

Effects of interprofessional online learning on interprofessional attitudes and competencies of healthcare students

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1. Background

Strengthening interprofessional education is widely seen as one of the most important factors to confront challenges of today's changing healthcare system (WHO, 2010). However, there are several organizational and logistical challenges regarding the joint learning of students from different programs (Nock, 2016). The advantages of online learning to overcome these hurdles are promising (Reeves, 2017). This study investigates to what extent an online learning concept can contribute to the development of interprofessional competencies.

2. State of research

Several meta-analyses showed that the instructional method has a stronger influence on learning than the instructional medium, such as online vs. face to face (e.g. Cook, 2008). In the context of interprofessionalism there is evidence that online learning has similar effects on the development of interprofessional knowledge and attitudes as traditional learning (Curran, 2015). However, there is a lack of evidence about the effectiveness of different educational strategies.

3. Methods

The study was conducted with a mixed methods design (Fig. 1).

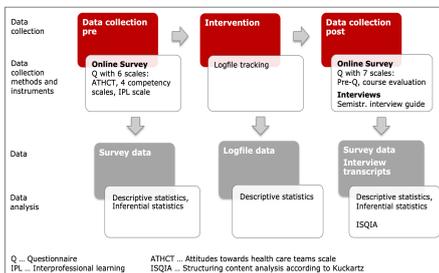


Fig. 1: Study design

In the quantitative strand $N = 83$ healthcare students (medical students from LMU Munich, physiotherapy students from the University of applied science in Regensburg and others) took part in an online course about interprofessionalism with a didactical concept consisting of three parts (Fig. 2). Participants' attitude towards interprofessionalism was measured pre/post with the attitudes toward healthcare teams scale (ATHCT), aspects of interprofessional competencies with four scales relating to the core competencies for interprofessional collaborative practice (IPEC,

2016), and attitudes towards interprofessional learning with a further scale. Except the scale about joint patient-centered decision-making, all scales showed a good internal consistency ($\alpha > .70$) (Tab. 1).

- Attitudes towards health care teams scale (ATHCT) (19 items, $\alpha = .77$)
- Roles and expertises (12 items, $\alpha = .74$)
- Joint patient-centered decision-making (9 items, $\alpha = .52$)
- communication (12 items, $\alpha = .74$)
- Teamwork (8 items, $\alpha = .70$)
- Interprofessional learning (IPL) (4 items, $\alpha = .72$)

Tab. 1: Internal consistency of the scales (Cronbachs Alpha)

All items were rated with a 6-point rating scale (1 = do not agree at all, 6 = fully agree). In the qualitative strand, 12 semi-structured interviews were conducted and are currently being analysed via structuring content analysis according to Kuckartz.

4. Results

Effects within groups (pre/post) were measured with t-tests, effects between groups with repeated measures ANOVA. We found a significant increase in all scales with partly small, partly medium effect sizes (Fig. 3 and Tab. 2). Furthermore, physiotherapy students showed the highest pre values in almost all scales, which were significantly higher in the ATHCT scale ($d = .51, p < .05$) and interprofessional learning scale ($d = .80, p < .05$) than those of medical students. As to the post values, the medical students reached the highest values in the four competency scales. However, the difference between the groups were not significant (Fig. 4).

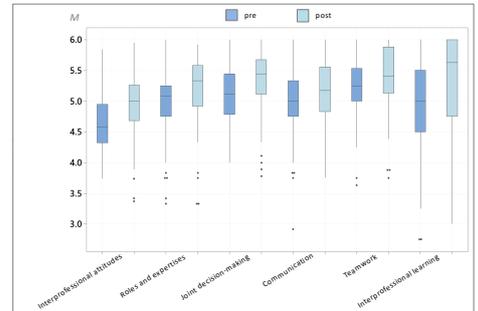


Fig. 3: Means before and after the intervention

Scales	Mean difference ($M_{post} - M_{pre}$)	Standard deviation (SD)	Significance level (p)	Cohen's d	Effect size
Interprofessional attitude	-0.333	0.445	<.001	0.75	medium
Roles and expertises	-0.267	0.441	<.001	0.61	medium
Joint decision-making	-0.260	0.455	<.001	0.57	medium
Communication	-0.166	0.446	<.001	0.37	small
Teamwork	-0.126	0.462	.008	0.27	small
Interprofessional learning	-0.350	0.770	<.001	0.45	small

Tab. 2: Main effects and effect sizes

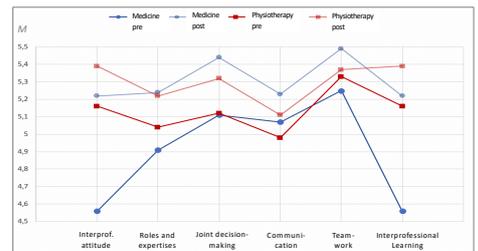


Fig. 4: Differences between study paths

5. Conclusions

The results indicate that interprofessional online learning can significantly improve attitudes of students towards interprofessional cooperation and interprofessional learning as well as different aspects of interprofessional competencies. However, students benefit to a differing extent. In consideration of the well-known advantages of online learning, in particular with regard to logistics, range, and long-term resource needs, this instructional approach holds potential for the sustainable facilitation of interprofessional competencies.

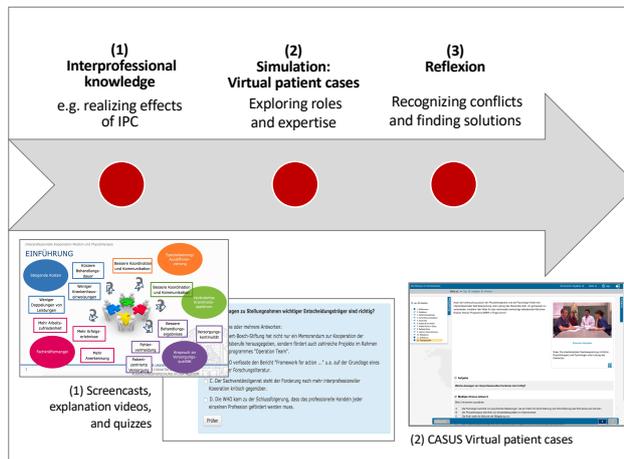


Fig. 2: Didactic approach of the intervention

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