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CASE STUDY

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Implementation of Interprofessional Education in Medical and Pharmacy Students with Year Differences: A Case Study

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ABSTRACT

Background: Interprofessional education (IPE) is the foundation to prepare students for the core competencies to be an effective member of a healthcare professional team. The core IPE competencies include values and ethics, roles and responsibilities, interprofessional communication, and teamwork. Challenges occur when attempting to adopt IPE in the existing curriculum. While reports of IPE involving students with the same academic years have been documented, little is known about the feasibility to conduct IPE for students with different academic years in the settings without formal IPE courses.

Aims: To explore students' experience in implementation of IPE with different health disciplines and academic years.

Case Discussion: Sixth year medical students and fourth year pharmacy students were invited to an online discussion session to reflect their experiences while collaboratively working on two health promotion projects in a Community Health Center. In addition, all teachers of the project participated in the discussion. The discussion was recorded, transcribed, and further analysed. Students showed mutual respect for each profession's role, learned from each other, and collaborated in preparing materials and implementing activities. Extensive discussions with teachers are a key component of the implementation. Differences in academic year did not impede implementation.

Conclusion: This case study shows that IPE involving students with different academic years is feasible without jeopardising the attainment of the core IPE competencies. Experiential learning through health promotion projects can be an effective approach for IPE in the settings where IPE is an add-on program in the existing curricular.

Keywords: interprofessional education, implementation, different academic year, experiential learning, health promotion

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PRACTICE POINTS

- In the institutions where no formal course to accommodate interprofessional education (IPE), integration the principle of experiential learning, such as by health promotion projects, can be used as an effective approach to expose students form different health disciplines to learn about collaboration in a multidisciplinary team.
- Different academic year should not hamper the IPE implementation.
- Extensive discussions with teacher are a key component of IPE implementation.
- The time barrier found in the implementation can be minimized with the advancement of communication technology.

INTRODUCTION

Interprofessional education (IPE) is an innovative approach to education that occurs when students from two or more different professional backgrounds learn about, from, and together.[1] The purpose of IPE is to prepare future health professionals to work together in multidisciplinary teams.[1-2] Through IPE, students can develop a better understanding of the roles, responsibilities, and contributions of each health profession in the health care team.[1-2] Benefits of IPE have been documented including improved knowledge and skills of healthcare professionals, providing optimal care, resolving conflicts in practice, improving patient health outcomes, reducing the incidence of adverse drug events, and decreasing the incidence of duplication of therapy.[3-7] One of prominent impact of IPE implementation is increased teamwork between healthcare professionals, improved communication and collaborative understanding by the time students have entered the workforce.[1,2]

The concept of IPE emerged along with many problems related to the health system. The current health system is fragmented and, therefore, the complex needs in healthcare might not always be adequately addressed in a global world.[1,2,7] It should be pointed that without effective collaboration and communication between healthcare professionals, the quality of health services and other consequences, including patient safety and satisfaction, will be at risk.[8]

In Indonesia, IPE was introduced in 2011 and implemented in 2012.[9] However, until recently, IPE has been implemented sporadically in each educational institution.[9] IPE can be delivered using various learning methods, including experiential learning.[10] Despite the sporadic implementation in Indonesia, as also being documented in other countries,[2] the implementation of IPE in Indonesia offers positive impacts, including mastery of the expected professional competencies and development of knowledge, skills, and attitudes towards one's profession and other healthcare professions.[11,12] In addition, IPE also provides opportunities for students from various professions to interact and get to know other professions.[12] Literature in Indonesia documented that IPE in pharmacy undergraduate students was at the exposure stage, which aiming to introduce other professions in the healthcare system.[10]

IPE implementation in healthcare professional (HCP) education is focused on four core competencies of interprofessional collaboration, i.e. (1) values and ethics, (2) roles and responsibilities, (3) interprofessional communication, and (4) teamwork.[13] IPE implementation through in-class learning activities, such as seminars, workshops, and simulations might limit the attainment of core IPE competencies.[9] Experiential learning in real-world setting could offer better learning strategy for the development of interprofessional knowledge and skills.[14]

Research showed that many factors influence the implementation of IPE, such as commitment from educational institutions,[7,9] students and teachers readiness,[7,9] integration in the curriculum,[7,9] learning strategies that focus on seminars, workshops, and simulations,[7,9] and the cultural hierarchy in Indonesia.[9] Moreover, effective communication, understanding of roles, and advance planning of IPE content should be considered for success IPE implementation.[15] It could also be suggested that status and academic year may influence the IPE learning process. Different academic year may affect clinical knowledge and skills which may further hamper effective communication between students at the time of discussing a clinical case.[16] Furthermore, the different academic year could potentially pose hierarchical challenges related to the age gap between students, which is very thick in Indonesian culture.[17]

Evidence on IPE implementation in groups of students of the same academic year has been documented in the published literature.[9,16,18,19] However, this might not always be possible due to curriculum differences between faculties and scheduling challenges.[9,11] Concerns about the feasibility of IPE implementation in students with different academic year has been raised, particularly, at the time of this case study being conducted, supporting evidence was limited. Therefore, this single-case holistic study aims to describe the experience of implementing IPE in a group of students from different health disciplines, and academic years in one private university. Both groups were from the same university: the group of medical students were in their internship year and pharmacy students were in their fourth year. We argue that IPE could be implemented among students with different health disciplines and different academic years because the core competencies of IPE is heavily related to the development and nurturing of soft skills (value of ethics, roles and responsibilities, communication, teams and teamwork) while using knowledge on health problems as the learning context. This study is a case study which aims to explore students' experience regarding the implementation of IPE with different academic years.

CASE DESCRIPTION

The pilot implementation of IPE learning activities included medical students and pharmacy students of University of Surabaya located in Surabaya, East Java, Indonesia. A mini-project on health promotion for the population living near a public health center (Puskesmas) was assigned to each group of the students of both professions. Through this project, students from both faculties were expected to interact with each other and engaged in interprofessional education (IPE). The selected Puskesmas is located on the coast near the Madura Strait, and is in an industrial area. It serves 11 villages with a working area of 1061 square kilometers, with approximately 33,000 people.

The students involved in this case study are medical students (n=10) and pharmacy students (n=4). The medical students were in their internship year (12th semester) who were doing the final stage of clinical rotation in a community health center. The pharmacy students were fourth year students (7th semester) who were doing experiential learning programs in Puskesmas. When the pilot was conducted, there was no systematic mandatory course on IPE in our institution. Pharmacy students have not been taught or experienced IPE, while medical students had IPE sessions when they joined the course on herbal medicine.

All students have completed the informed consent form and have agreed that their data will be used in this case study. Students were divided into two groups, each group consisted of five medical and two pharmacy students. In addition to the mini-project, all students had to follow other learning activities in accordance with the learning outcome.

The mini-projects on health promotion consisted of three stages: needs assessment, planning and implementing interventions, and evaluation. In the needs assessment stage, students analyzed secondary data, had discussions with health professionals at the Puskesmas, and conducted interviews with the people living near Puskesmas to identify the major health problems in the surrounding area. After they determine the topic, they will proceed to the planning stage. Students discussed the intervention plans in groups and developed health promotion

materials. After the health promotion intervention was implemented, students conducted an evaluation to assess the impact of the mini-projects.[20] The entire process was supervised by academic preceptors from the Faculty of Medicine and Faculty of Pharmacy, as well as the preceptors from Puskesmas. Throughout the process, students were allowed to text the preceptors (by using WhatsApp) if they faced challenges to communicate with their partners from different disciplines. In addition, academic preceptors of both faculties also discussed with each other to facilitate the students' problems in the field in a harmonized manner. Based on findings of needs assessment and problem identification, each group identified a health promotion topic. The two health promotion topics were (1) prevention and control of scabies, and (2) immunization education and adverse events following immunization (*Kejadian Ikutan Pasca-Imunisasi*; KIPI). The health promotions were scheduled at different times. The description of the activities in each phase is shown in Table 1.

The academic preceptors from each discipline asked the experience of students from their discipline inclusively after conducting the health promotion. Note taking was made by the preceptors to record the main idea of each student's experience. Preceptors were taking time to discuss with each other what had been shared by the students to check the similarity of issues (triangulation). At the end of the program. following the experiential learning principles,21 students reflected on their health promotion mini-project activities at the end of the program. We collected their reflections focusing on the collaborative process as data for this study. The reflection process was conducted online with all students and the academic preceptors. One of the academic preceptors led the reflection process. The reflection process was recorded and transcribed for analysis.22 Four core competencies of interprofessional education were used as the guidance to describe the findings of each student's reflection, shown in Table 2.

Table 1. Health Promotion Stages

Activity Stage	Scabies Group	Immunization Group
Need Assessment	The high incidence of scabies in a village, related to lack of knowledge about cause, risk factor, and treatment of scabies.	Lack of public awareness of the importance of mandatory childhood immunization, and immunization coverage remains well below target in several sub-districts.
Intervention planning	The intervention was carried out through a health education session in a group flip booklet entitled "Prevention and Management of Scabies", as well as the creation of a checklist for "Managing Scabies at Home".	Public outreach using educational videos and direct explanations about the importance of immunization and post-immunization effects. Educational videos in the form of public service announcements, encouraging people to get vaccinated and explaining the importance of vaccination, schedule, function, KIPI, myths about vaccination.
Implementation	Health education sessions and flip booklets were given to the family members of pediatric patients with scabies. In addition, a "Managing Scabies at Home" checklist was distributed at the end of the activity. Feedback sheets are also provided to the community health center for use as educational materials later.	Information on KIPI and educational video presentation.
Evaluation	Significant improvement on knowledge among participants after education intervention.	96% of participants understood the information related immunization that was conveyed

Table 2. Student Reflections on Health Promotion Mini Projects

Core competency	Themes	Reflection excerpt
Value and ethics	Adhere to the profession role	"From my observation during the mini project, my understanding is that the role of the doctor is to accurately diagnose the disease and treatment procedure." (pharmacy student)
		The medical student confirms their role
		"so far in accordance with the doctor's role." (medical student)
Roles and responsibilities	Common knowledge about other profession to manage the role in the team	"The medical student said how about explaining the medication, how to use it, when the medication is needed. Then we agreed to explain the medication." (pharmacy student)
		"At first because I had no idea, I wondered if they were giving immunization interventions. We didn't know what they taught." (medical student)
	Curriculum content as a consideration to manage role in the team	"At first, I was confused because when I asked pharmacy students what was taught in immunization, it turned out to be the process of manufacture and storage. Finally, we decided to assign the KIPI (adverse events following immunization) for pharmacy students." (medical student)
	Future projection of roles and responsibilities	"I have a better understanding of how doctors and pharmacy colleagues can work together. I know better what the role of the medical student is in immunization." (pharmacy student)
Communication	Workload as a barrier	"One challenge is the lack of time for discussion. Sometimes, we are still busy with the services, need to adjust the discussion time." (medical student)
	The use of communication media	"Because the challenges are time, we created a WhatsApp group. So, we can communicate more freely without being limited by time. Then at some time that we could meet, we discussed it, during the discussion everyone was enthusiastic and pharmacy friends also showed the results of the journal and asked about the suitability" (medical student)
Teams and teamwork	Safe environment to disclose	"We didn't know about scabies at first then we asked a medical student about the disease. When we made educational materials, we also discussed the literature we used and the information we made so that it could be in line with the educational material prepared by the medical students." (pharmacy student)
	Aligning perception for effective team building process	"We learned how to work together among the healthcare professionals, at the beginning we were confused, but during the discussion, we were able to align our perceptions and work together." (medical student)
	Different schedule as a barrier	"Given that pharmacy students only joined in week four, they were required to undertake additional tasks to enable them to participate fully in the programme. Each individual was assigned specific tasks." (medical student)
	Common goal (patient benefit) as the compass for effective team building	"As long as the intention is positive, we will definitely make time for discussion. This kind of program is not done every day." (medical student)

DISCUSSION

This case study describes the implementation of IPE among medical and pharmacy students in different academic years. Students learn to apply clinical knowledge, in this is about disease, prevention and treatment, from the perspective of each profession, and learn to provide information and education to the public in the form of a health promotion mini project. The chosen topics of health promotion projects were derived from the identification of problems in the local community, therefore, both topics could address the needs of the community.

In general, the IPE learning approach for undergraduate students is to introduce other health professions by incorporating various learning methods such as Problem Based Learning (PBL) and Experiential Learning, and then move to immersion and process to understand the role of each profession using simulation learning. The final stage is mastery, which is the development of each profession's identity.[12] In this case study, IPE is still in the phase of introducing other professions.

In this case study, IPE is used to enhance the students' recognition and understanding of other health care professionals. Reflection on this IPE activity aims to identify the attainment of learning outcomes in four core IPE competency areas including: (1) values and ethics, (2) roles and responsibilities, (3) interprofessional communication, (4) teamwork.[13] The reflection results show that students have had experiences to address these four domains.

In the first area competencies, values and ethics, students respect each other's professions. They demonstrated a clear understanding of their professional role and responsibilities. They perform their professional duties according to their professional competence. Even though the pharmacy students are not at the professional program yet, the medical students have asked for opinions and suggestions regarding the role of pharmacists to design the mini projects. Students also trust each other when an attempt to create educational materials has been made. This is in line with the core competencies of values and ethics, where students are required to be able to work together and maintain shared values, to behave ethically and respect each other, and to focus on the interests of patients or the community. Applying professional ethics is an important part of this competency.[13]

Application of the second competency area, roles and responsibilities, is demonstrated when students apply knowledge of their individual roles and other professions roles to appropriately assess and address the needs of patient or family member of patients.[13] Students are aware of their own profession's knowledge as well as other profession's knowledge. Medical students initially had limited understandings of the competencies or curriculum that pharmacy students had acquired. In contrast, pharmacy students demonstrate a comprehensive understanding about the role of medical students, this is the distinction between two professions. As part of the process of understanding the role of other professions, they directly ask students from others about knowledge they have learned in their degree. Medical students have better disease-related knowledge according to their professional role, and pharmacy students do not hesitate to learn about diseases from medical students.

The third competency area is interprofessional communication. Students are expected to improve their ability to communicate with patients, patient's families, communities, and other professionals in a responsive and accountable manner that can further support a team-based approach to provide a health promotion.[13] Effective communication is an essential aspect for an interprofessional collaboration. Effective communication may lead to better understanding of the views from each profession and it will further impact on patient understanding towards their medication.[23] Students in this case study communicate well with each other both in person and virtually. The interprofessional communication guide, the TRI-O Guide, provides three communication principles: open to collaboration, open to information, and open to discussion.[24] From the reflections in the health promotion assignment, students from both professions have demonstrated attitudes that are

consistent with the TRI-O principles which include an open attitude, mutual respect, exploration, mutual trust, communicativeness, sharing information, and providing complementary information.[24] The barrier to effective communication is a substantial workload, which often prevents direct, face-to-face interaction. Nevertheless, this challenge can be successfully managed through the use of social media, which aligns with the core competency.[13]

Finally, the teamwork competency domain is depicted in the preparation and implementation of health promotion tasks in accordance with the expected competency of each profession. This domain represents the thematic content most frequently observed among students. Throughout the process, students demonstrated values that enabled them to work effectively in various team roles, including: plan, implement, and evaluate patient/family-centered care, public health programs, and policies. Such values include: values of relationship building and principles of team dynamics.[13] Even though they had just met medical students, pharmacy students felt secure and comfortable to inquire about medical students. Pharmacy students have the opportunity to create and discuss materials with medical students, particularly regarding disease and treatment. They align their perceptions with the objective of ensuring the success of the event. They believe that good intentions can support the success of teamwork. Schedule differences are the only obstacle in their teamwork. One of the important factors that influences teamwork is student readiness for IPE. Students with prior experience in IPE are more prepared to work together in teams with other healthcare professional.[3,8,15]

Successful implementation of IPE is influenced by many factors and is not limited to educational institutions alone. Teachers' understanding and experience of IPE is also one of the factors influencing the implementation of IPE.[9] Teachers with IPE experiences tend to have more positive perceptions than those without IPE experiences. Research shows that IPE is understood and perceived differently by health professionals. The different perceptions can bring an impact on how students perceive IPE.[25] Student perceptions and readiness are also listed as other important factors of successful IPE implementation. Positive perceptions of IPE can increase the attainment of core IPE competency which, by all means, impact on successful implementation of IPE.[8,26] The literature shows that learning among students in the same academic year creates a conducive and safe environment to share the learning experiences. Students with higher grade levels may have less trust in the lower grade fellows, particularly fellow students from different discipline.16 However, this is not the case in this case study. Differences in the academic year do not affect the interaction process between the health professions. Students from each profession can communicate respectfully and work well together.

Students in this case study perceive the benefits of the IPE implementation as well, as they gain a better understanding of other professions' roles and an overview of collaboration in a real world setting. Our finding is consistent with several studies on the benefits of IPE, including improving knowledge, skills, and attitudes toward collaboration among health professionals.[3,4] However, there are several perceived barriers to implementing IPE, i.e. finding the time to conduct IPE and interact with other professions which was also reported in other research on IPE.[11,12] The process of scheduling the students from two professions to meet at the practice site is a challenge due to differences in study programs, length of practice, and more practice areas in the professions. Awareness of the challenges of conducting the IPE among students from different academic years was the main driver to disseminate our case study. This case study shows that implementing IPE for students with different academic years is feasible and can be suggested as an alternative for implementing IPE in other institutions in Indonesia.

IPE is urgently needed in the health professions curriculum to prepare students for future collaboration with other health professions.[1,2] Integrating IPE into the curriculum will minimize scheduling issues, even though it may not always be the case in many institution.[14] Experiential

learning can be an effective learning approach to help students to interact with students from other professions. To attain optimal impact, IPE learning and assessment guidelines need to be prepared carefully. The implementation of IPE in this case study can be applied to other learning topics, such as monitoring patient therapy.

CONCLUSION

This case study demonstrates that implementing IPE in medical and pharmacy students with different academic years is feasible and may not jeopardise the attainment of four core IPE competencies. In an institution without formal IPE courses, extensive discussion among teachers is an essential driver towards the implementation of IPE and an experiential learning, such as by conducting a health promotion project, could be suggested as an initial step of IPE activities before future intensive IPE courses.

RECOMMENDATIONS

IPE in health professions strongly promotes readiness for collaborative practice. Therefore, IPE needs to be introduced as early as possible and be part of the curriculum of each health profession. IPE learning strategies can begin with the introductory phase in the classroom and continue in real experiential learning. Impact of differences in students' academic years on the IPE implementation can be further explored with a larger sample size. Implementation of IPE at the professional practice site can be relevant for other disease cases, not limited to health promotion. Guidelines for IPE also need to be developed to help students learn in a purposeful way.

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COMPETING INTEREST

The authors declare that there are no conflicts of interest related to this case study.

AUTHORS' CONTRIBUTION

Ika Mulyono Putri Wibowo – project conceptor, student supervisor, data collection and analysis, and main author of the manuscript.

Eko Setiawan – project designer, student supervisor, data collection and analysis, and manuscript author.

Y. Adhimas Setyo Wicaksono – project conceptor student supervisor, data collection and analysis, and manuscript author.

Anita Dahliana – project conceptor and manuscript reviewer.

Aguslina Kirtishanti – project conceptor and manuscript reviewer.

Astrid Pratidina Susilo– project conceptor, student supervisor, data collection and analysis, and manuscript author.

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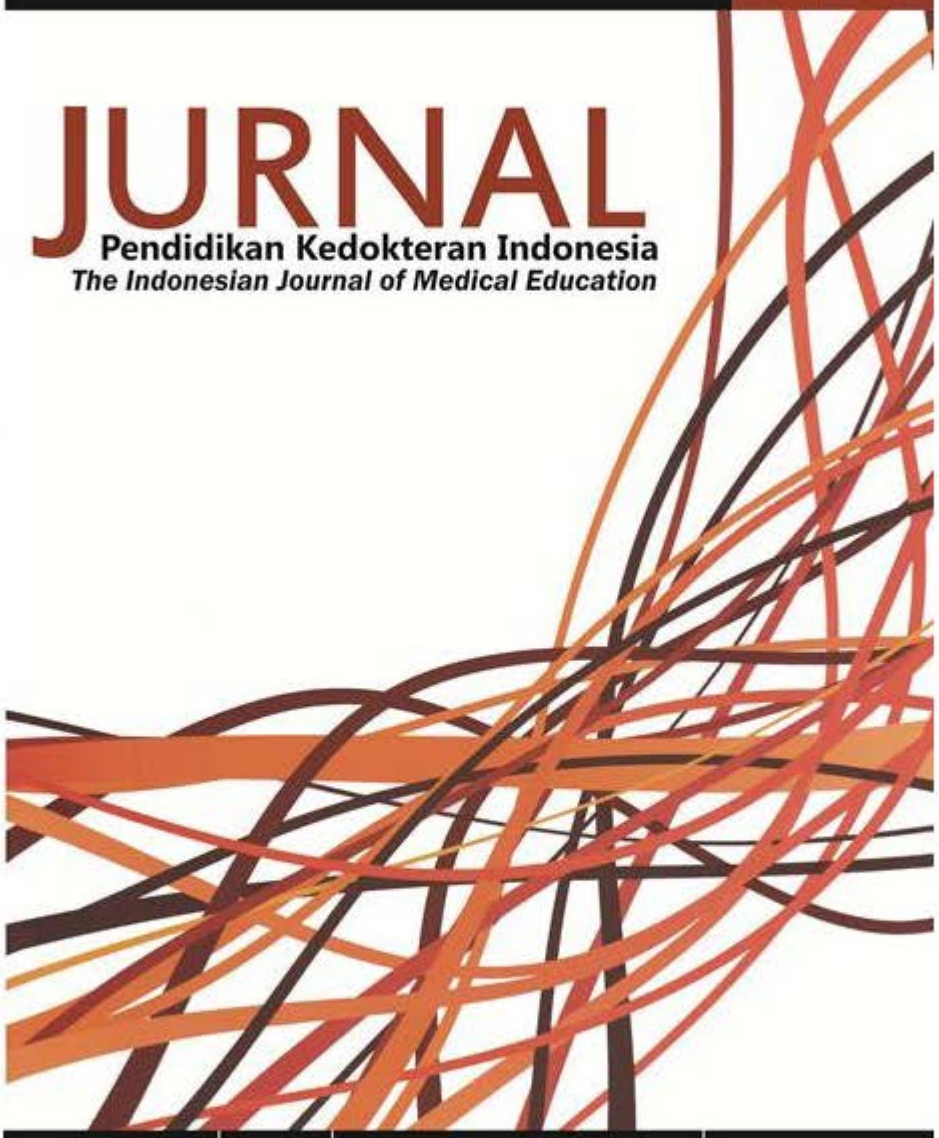

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March

Table of Contents

Original Research

Medical Students' Frequency of Playing Online Games with Their Academic Performance: A Cross-Sectional Study 1-8
Nur Hayati, Novada Indra Roesdiana
10.22146/jpki.87453 Abstract views : 50 | views : 23

Adjusting The Academic Integrity's Atmosphere among Medical Students: An Exploratory Study 9-16
Ita Armyanti, Agustina Arundina Triharja Tejoyuwono, Muhammad Asroruddin, Zulfa Khairunnisa Ishan
10.22146/jpki.91703 Abstract views : 43 | views : 21

Interprofessional Education for Optimizing the Fostering Candidate Pilgrimage Program in Waiting Period to Achieve Istitha'ah 17-31
Ermin Rachmawati, Riskiyah Riskiyah, Tanaya Jati Dharma Dewi, Dhani Wijaya, Sadli Syarifuddin, Amalia Nur Aisa, Doby indrawan
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