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Implementation of Interprofessional Education Learning Model on Malaria Disease for Three Departments in the Health Polytechnic of the Ministry of Health Jayapura

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Abstract

Interprofessional education (IPE) is a method that can support the collaboration of two or more health professions to create ideal teamwork. This study aims to evaluate the implementation of interprofessional education (IPE) in the learning process among three (3) departments of health professions in the Health Polytechnic of the Ministry of Health Jayapura. In this exploratory qualitative study, the data were collected from second and third-year students of health profession at The Health Polytechnic of the Ministry of Health, Jayapura. They were tasked with understanding the scenario of patients with malaria, they used the Maastricht seven jump method for PBL: (1) Clarify Concept, (2) Define Problem, (3) Discuss analyze a problem, (4) Identify Possible Explanation/ solution, (5) Set Task/ Learning Objective, (6) Research Solutions, (7) Synthesis Results/ Solution/ Reflect. Data collection is conducted with in-depth interviews and document analysis conducted on interprofessional education competencies. The fully transcribed data from both the process were thematically analyzed. The qualitative data analysis, showed there are gaps in the implementation of interprofessional education learning activities as well as commitments to the implementation of programs that are not adequate. The implementation of interprofessional education at the Jayapura Ministry of Health Polytechnic can be implemented by learning various problem-solving strategies.

Keywords: Interprofessional Education, Malaria, Vocational Education Students, problem solving learning, assessment

Introduction

Health workers are professionals who have a broad level of expertise and services in maintaining and improving the quality of focused health services. Lately, health services are often found overlapping in service actions between professions caused by a lack of communication between health workers in teamwork (Berger-Estilita et al., 2020). Lack of communication will endanger the patient in providing services that can cause the patient to fall or be in danger (Hassan et al., 2017). In addition, the lack of communication also causes delays in providing treatment and diagnosis to patients which affect patient outcomes. The lack of communication skills occurs because there is no training or education in the application of collaboration between health workers (Morrell et al., 2021).

Collaboration is needed to discuss the problems that exist in patients and improve health services. If all professions can collaborate and carry out their duties properly, excellent health services can be realized in this country. In order for cooperation in health services to be realized, all types of professions must have the desire to collaborate. Good collaboration between health professions is very important, so there is a need for an integrated learning method between health professions (Hassan et al., 2017). The World Health Organization (WHO) offers the Interprofessional Education (IPE) method to support collaboration so as to create good teamwork (WHO, 2010). IPE is a learning activity in which two or more health professionals learn about, from, and with each other as a provision to collaborate in an effort to provide quality services (Hassan et al., 2017).

Interprofessional education used to prepare students in health professions to work and communicate effectively in a team and can improve the quality service as well as safety during perform health services. Some evidence of effectiveness interprofessional education by Curran et al. (2015) was

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showed that an application interprofessional education on medical students, nurses and pharmacy showed that, the students more aware of the role and with the exposure of learning interprofessional on an ongoing basis produce an increase in behavior/attitude in working relationships, built -in experience effective in service delivery health as well as increased motivation to collaborate between students. Despite the education This interprofessional has proven to be very effective in preparing student's health in the future, but not many health institutions who apply it.

The interprofessional education learning model or interprofessional education, hereinafter referred to as IPE, can be used as a learning medium for students to learn and practice their ability to cooperate with other professions. IPE is a process in which a group of students or health workers with different backgrounds study together for a certain period of time during the education period, with interaction as the main goal, for collaboration in providing preventive, promotive, rehabilitative, and other health services (WHO, 2010).

IPE is important in assisting the development of the existing concept of interprofessional cooperation by promoting positive attitudes and behavior among the professionals involved. It should be underlined that IPE needs to be developed since health professionals are still in academic studies to achieve this goal. IPE is a necessary step in preparing health workers better and ready to face health problems (WHO, 2010).

Therefore, this study was to answer the research question below based on the research objectives given;

Objective of the Study

The purpose of the study was to evaluate an implementation of interprofessional education (IPE) in the learning process among 3 departments of health professions in the Health Polytechnic of the Ministry of Health Jayapura. Specifically, this study sought to evaluate the implementation of IPE through a case study evaluation design using the Kirk Patrik Level model. Meanwhile, the research questions are;

1. What is the implementation of interprofessional education (IPE) in the learning process among 3 departments of health professions in the Health Polytechnic of the Ministry of Health Jayapura?
2. What is the implementation of IPE through a case study evaluation design using the Kirk Patrik Level model?

Background of the Research

The Interprofessional Education (IPE) learning model has direct implications for the implementation of Interprofessional Collaboration (IPC) on health care services (World Health Organization, 2010). The IPE learning model is expected to shape the role and responsibility of the profession in the character of teams that collaborate with each other in dealing with malaria cases. Malaria, an infectious disease caused by the plasmodium parasite is still a major health problem in Papua (Mayasari et al., 2016).

Collaborative practice is a multi-professional activity aimed at improving the quality of health and patient safety services. Interprofessional education (IPE) is an important part of health education that provides opportunities for students to study internationally (Sedyowinarso et al., 2011). Through interprofessional education, students from various professional backgrounds learn about, and from various professional backgrounds learn about, and from each other to enable effective collaboration and improve health care outcomes (Fatalina et al., 2015).

The expected output of interprofessional education in health education institutions is the availability of health workers who are ready to work collaboratively and are able to provide comprehensive services (Tyastuti et al., 2013). Thus, the health workforce in the future is expected to be able to overcome increasingly complex health problems, avoid medical errors, successfully achieve health care outcomes, and be able to improve patient safety (Dent et al., 2017).

Interprofessional education (IPE) based learning process has been implemented in several countries (24.6% of 42 countries in the world) for doctors (10.2%), nurses or midwives (16%), nutritionists (5.7%), and other health care workers. IPE provides opportunities for students with various educational backgrounds in the health sector (doctors, nurses, midwives, nutritionists) to work together. IPE-based learning also helps students to improve strong professional relationships and rewards in the role of their respective health workers (Centre for the Advancement of Interprofessional Education, 2016).

The implementation of interprofessional education is influenced by the effectiveness of the learning model consisting of the formulation of learning objectives, the selection of physical and social environments as well as the alignment of learning outcomes, learning activities, and assessment. The learning methods used vary such as Problem Based Learning (PBL), by providing "problems" to assess students' learning through the inquiry process (Stankunas et al., 2016). The whole cycle of problem solving learning. Lecturers as facilitators and help plan students' learning by asking questions, summarizing the points discussed and guiding students on their learning journey (Servant-Miklos, 2019).

Before the introduction of problem-based learning strategies, students are asked to solve the problem themselves first. After that students are introduced to a problem classification template that makes them identify facts and knowledge that they may already know, do not know, and need to know to solve a given problem. (De Jong et al., 2017). Various models of implementation of interprofessional education (IPE) have been widely published so it is no longer

difficult to find references in developing an interprofessional education (IPE) model.

At UIN Syarif Hidayatullah Jakarta and Interprofessional Education in clinical education (IPE-PK). At FK UGM, this model is claimed to be effective in facilitating the acquisition of communication competencies and interprofessional teamwork and changing students' knowledge, skills, and attitudes about collaborative practices (Claramita et al., 2019). The findings of the evaluation reveal that students enjoy an interprofessional learning experience. They also report that their understanding of their respective professional roles has been improved. Based on the findings of the formative evaluation, the researchers stated that it is necessary to improve and commit the manager of the interprofessional education program in the development of IPE learning at the Health Polytechnic of the Ministry of Health Jayapura.

Jayapura Health Polytechnic initiated a formative evaluation for the development of interprofessional learning models in processes, learning materials, curriculum, and feedback. Summative evaluation must provide evidence and interpretation to assist the initiatives studied in implementing interprofessional education (IPE). Analyzing assumptions, principles, and procedures in defining what constitutes a problem in implementing interprofessional education (IPE).

Interprofessional education has initiated the IPE learning module among students of the health profession (Morrell et al., 2021). This model aims to develop the knowledge, attitudes, and skills necessary for interprofessional education learning in preparing collaborative practice learning in the community. The uniqueness of interprofessional education shows a huge variation in learning initiatives. So that, learning with, from, and about members between different professions is a distinctive and unique feature of interprofessional education.

In achieving interprofessional education learning, involving understanding different professional cultures and practice and language habits related to the diversity of learning groups brings practical challenges for lecturers and facilitators (Sanko et al., 2020). Students start with a different set of prior knowledge, different expectations about the car event where education should be conducted, and quite possibly different aspirations about the benefits that may arise from involvement in interprofessional education (Table 1).

Evaluation is a continuous process that becomes the basis of a good overall learning activity. Evaluation is the process of determining the value of a predetermined program. In general, evaluation can be interpreted as a systematic process to determine the value of something (goals, activities, decisions, performances, processes, people, or objects) based on certain criteria. In learning activities, evaluation can be defined as a systematic process in determining the level of achievement of the learning objectives that have been set (Muslihin, 2017).

Kirkpatrick is one of the experts in the evaluation of training programs in the field of human resource development (HR). The evaluation model developed by Kirkpatrick is known as the Kirkpatrick Four Levels Evaluation Model. Evaluation of the effectiveness of training programs according to Kirkpatrick (1998) includes four evaluation levels, namely: level 1 reaction, level 2 learning, level 3 behavior, and level 4 result (Eysenck &Eysenck, 2018). Table 1 shows the selected article with a summary of the author, approaches used, type of paper, and theme related to implementing interprofessional education (IPE).

Table 1: Summary of the Approaches used, Type of Learning and Output related to IPE

No	*Author/year*	*Targeted Group*	*Type of learning*	*Output*
1.	Topperzer et al. (2021)	Postgraduate	Case-Based Learning	12 practical tips
2.	O'Leary et al. (2020)	A qualitative case study: 2 participant observations, 13 interviews and 12 document analyses	Practice-Based IPE	Illustrated in three themes: clarifying the concept of practice-based IPE, mapping IPE activities and diversifying interprofessionalism
3.	Jun et al. (2020)	Pre/post intervention study: 60 student volunteers (20 medical students, 20 pharmacy students and 20 nursing students)	Learning Scale	Profession-role exchange component resulted in the significant increase in students' positive attitudes towards interprofessional collaboration and awareness.
4.	Hughes et al. (2019)	Literature	Social Living labs	Synergy between the principles of informed learning, social living labs and interprofessional education
5.	Kim et al. (2019)	Focus group interviews. A sample of 325 fourth-year undergraduate students from 14 health-related majors completed a self-report online survey	Interprofessional global health competencies (IGHC)	IGHC included establishing IGHC education in formal curricula, developing value-based content and outcomes, and engaging students in learning activities
6.	Palese et al. (2018)	95 Bachelor of Nursing Sciences programmes; 27 Italian Universities	Interprofessional educational (IPE) experiences	Factors promoting the clinical learning environment level and the regional level, where significant differences emerged across regions.

Method

Research Design

The study used was based on case study evaluation design using the Kirk Patrik Level model. It was a qualitative research design research study, conducted using Focus Group Discussion (FGD), in-depth interviews, and document analysis.

Participants

The study population consisted of 30 students from the Department of Nursing, Nutrition, and Department of Environmental Health, 6 lecturers in charge of interprofessional education (IPE) program, 3 department chairmen, and 3 study program chairmen. Participants followed the research willingly as evidenced by the statement of willingness to be a subject research on the format of inform consent.

Data Collection Tool

To analyze a qualitative data, researcher was using NVivo 9 as a tool. It is software that can help a researcher with unstructured information such as documents, surveys, audio, video and photos. All the information from FGD interview session and the document analysis were analyzed using this tool. It was given researcher a better decision in the end. Further explanation was explained in the next sub topic in data analysis process.

Data Analysis

Firstly, the FGD was conducted against 3 groups of students (9-10 people per group) from 3 departments in the Polytechnic Health Ministry of Jayapura, namely the department of nursing, nutrition, and environmental health departments selected randomly based on their willingness to be informants in this FGD process.

FGD is performed once for each group. Each group consists of students from the same department. In-depth interviews were conducted on 2 students, 3 managers of interprofessional education (IPE) programs, and 2 facilitators. The interview was guided by the researchers themselves. Interviews with each respondent were conducted once. The questions asked to each respondent are tailored to their respective interview guidelines. The interview process is recorded audio. The results of the interview and FGD are then transcribed by the researchers.

Document analysis was conducted on interprofessional education competencies (WHO, 2010). Competencies assessed in value and ethics competencies, roles and responsibilities, interprofessional communication, and teamwork. Next, data analysis was conducted on two data sources, namely, interview transcripts, FGD and competency documents. Researchers conducted an analysis of FGD transcripts and interviews through open coding using sentence-by-sentence analysis units. Data from open coding is then reduced and then grouped into several categories. The category is then continued with the determination of the theme. The analysis of this transcript was conducted by researchers together with a team of researchers (research team). each coder conducted a code separately and then met to make a deal. In the event of a discrepancy, the coder conducts discussions to reach an agreement.

The results of the coding were then reviewed by the researchers. Competency document analysis is conducted by researchers themselves who are qualified S2 Medical Education who work as lecturers.

Results

Themes arising from FGD and interviews are grouped on competencies: values and ethics, roles and responsibilities, communication, and teamwork as presented in Table 2. The results were presented connecting with research questions.

Table 2: Discussion Group Focus Results (FGD) and competency interviews: values and ethics, roles and responsibilities, communication, and teamwork

No	*Competency*	*Competency Achievement*
1	Values and Ethics	a. Understand that health care includes individuals, families, and communities b. Understand the value of diversity and individual differences to improve health care outcomes. c. Show respect for unique culture, values, roles and responsibilities, contributions, and professional expertise
2	Roles and Responsibilities	a. Able to communicate one's professional roles, responsibilities, and contributions to others. b. Able to recognize one's limitations in knowledge and skills. c. Able to explain how the team works together to improve the results of health services and the public in recognizing diseases d. Understand that individuals/ clients, families, and communities must have a voice in making decisions that affect their health
3	Communication	a. Able to conduct verbal non-verbal communication as well as through the use of audiovisual aids, in care centered on community-focused individuals. b. Able to listen actively and give encouragement/support ideas and opinions to others
4	Teamwork	a. Able to explain team development and characteristics and effective teamwork practices b. Able to reflect the performance of individuals and work teams c. Able to recognize that all members of the health care team share accountability to improve quality outcomes through preventive measures and health care.

Table 3: KIRK PATRICK Level Model Evaluation

Objectives	*Results*	*Evaluation*	*Kirkpatrick*
To train 30 students between professions in the Interprofessional Education learning model	Improving understanding of inter-professional education learning. All approaches result in a change	Measurement before, during, and after intervention	Level 3 Behaviour
To train respondents to improve their communication between professions	Improves the use of non-verbal communication, responds to communication faster, and engages in longer interactions	Interviews between professions about their precepts about the communication skills of individuals with whom they work (between professions)	Level 2 Learning
To practice the process when two or more professions learn about, and from each other to allow collaboration.	Some of the declines were limited in the behavior of respondents who complained of collision schedules, so could not participate	Respondents' reactions when studying together in practice "Problem Solving"	Level 1 Reaction

Table 4: KIRK PATRICK Level Classification

Level Kirk Patrick	*n*	*%*
Reaction	15	50%
Learning	10	33,34%
Behaviour	5	16,66%

Research Question 1:

What is the implementation of interprofessional education (IPE) in the learning process among 3 departments of health professions in the Health Polytechnic of the Ministry of Health Jayapura? (Table 2)

To see the impact of interprofessional education (IPE) implementation, researchers used the "Kirk Patrick Level Model" as illustrated in Table 3. Classification of interprofessional education outcomes. Level 1 Reaction: Learners' views on learning experience and their interprofessional nature. Level 2a Modification of perception and attitude; changes in attitudes or perceptions arise between groups of participants. And level 2b. Acquisition of knowledge and skills; including knowledge and skills related to collaboration between professionals. Level 3 Behavior change; identification of the transfer of individual knowledge from interprofessional education learning to a changing professional practice environment.

While, to answer the research question 2 based on the RQ2 below, the KIRK PATRICK level of model evaluation was presented in Table 3.

Research Question 2

What is the implementation of IPE through a case study evaluation design using the Kirk Patrik Level model?

The Institute of Medicine (IOM) (2013) emphasizes that quality is in line with the real interprofessional skills that must be given to students. These skills include practical techniques for making explicit: (1) Team Tasks and Objectives, (2) Who is on the Team, (3) Why members are selected to be team members, (4) What are the roles of each team member, and (5) How members interact with each other to achieve goals (Reising et al., 2017).

Evaluation of the implementation of interprofessional education (IPE) from quantitative data processing obtained results for implementation at the Health Polytechnic Ministry of Health Jayapura, with the number of respondents 30; which occupies a reaction level of 50% (out of 30 respondents), at the learning level of 33.34% (out of 30 respondents), the behavior of 16.66% (out of 30 respondents), at the level of results 0% as shown in Table 4.

Discussion

The results of the formed themes show that cooperation is an important factor in IPE. WHO (1988) has made a grand design about the formation of the character of collaboration in a form of formal education in the form of interprofessional education. Interprofessional education (IPE) is an implementation of learning that is followed by two or more different professions to improve collaboration and service quality and its implementation can be carried out in all learning, both undergraduate and clinical education stages to create professional health worker (Sanko et al., 2020). The existence of IPE cannot be separated from its originator. Starting from the great idea of Paulo Freira with his conception of Education as a Liberatory Education (Liberatory Education) and Mangunwijaya with his conception of Social Reality-Based Education (Problem Passing Education) we can find a container / form of true education which is implemented in the form of Competency-Based Curriculum (KBK) with Problem Based Learning (PBL). The education of prospective health practitioners among these students has reached the stage of awareness to make problems as material for learning (Sanko et al., 2020). However, there is need a well-created collaboration between health professions with different disciplines to work collaboratively in a team. Of course, this collaboration will have a good effect on the performance of KBK and PBL in our health education world.

Interprofessional education (IPE) occurs when several professional students learn to make collaboration effective and improve health services. Interprofessional education is a

necessary step in preparing health workers better and ready to face health problems. The success of interprofessional education is dependent on the interaction of staff and students with the concept of interprofessional education and blended learning as a chosen learning and process (Zorek et al., 2021). Interprofesional education has a goal to improve the competence of the nursing team collaboration and also the collaborative actions of nurses with other professions.

There is a gaps in qualitative data analysis which is, in the implementation of interprofessional education learning activities as well as commitments to the implementation of programs that are not adequate. Interprofessional education competencies in the second year of 2018 were not achieved. Teaching and learning are key elements of education, planning, delivery, and acceptance of knowledge related to lecturers and students involved. In addition to the human variables of interprofessional education, there is a physical and organizational context that will play its role in the implementation of interprofessional education programs.

Lastly, an information technology is a key component of a web-based curriculum for individuals or small groups. It is our view that all planned learning experiences have a curriculum and each curriculum has features. Syllabus or list of topics that will be discussed during the implementation of interprofessional education, referred to as learning content. Teaching strategies or plans may be supported by explicit educational philosophies such as problem-based learning or a cycle of improving the quality of the plan do study an act or often called pedagogic practice.

Conclusion

The implementation of interprofessional education at the Jayapura Ministry of Health Polytechnic can be implemented by learning various problem-solving strategies and IPE implementation is a problem-solving learning model, using seven jumps. In line with that, IPE proven empirically as an important pedagogical approach for preparing health professions students to provide patient care in a collaborative team environment. It can help interprofessional teams enhance the quality of patient care, lower costs, decrease patients' length of stay, and reduce medical errors. IPE also enhances cooperation, respect between the professions, and shared decision-making. In the future, IPE programs allow students in medicine, nursing, EMS, and pharmacy to practice working together to increase teamwork in their future work environments.

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