

## The impact of interprofessional education to health students' collaborative competencies

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### ABSTRACT

One of the aims of Interprofessional education (IPE) is to foster collaboration amongst healthcare professionals. IPE has been adopted at Udayana University by involving seven health courses at Udayana University, Bali, Indonesia. These students were assigned to 49 groups which composed the seven health course students. They learned working in collaboration from cases identified in the community. The activities spanned for five semesters. At the beginning of their activities the students received interprofessional collaboration competencies attainment survey (ICCAS). The survey has been validated in the population and has two collaborative competencies, namely communication and collaboration. This was a report of ICCAS employment in Semester III dan IV of the first cohort of IPE Program at Udayana University. 138 students completed the survey in both semesters. A paired-sample t-test was conducted to compare the mean score differences of collaboration and communication in the first and second semesters of attending IPE learning. Whilst, there was no significant differences on the mean score for communication, there was a significant difference in the mean score for pre and post collaboration ( $94.7 \pm 9.7$ ) and ( $91.0 \pm 10.8$ );  $t(130) = 3.379$ ,  $p = 0.001$ . These results suggest that the collaboration competencies amongst the seven health courses students reduced after one semester attending IPE activities. These findings indicated that the study design and learning tasks should be amended to ensure students gain the most of their learning in collaboration.

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## 1. INTRODUCTION

Currently, a professional healthcare provider is required not only to be competent in their own practice but also be able to work in collaboration with others. Meads et al., indicated that health education is required to be interprofessional [1]. Further, the World Health Organization has highlighted the importance of Interprofessional education (IPE) in preparing practice ready health workforces in working with others [2]. In the literature, some factors influenced to the implementation of IPE [3, 4]. The factors ranged from micro level, meso level to macro level [4]. Learners' and academics' preparedness were considered as factors in micro level, supports from institutions as factor in meso, while accreditation, regulation from health

education and health professionals' bodies were deemed to be factors in macro level in the adoption of interprofessional learning. Besides, learners and academics' perspective, curriculum design which includes the curriculum model, when and how to implement, where the students learn and which students involved are the context of micro level. Understanding of these factors is essential prior to IPE implementation due to the number of students and faculties which may involve. In the current setting, despite different curriculum designs amongst the seven health courses identified, the academics and students had positive responses to IPE implementation [5]. It was also suggested that the students need to start learning IPE early in their semester. After the WHO introduced IPE, initiative of IPE implementation amongst health students emerged worldwide [6, 7]. Learning methods such as e-learning and blended learning, seminar, workshop, observation, student placement, role play and lectures found in the literature [8-12]. Although no profound learning method or curricula found in the literature to argue the right method to better prepare future health providers, informal learning was potentially bring positive opportunity for the students to foster collaboration [13].

Similarly, discussion on IPE learning outcomes ranged from learners' and from patients' perspective as well as from health service delivery point of view [14-16]. Most studies found in the literature illustrated the impact of interprofessional education which sustained positive attitudes towards working collaboratively [17-19]. Further, a meta-analysis study on IPE in 2018 has shown that interprofessional learning improved positively knowledge, skills, and attitudes of learners in different healthcare disciplines [20]. Another systematic analysis study in 2019 showed that IPE not only enhanced knowledge, skills and attitudes but also shared problem solving to prepare them in the future [21]. The results of those studies indicated that IPE may be beneficial in order to improve healthcare students' attitudes towards learning with others. In our setting, IPE has been adopted since 2015. However, only one study reported students' positive perceptions towards IPE [22]. Further, little was known its impact to students' competency attainment. There is no single tool which will suit all competencies measurement [23]. This study aimed to evaluate changes of collaborative competencies using a validated tool in working with other health students after attending a community-based learning on IPE.

## 2. RESEARCH METHOD

Seven health courses attended a three-hour lecture on interprofessional education at the beginning of interprofessional learning activities, small group discussions with academics from health professions faculty member, and field work visits with the group to the community for one semester. There were 588 students enrolled (246 medicals, 49 dentistry, 59 nursing, 61 psychologies, 46 physiotherapies, 66 public health and 61 pharmacy students) in IPE program in Semester III and IV. They were divided into 49 groups composed with 11-12 students from the seven health courses.

The students received Interprofessional Collaborative Competencies Attainment Survey (ICCAS) as a pre-test assessment in Semester III. The students also completed ICCAS as a post-test assessment in Semester IV. The ICCAS was developed in Canada which has 20 statements on collaboration competencies [24, 25]. It has been validated at the university prior to its employment in the current study and retrieved two collaborative competencies (namely, communication and collaboration). The Program of Interprofessional Education (IPE) was comprised of activities involving health students and academics from seven health courses (medical, nursing, dentistry, pharmacy, public health, physiotherapy and psychology). Facilitating an IPE learning can be challenging due to the different health students who participated in the program. Thus, the academics attended faculty development workshop to assist them as facilitators of the program. The workshop had information of program and how to assess students' learning in a semester. Meanwhile, the students attended a three-hour lecture on interprofessional education, face to face discussion with 11 to 12 students from the seven health courses facilitated by their academics, and field work visits with the group to the community in each semester.

The Program of IPE was designed for five semesters which started in Semester III to VII. The students identified problems in the community, prioritize the problems which could be completed in the program, give intervention based on the case, monitor and evaluate the program implemented. The students also attended lectures on communication, problem identification, conflict management, teamwork, intervention, monitoring and evaluation program to community setting which spanned for five semesters. The students reported their activities in a logbook and reported their program every semester as a student project. The academics evaluated and gave feedback on how the students progressed as an individual and as a group in every semester using their log books. Students' responses to ICCAS were analysed using a paired t-test in SPSS 23.0. P-value less than 0.05 was considered significant changes showed in the students' competencies before and after attending IPE activities. This research has gained ethical approval from Ethical Committee Udayana University Number 191/UN14.2.2.VII.14/LP/2019.

### 3. RESULTS AND DISCUSSION

Table 1 reveals comparison of mean scores and p-value of communication and collaboration competencies in Semester III and IV. A pair t-test analysis indicated that although there was no significant difference in term of communication competencies, the mean score of collaboration was significantly reduced ( $t(130)=3.379$ ,  $p\text{-value}=0.001$ ) after one semester attending IPE. The insignificant reduction in mean scores of communications may result from the fact that IPE facilitated communication among health students involved during learning. They needed to discuss cases they found in the community and they also generated a report as part of their learning. However, the IPE program was significantly reducing the collaboration domain. This may suggest the learning was unable to facilitate cultivation of collaborative competencies.

Table 2 shows comparison of mean scores and p-values of communication and collaboration between health courses. The table illustrates that communication and collaboration competencies among health students before and after IPE were significantly different. On average, the mean scores of communication and collaboration competencies of health students decreased after attending IPE except for public health students. This result was inconsistent from that found in the literature. Dyes *et al.*, indicated that IPE activities improved students' attitudes, knowledge and skills in preparing the students' future practice [21].

Table 1. Comparison of mean scores and p-value of communication and collaboration competencies in semester III and IV

	Pre-test (Semester III)		Post-test (Semester IV)		p-value
	Mean	SD	Mean	SD	
Communication	29.73	3.83	29.09	4.58	0.432
Collaboration	94.57	9.49	91.09	10.76	0.001

Table 2. Comparison of mean scores and p-values on pre-and post-test communication and collaboration competencies between health courses

	Health course (n)	PRE-TEST		POST-TEST	
		Mean	SD	Mean	SD
Communication	Medical (30)	28.27	4.042	28.63	5.353
	Pharmacy (11)	28.55	3.205	26.70	5.397
	Nurse (3)	34.00	1.732	30.67	2.082
	Public Health (43)	29.35	3.823	31.21	2.867
	Dentistry (22)	31.68	3.092	25.18	4.847
	Psychology (4)	30.00	3.916	27.50	4.435
	Physiotherapy (25)	30.24	3.800	30.52	2.801
	Total (138)	29.70	3.841	29.09	4.584
	p-value		0.013		0.001
	Collaboration	Medical (30)	91.00	11.954	89.73
Pharmacy (11)		90.50	8.972	83.50	13.697
Nurse (3)		102.33	2.517	93.00	5.196
Public Health (43)		92.55	9.308	95.48	6.794
Dentistry (22)		99.43	6.683	86.77	9.670
Psychology (4)		94.25	11.587	82.75	11.587
Physiotherapy (25)		97.83	6.450	91.48	7.980
Total (138)		94.32	9.644	90.76	10.778
p-value			0.006		0.004

This study found that collaboration competencies were significantly reduced after attending a community-based IPE activity for one semester. One of the aims of IPE activities are to foster collaboration between health professionals. Findings of this study indicated that IPE activities at Udayana University did not reach the aims of IPE. Program developers need to evaluate the study design which translated into the learning objectives and learning task to ensure IPE will cultivate collaborative competencies (i.e. communication and collaboration) amongst healthcare professionals. If the health students did not gain positive experience during their learning, the gap between health professions will be wider. Other studies on IPE in the literature had indicated that core competencies of collaboration were defined clearly as the outcomes of the program.

A Canadian Expert Panel recommended six core competencies of collaboration such as communication, collaboration, role and responsibility, patient-centred care, conflict management and team functioning [26]. Meanwhile, the Canadian Interprofessional Education and Collaborative indicated four core competencies of collaboration namely value/ethics for interprofessional practice, roles/responsibility, interprofessional communication and teams and teamwork [27]. The latest approach in

taking collaboration in practice with health providers may be adopting a new paradigm which incorporating real world experience in developing the four competencies [16]. At the moment, no study reported on collaboration competencies in Indonesian practice. Thus, the IPE program developers at the current university may employ competencies available in the literature. These competencies need to be articulated well in the study guide both for facilitators and for students in each semester. Thus, the academics and students understood of what to expect of them.

Further, faculty development is essential in the delivery of IPE. It is not only to have a need analysis to assess faculty development needs in the implementation of IPE [28], but also to take into account vision and mission of the institution [29]. This faculty development requires support from organization and individual levels, flexibility based on institution and participant specific characteristic and outcomes based on working interprofessionally [30] which supported Interprofessional Education for Collaborative Practice as a field in collaboration [4]. The role of academic is crucial in IPE. The academics could teach and to be the role model for collaboration [30]. The importance of preparing the academics has been reported in a faculty development program fostered teaching, researching and administrative skills of medical and allied health faculty [28, 30] Educators in pre-clinical and clinical setting are required to involve and to have competencies required in faculty development [29, 31].

Competencies such as values and ethics in collaboration, communication, coordination, and leadership skills, being competent with their own professions, and understand role and responsibilities of others may be required as collaborative competencies by the academics in faculty development program [32]. The finding of the current study indicated one of the imperative steps in implementing IPE in the curriculum is to prepare faculty development. Small response rate of students' participation to in both semesters was a limitation to this study. This may be due to the fact that survey completion was not mandatory to the students upon completion of the unit during the semester. Besides, participation was conducted online which may result in the poor response.

#### 4. CONCLUSION

Health students after attending interprofessional education activities in the current university showed reduction in communication and collaboration after one semester of activity. This finding indicated program developer needs to amend their program and curriculum to better prepare students' development of collaborative competencies.

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