CHAPTER III

Data Exercises

3.1. Data Exercise 1: Possibility Assessment

3.1.1. Introduction

The possibility assessment of the RHORNCD is a study of the opportunity and feasibility of this program. This study will gather the situation of the environment, and identify and assess the forces or powers of external and internal environmental factors of the organization in order to determine the successful channel for implementation of the RHORNCD. These affected channels will help to formulate the strategic plan for successful implementation. The strategic plan of an organization is influenced by its stakeholders. The stakeholders are the people or the organizations involved or interested in the organization's activities.

In proposing the RHORNCD, the following arguments and questions were raised: Where would nurses come from to study? If there is presently a nurse shortage, what would be the core course of this curriculum? If the main task of nurses is handling the surgical instruments required by surgeons, are the Rajavithi Hospital Operating Room and Rajavithi Hospital ready to formulate this program? Is top

management in agreement? These questions require concrete answers and raise doubt whether this program could be successful in implementation.

This study is qualitative descriptive research, describing the characteristics, ideas, qualifications, and details of the situation. The results of the study will be utilized to formulate the strategic implementation of the RHORNCD.
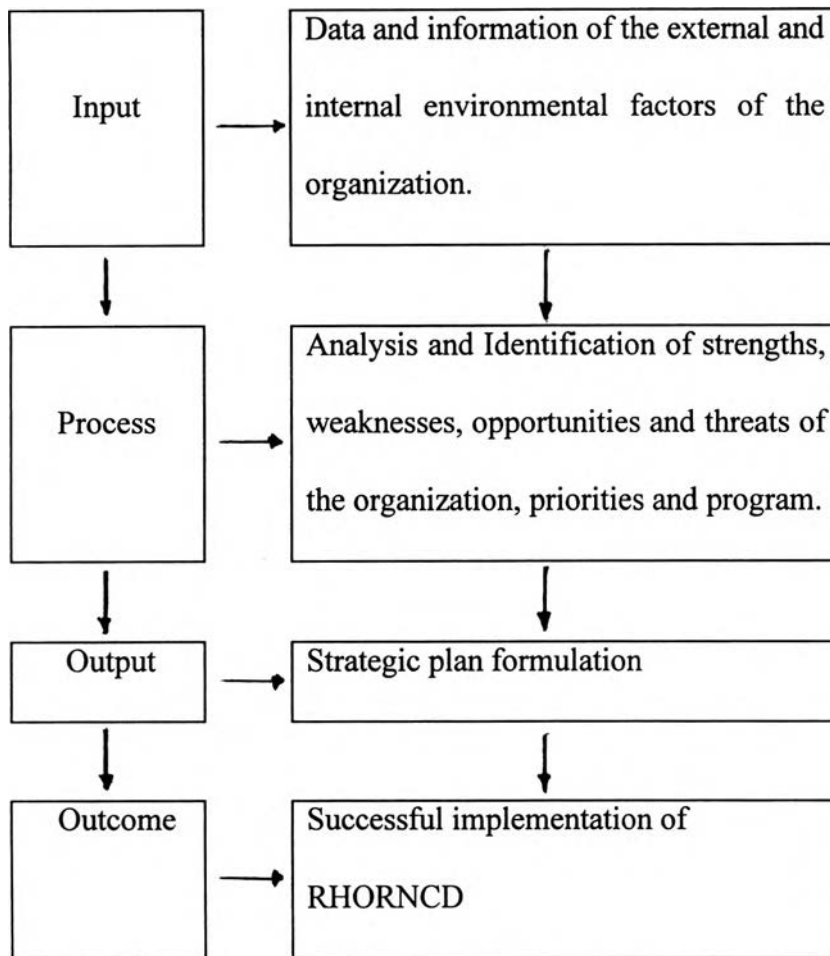
3.1.2. The objectives of the possibility assessment

1. To identify the positive and negative factors of the organization.

2. To identify the successful channel for implementation of the RHORNCD.

3. To propose the strategic plan for implementation the RHORNCD.

3.1.3. Methodologies and techniques

This study uses a descriptive methodology, beginning by interviewing the key personnel in order to assess the ideas, acceptance, and the reasons for formulating RHORNCD. The sample group was selected by mapping the organization where the management was involved or related to the O.R. nurse organization. The purposive sampling chose people who have experience or authority to make decisions and influence activities and programs for nurses. The methodologies and techniques are shown in Figure 3.1.

Figure 3.1. The process of study the possibility assessment

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┌──────────┐      ┌──────────────────────────────────────┐
│          │      │ Data and information of the external and│
│  Input   │ ───► │ internal environmental factors of the │
│          │      │ organization.                          │
└────┬─────┘      └────────────────┬─────────────────────┘
     │                             │
     ▼                             ▼
┌──────────┐      ┌──────────────────────────────────────┐
│          │      │ Analysis and Identification of strengths,│
│ Process  │ ───► │ weaknesses, opportunities and threats of│
│          │      │ the organization, priorities and program.│
└────┬─────┘      └────────────────┬─────────────────────┘
     │                             │
     ▼                             ▼
┌──────────┐      ┌──────────────────────────────────────┐
│  Output  │ ───► │ Strategic plan formulation             │
└────┬─────┘      └────────────────┬─────────────────────┘
     │                             │
     ▼                             ▼
┌──────────┐      ┌──────────────────────────────────────┐
│ Outcome  │ ───► │ Successful implementation of           │
│          │      │ RHORNCD                                │
└──────────┘      └──────────────────────────────────────┘
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The seven key personnel interviewed included: one member of the committee of Nursing Association of Thailand (N.A.o.T.), two people from the Thailand Operating Room Nurse Society (T.O.R.N.), one person from the Academic Health Development of M.o.P.H. who has authority to consider the nursing program, the Head of the Anesthetic Unit of Ramathibodhi Hospital, a cardiac surgeon from Rajavithi Hospital, and a head O.R. nurse from Khon Kaen University Hospital (Srinakarintr Hospital, K.K.U.). Information from interviews was noted and tape

recorded. The information from these seven key personnel formed the guidelines for gathering data from other people for the purpose of discovering facts and confirming information.

The exploratory data was gathered to generate hypotheses for later study. The interviews surveyed the perceptions, general situation, and ideas of each stakeholder. This information was used as a guideline to create the questionnaires for quantitative study in market analysis and as evidence of external factors of the organization, which will be used to be a part of creation the strategy for the implementation of RHORNCD.

Situation analysis, external environment data was collected from secondary data in terms of politics/policy, economics, socio-demographics, and technology, from reliable sources throughout the whole country. The internal environment data was collected by observation and from secondary data in the organization in terms of management and organization, operations, finance, and other prominent factors during a particular time period.

3.1.4. Analysis Tools

PEST Analysis is used for describing the general situation of the external environmental factors in terms of politics, economics, society and technology in order

to see the effect of direction and trends of those environmental factors on the future situation of the organization. This tool will help to identify which factors have the opportunity to push up the organization and which ones have negative impact on the organization. Therefore, this information will help the decision maker or manager in making correct decisions on their project.

SWOT Analysis is a tool to analyze the external and internal environmental factors in terms of strengths, weaknesses, opportunities and threats of the organization. It is useful to help develop the O.R. nursing curriculum as follows:

1. The analysis of strengths will help curriculum development and protect from threats outside the organization.

2. The analysis of weaknesses helps develop and improve them from being negative to becoming neutral or strengths which helps to decrease threats from outside the organization.

3. The analysis of opportunities will be the channel for curriculum development and at the same time it will help to protect against threats and strengthen weaknesses inside the organization.

4. The analysis of threats prepares the organization during curriculum development to look for other factors to decrease its power.

The SWOT Analysis will help encourage successful curriculum development. Because of the differing ideas of the stakeholders and the uncertain power of the

environmental factors, one more interesting tool to help analyze the situation is the following time-tested tools:

Time-tested tools for situation analysis are (Adit Laixuthai and Connelly, 1996, p.35):

1. An internal organization profile, identifying the organization's present position, strengths, and weaknesses.
2. An external assessment to survey the world outside the organization and all the forces that might affect it (Johnson & Scholes refer to this as PEST analysis: examining the Political/legal, Economic, Socio-cultural, and Technological forces).
3. A forecast or trend to determine the expected or foreseeable future or outcomes; and lastly,
4. Synthesis, putting all the pieces together and creating a trajectory for our organization.

3.1.5. Data Analysis: Analysis of the Environmental Factors of the Operating Room Organization

The data analysis is separated into two part are:

- External environmental assessment

- Internal environmental assessment

3.1.5.1. External Environment Assessment

Objectives

1. To define the opportunities in the existing environment for proposing the program and maintaining the program for long-term growth.

2. To define the external threats in the existing environment and recommend ways to avoid them or to soften their impact.

These assessments will look for the relationship of those factors in the past and present situation and make consideration to predict the future influences.

External environmental factors including those of the stakeholders were analyzed in order to know the opportunities and threats, which are useful in planning action. This method helps the decision-makers manage the strategy for implementing the policy or program selected by creating the strategy from strengths and opportunities.

Conclusions from the interviews seven key personnel (Appendix 1).

I found that some people were in agreement to formulate this program but some disagreed. Some people agreed but thought there were many obstacles preventing the implementation of this program. Some wondered about the objective of formulating this program. The personnel shortage is the main obstacle for producing

the program and there is also a problem for the nurses to come to study. One reason is that program solves only the O.R. nursing shortage of a central hospital in a large city; it cannot solve the problem in rural areas. In addition, if this program can be implemented, will it be a greater burden for O.R. nurses? Some suggested that new graduate nurses should be the target of this program with 50 percent coming from the government sector and 50 percent coming from the private sector. The most important criterion for success is whether top management agrees with the plan to create the program.

All these comments are the starting point of this study.

Table 3.1. Political Factors

Political Factors	Affected Channels
1. The 8th Socio-Economic Policy Plan addressed human resource development which could determine the direction of their organization.(The Health Development Committee, 1995). 2. The Director of the Medical Department of MoPH has a policy to advocate post-graduate nursing education (Medical Academic Development Office of Medical Department, December 17, 1996).	1-2. It is an opportunity because the training curriculum for O.R. nurses proposes to develop nursing staff in discipline, practice and skills through continuing study for post-graduate nurses. (O1)
3. A committee member of the Nurses Association of Thailand who was interviewed had differing ideas. She said "..Thailand should have only two levels of nurses: Bachelor's degrees and Master's degrees.. "	3. This opposing idea may be a threat to the proposal of the RHORNCD. (T1)

Table 3.2. Economic Factors

Economic Factors	Affected Channels
1. The yearly budgets for producing health manpower listed in the 8 th Socio-Economic Plan are: 1997: Bt4.393 billion, 1998: Bt5.663 billion, 1999: Bt6.519 billion, 2000: Bt6.535 billion, 2001: Bt6.758 billion (The Managing Director Committee of the Public Health Development Plan, the 8th Socio-Economic Plan, 1996).	1. The government advocates developing health personnel by increasing the budget every year. With positive financial backing, it is another opportunity to establish the training program to develop health care professionals. (O1)
2. The salary of entry-level nurses in private hospitals was set at Bt14,000 (not including income from extra work) – 2.5 times higher than that of entry-level nurses in government hospitals (Office of the Permanent Secretary for PH, 1995).	2. Nurses in private hospitals have more buying power than nurses in government hospitals and are the prime target group of the RHORNCD. (O2)
3. Changes in the economic structure raised per capita income from Bt2,100 in the year 1961 to Bt68,000 in 1995, a 32-fold increase (The National Committee of Socio-Economic Office, 1996). 4. The illiteracy rate fell to 2.59% (The National Committee of Socio-Economic Office, 1996).	3-4. Statistics show that the supply of money in 1980-1994 increased (Bank of Thailand), giving the people increased purchasing power and more opportunities for education, good health care and a more comfortable life in general. They expect high quality in health care services (The Health Development Committee, 1995). It is a good opportunity to improve health care service. (The Health Development Committee, 1995). (O2)

Table 3.2 Continued.

5. The MoPH would like to increase health insurance from 70% to 100%, and health service to meet a standard of 80 percent health care services in Thailand through systematic and continuous production and development of health care. (The Health Development Committee, 1995).	5. The government implemented the insurance program for people working in companies, industry and factories to protect the quality and equity of care for clients. This also is an opportunity for the RHORNCD, a program that will improve the quality of care. (O3)
6. Thailand is successfully developing from an agriculture-based economy to a more industry-based country. The growth rate of industry was 7.8% per year while the growth rate of agriculture was 2.2% per year in the past 5 years (The Health Development Committee, 1996). This indicates the direction of economic structure. The service industry has also expanded.	6. High business investment induces competition and choices for consumers. This provides an opportunity to produce RHORNCD in order to develop health personnel and provide improved health care services. (O3)

Table 3.3. Socio-demographic

Socio-demographic	Affected Channel
1. The census showed a population increase from 56,303,273 in 1990 to 59,095,419 in 1994 (National Statistic Office, 1995), an average increase of the population grew 689,000 people per year. 2. Government and private health services expanded rapidly in 1993.	1. Rapid changes in society initiate competition and changes in the way of life, ideas, attitudes and behavior, leading to inequity in order to survive. (O2) 2. There was a shortage of health care personnel as shown by the Health Resources Statistics (National Statistic Office, 1995), and Srinakarintr Hospital (K.K.U. Hospital would also like to implement a training O.R. nurse program. (T2)

Table 3.4. Technology

Technology	Affected Channel
1. Technology is increasing in complexity - not only machines, equipment and techniques but also the network of technology. Moreover, changes in technology can determine the direction of socio-economic change.	1. Health care is affected by constant change in surgical procedures, such as detection and therapy by camera, surgery by laser, phaco-emulsification instruments, vitrectomy instruments, etc. This is another opportunity to improve training programs. (O3)

The results from the external analysis

Opportunities

Opportunity O1: The political power from the high level (National level - 8th Socio-Economic Plan), middle level (Medical Department of MoPH) and local level has opened doors to produce the RHORNCD.

Opportunity O2: The financial status of the population, level of education and social-demography have changed, creating a demand for a higher quality of life and expectations of high-quality health care, service and goods.

Opportunity O3: Numerous technological changes have occurred and continued improvements are foreseen in machinery, equipment and surgical techniques. This has created the specialty O.R. nurses shortage.

Threats

Threat T1: Although a committee member of the Nurses Association of Thailand holds different views, the organization is not strong enough to oppose the policies of the Medical Service Department of MoPH.

Threat T2: The Operating Room of Srinakarintr Hospital (K.K.U. Hospital) would also like to implement a training program, a potential rival.

However, the external environment advocates forming the RHORNCD, but information is insufficient to make an immediate decision. It must be determined that

the O.R. in Rajavithi Hospital is ready to have this program. The next step would be

to study the internal factors of the O.R. organization of Rajavithi Hospital.

3.1.5.2. Internal Environmental Factors

Objectives

1. To define the strengths in the organization for accomplishment of the
   RHORNCD.

2. To define the weaknesses in the organization in order to improve them and
   strengthen them to overcome the threats outside the organization.

This part identified the hospital's capability and possibility to provide the

RHORNCD program. Each part of the hospital: management & organization,

operations, and finance will be examined in turn.

a. Management and Organization.

1. The Head O.R. nurse organizes and delegates authority to lower levels by

appointing personnel responsible in each area, such as academic, administration,

building and workplace, and welfare. In addition, the head nurse sets up coordinators

in each branch of surgery, such as general surgery, ENT, eye, cardiothoracsic,

orthopedic, uro-surgery, gynecology and obstetrics surgery. These are the strengths of

the O.R. organization. The coordinators are able to know the problems and provide

immediate solutions. This shows the organization system can build and maintain competencies to schedule and quality-control production (S4).

2. The O.R. nurse organization is under the surgery unit and the head O.R. nurse proposed the idea to create the RHORNCD to the hospital director and the chief of surgery. They agreed. (from interviewing the head O.R. nurse) (S4).

3. The head O.R. nurse advocated staff to continuing study and go abroad on observation tours to prepare the O.R. team for supporting product and process develop for the RHORNCD in the future (S4).

4. There are many specialist surgeons and many expert O.R. nursing staff for teaching and training students (S1).

5. The number of surgery cases were plentiful, utilizing unique surgical procedures, making it an appropriate place for training (S2).

6. The shortage of O.R. nursing staff at Rajavithi Hospital creates a heavy workload for nurses at present (W1).

7. There is no coordination between operational nurses and the academic sector, thereby preventing the number of experts in both practice and learning (W2).

b. Operations

This part was analyzed in terms of development capabilities and productivity of the facilities available in the organization in order to meet the expected objectives of the organization.

1. Every year there are O.R. nurses in training who come from both private and government hospitals. Rajavithi O.R. staff have experience in training (S3).

2. The O.R. nursing staff have participated with the mobile surgery team in general surgery, ENT surgery, and eye surgery. They have also participated with the academic department of Rajavithi Hospital, so they know the situations, the problems, and the need for the creation of the RHORNCD (S1).

3. The Operating Room of Rajavithi Hospital is well-known for open-heart surgery, obstetrics and gynecology surgery, and laparo-endoscopy surgery (S1).

4. The role of O.R. nurses is not clear and the workload is high (W3).

5. The head O.R. nurses in Rajavithi Hospital have contact with the Assembly of Operating Room Nurses of Thailand established on May 28, 1995. This organization has many expert academic members and will support and advocate the RHORNCD (S6).

6. The role of nursing care in pre-operative, intra-operative and post-operative care was decreased. The O.R. nurses paid excessive attention to new, hi-tech facilities (W3).

c. Finance

The capital structure, financing profitability financial planning and the accounting system were analyzed in this part. Moreover, the demands for short and long-term financial planning were focused and evaluated.

Rajavithi Hospital derives much revenue from leasing space on the premises to private firms, such as the Siam Commercial Bank, the post office and a 7-Eleven shop. The Hospital also has projects collaborating with the private sector such as Rangsit University and the funds people provide. Rajavithi Hospital must pay a lot of money for many Rajavithi projects. However , Rajavithi Hospital still has money to reward staff once a year by providing income from the income of health insurance service (S5).

This project requires a low investment of funds initially because O.R. Rajavithi Hospital has enough facilitators and facilities to provide O.R. nurse training (S5).

The nurses' demands for RHORNCD is high enough (showed in market analysis, data exercise 2) and there are the currently about 15-20 O.R. nurses in training per year (the O.R. Rajavithi record in 1993-1996). This shows the possibility of long-term survival of RHORNCD (S5).

d. Other factors

This will assess the prominent factors at a particular time which will influence the O.R. organization.

1. In February 1997, the O.R. of Rajavithi Hospital contacted Prof. Pr A. Patel at the Ramond Poincare Hospital, France to support the expert O.R. nurses and assist and oversee initiation and exchange of O.R. staff (S6).

2. Rajavithi Hospital is the largest academic-center hospital of the Medical Services Department of Public Health. It houses the Institute of Cardiovascular Disease, Urolithiasis Center, and Emergency Medical Services (EMS). The O.R. of

Rajavithi Hospital is renowned in open heart surgery, laparoscopic cholecystectomy, obstetrics and gynecology (S1).

The strengths and weaknesses of Rajavithi Hospital can be summarized as follows. Each strength and weakness is also listed on Table 1.2 (Appendix III).

Strengths

1. Rajavithi Hospital is the largest academic center of the Medical Services Department, Ministry of Public Health with expertise in specialized surgery and O.R. nurses in discipline, practice and training (S1).

2. There are excessive surgical cases and a wide variation of surgical procedures (S2).

3. There is a current training program and Rajavithi Hospital is well-known in areas such as cardiovascular surgery (S3).

4. The manager of the O.R. organization of Rajavithi Hospital advocates a training program (S4).

5. Rajavithi Hospital has strong finances (S5).

6. Rajavithi Hospital regularly contacts the O.R. Nurses Assembly of Thailand and foreign hospitals, which support the idea of RHORNCD (S6).

Weaknesses

1. Shortage of O.R. nursing staff (W1).

2. No coordination between operating room nurses and the academic sector (W2).

3. Unclear role of O.R. nurses and an excess of work (W3).

3.1.6. The process of Strategic plan formulation

Analysis starts with the external environment. The listing of external threats (T) may be of immediate importance to the organization as some of these threats (such as the lack of available energy) may seriously threaten the operation of the organization. These threats should be listed in box "T" in Table 1.1. Similarly, opportunities should be shown in box "O" (Dyson, 1990). The results from the SWOT analysis are discussed briefly below and summarized in Table 1.2 (Appendix III).

3.1.7. Discussion and conclusion from the results of analysis

The External Opportunities are:

1. Both the policy of the 8th socio-economic plan concerning human resource development and the managers advocate the program.

2. People expect high-quality service, a result of the impact of socio-economic and Basic Minimum Needs change (WHO).

3. A shortage of specialty O. R. nurses in Thailand, caused by the rapid expansion of the government and private hospitals and predicted to decline at an estimated 5% per year.

The External Threats are:

1. Some people that influential O.R. organizations oppose this project. The N.A.o.T. does not agree with the RHORNCD program because the O.R. nurses' present role only shows the role of handing the instruments according to the surgeon 's orders.

2. K.K.U. Hospital, a rival in other specialty areas, has become an alternative for nurses. All programs of the continuing internal service study of the nurses are the rival of this program because these program are the choices the nurse can decide to study. At the same time, all of the rivals will encourage the development of the program and the quality of production in the future in order to overcome the competition and win the customers.

Each strength and weakness is also listed on Table 1.2 (Appendix III).

The Internal Strengths are:

1. Expert surgeons in specialized areas, Discipline O.R. nurses with experience in practice and training. Rajavithi Hospital is the largest academic center of M.S.D. of M.o.P.H. This shows that Rajavithi Hospital has built a good image to be the location for the specialized training and will attract the customers.

2. There is an excess number of surgery cases, variation of surgical procedures, hi-tech equipment and modern facilities. The facilities can support the high quality of production.

3. The facility conducts on-going training. This program requires low investment because Rajavithi Hospital has facilitators and facilities already, and requires only the development of the competencies of O.R. staff nurses and the training system.

4. The top managers advocate this program.

5. Rajavithi Hospital has strong finances rewards and a bonus to all staff every year. Rajavithi Hospital can financially support this program.

6. There is contact with the stakeholders. Rajavithi Hospital will be helped from the expertise of stakeholders to develop the program.

The Internal weaknesses are:

1. A shortage of O.R. nursing staff. (The standard determination of staff in one operating room is three persons, professional nurse: technical nurse = 2:1 per room or 4:2 per two rooms, but Rajavithi Hospital mostly has a ratio of 3:2 or 2:2 per two rooms).

2. No internal coordination. Sometimes, the team leader fails to present the jobs to other leader or team member before she leaves. Because of this, some work cannot continue or sometimes it is confused.

3. The role of the O.R. nurse is not clear and there is a lot of work. The nurse's function sometimes were remised and they complete other jobs that the nurses no need to work.

Table 3.5. The positive and negative factors of the O.R. organization

	Positive	Negative
External	Opportunities O1, O2, O3	Threats T1, T2
Internal	Strengths S1, S2, S3, S4, S5, S6,	Weaknesses W1,W2, W3,

3.1.8. Suggestion for the implementation strategy

Combining these factors requires aid to systematize these choices and facilitate the matching of external threats (T) and opportunities (O) with the internal weaknesses (W) and strengths (S) of the organization. (Table 1.1, details summarized in Table 1.2) (Appendix III) (Dyson, 1990).

This process lists the distinct strategies in which we match the information or factors that we have gathered and identified and set the priority of those strategies for the time available.

1. Strengths/Opportunities

This part contains the strongest and most useful strategies for implementing RHORNCD.

    1.1. S3, S4/O1,O2; Reorganize the system of training O. R. nurses.
The RHORNCD is an internal service study program which the Medical Service Department would like to advocate because it is a human resource development program directed to the health field. The RHORNCD directly responds to the objectives of the Medical Service Department.

    1.2. S1, S2/O2, O3; Be able to produce more specialized O. R. nurses each year.
The numerous surgery cases and the large number of surgery rooms (24) offers a chance for students to gain skills and experience. This would allow production of a greater number of specialist O.R. nurses each year.

2. Weakness/Opportunities

Weaknesses can be reduced or eliminated by focusing on the opportunities. At the same time, managers strengthen their organization and contact the stakeholders.

    2.1. W1/O1; Propose the existing number of O. R. staff nurses to upper management for consideration, provide the staff nurses, and at the same time contact stake holders.

This strategy should be proposed to management by the head O.R. nurse. In addition, management should contact the T.O.R.N. to provide the expert O.R. nurses to collaborate with this program.

2.2. W2/O1, O2; Contact stakeholders.

This strategy should contact the T.O.R.N. The T.O.R.N. is the future resource of academic development.

2.3. W3/O1, O2; Consult the stakeholders' expertise.

The Rajavithi Hospital should contact the T.O.R.N. and discuss the role of O.R. nursing care and expose it to other people in order to perceive the importance of O.R. nursing care.

3. Strengths/Threats

They should use the strengths of the organization to eliminate threats in order

to increase perception.

3.1. S1, S3, S4, S6/T1; Readjust the role of O.R. nurses to focus on patient care.

3..2. S1, S2, S3, S6/T2; Appoint the expert stakeholders' as a consultant.

4. Weaknesses/Threats

This part weakens the strategy, so we should strive to strengthen the

organization's weaknesses.

W1, W2, W3, / T1, T2; Readjust the role of O.R. nurses by consulting the expert stakeholders.

Table 3.6. Tactics of creating the strategy for implementation

	Internal Strengths (S)	Internal Weaknesses (W)
External Opportunities (O)	Maxi-Maxi (S/O) S3,S4/O1,O2, S1,S2/ O2,O3	Mini-Maxi (W/ O) W1/O1, W2/O1,O2, W3/O1,O2.
External Threats (T)	Maxi-Mini (S/T) S1,S3,S4,S6 / T1, S1,S2,S3,S6/ T2	Mini-Mini (W/T) W1,W2,W3, / T1,T2.

Strategy and Tactics to Decrease Threats

The strategy for making a proposal should mention the policy of the Medical Department of MoPH. The Medical Service Department of M.o.P.H. has more power than N.A.o.T.

Strategy and Tactics to decrease the weaknesses of the O. R. organization.

1. S3, S4, S5, S6/W1; Hire O.R. nurses inside and outside the organization during their free time.

2. S1, S2, S6, S7/W2; Consult experts who have experience in O.R. training programs.

3. S4, S6/W3; Consult the Assembly of Thai O.R. Nurses and collaborate with foreign experts.

3.1.9. Conclusions

The TOWS matrix is the tool for analysis. It is a systematic method for matching environmental threats and opportunities with the organization's weaknesses and strengths. This process is specifically aimed at generating strategic options, so that its primary purpose is to strengthen strategic option formulation (Dyson, 1990).

Analysis of internal environmental factors of the O.R. of Rajavithi Hospital found that there were more strengths than weaknesses. Rajavithi Hospital is prepared to have the RHORNCD and it is an appropriate venue for such training. Although a

shortage of personnel exists, if job descriptions of nurses are developed and clearly separated from other positions, it would decrease unnecessary or redundant duties.

The summarization of a strategic plan for successful implementation of the RHORNCD includes the following:

1. Use the opportunities outside and strengths inside the organization to propose the RHORNCD (O/S) by:

    Recommended Strategy: Reorganizing the system of training O.R. nurses, determining the number of producing, and focusing the O.R. nurse training on patient care

2. Use the opportunities outside the organization to protect the threats outside the organization (O/T) by:

    Recommended Strategy: Mentioning the policy of the National and M.S.D. of MoPH where are they more powerful.

3. Use the opportunities outside the organization to strengthen the weakness inside the organization (O/W) by:

    Recommended Strategy: Proposing the existing number of O.R. staff nurses to upper management for consideration, providing the staff nurses, and at the same time contacting stakeholders, and consulting the experts to organize the role of the O.R. nurse.

4. Use the strengths inside the organization to protect the threats outside the organization (S/T) by:

Recommended Strategy: Readjusting the role of O.R. nurses to focus

on patient care, and appointing the expert stakeholders as consultants.

3.1.10. The limitation of this study

1. In-depth, detailed information cannot catch up. The information in the high level of management is moved and changed frequently and very quickly.

2. The skill limitation, the skill and technique in gathering the movement and information of the environment should be practiced.

3.1.11. Discussion

In this study, the strong point is that it is a study in my field of work. This allows me access to detailed information and the current direction of the situation that is not obvious or readily available to outsiders. At times, my experience helped me to predict events that may occur in the future. Data collection in field of work may be biased, such as in regards to RHORNCD which is a program for development of O.R. nurses. The O.R. nurses know the problems in the field work and would like this program to be standard. It is a weak point in my field that biases can surface unconsciously. To correct this weak point, an outside adviser from another field should be assigned to detect faults.

The external environment data from the PEST Analysis can give answers and can represent the entire country. The data of the present situation is secondary data, collected from reliable sources throughout the whole country. The data include facts such as that the salaries of entry-level nurses in private hospitals were 2.5 times higher than their counterparts in state hospitals; that the M.o.P.H. would like to increase health insurance from 70% to 100%; that health service has a standard of 80% of health care services by using the systematically and continuous strategy to develop health, and that the income per capita rose from Bt 2,100 in the year 1961 to Bt 68,000 in 1995.

The interview data from key people is believable but cannot represent all ideas, because it is just exploratory data gathered to generate hypotheses for later study. If we would like to use the results for major policy decision, we must use large scale data. The lowest quality samples generally consist of 20-50 respondents usually chosen at the convenience of the resource for pilot tests, exploratory research and motivational research. For this study I interviewed only seven key personnel. However, there is no uniform standard of quality that must always be reached in every sample. The quality of the sample depends on the stage of the research and how the information will be use. The data from interviewing key personnel, such as the committee of N.A.o.T. disagreed with the idea to formulate RHORNCD but some action of N.A.o.T. may advocate this idea. For example, the secretary of N.A.o.T. said in a meeting that " ... O.R. nursing curriculum will be a part of a medical-surgical

specialist which N.A.o.T. is going to formulate ..." and " ...N.A.o.T. would like to formulate the five broad specialist to be successful first ... ". A cardiac surgeon said " ... every specialty area should have specialist nurse ..." and " ... specialist nurses should graduate with at least Bachelor degree and have been previously trained in this specialty area... ". But from the past experience of the O.R. of Rajavithi Hospital, some surgeons tried to put people who had no knowledge in O.R. nursing care or specialty areas nor any knowledge of nursing to work in the O.R. (However, by conclusion the data from this part can take into consideration other events or situations in the past which they experienced.)

However, even though the O.R. organization of Rajavithi Hospital has enough potential to formulate the RHORNCD, the actual needs of this program for nurses must be considered. Who will participate in the program? To assure that this program will have interested nurses, a feasibility study of the market for this program must be undertaken.

Next, an analysis of the market situation in terms of demand and supply shall be conducted.

3.2. Data Exercise 2: Market Analysis

3.2.1. Introduction

Market analysis is an in-depth, detailed study of the market situation in order to predict or estimate what the public needs are. This information will be combined with judgment before implementing RHORNCD. A market analysis is different from a feasibility study which is only a superficial study that addresses a successful implementation. Market analysis looks at the needs and characteristics of the O.R. nursing care market by using prediction or estimation techniques in order to determine the borderline of that market, target customers, and to discover the characteristics of the O.R. nursing care market. In addition to knowing the needs and the direction of penetration through the O.R. nursing care market, the analysis determines the strategic marketing plan. The main purpose of market analysis is to estimate the revenue received from training O.R. nurses to provide health care service, the cost of providing training and determining the equilibrium price in order to sustain the RHORNCD in the long term. The results of this estimation show the potential for profits and losses. It can be used to assess whether or not entrepreneurs should invest in the RHORNCD venture.

This step should investigate the people involved in the RHORNCD. They are divided into the supply of the RHORNCD and the demand for the RHORNCD.

This market analysis is only a data exercise for learning about how to collect and analyze market data.

3.2.2. Objectives of this study

1. To assess the needs (demand) of the nurse for RHORNCD;

2. To identify the potential of the Rajavithi O.R. Nursing Curriculum Development and trends of the RHORNCD market;

3. To identify the customer willingness to pay;

4. To identify the appropriate duration of the O.R. nursing curriculum;

5. To assess potential obstacles; and

6. To assess the readiness of the Rajavithi Hospital O.R. organization.

This study is descriptive research, both qualitative and quantitative, describing the characteristics, qualifications, and details of the situation. The information of the study will be utilized for formulating the RHORNCD. It will find out the needs and variables involved in a prospective student's decision to study in the RHORNCD.

3.2.3. The Hypothesis

1. The demand of the nurses (customers) for RHORNCD is about 50

   percent.

2. The nursing students or new graduate nurses are interested in

   RHORNCD more than other experienced nurses.

3. The demand of private sector nurses is higher than that of government

   sector nurses.

4. The demand of the O.R. nurses in metropolitan areas is higher than in

   rural areas.

5. The 6 months duration of the RHORNCD program will be preferred more

   than others.

6. The preferred program cost Bt 5,000 will be the most affordable for

   the nurses (customers).

3.2.4. Supply of the RHORNCD

The Operating Room at Rajavithi Hospital will be the training location (supply of the RHORNCD).

3.2.4.1. Methodologies and techniques

The survey collected qualitative data to identify the potential and readiness of personnel and staff nurses to implement RHORNCD. This data was collected by interviewing the head O.R. nurse and the academic team leader of the O.R. of Rajavithi Hospital.

3.2.4.2. The sample population is two people: the head O.R. nurse and the academic team leader of the O.R. of Rajavithi Hospital.

3.2.4.3. The conclusions from interview

1. The interviewing head O.R. nurse at Rajavithi Hospital.

The head O.R. nurse advocates that the O.R. staff nurses go to study and see hospital sights both inside and outside of the country. At the same time, she will contact and coordinate with T.O.R.N. to prepare the staff nurses for developing the O.R. nursing curriculum.

She has proposed the problem of the O.R. nurse shortage to the top authority but the problem is not solved yet. In turn, she will develop the staff of the O.R. to be more effective.

The manager of the Rajavithi Hospital agrees and advocates RHORNCD.

2. The academic team leader of O.R. Rajavithi Hospital.

The current training of O.R. nurses does not have a clearly set content and method of training. The results are therefore uncertain. In the rural areas, there is an O.R. nurse shortage. This is a problem for providing O.R. service to the patients in rural areas. However, O.R. Rajavithi Hospital also has a severe problem of a O.R. staff nurse shortage.

3.2.4.4. Summary

The O.R. at Rajavithi Hospital has sufficient manpower with knowledge and experience in surgery and possesses the hi-tech equipment and facilities to be an appropriate venue for training. At the same time, the O.R. is suffering from a severe O.R. nursing staff shortage; even the head O.R. nurse has attempted to point out the weakness to top management. The O.R. at Rajavithi Hospital is ready as a training site, but lacks personnel for teaching and administering the program.

3.2.5. Demand part

The demand is the need for the RHORNCD in terms of quantity, characteristic, duration of the RHORNCD course, and costs. The demand groups are the nurse and the users (authorities and surgeons who work with the nurses) who are

interested in the RHORNCD. These demand groups are a part of the stakeholders that influence the formulation of the RHORNCD.

3.2.5.1. Methodology and Techniques

The data collected is both qualitative and quantitative data. Qualitative data is more concerned with the meaning rather than the actual numerical results. Quantitative data is the study of the numbers and the outcome (Dey, 1993). However, the meanings cannot be ignored when we are dealing with numbers, and numbers cannot be ignored when we are dealing with meaning. So both of them support each other. The processes of collecting this data are following:

A descriptive methodology, beginning by interviewing the seven key personnel, mentioned in data exercise I, in order to assess the ideas, acceptance, and the reasons for formulating RHORNCD. The sample group was selected by mapping the organization where the management was involved or related to the O.R. nurse organization. The purposive sampling chose people who have experience or authority To make decisions and influence activities and programs for nurses. Information from interviews was noted and tape recorded. The information from these seven key personnel formed the guidelines for gathering data from other people discovering facts and confirming the information.

Market analysis data was collected by using the questionnaires created from the baseline of information from key personnel. The target population was new graduate nurses and their managers. New graduate nurses were represented by fourth-year nursing students. The objective of collecting data from this group was to determine how many nursing students would be interested in RHORNCD, how much they are willing to pay for RHORNCD, and what kind of ability do they seek as O.R. nurses. The actual population size was 80. One hundred fifty questionnaires were distributed and 85 responses received. Due to inability to find nurses who recently finished their studies, fourth-year nursing students were interviewed. The authority group was the group with the authority to permit the nurses to study in this program and the surgeons who work with the nurses. The main objective of collecting data from this group was to determine if authorities advocated continuing studies for their subordinates and, in a teamwork position, what would be the desirable characteristics of O.R. nurses. The actual sample population size was 25. Forty questionnaires were distributed and 27 responses received. The last question of the questionnaire was the open-ended question for suggestions and opinions. This question surveyed the ideas held by both groups.

3.2.5.2. Tools of Research

The tools of research consisted of a tape recorder, note-taking and questionnaires. The tape recorder and notes were utilized to record information

during interviews with authorities and surgeons. The questionnaires were closed-ended and self-administered. They were divided into two versions: one for nurses and nursing students and one for authorities (surgeons, managers, or administrators). Each consisted of general data such as age, workplace, income and specific data such as the information about the factors that influence decisions.

3.2.5.3. Data Collection

In this study, I preferred to use the questionnaires with the graduate nurses who recently finished their studies but unfortunately I failed to find them. I therefore interviewed the fourth year nursing students which I stated to be new graduates.

Questionnaires were distributed to the sample group in Bangkok through nursing colleagues of the researcher. Data from Khon Kaen Province was gathered by myself. Data was collected from both private and government sectors. Data collected in Khon Kaen province was from four district hospitals: Banpai Hospital, Pon Hospital, Nampong Hospital, and Munjakiree Hospital, plus three other hospitals: Khon Kaen province Hospital, Srinakarintr Hospital (K.K.U. Hospital) and the Nursing Faculty of Khon Kaen University. Data collected in the Bangkok Metropolitan area was from these private hospitals: Piyamin Hospital, Samitivate Hospital, BSH Hospital, Bangkok Hospital, and Bangkok Christian Nursing College;

and these government hospitals: the Police hospital, Rajavithi Hospital and Lertsin Hospital.

Data was gathered March 24-30, 1997. Of 190 questionnaires distributed, 112 were returned, a 58.9 percent response rate.

3.2.5.4. Sample Design

I divided the population into two categories: nurses and the authorities. The nurses were classified as nursing students and nurses. Nurses were post-graduate nurses with 1, 2, and 3 or more years of experience and each group was divided into O.R. nurses and non-O.R. nurses. All of these are nurses in government hospitals (both rural and urban areas) and private hospitals. Nursing students also were students in private and government sectors. In this data exercise, I chose five samples from each group, totaling 80 samples. The details were subdivided as follows:

Table 3.7. Sample groups.

Sample groups	Experience	O.R.	Non-O.R.	Total
nurses in rural areas	1 year	5	5	10
	2 years	5	5	10
	more than 3 years	5	5	10
nurses in rural areas	1 year	5	5	10
	2 years	5	5	10
	more than 3 years	5	5	10
nurses in private hospital		5	5	10
nursing students				
■ In private sector				5
■ In government sector				5
Total				80

The 25 authorities included in the sample were nurses and doctors, acting as managers, end-users (the surgeons) and had the authority to permit nurses to participate in RHORNCD. The sample of 25 was subdivided as follows:

Table 3.8. Sample groups in government and private sectors:

	Sample groups	Number
Government hospitals		
■ Rural areas	-The head nurses or O.R. nurses	5
	-The hospital directors or surgeons	5
■ Urban areas	-The head nurses or O.R. nurses	5
	-The hospital directors or surgeons	5
Private hospitals	-The head O.R. nurses or surgeons	5
Total		25

3.2.5.5. Data Analysis

This study used the Epi-Info program and SPSS (Statistical Package for the Social Science).

The population in this research study consists of two groups. The first group was made up of doctors, managers, or administrators. The second group consisted of nurses and third- or fourth-year nursing students. Both groups were employed at private and/or government hospitals. The total sample of 112 is shown in Table 3.9.

Table 3.9. Sample size and categories

Group	Number in sample
A. Surgeons, managers or administrators	27
B. Nurses and 3rd- or 4th-year nursing students	85
Total	112

The sample population was selected by the non-probability sampling method, a purposive sampling method. The sample population in Khon Kaen Province covers sample groups in rural and urban areas. The sample drawn from Bangkok is respondents who are employed in government and private hospitals in a metropolitan area.

Table. 3.9.1. The number in sample at Khon Kaen province.

Source	Number in sample	
	Nurses, Students	Authorities
District hospitals	13	9
Central hospital	3	2
University hospital:		
Nurses	8	7
Nursing students	28	-
Total	52	18

Table 3.9.2. The number in sample in the central region.

Source	Number in sample	
	Nurses, Students	Authority
Private hospitals	15	3
Nursing college	17	-
Government sector	1	6
Total	33	9

Summary The collecting data distributed in all areas of the private sector (nursing colleges and private hospital), and the government sector (Nursing Faculty at K.K.U. and government hospitals in district and metropolitan areas).

A. The Users/Authority group

A total of 27 respondents were approached for interviews. A total of 25 respondents (92.6 percent) would allow nurses to study and 2 (7.4 percent) would not. (Table 3.10)

Table 3.10. Respondents permitting nurses to study.

Approve to study	Frequency	Percentage
Yes	25	92.6%
No	2	7.4%
Total	27	100%

Nurses should possess a combination of good management skills, good care-giving skills and good assisting skills in surgical procedures according to by 22 users interviewed (81.5 percent) (Table 3.10.1).

Table 3.10.1. Requirements of nurses

Capabilities	Frequency	Percentage
Able to manage and provide good nursing care to patients.	2	7.4%
Able to handle instruments efficiently and provide good surgical assistance.	2	7.4%
Combination of good management, nursing care and assistance in surgery.	22	81.5%
Others: diligence	1	3.7%
Total	27	100%

A majority of 92.6 percent of respondents (25) indicated that the core courses of the O.R. nursing curriculum should teach knowledge of anatomy, physiology, instrument techniques, steps in surgical procedures, techniques in pre-operative, intra-operative, and post-operative nursing care (Table 3.10.2).

Table 3.10.2. The main content that should be included in the curriculum.

Main Content	Frequency	Percentage
Nursing techniques in pre-op, intra-op and post-op care.	1	3.7%
Anatomy, physiology, procedures, instrument techniques and techniques in pre-op, intra-op, post-op care.	25	92.6%
Others: O.R. nurses should have a specialty in each branch of O. R.	1	3.7%
Total	27	100%

Summary: The authorities were not obstacles for study in the RHORNCD program. For the most part, they encouraged their subordinates to study (92.6 percent or 25 permission from 27 respondents) which responds to the 8th Socio-Economic Policy Plan. They would like nurses to have capabilities in management, provide good nursing care and be efficient in handling instruments and assisting in surgery (81.5 percent, or 22 of 27 respondents). This relates to the main content of the questionnaires. The main content of the RHORNCD program should feature anatomy, physiology, surgical procedures, instruments techniques and techniques of nursing care in pre-operative, intra-operative and post-operative care (92.6 percent).

In conclusion from my interviews of the authorities, I found that there was not shortage of O.R. nurses in rural areas. According to the personnel framework, they have more than enough nurses, and in the O.R. field, they utilize only two to three O.R. nurses. Other nurses working in other fields, such as In-patient Department (I.P.D.), Emergency Room (ER.) and Out-patient Department (O.P.D.), can standby for the operating room whenever required. Most O.R. nurses in rural areas have many years of experience -- from five to ten years in some places. Moreover, most surgical procedures in district hospitals are routine, such as appendectomy, Cesarean section, as most surgeons there are general physicians and hospitals cannot facilitate complicated cases. Such operations are referred to central or provincial hospitals.

The Khon Kaen provincial hospital is experiencing a severe shortage of O.R. nurses and employs nurses from outside (primarily from the K.K.U. Hospital and district hospitals) with hospital funds. Rajavithi Hospital, however, pays its O.R. nurses to work overtime instead of hiring outside staff. Moreover, private hospitals seek O.R. nurses and people who have no knowledge of nursing and train them to work in O.R. This practice decreases the investment needed to solve the O.R. nursing shortage as it is difficult to find experienced O.R. nurses. The Rajavithi curriculum development would be useful for solving the problem of shortages, which occur in big cities.

B. Target customer group: nurses and nursing students

Fifty-three respondents (62.4 percent) are interested in studying this curriculum. Four (4.8 percent) are not sure, and 28 (32.9 percent) are not interested in taking this course. (Table 3.11)

Table 3.11. Demand for the RHORNCD by nurses and nursing students

Demand	Frequency	Percentage
Study	53	62.4%
Non-study	28	32.9%
Unsure	2	2.4%
No response	2	2.4%
Total	85	100%

Table 3.11.1 shows the distribution of respondents by age. Respondents aged 20-30 show the greatest interest in studying, as 44 respondents (67.7 percent) from a total of 65 indicated they would study. This group is the demand group of the RHORNCD.

Table 3.11.1. Demand for the RHORNCD by age group

Age	Yes	No	Total
20-30	44 (67.7%)	21 (32.3%)	65 (100%)
31-40	5 (35.7%)	9 (64.3%)	14 (100%)
41-50	1 (50%)	1 (50%)	2 (100%)
Total	50	31	81

A total of 53 respondents (62.4 percent) want to study, consisting of 31 (36.5 percent) nursing students and 22 (25.09 percent) nurses. The demand for the RHORNCD is higher for nursing students than for nurses. (Table 3.11.2)

Table 3.11.2. Demand for the RHORNCD by nursing students

Demand	Yes	No	Total
Student nurses	31 (68.9%)	14 (31.1%)	45(100%)
Nurse	22 (55%)	18 (45%)	40(100%)
Total	53	32	85

Table 3.11.3 shows that 71.4 percent of nursing students at government hospitals would like to study (20 of 28 respondents), a higher percentage than nursing students from private hospitals (11 of 17, or 67.4 percent).

Table 3.11.3. Demand of nursing students for the RHORNCD divided into government and private hospitals

Demand Sector	Yes	No	Total
Private hospitals	11 (67.4%)	6 (35.7%)	17 (100%)
Government hospitals	20 (71.4%)	8 (28.6%)	28 (100%)
Total	31	14	45

Table 3.11.4 shows that 11 students employed by private hospitals from a total of 17 (64.6 percent) would like to study. A slightly higher percentage of nurses in private hospitals would like to study as 10 (66.7 percent) of 15 respondents indicated a desire to study.

Table 3.11.4. Demand for the RHORNCD in private hospitals

Demand	Yes	No	Total
Nursing students	11 (64.6%)	6 (35.3%)	17(100%)
Nurses	10(66.7%)	5 (33.3%)	15(100%)
Total	21	11	32

Table 3.11.5 show that 71.4 percent of nursing students (20 of 28 respondents) in the government sector are interested in RHORNCD, a greater number than the nurses (11 of 25, or 44 percent).

Table 3.11.5. Demand for the RHORNCD in government hospitals

Demand	Yes	No	Total
Nursing students	20 (71.4%)	8 (28.6%)	28(100%)
Nurses	11 (44%)	14 (56%)	25(100%)
Total	28	25	53

Table 3.11.6 show that 54.5 percent of respondents from the metropolitan area would like to study, while only 38.5 percent of respondents from urban areas show an interest.

Table 3.11.6. Demand for the RHORNCD in rural and metropolitan areas

Demand	Yes	No	Total
Urban area	5 (38.5%)	8 (61.5%)	13(100%)
Metropolitan area	6 (54.5%)	5(45.5%)	11(100%)
Total	11	13	24

The 37 respondents (43.5 percent) prefer a six months duration of RHORNCD at a higher rate than three months (23 of 85, or 27.1 percent), twelve months (24 of 85, or 28.2 percent) and those with no response (1 of 85, or 1.2 percent). (Table 3.11.7)

Table 3.11.7. Demand in the duration of RHORNCD.

Demand	Frequency	Percentage
3 months	23	27.1%
6 months	37	43.5%
12 months	24	28.2%
No-response	1	1.2%
Total	85	100%

The tuition cost of RHORNCD under Bt 5,000 had the highest response.(44 of 85, or 51.1 percent). Thirty and six of 85 prefer Bt 5,000-10,000 (35.3 percent), and more than Bt 10,000 (7.1 percent) respectively. Five respondents (5.9 percent) did not answer (Table 3.11.8)

Table 3.11.8. The amount respondents are willing to pay for RHORNCD.

Tuition (Bt)	Frequency	Percentage
Lower 5,000	44	51.8%
5,001-10,000	30	35.3%
More than 10,000	6	7.1%
No-response	5	5.9%
Total	85	100%

Summary: The total of those who desire the RHORNCD (62.4%) is higher than those who have no need (37.6%), for the program. These results show that the demand is more than enough to produce RHORNCD.

The information from the data exercise shows the demand of nursing students is highest (68.9%), thus the target group of RHORNCD should be the nursing students (68.9%) or new nursing graduates (67.7 % of age 20-30 are interested). Nursing students in the government sector indicate high interest in RHORNCD (71.4 %), but nursing students in the private sector show a lower interest in RHORNCD (64.6%). Nursing students aged 20-30 show a higher interest in RHORNCD (67.7 %), than

other age groups. The desired duration of RHORNCD was six months and desired tuition of about Bt 5,000.

3.2.6. Qualitative data The following details were derived from the last item of the questionnaire :

The program should be a short course for gaining knowledge and technical development to complement the development of surgical procedures and technology. This course for the O.R. nurse who has experience is more useful than long- term courses. Long- term courses are appropriate for the new graduate nurses who seek work in the O.R. but lack experience.

Many respondents (in Khon Kaen Province) talked about obstacles in participating in the program, such as a lack of funds, the distance involved, and accommodations. Some respondents suggested that it should be held in Khon Kaen Province. Others asked when this program would be implemented while mentioning that they would like to commence study as soon as possible.

3.2.7. Research finding

1. The data from the questionnaires shows demand highest among nursing students. Therefore, the target customers of the RHORNCD program are new graduate nurses. This result supports the idea of one key man (a committee member of T.O.R.N.).

2. Rural areas, as opposed to urban areas, did not have a shortage of O.R. nurses. This supports the idea of one key man, a member of the Nursing Association of Thailand who said that " ... this program did not solve the problem in rural areas, but only in large, urban hospitals...".

I conclude from this study that if the information in the data exercise is true, it replicates my hypothesis which I derived from the information of key personnel. However, rural and urban areas have different problems and therefore the process of solving those problems must also be different. RHORNCD is appropriate for solving the problem in urban areas where hospitals have capable surgeons, modern technology, and equipment to accommodate complicated surgical procedures. The capability of O.R. nurses should also be developed to provide service and solve problems in those complex procedures in the hospital.

3.2.8. The limitation of this study

1. The limited time :

1.1 Summer was not an appropriate time to collect data as nursing students were on field trips.

1.2 The time of study - two to three months - was too brief.

3.2.9. Discussion

The results of the market analysis, which is only a data exercise, show that the methodology and population size used cannot represent the whole population. However, if we consider the whole situation and events together, the data from the data exercise seems to represent the whole population. The reason for the shortage of O.R. nurses is very clear in the big city. This is the mechanism of supply and demand which the businessman considers before investing his money.

3.2.10. Recommendations

1. Data in the market analysis (data exercise) cannot represent the entire population of nurses in the country but only some parts of two provinces (Bangkok and Khon Kaen provinces), have less than 30% of the population and are therefore too small. For the market analysis to be perfect and represent the whole nursing population of the country, the methodology should be:

1.1. Set the time frame to 2 weeks.

1.2. Initial design work, sample design and selection; (four weeks).

1.3. Formulate the questionnaires, including pilot work, design, and printing of the final questionnaires; (four weeks).

1.4. Prepare the addresses of the institutions, reports requesting permission to use questionnaires with the O.R. nurse staff and fourth-year nursing students. Send

the questionnaires to those institutions, compose follow-up letters and wait for responses; (four weeks).

1.5. Editing and coding data; (four weeks).

1.6. Data entry, editing, analysis and interpretation; (four weeks).

(Robson, 1993).

2. The objectives of this data exercise were to determine only the demand of RHORNCD. In actual practice, collecting data should also study the relationship between all varying factors. The objectives of this study should serve to:

2.1. To identify the potential of the RHORNCD and the trend of RHORNCD market.

2.2. To identify the customer willingness to pay.

2.3. To identify the appropriate duration of the O.R. nursing curriculum.

2.4. To assess potential obstacles and identify the factors that influence decisions.

2.5 To assess the readiness of the O.R. organization of Rajavithi Hospital.

In actual practice, the collection of data should examine the relationships of variables that affect the decision to study in RHORNCD and use logistic regression to control other variables in the data analysis. The results can be used for further improvement of the RHORNCD.

3. The questionnaires should test the quality of the tools and be tested for their validity and reliability before actual use.

4. To make sure that RHORNCD can survive in the long term, we should study in detail the demand for RHORNCD in the market. The data collected in the data exercise should determine the actual needs of the public in order for this program to survive long term. Some results may be used to create the possibility for curriculum development. An analysis of the market should be done with a sample large enough to represent the whole population of nurses in Thailand.

3.2.11. The Methodology is:

The target groups can be categorized into three groups :

1. The stakeholder group controls the standard of the nurses such as the N.A.o.T., and the patients who receive nursing service and the surgeons who work with O.R. nurses. Data from this group will be collected through face to face interviews or by telephone with notes, and tape recorders or by telephone.

2. The demand group consists of new graduates or fourth-year students and O.R. nurses, the potential customers of RHORNCD. The data will be collected through questionnaires completed by fourth-year nursing students in both private and government hospitals.

3. The supply group is the O.R. of the Rajavithi Hospital, the provider of the RHORNCD for the O.R. nurse market. Data from this group is collected through interviewing the head O.R. nurse, academic committee of Rajavithi Hospital, O.R.

staff nurses, the head of surgical unit, and the surgeons of Rajavithi Hospital involved in teaching RHORNCD students.

To collect quantitative data, I will focus on the demand group. The research strategy is by survey and its inquiry purposes are descriptive, explanatory and exploratory. This is cross-sectional research and it is also descriptive research. The samples are probability samples and it is purposive sampling. The sample size is calculated by using the Taroyamane Table as following:

$$n = \frac{N}{1 + Ne^2}$$

When the significant level is .05 ($\propto$ = .05)

n   =   sample size

N   =   population size

e   =   acceptable error

The population size can be collected from the O.R. nurse personnel frame-work of provincial hospitals and the Central Hospital of the Ministry of Public Health (from recording the number of the student nurses at the M.o.P.H., University Department and Nursing Association of Thailand). The sample size should be at least 30% of population size.

After calculating the sample size, the process is to divide the sample in each region and simply randomly sample the hospitals in each region and divide the sample according to the size of population in each institution (hospitals, colleges) again.

The number of the questionnaires should be more than the population size, because some questionnaires may not be returned.

The number of the questionnaires returned and analyzed should not less than 50 %. For tools in analysis, I will use Epi Info for data entry and SPSS (Statistic Package for Social Science) to find out frequency, mean, mode in order to know the distribution of data and use the logistic regression to find out the relationship of each factor or each variation.

Questionnaires must be objective and carefully worded. The questions should be brief and easy to understand. The type of question are close-ended.

Testing the validity and reliability should be done as following :

The questionnaires are tested for validity by five experts in this topic and tested for reliability by pilot work and analysis by computer.

However, as nothing is perfect, the factors we expect to be perceived as problems are :

1. The questionnaires will missing, incomplete and returned back late or perhaps less than 50% will be returned. The data may lack reliability and cannot represent the whole country. This is a problem which can occur with mailed questionnaires. This method is less effective than collecting them myself as in my data exercise. In my experience with the data exercise, I collected 100 % questionnaires myself, but less than 50% of those distributed by friends were returned. To solve this problem, follow-up letters should be sent out to remind the recipients to complete and return the questionnaires.

2. The second problem which can occur is that some questionnaire are not returned in time. Some questionnaires may come back after believing they were missing.

3. Qualitative data is difficult to collect. The problem is that authorities are usually very busy and appointments have to be postponed. Surgeons, especially in private hospitals, have limited time and are extremely busy.

3.3. Conclusion from this study

The possibility assessment of RHORNCD identified the hidden power of the environmental factors (external and internal environmental factors) in order to find out the strategy for implementing the RHORNCD.

The external environmental factors were assessed by PEST Analysis, describing the political, economical, social and technological powers. These factors can be analyzed and interpreted to see the effects of the direction and trends of these environmental factors on the future situation of the organization. The result of this assessment advocated for RHORNCD.

The internal environmental factors within the Rajavithi Hospital organization were assessed to find out the strengths and weaknesses of the organization that influence the RHORNCD. The assessment results were that Rajavithi Hospital is ready to be a training site, but it lacks personnel for teaching and administering the program.

The market analysis (data exercise) was a part of situation analysis (in PEST Analysis) which examined external environmental factors. The market analysis was an in-depth study to find out the needs and demands of the nurses (customers) for RHORNCD in order for the RHORNCD to survive long term and find out the needs and capability of the organization for producing the RHORNCD. Results from this data exercise showed the nurses' strong demand for RHORNCD, (62.4% of respondents favored the program), advocating the production of RHORNCD. Some information such as the characteristics of the O.R. nurses, the main content of the RHORNCD, the preferred course duration and tuition cost of RHORNCD can be used as a guide to meet customer needs in program development.

Therefore, the situation assessment shows that the RHORNCD should be formulated. This time is a golden time when the policy, the top management, the changing socio-economic factors ,and the ideas of the people all advocate the RHORNCD. Nursing care, the academic staff of the O.R. nurses, and the O.R. nursing career should be developed together with the changing environment.

The RHORNCD will offer the opportunity to gain knowledge and increase the potential of the O.R. nurse. Once trained, nurses can provide good quality service and health information to the public, which they expect in order to have a good quality of life. These are good reasons to formulate the RHORNCD.

Some of these results from this study are representative, however, some are not. The data in the PEST analysis is representative because it was collected from reliable sources throughout the whole country. The market analysis segment is not representative. The data is weaker because the data was collected from only some parts of two provinces (Bangkok and Khon Kaen province). The information from key personnel (stakeholders) interviews is not representative by itself because the sample size is too small. However, the data from this part does take into consideration past events or situations which the stakeholders had experienced.

The qualification of this qualitative data depends on the objective for using the information. For this study, the data is used only to survey ideas in order to assess the environment and as a guide to create the questionnaires.

Even though the opportunity to formulate the RHORNCD exists, Rajavithi Hospital must overcome the weaknesses of the O.R. nurses' role to clearly, protect against the threats outside the organization especially on patient-focused care.

Finally, this study suggests that since the environment and situation are in flux, the strategy has a limited time to be implemented before factors change.

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