social organization as Community Health Nursing/Public Health Nurse. Moreover, they said that there is lack of employment scope as threats point.

CONCLUSION The paper concludes that new issues and trends of community health nursing should be added, and curriculum should be revised regularly.

Keywords: Environmental Health, Community Health Nursing, Public Health Nurse, Proficiency Certificate Level Nursing

INTRODUCTION

History of Three years Proficiency Certificate Level (PCL) nursing education after 10 class schooling has been started since 1956 in Nursing Campus Maharajgunj (NCM), Tribhuvan University (TU), Institute of Medicine (IOM), Kathmandu, Nepal. After that only few revisions have been done. Last time, PCL curriculum was revised on 2007.⁵The community health nurse (CHN) or public health

nurse (PHN) is one category of the health workforce in the community. The main aim of the PCL nursing curriculum is to prepare a competent and self-reliant staff nurse who will be able to care for the health of the individuals, groups and communities based on the principles of primary health care (PHC) approach.⁵Barret et al. claimed that a community-based curriculum is considered

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as one that responds to the needs of community care. Nowadays in different parts of the world, nursing roles and responsibility for nursing care are shifting from hospital to community care. It also qualifies staff nurses in a variety of positions, such as district nurse, CHN, PHN and so on. Following completion of their nursing education program, nurses will be registered with the Nepal Nursing Council (NNC). This registration is the equivalent of the Registered Nurse (RN) and serves as a license to practice. The program has a common core of both theoretical and clinical/community practical mix that leads to a Certificate of Nursing Education. Jolley and Hegge argued that the required restructure in nursing education has to be compatible with the innovative mechanisms in academia.⁶

People are facing with many issues and challenges from highest disease burden due to the epidemiological changes in diseases and conditions, population structure and illness patterns. Keeping in view the above challenges and in the context of revitalization of primary health care, the roles and functions of the health workforce have to be modified and strengthened. Education and training of health workers need to be reviewed and revised.¹ Therefore, the researchers selected CHN I course of the PCL 1st year nursing, TU, IOM to find out the gap of this CHN I course.

Thus, the general objective of the study was to identify the gap in CHN I course of PCL 1st year nursing program in Nepal.

METHODS

Study approach

The researcher used mixed method. According to the Rodwell, the constructivist approach is recommended when the inquiry needs significant so a complex understanding of the problem can be achieved.⁷ The combination of multiple methods in a single study adds depth and breadth to the investigation.⁸ Thus, the triangulation method has been used to overcome the inadequacies of each method.⁹

Participants

This study employed mixed evaluation methods: Self-administered Questionnaire were given to PCL 1st year nursing students (61), in-depth interview were conducted for the teachers (12) and Four

Focused Group Discussions (FGDs) were conducted for the 35 nursing graduates. There were total 108 respondents. The participants were selected by non-probability purposive sampling¹⁰ between the periods of 3rd Aug-30th Aug, 2012. Document Analysis and content analysis were applied for additional information.

Information Gathering

A five-point rating scale (1 = poor, 2 = fair, 3 = average, 4 = very good, 5 = excellent) has been utilized only for the PCL 1st year student. SWOT analysis (S = Strength, W = Weakness, O = Opportunity and T = Threat) questionnaire method was used. PCL 1st year nursing student, nursing graduates and teachers were asked questions. Data were collected from respondents using self-report method by providing a prepared structured questionnaire for individual respondent and requested them to fill up completely and afterwards filled questionnaires were collected by the researcher. The main contents were personal biography of respondent and knowledge on component of CHN I course.

The self-administered questionnaire to allow any relevant issues to be discussed for PCL 1st year nursing students (6), the guidelines for FGDs for (3) nursing graduates and semi-structured questions for teachers were used in pilot study at Pokhara Nursing Campus (non-study area) to establish face intrinsic aspects of the questions.¹¹ Based on the feedback received, the self-directed questionnaires guidelines for FGD and questions of in-depth interview were revised and finalized for use at NCM of TU, IOM. Almost all self-administered questionnaire were collected. FGD were conducted by using guidelines and in-depth interview were conducted using questionnaire (see Figure 1.) which were prepared by reviewing related literature, and researcher's personal experience. A pilot study had been carried out on the 10% of the total sample in the similar setting, to see the reliability of the prepared instruments for the final data collection.¹²

The investigator formally requested and obtained officially written permission to carry out the study from the concerned NCM. Verbal consent was taken from all the students, teachers and nursing graduates. None of the students, teachers and nursing graduates was forced to participate and



ethics was taken into consideration. The investigator briefed about the objectives of the study, followed by half hour duration of time was given to fill up the questionnaire whereas one hour time was given for FGD and in-depth interview.

Components of Curriculum	SWOT Analysis
The objectives of the CHN I course. The contents of CHN I course. The teaching learning (T/L) methods of CHN I course. The T/L materials of CHN I course. The time allocation of CHN I course. The evaluation methods of CHN I course.	What are the strengths of CHN I course? What are the weaknesses of CHN I course? What are the opportunities of CHN I course? What are the threats of CHN I course? What are the recommendations?

Figure 1 Guidelines for self-administered questionnaire, FGDs and in-depth interview

RESULTS

Table 1 Demographic Characteristics

Demographic Characteristics	Frequency				Percent
	PCL Nursing Students	Staff Nurses	Teachers	Total	
Permanent Address					
Central Development Region	42	19	6	67	62.03
Western Development Region	13	8	2	23	21.2
Eastern Development Region	2	3	2	7	6.4
Mid-Western Development Region	2	3	1	6	5.5
Far Western Development Region	2	2	1	5	4.6
Age of the respondent					
Less than 25	61	0	0	61	56.4
25-35	0	30	8	38	35.1
35-45	0	5	3	8	7.4
45-55	0	0	1	1	0.9
Marital Status					
Married	1	5	12	18	16.6
Unmarried	60	30	0	90	83.3
Total				108	100

Following is the feedback of the PCL 1st year nursing students. These are the keys of five point

rating scale such as; 1= Poor, 2 =Fair, 3 = Average, 4= Very good, 5=Excellent



Table 2 Feedback of the PCL 1st year nursing students

S.N.	Statements	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Total (%)
The objectives of the CHN I course.							
1.	The objectives were relevant according to the future job.	1 (2%)	1 (2%)	9 (15%)	29 (48%)	13 (21%)	61 (100%)
The contents of CHN I course.							
2.	The contents were relevant according to the objectives.	1 (2%)	3 (5%)	8 (13%)	30 (52%)	9 (15%)	61 (100%)
The T/L methods of CHN I course.							
3.	The T/L methods were appropriate according to the objectives.	0	6 (10%)	18 (29.5%)	24 (39.3%)	5 (8.1%)	61 (100%)
The T/L materials of CHN I course.							
4.	The T/L materials were appropriate according to the contents.	3 (5%)	13 (21%)	14 (23%)	14 (23%)	8 (13%)	61 (100%)
The time allocations of CHN I course.							
5.	The time allocations were sufficient for the given topics.	7 (11%)	26 (43%)	8 (13%)	10 (16%)	2 (3%)	61 (100%)
The evaluation methods of CHN course							
6.	The evaluation methods were appropriate according to the knowledge, skills and attitude.	2 (3.2%)	0	17 (28%)	23 (38%)	10 (16.3%)	61 (100%)

Table 2 shows that 48% of the respondents indicated that the objectives of the CHN I were very good. Just 2% found it poor and fair. Similarly, 52.4% of the respondents indicated that the contents were very poor but 2% found it poor. Likewise, 39.3% of respondents indicated that the methods were very good but 10% found that it was fair. Further, 23% of respondents found the T/L materials average but 5% of the respondents found it poor. Moreover, 43% of the respondents indicated that the time allocations for given topics were fair but 3.2% found it excellent. Similarly, 38%

of the respondents indicated that the evaluation methods were very good but 3.2% found it poor.

2. Nursing Graduates

Four FGDs were conducted within 35 nursing graduates. Most of the respondent's age was 22-30 years. All respondents were female and 57.1% of the respondents were found married. Most of the respondents had job experiences of 1-10 years after PCL. Majority 80% of the respondents had been working in various govt. hospital, 14% of the respondents in NGO and rest of others were in private hospital.



Table 3 Feedback from nursing graduates

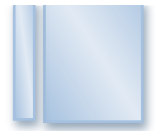
S.N.	Responses
1.	The objectives of the CHN I course. The objectives were relevant and clear. (1-4)
2.	The contents of CHN I course. The contents were relevant and clear but needs to be added some contents such as; environmental sanitation, pollutions, respiratory problems, global warming, climate change and health hazards etc. (1-4)
3.	The T/L methods of CHN I course. T/L methods were appropriate and lecture method used commonly and followed by small group discussion. (1-4)
4.	The T/L materials of CHN I course. Mostly used white board, Over Head Projector (OHP) and transparency and Power Point (PPT) but lack of resources. (1-4)
5.	The time allocations of CHN I course. The respondents said that time allocation are adequate and some topic needs to added hours. (1-4)
6.	The evaluation methods of CHN I course. Almost all of the respondents stated that evaluation methods were relevant, Only written and verbal evaluation was done performance evaluation was limited. (1-4)

3. Teachers

In-depth interview was conducted. Most of the respondents had 2-18 years of experience in teaching in this CHN I course in NCM. Most of the respondents' age was between 28- 44 years. All

respondents were female. All were married and were lecturers. The findings in this section are described under the six questions and detailed of it are given below:

S. N.	Responses
1.	The objectives of the CHN I course. The objectives were relevant and clear but needs to be specific in theory and practical. (A-L)
2.	The contents of CHN I course. Majority of the contents were relevant and clear but needs to be added some topics such as; national health policy, organic farming, pesticides, insecticides, green house effect, global warming, climate change, afforestation and deforestation etc. There is need to elaborate new concept in the topic of environmental sanitation, water, occupational health and pollution hazards. (A-L)
3.	The T/L methods of CHN I course. Lecture methods were given more priority than other methods like: small group discussion and others. (A-L)
4.	The T/L materials of CHN I course. White board, overhead projector (OHP) and transparency and PPT were commonly used but problem arises due to lack of resources, electricity, computer, Liquid Crystal Display (LCD). (A-L)
5.	The time allocations of CHN I course. Majority of respondents said that time allocation of some topic/content must be revised e.g. community diagnosis, occupational health hazards, pollution hazards. There is lack of time to teach properly and some topics have more time than content. (A-L)
6.	The evaluation methods of CHN I course. Majority of the respondents stated that the evaluation methods were relevant and proper and no need to change but somehow we can evaluate and marking them while they did small group discussion otherwise it is proper method. (A-L)



SWOT Analysis

The PCL 1st year nursing students, nursing graduates and teachers were asked to write strengths, weaknesses, opportunities and threats experienced in theory and practical of CHN I course in PCL 1st year nursing curriculum. The following responses have been compiled and calculated into percentage as to how many students, nursing

graduates and teachers refer to the same issue or problem. Among the total respondents, each student, nursing graduate and teacher could give same response hence the total percentage could be cent percent.

<p>Strengths</p> <ol style="list-style-type: none"> 1. Providing additional knowledge to deal with environmental problems. (26.2%) 2. Based on PHC approach. (34.4%) 3. It covers the preventive and promotive aspects of health. (31.1%) 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Minimum time for practice. (29.5%) 2. Not focused on environmental situation according to global issues like global warming, greenhouse effect, climate change and deforestation. (39.3%) 3. Lack of supervision due to shortage of faculty. (24.5%) 4. Curriculum not revised in time. (31.1%) 5. Lack of suitable areas for practical like remote areas. (27.8%) 6. Lack of relevant teaching methods and
<p>Opportunities</p> <ol style="list-style-type: none"> 1. Preventive and promotive job opportunities as CHN in social organizations. (39.3%) 2. It provides opportunities to be familiar with different living style and cultural practices of community. (34.4%) 3. We can get opportunities to know about health condition of community people in community settings. (29.5%) 4. Can change the behavior of community people related to their environment and keep it clean. (19.6%) 	<p>Threats</p> <ol style="list-style-type: none"> 1. It is difficult to convince those who have narrow belief on CHN. (31.1%) 2. Increased unemployment due to decreased quality knowledge and skill. (34.4%) 3. An environmental problem arises due to unaware public, over population, inactive government and inactive participant of the community. (29.5%)

Figure 1 PCL 1st Year Nursing Students

<p>Strengths</p> <ol style="list-style-type: none"> 1. Provide basic information about pollution sewage having sanitation. (40%) 2. Gives opportunity to see the real situation related to health in the fields practice. (51.4%) 3. Know about health status and culture of the community. (45.7%) 4. Deals with preventive, promotive and minor illness. (42.8%) 5. Based on PHC approach. (25.7%) 6. Identify actual health problem as well as origin or source of infection. (28.5%) 7. Strong decision making and capacity building. (34.2%) 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Limited time for practical. (25.7%) 2. More practical done on urban areas rather than rural areas. (31.4%) 3. New trends of environmental pollution are not included in the curriculum. (54.2%) 4. Less practical base curriculum. (31.4%) 5. Less contents are included in pollution hazard e.g. no soil pollution. (40%) 6. Objectives are not specified. (31.4%) 7. Not revised curriculum in time. (40%) 8. Insufficient supervision in field. (25.7%) 9. Innovative methods and materials are not used. (60%) 10. Based on answer evaluation rather than management evaluation. (14.2%) 11. Lack of communication skill practice. (25.7%)
<p>Opportunities</p> <ol style="list-style-type: none"> 1. Job opportunity in various community sector and social organization. (71.4%) 	<p>Threats</p> <ol style="list-style-type: none"> 1. Lack of employment scope according to the qualification. (77.1%)

Figure 2 Nursing Graduates

<p>Strengths</p> <ol style="list-style-type: none"> 1. Based on PHC or its element. (50%) 2. Focused on all aspects of the health of the society. (41.6%) 3. Content is almost covered and appropriate. (33.3%) 4. Enough exposure. (33.3%) 5. Covers the preventive and promotive aspects of health. (25%) 6. Evaluation synthesis are very good. (83.3%) 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Inadequate practical time. (50%) 2. Minimum guidance and supervision due to lack of faculty. (41.6%) 3. Not revised course regularly. (58.3%) 4. Less focused on the topic environmental sanitation according to global issues. (41.6%) 5. Some of the environmental changes, global warming, green house effect, increased population etc are not covered by this curriculum. (66.6%) 6. Lack of advanced technology methods, materials and sometime due to electrical equipment's problem. (58.3%)
<p>Opportunities</p> <ol style="list-style-type: none"> 1. Job opportunity in social organization as a CHN/PHN. (100%) 2. Implement theoretical knowledge in day to day practice as well as community visit. (58.3%) 	<p>Threats</p> <ol style="list-style-type: none"> 1. Insecurity due to political instability. (58.3%) 3. Lack of employment scope. (83.3%) 4. Lack of proper position for CHN. (50%)

Figure 3 Teachers



The combined view points from the above mentioned viewpoints of 61 PCL 1st year nursing

students, 35 nursing graduates and 12 teachers are given below:

<p>Strengths</p> <ol style="list-style-type: none"> 1. Based on PHC approach. 2. Covers the preventive and promotive aspects of the health. 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. Inadequate time for practice. 2. Lack of innovative methods and materials. 3. New trends of environmental pollutions and changes, global warming, green house effect, climate change and deforestation etc are not covered by this curriculum. 4. Insufficient supervision in field. 5. Not revised curriculum regularly.
<p>Opportunities</p> <ol style="list-style-type: none"> 1. Job opportunity in social organization as a CHN/PHN. 	<p>Threats</p> <ol style="list-style-type: none"> 1. Lack of employment scope.

Figure 4 Common View Points

DISCUSSION

Gaps in curriculum have been identified according to the six components of the curriculum such as objectives, contents, methods, materials, time allocation and evaluation. Analysis has been done in the following points to identify the gap in the curriculum.

Objectives of the CHN I course

In the existing PCL 1st year CHN I course, objective of the knowledge are adequately covered except new trend of environmental health. According to the Bloom's taxonomy (1956) level of cognitive domain, Simpson, (1996) levels of psychomotor domain, Krathwohl, (1964) level of the affective domain, it would be better to have high level of action verb in the objectives. In future, there should be relevant and appropriate general and specific objectives according to the three domains.¹³ According to the time, nursing education underwent qualitative and quantities changes. As with professional preparation generally, nursing education encompasses the three domains of learning, the cognitive, the affective, and the psychomotor.¹⁴ Likewise, according to the UNESCO's Tbilisi Conference which was held at Georgia in the USSR in October 1977 identified the objectives of environmental education as: 1) Awareness, 2) Knowledge, 3) Attitudes and 4) Skills.¹⁵

Content of the CHN I course

The education program consists of 3 years duration. The first year focuses on the health of the individual and family. In the first year, students study CHN-I which includes the Health, Primary Health Care, Nursing outside the hospital, Home visiting, Culture and Health, Family planning, Nutrition, Communication, Gender and Health, Epidemiology, Immunization, Health indicators and statistics, Environmental sanitation, Water, Housing, Occupational Health, and Pollution Hazards and Community diagnosis. Inside, there is environmental sanitation, safe and wholesome water, healthful housing, safety measures regarding occupational health in work place, types of pollution hazards on health.

By comparing the mentioned above contents with the view of the respondents, there was found the lack of topics/contents in the course. So, according to the respondents, health policy, pesticides, insecticides, environmental sanitation, pollution, global warming, greenhouse effect, climate change, organic farming, health hazards, deforestation and afforestation and their management should be included in future. The topic/content area should be selected from the "must learn" portion of the topic.¹⁶



T/L Methods of the CHN I course

In existing curriculum, there are different T/L methods like discussion, lecture, field visit, experience sharing, demonstration, quiz etc. According to the finding, there should be innovative method in curriculum such as role play, small group discussion, seminar, assignment, case study, project work, problem solving, independent study and interactive lecture etc. Attention span studies have shown that student's interest and attention in the traditional lecture diminishes significantly after 20 minutes.^{17, 18, 19} Educational research has shown that students who are actively involved in the learning activity will learn more than students who are passive recipients of knowledge.^{20, 21, 22, 23} It has been suggested that within the philosophy of curriculum, skills of critical analysis and problem solving should be developed.⁶ The importance of feedback to learning has been frequently noted.^{24, 25} Interactive techniques allow teachers to receive feedback at a number of levels; on student needs (at the beginning, middle or end of a lecture), on how the information has been assimilated and on future learning directions.²⁶ According to nursing graduates, there is lack of communication skill practice therefore role play method is best to teach communication skills. Communication and interpersonal skills are essential components in delivering good quality nursing care. Communication is identified as one of the essential skills that students must acquire in order to make progress through their education and training to become qualified nurses.²⁷ Teaching methods tend to inadequate for the production of health workforce capable to address the complex emerging health problems.²⁸

T/L Materials of the CHN I course

In existing curriculum, the T/L materials used are charts from book and real object etc. According to the finding, the materials such as PowerPoint presentation, Photographs, Films, Handouts, Videotape, Television, Whiteboard, Poster Pamphlet and Real pictures searched from the web etc. should be used. Films or videotapes used for this purpose should usually be brief in duration and present only part of a situation in order to promote further inquiry or discussion. Videotapes are also useful for examining student attitudes and skills.²⁹ Butler²⁰ found that incomplete handouts promoted greater attention and retention of the

material taught. In an interactive lecture, handouts can also structure the discussion and/or supplement the lecture content.

Time allocation of the CHN I course

Overall hours in theory is 150 for 100 marks but time is not equally distributed to the important topic/content such as in existing curriculum, the topics included under Environmental Education are environmental sanitation with 10 hours, water with 10 hours, housing with 12 hours, occupational health with 2 hours and pollution hazards with 2 hrs. Likewise, overall time allocation for practical is 180 hours, but hour distribution has not been specified. According to the respondents, they said that there is inadequate time for practical. So, more time should be allocated in future. Time constraints are frequently mentioned as a reason for not giving an interactive lecture; but again, this concern is more commonly related to the fear of not 'covering' all of the material.³⁰ The second point teacher needs to consider is the time allowed for the session. Time is a valuable resource which can neither be stretched nor shortened. Content and methods of learning should be selected according to the time allowed for the session.³¹

Evaluation methods of the CHN I course

In the existing curriculum, the evaluation techniques used in theory are written exam, Project work, Visit report, Quiz, Oral exam, Individual assignment and Question and Answer etc. Similarly, the evaluation techniques used in practical are performance evaluation, log book, family folder, group written report, report presentation, health teaching, group presentation of action taken on a specific community problem, observation visit, case study, informal teaching, group presentation of community survey, health action, survey form, family care plan and survey from family member etc. According to the respondent, they said that the existing curriculum is based on answer evaluation rather than management evaluation. So, future curriculum should be based on management evaluation such as assignment, case study and project work etc. According to Regmi et al,⁶ there is no relevant evaluation technique – therefore it is difficult to maintain the characteristics of evaluation such as validity, reliability, objectivity and usability. And, they suggest curriculum should be focused on skills



competence or standardized as well as behavioral parts. According to Harden, ³² illuminative evaluation techniques may give more insight into the curriculum than examination of the end product.

Similarly, Booth and Hegge call for curriculum evaluation in terms of its overall 'content' and 'process'. As Salsali suggests that the assessment and evaluation of curriculum should be fair and impartial.⁶

CONCLUSION

Based on the result of the study, the study was able to identify the gaps regarding the knowledge, skills and attitude of CHN I course. The study had found positive result to address the needs, suggestions and recommendation for further improvement in CHN I course.

The paper concludes that new issues and trends of community health nursing should be added, and curriculum should be revised regularly. Following are the combined recommendations that PCL 1st year nursing students, nursing graduates and teachers gave:

- New trends in CHN I course changes should be included.
- It should be more focused and based on practical tasks.
- Community visits should be kept in many places especially rural areas not only in one place.
- Internationally acceptable course should be made.
- Need to use innovative methods and materials while teaching.
- Teacher must be trained enough to teach specially in environmental health.
- Communication skills should be practiced before going to community field.

LIMITATION OF STUDY

The study had some limitations. This study limited to a small sample size.

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REFERENCES

1. WHO (2010). A framework for community health nursing education. Regional Office for South-East Asia.
2. Dhimal M, Bhattarai L (2009). Situation analysis of environmental Health in Nepal(1st ed.). Nepal Health Research Council: Kathmandu. Retrieved February 4th, 2013, from <http://www.nhrc.org.np/reports/Situation%20Report.pdf>
3. Jha SG (2007). A brief appraisal of existing main environmental issues in Nepal and potential intervention to solve the perceived problems. *Nepal Journals Online*,17(1).
4. National Adaptation Program of Action (NAPA) (2010, September). Climate change vulnerability mapping for Nepal. Government of Nepal: Kathmandu. Retrieved December 29th, 2012, from http://www.napanepal.gov.np/pdf_reports/CLIMATE%20CHANGE%20VULNERABILITY%20MAPPING%20FOR%20NEPAL%20INNER.pdf
5. Institute of Medicine (2007). Certificate nursing curriculum. TU: Kathmandu.
6. Regmi K, Regmi S, Shahi M (2009, December). Tribhuvan university certificate nursing curriculum. *Journal of Institute of Medicine*, 31(3): 46-55
7. Rodwell MK (1998). Social work constructivist research. New York: Garland Publishing.
8. Denzin NK, Lincoln YS (2000). The discipline and practice of qualitative research. In: DenzinNK, Lincoln YS, editors. Handbook of qualitative research (2nd ed.). Thousand Oaks: Sage
9. Williamson GR (2005). Illustrating triangulation in mixed-methods nursing research. *Nurse Researcher*, 12:7-17
10. Bowling A(2005). Mode of questionnaire administration can have serious effects on data quality. *Journal of Public Health*, 27, 281-291.
11. Robson C (2002). Real world research (2nd ed.). Oxford: Blackwell publishing.
12. Nardi P (2003). Doing survey research: a guide to quantitative methods. Boston: Allyn and Bacon.



13. Radhakrishnan S (2009). Environmental education: self instructional material. The Global Open University: Nagaland, India.
14. Salsali M (2005). Evaluating teaching effectiveness in nursing education: an Iranian perspective. *BMC Medical Education*, 5:29.doi: 10.1186/1472-6920-5-29. Retrieved September 12, 2013, from <http://www.biomedcentral.com/1472-6920/5/29>
15. Tbilisi Declaration (1977). Retrieved January 27, 2013, from <http://www.gdrc.org/uem/ee/tbilisi.html>.
16. Abbatt FR (1992). Teaching for better learning: a guide for teachers of primary health care staff (2nd ed.). Geneva: WHO. Retrieved February 14, 2013, from http://whqlibdoc.who.int/publications/1992/9241544422_eng.pdf
17. Frederick P (1986). The lively lecture – 8 variations. *College Teaching*, 34, 43-50.
18. Foley R, Smilansky J (1980). Teaching techniques. McGraw Hill: New York
19. Stuart J, Rutherford RJD (1978). Medical student concentration during lectures. *The Lancet*, 8088, 514-516
20. Butler JA (1992). Use of teaching methods within the lecture format. *Medical Teacher*, 14, 11-25
21. Feden PD (1994). About instruction: powerful new strategies worth knowing. *Educational Horizons*, 73, 18-24
22. Kraft RG (1985). Group-inquiry turns passive students active. *College Teaching*, 33, 149-154
23. Murray HG (1991). Effective teaching behaviours in the college classroom. In: Smart J, (editor). Higher education: handbook of theory and research, 7, 135-172. New York: Agathon Press.
24. Jason H, Westberg J (1991). Providing constructive feedback (Boulder, CO, A CIS Guidebook for Health Professionals).
25. Lowman J (1984). Mastering the techniques of teaching. San Francisco: Jossey-Bass.
26. Jason H, Westberg J (1995). Making the most of instructional presentations: using the audience response system (Kalamazoo, MI, UpJohn).
27. Webb L (2011). Nursing: communication skills in practice. Oxford; New York: Oxford University Press.
28. The British Nepal Medical Trust. (n.d.). Situational analysis of human resource for health: in public and private sectors in Nepal. Retrieved October 21, 2013, from http://www.britainnepalmedicaltrust.org.uk/docs/Analysis_Human_Resource_health.pdf
29. Steinert Y (1993). Twelve tips for using videotape reviews for feedback on clinical performance. *Medical Teacher*, 15, 131-139.
30. Steinert Y, Snell LS (1999). Interactive lecturing: strategies for increasing participation in large group presentations. *Medical Teacher*, 21(1)37-42.
31. Adhikari RK, Jayawickramarajah PT (1996). Essentials of medical education (1st ed.). TU, IOM: Health Learning Materials Centre.
32. Harden RM (1986). Ten questions to ask when planning a course or curriculum. *Medical Education*, 20: 356-365