

Providing Interprofessional Learning Experiences for Students of Health and Social Care: The SOYAÇ Model from Istanbul

Sağlık ve Sosyal Bakım Öğrencilerine Mesleklerarası Öğrenme Deneyimleri Sağlamak: İstanbul'dan SOYAÇ Modeli

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Abstract

The aim of our research was to determine the effectiveness of a six-month, community-based intervention on student interns' perceptions of interdisciplinary education and interprofessional learning. All participants were registered volunteers attending the *We're at School in Üsküdar* internship program coordinated by the Maltepe University Research and Application Center for Children Living and Working on the Street (Turkish acronym SOYAÇ). This model offers students of health and social care an immersive 5 days a week experience over a duration of 6 months, providing cooperative, multidisciplinary applications in a community-based context in Istanbul. A quasi-experimental, pre-post approach was used. The sample consists of 43 undergraduate and graduate students studying in the Health and Social Care Departments of two SOYAÇ stakeholder universities. Data collection tools are the Interdisciplinary Education Perception Scale and Interprofessional Learning Scale. We found increases and significant differences in posttest scores for Interprofessional Learning, Competence and Autonomy, Perception of Actual Cooperation, Readiness for Learning, and Professional Identity ($p < 0.05$). Our findings confirm a significant beneficial impact of the SOYAÇ Model on student perceptions of interacting and cooperating with other vocations.

Keywords: Education, health, students

Özet

Araştırmamızın amacı, stajyer öğrencilerin disiplinlerarası eğitim ve meslekler arası öğrenmeye ilişkin algıları üzerinde altı aylık toplum temelli bir müdahalenin etkinliğini belirlemektir. Katılımcıların tamamı Maltepe Üniversitesi Sokakta Yaşayan ve Çalışan Çocuklar Araştırma ve Uygulama Merkezi (Türkçe kısaltması SOYAÇ) tarafından koordine edilen Üsküdar'da Okuldayız staj programına katılan kayıtlı gönüllülerden oluştu. Bu model, sağlık ve sosyal bakım öğrencilerine 6 ay boyunca haftanın 5 günü sürükleyici bir deneyim sunarak İstanbul'da toplum temelli bir bağlamda işbirlikçi, çok disiplinli uygulamalar sağlar. Yarı deneysel, ön-sonraki bir yaklaşım kullanıldı. Örnekleme SOYAÇ'ın paydaş iki üniversitesinin Sağlık ve Sosyal Hizmetler Bölümlerinde öğrenim gören 43 lisans ve yüksek lisans öğrencisi oluşturmaktadır. Veri toplama araçları Disiplinlerarası Eğitim Algı Ölçeği ve Mesleklerarası Öğrenme Ölçeği'dir. Mesleklerarası Öğrenme, Yetkinlik ve Özerklik, Gerçek İşbirliği Algısı, Öğrenmeye Hazır Olma ve Mesleki Kimlik son test puanlarında artışlar ve anlamlı farklılıklar bulduk ($p < 0.05$). Bulgularımız, SOYAÇ Modeli'nin öğrencilerin diğer mesleklerle etkileşime girme ve işbirliği yapma algıları üzerinde önemli ve faydalı bir etkisi olduğunu doğrulamaktadır.

Anahtar Kelimeler: Eğitim, sağlık, öğrenciler

1. Introduction

Collaborative, interdisciplinary way of working have been accepted as significantly important components for empowering safe and effective healthcare systems (Frenk et al., 2010; Timmel et al., 2010). There is strong evidence that interdisciplinary education prevents medical errors, increases the quality of care and patient safety, decreases morbidity and mortality rates and reduces costs from an economic perspective (Aase et al., 2013; Finlayson and Raymont, 2012; Mitchell, Tieman and Shelby-James, 2008). This concept has come to the foreground because it is believed to enhance our capability to address the complex social issues of today, including obesity, violence, and addiction, as well as to bringing about effective solutions (Eagan et al., 2002; Gonzalez, 2017).

Interdisciplinarity is also in keeping with the outcomes expected from education as part of the goals of achieving sustainable development, and it provides incentive for understanding complex issues, enhancing the capability of acting on these issues (Annan-Diab and Molinari, 2017). It has been emphasized that in order to be able to surmount global challenges, which is among the goals of sustainable development, adopting an interprofessional learning approach in institutions of higher learning must be made a part of higher education programs (Gonzalez, 2017).

In the last 20 years, an increasing number of scientific studies have indicated the need to support interdisciplinary cooperation in higher education (Lozano et al., 2019). There is evidence that the interprofessional learning experience provides students with the skills of critical thinking, increases cognitive skills, helps them develop different viewpoints at an advanced level, teaches them to make better decisions and provide more professional care, and ensures that they are able to better cope with more complex tasks (Ivanitskaya et al., 2002; Sagdic, 2019; Valentine et al., 2015). It also increases the general satisfaction of both service providers and service receivers, boosts professional relations, raises the level of service safety and ensures the reciprocal development and collaboration of those in different areas of expertise (Aase et al., 2013; Darlow et al., 2015). At present, many students have a positive perception of interprofessional education (IPE) (Goncalves et al., 2021, Mahler et. al., 2018, Pollard et al., 2005).

Globalization has brought with it an increase in information-sharing for the purposes of learning and developing, leading to changes in the approach to education and healthcare practices (Eren and Altug, 2021). At the same time, the increased complexity in the realm of health has challenged the global health system and its professionals to meet the growing need to improve the capacity to act and be more resilient. It follows that the interdisciplinary pedagogic approach is regarded as one of the most promising choices in recent years (Goncalves et al., 2021). Professionals working their disciplines in the many areas of health and social care lean toward interacting and cooperating on interdisciplinary platforms (Molleman et al., 2008). It has also been found that the solution to a majority of the problems arising in the scientific realm today necessitates the collaboration of disciplines that seem even the farthest from each other (Sagdic, 2019).

Clearly, these realities have major implications for the education and health and social care professions, particularly in countries such as Turkey where traditionally the new cadres in each discipline are independently raised. One of the strategies recommended for higher education is to provide students who will be graduating from health and social care departments, and who are poised to work in areas connected with promoting community and individual health and providing safe healthcare, with education that is focused on an interdisciplinary approach, offering students long-term, model-based, community-based programs (Gonzalez, 2017; Terzioglu et al., 2019). However, studies on the subject have been largely conducted in the hospital setting and have not sufficiently explored the effectiveness of a community-directed interprofessional learning model (Miller et al., 2019). For this reason, the study has the significance to make important contributions to the literature.

2. Method

2.1. Research Design

The present research sought to establish whether university students can benefit from an intervention in a community-based care giving context which uses an inter professional learning approach. While most of the relevant literature concerns descriptive studies, the researchers settled on a quasi-experimental design that that would enable them to compare pretest posttest data obtained from different groups and deliver robust evidence that would be useful to practitioners and policy makers. This approach would help us to measure changes in students' attitudes towards interdisciplinary education, collaborations, and experiences. All students would be voluntary participants of the *We're at School in Üsküdar* program and currently attending various health and social sciences departments at two universities in Istanbul.

The *We're at School in Üsküdar* program was accepted as an intervention in coordination with the Maltepe University Research and Application Center for Children Living and Working on the Street (SOYAÇ) and as a project based on the SOYAÇ working model that uses the approach of interprofessional learning.

2.2. Research Question

Can a structured, interprofessional learning experience based on cooperation in health and social care have an impact on the perception of interdisciplinary education and interprofessional learning?

2.3. Study Variables

Dependent variables: Interdisciplinary Education Perception Scale and Readiness for Interprofessional Learning Scale scores.

Independent variable: The Interprofessional learning experience: The *We're at School in Üsküdar* program.

2.4. Research Setting, Participant and Sampling

The study was conducted over the period October 2020 - June 2021 with the students of a foundation and of a state university located on the Anatolian side of Istanbul. The study universe consisted of

undergraduate graduate and master's degree students (n=89) enrolled at the two universities' Faculty of Health Sciences (Nursing, Nutrition and Dietetics Departments) and Social Sciences (Psychology, Social Care and Children's Development Departments). Master's degree students were also studying at the relevant institutes of the two universities (Health sciences and Social sciences institutes).

A sample was not defined; all in the study universe were included in the research. However, at the time of the posttest data collection, some of the students withdrew from the project due to the Covid-19 pandemic. The study was completed with 17 nursing students, 12 psychology students, 7 nutrition and dietetics students, 5 from social care and 2 pre-school education students (n=43). All students who matched the inclusion criteria and consented to participate were taken into the study. The G*Power 3.1 program (Universita et Düsseldorf. Germany) and a post-hoc test was utilized to ascertain whether the sample size was sufficient. Effect sizes were computed on the G*Power program and a power analysis was performed. The results of the analysis confirmed that the sample size was sufficient for many of the variables. On the basis of a sample size of 43, effect size of 0.5, and an alpha level of 0.05, the power calculation yielded 0.94 (Table 2 and Table 3).

2.5. Inclusion and Exclusion Criteria

Inclusion criteria were being a volunteer worker in the SOYAÇ project, consenting to participate in the present study, and completing the data form. Students who could not continue with the project for any reason were considered withdrawn.

2.6. Data Collection Method and Instruments

The researchers collected the data at a face-to-face meeting at the school where the project was implemented prior to the beginning of the program. A posttest was administered 6 months later. The data collection tools were the descriptive data questionnaire, the Interdisciplinary Education Perception Scale, and the Readiness for Interprofessional Learning Scale.

2.6.1. Descriptive Data Questionnaire

This questionnaire contains 13 questions on the participants' sociodemographic characteristics and information on whether or not they had ever participated in an interdisciplinary project before, and what they thought about working together with professionals of other disciplines. A trial application was conducted with a group of 10 prior to the collection of data. The descriptive questionnaire was revised in line with the suggestions made.

2.6.2. The Interdisciplinary Education Perception Scale (IEPS-TR)

This scale was designed by Luecht et al. (1990) for the purpose of measuring how interdisciplinary education is perceived by health professionals and students who work with different professional groups. The scale's Turkish version was tested for validity and reliability by Terzioğlu et al. (2019) and published in 2019. It is a Likert-type scale containing 17 items and 3 subscales. The subscales are Competence & Autonomy, Perceived Need for Cooperation, and Perception of Actual Cooperation. The Cronbach Alpha coefficient for the scale is 0.92. Higher scores on the scale and its subscales

indicate a positive perception regarding interdisciplinary education. The present study found Cronbach's alpha coefficient to be 0.95.

2.6.3. *The Readiness for Interprofessional Learning Scale (RIPLS)*

This scale was developed by McFadyen et al. (2005) and the validity and reliability study of the Turkish version was executed by Onan et al. (2017). The RIPLS questionnaire assesses change in the attitudes and perceptions of students regarding interprofessional practices. It is a 5-point Likert-type scale and its Turkish adaptation consists of 19 items and 3 subscales. The subscales are Teamwork & Collaboration, Professional Identity, and Roles & Responsibilities. Total scores can range from 19-95. For Teamwork and Collaboration items, the higher the score the more the student values cooperative learning and respects those students from other professions. High scores on professional identity denoting that the student regards interprofessional learning as useful to improving communication and problem solving. A high score on the Roles and Responsibilities subscale implies an unclear or distorted perception of one's own role and that of others. Cronbach's alpha coefficient for the total scale is 0.87. Cronbach's alpha coefficient was found to be 0.80 in this study.

2.7. *Intervention*

The "We're at School in Üsküdar" Bademci (2020) program based on the SOYAÇ model assessing the interdisciplinary education experience. This program was continuously implemented for a period of 6 months on 5 days of the week.

The program was developed and conducted by volunteer researchers and university students at the SOYAÇ center at Maltepe University. The aim of the *We're at School in Üsküdar* program was to reintegrate children and youth at high risk back into the community. The program contains collaborative applications and experiments in interdisciplinary education.

The focus of the program is to join together applications in higher education and community or school-based practices to form an interdisciplinary and inter-institutional collaboration among university students (Bademci, 2020), and to make it possible for university undergraduates and graduate students in different fields of learning to work together to serve the community under the coordination of faculty members (Bademci et al., 2020).

The fundamental activities pertaining to this are the following:

1. A care and psychosocial support program for children at high risk and their families,
2. Health education and monitoring activities for all children, their families, and teachers.

The primary school where the study took place is a school where students come from low-income, disadvantaged sociocultural and economic circumstances, some of them having to work. There are many among these primary school students who are at risk of having their education interrupted.

The program addresses volunteer undergraduate and graduate students as well as primary school students who are currently or potentially at risk of being absent from school, providing them psychological, social, medical and academic support, with a solution-focused eye toward ultimately

reducing school absenteeism through the use of interdisciplinary communication and cooperation.

The program contains interventions promoting the basic competencies (values and ethics, communication, interdisciplinary teamwork, roles and responsibilities) defined in the Interprofessional Learning Core Competency Framework Report (2011) and the concepts included in the subscales of our measures (Moriel et al., 2017).

The study sampling consisted of undergraduate and graduate students who were assigned to the activities involving their competency. For a period of 6 months, these students participated in the activities for 5 days a week during school hours. A feature of the program involves long-term condition management.

Some of the activities in the program included an initial week of orientation. Small interdisciplinary groups were organized that focused on the concepts of orientation and interprofessional learning.

Problem-based learning sessions were conducted using textbooks, information emails, lectures, case scenarios, small group discussions, and case presentation techniques.

To improve interdisciplinary education perception:

- ✓ Students from different disciplines worked together,
- ✓ They were supervised by professors of different disciplines,
- ✓ Cases were discussed together,
- ✓ The participants, in cooperation with their professors from different disciplines, were able to set an example of and be role models for working together in collaboration.
- ✓ Written feedback was provided.

To improve perceptions of competence and autonomy:

- ✓ One of the concepts particularly emphasized in the teamwork was not to form a hierarchical structure.
- ✓ All decisions within the team were taken together, making sure that all involved were able to participate actively in the discussions.
- ✓ The students were asked for their thoughts and views without any didactic instructions as to what they were to do or how they were expected to act.
- ✓ Weekly sharing meetings were held.
- ✓ A system of peer supervision was established.
- ✓ Creative drama sessions were held.
- ✓ The participants visited the primary school students at their homes to find solutions for the actual problem that fell within their field of expertise.

To improve the perception of cooperation:

- ✓ Activities such as meditative art sessions were conducted to stress the importance of cooperation.
- ✓ The activities, which were held on five days of the week, included learning how to use interactive and didactic learning activities, small-group brainstorming activities, presentations from educators, and the sharing of reflection and clinical experiences.

To improve the development of professional identity:

- ✓ All the meetings held with cooperating government offices were open to the participation of the students.
- ✓ The participants were given the opportunity to provide their professional opinions about finding solutions to problems.
- ✓ Experts working on the field were invited to make presentations and provide training.
- ✓ The students participated in the educational meetings, together with the administrators and teachers of the schools cooperating within the scope of the project.

Increasing roles and responsibilities:

- ✓ All the meetings held with school administrators, teachers, and cooperating government offices were open to the participation of the students.
- ✓ The students were encouraged to participate and contribute to the discussions.
- ✓ They were supervised and provided feedback from their professors in the field on roles and responsibilities.

2.8. Data Analysis

The participants' descriptive characteristics were expressed in numbers and percentages. The Wilcoxon Sign test was employed in the calculation of scale mean scores and in the assessment of the pretest and posttest. Statistical significance was taken to be $p < 0.05$.

2.9. Limitations of the Study

Originally planned to be conducted during a full academic year, the program had to be terminated in March 2020 due to the pandemic. These circumstances made it impossible for some of the participants who had taken the pretest to participate in the posttest, making this a limitation of the study. The results of the study are limited to the results obtained from its participants and cannot be generalized.

2.10. Ethical Statement

Prior to the start of the study, approvals were obtained from the Marmara University Nonclinical Studies Ethics Committee (22.02.2020/34) and the institution where the study was conducted. The

informed consent of the individuals consenting to participate in the research was received. Scale permission as obtained.

3. Results

The mean age of the individuals participating in the study was 22.9 ± 4.43 . Of the participants, 88.4% were women. Most of the study participants (39.8%) were enrolled in the nursing department and most of the students were in the senior class (Table 1).

Table 1. Descriptive Characteristics

		n	%
Age	22.9±4.43 (20-48)		
Gender	Female	38	88.40
	Male	5	11.60
University	Private University	36	55.40
	State University	7	10.80
Departments	Nursing	17	39.80
	Psychology	12	27.90
	Nutrition and Dietetics	7	16.30
	Social Services	5	11.60
	Pre-school	2	4.70
Class	First Year	2	4.70
	Second Year	1	2.30
	Third Year	15	34.90
	Fourth Year	21	48.80
	Graduate	4	9.30
Previous participation in an interdisciplinary project	Yes	16	37.20
	No	27	62.30
Experience in working with different disciplines	Yes	29	67.40
	No	14	32.60
Taking courses with different disciplines	Yes	33	76.70
	No	10	23.30
Taking classes from faculty members in different disciplines	Yes	37	86.00
	No	6	14.00
Do you know enough about competences in different disciplines?	Yes	18	41.90
	No	25	58.10
Do you have friends in different disciplines?	Yes	38	88.40
	No	5	11.60
Do you think that people in other disciplines intrude on your field?	Yes	19	44.20
	No	24	55.80
How do you think it will be to work with different disciplines when you graduate?	Difficult	15	34.90
	Easy	19	44.20
	No idea	9	20.90

The participants' total score on the interdisciplinary education perception scale pretest was 83.9 ± 13.4 ; it was 92.81 ± 14.87 on the posttest. The Competence and Autonomy subscale pretest score was 19.41 ± 3.70 , whereas it was 21.3 ± 3.1 on the posttest. The Perceived Need for Cooperation mean score was 16.28 ± 1.89 on the pretest, 16.55 ± 2.14 on the posttest. The Perception of Actual Cooperation pretest mean score, which was 48.20 ± 8.71 on the pretest, rose to 54.95 ± 11.67 on the

posttest. There was a significant difference between the participants' total scores on the pre- and posttests of the Interdisciplinary Education Perception scale ($Z=11.0$; $p<0.05$). There were also significant differences in the subscales of Competence and Autonomy and Perception of Actual Cooperation; the posttest scores on both subscales were higher than on the pretest. On the Perceived Need for Cooperation subscale, however, even though the posttest scores appeared to be higher than the pretest scores, this difference was not found to be statistically significant ($p>0.05$) (Table 2).

Table 2. Interdisciplinary Education Perception Scale Pre- and Posttest Scores

Scale total and subscale scores	Pretest		Effect size/Power	Posttest		Statistics
	Min-Max	Mean±SD***		Min-Max	Mean±SD***	
Interdisciplinary Education Perception	42-102	83.9±13.4	0.63/0.99	61-162	92.81±14.87	Z**=11.00 p<0.05
Competence & Autonomy	8-24	19.41±3.70	0.55/0.97	12-24	21.3±3.1	Z**=8.00 P<0.05
Perceived Need for Cooperation	11-18	16.28±1.89	0.13/0.21	10-18	16.55±2.14	Z*=166.5 p>0.05
Perception of Actual Cooperation	22-60	48.20±8.71	0.64/0.99	38-120	54.95±11.67	Z**=10.00 p<0.05

*Wilcoxon test. **Sign test. ***Standart deviation. Min= Minimum, Max= Maximum

The participants' total mean score on the Readiness for Learning Scale was 76.39±7.75 and 78.7±9.01 on the posttest. This difference is statistically significant ($Z=13$; $p<0.05$). The Teamwork and Cooperation subscale pretest mean score was 39.93±5.58; this was followed by a higher score of 40.13±4.64 on the posttest. The mean score on the Professional Identity subscale was 26.63±4.3; the mean score on the posttest was 29.37±4.39. On the pretest for Roles and Responsibilities, the mean score was 9.39±1.66 and 9.63±1.65 on the posttest. When a pretest-posttest comparison was made according to the scale's subscales, it was found that there was a significant difference only in the professional identity subscale ($Z^*=638.0$; $p<0.05$) (Table 3).

Table 3. Readiness for Interprofessional Learning Scale (RIPLS) Pretest and Posttest Scores

Scale total and subscale scores	Pretest		Effect size/Power	Posttest		Statistics
	Min-Max	Mean±SD***		Min-Max	Mean±SD***	
Readiness for Learning Total Score	(62-89)	76.39±7.75	0.27/0.54	(58-91)	78.7±9.01	Z**=13.0 p<0.05
Teamwork and collaboration	(23-45)	39.93±5.58	0.03/0.08	(28-45)	40.13±4.64	Z*=322.5 p>0.05
Professional identity	(15-34)	26.63±4.3	0.62/0.9	(19-35)	29.37±4.39	Z*=63.0 p<0.05
(Roles & Responsibilities)	(5-13)	9.39±1.66	0.14/0.23	(6-15)	9.63±1.65	Z*=224.5 p>0.05

*Wilcoxon test. **Sign test. ***Standart deviation, Min= Minimum, Max= Maximum

4. Discussion

In this study, it has been found that the program is affective on improvement of the perception of interdisciplinary education, increasement of competence and autonomy, enhancement of perceptions of actual collaborative efforts, and also developement on readiness for interprofessional learning and professional identity.

Most of the research in the current literature on the health and social care students' experiences with interprofessional learning are descriptive studies (Goncalves et al., 2021). Therefore, in order to write a qualified discussion, studies that were quasi-experimental or experimental/design, used similar measurement tools, and were conducted with similar samples were needed. When the web of science was searched, only 3 studies were found. The first of these was the research conducted by Wang and Petrini (2018), where the authors develop a simulation-based interprofessional intervention in academic settings in China and explore impacts on baccalaureate health students. According to this study, it was seen after the simulation that the participants experienced positive changes of attitude in teamwork and collaboration, but there were important gaps in the student's cooperative performance.

A second study by Astuti, Suryani and Abdullah (2020) titled, "Implementation of a one-team one-family community internship program of interprofessional education and collaboration (OTOFCIPIPEC) among health students." resembled ours in that it was community-based. Like Astuti, Suryani and Abdullah, we also believe that students' experience with interprofessional learning in real life will be highly developmental.

The third study we found was by Wanchai et al. (2020) titled, "The Effects of Interprofessional Education on the Readiness for Interprofessional Learning of Health Science Students." This program employs similar interventions but was conducted for a period of only 5 days. This intervention however took a longer period of 6 months to complete, which is in keeping with the recommendation that interventional studies should be conducted for long intervals. On the other hand, in the study by Wanchai et al. who implemented a short program of interprofessional education, it was seen that there was improvement in the readiness of the participants for interprofessional learning. Although their study asserts that the interprofessional learning experience is beneficial, whether the intervention is implemented in simulation or in a real setting, it can be seen in other studies that the impact of such interventions has not been clearly defined, either because standard outcome criteria have not been used, standard measures have not been employed, or because the effect has not been assessed in similar disciplines. Similarly, Goncalves et al. (2021) called attention in their systematic review to the inadequate methodological sensitivity of the measures used to assess real changes in attitudes in different student groups. It is difficult therefore to discuss comparisons of findings with those in another current research.

It is reported that many interprofessional learning activities make a positive impact on students' perception of interdisciplinary education (Goncalves et al., 2021; Wanchai et al., 2020). However, school-based, interventional programs that improve students' interprofessional learning skills are markedly few. The interprofessional learning activities mentioned in the literature usually comprise the

following activities: 1. Forming a group relationship on the first day of getting acquainted; 2. Facilitation of learning interprofessional skills by experienced interprofessional educators; 3. Multidisciplinary group activities, especially case studies; and 4. Sharing experiences and successes with peers and mentorship, more specifically, at patient, home and hospital visits (Astuti et al., 2020; Darlow et al., 2015; Wanchai et al., 2020; Wang and Petrini, 2018). In this intervention to increase teamwork skills differs from others in that it is school-based and is conducted uninterruptedly for 6 months on 5 school days. At the same time, it is like what is reported in other studies in terms of the finding that the IPE program is successful in achieving improvement in interprofessional learning and the perception of interdisciplinary education. The reason for this difference may be that “We’re at School in Üsküdar” program is long-term and continuous.

This findings show that the “We’re at School in Üsküdar” Program based on the SOYAÇ Model offers interns experience of interprofessional learning, improves their perception of interdisciplinary education and enhances their readiness for interprofessional learning. It was also seen that competence and autonomy as well as the perception of actual teamwork, which are components of the Interdisciplinary education perception scale, displayed increases. The factors that might have been responsible for these increases were the students’ regular interaction with each other throughout the program, their participation in a variety of activities such as creative drama, that helped them to strengthen their autonomy, the support they received, and the decisions they themselves made to reach out to the primary school pupils with home visits to use their field of expertise to help them solve real problems. The home visits that were part of our program furthermore constituted another element that differentiated the intervention from others. Street et al. (2007) reported on the benefits of visiting homes in their study.

Home visits are particularly valuable since they provide the opportunity to observe students in their own family setting. We believe that this technique was influential in boosting our participants’ feelings of competence and autonomy. Molleman et al. (2008) point out, this type of initiative appears to have an impact on competence and autonomy. Similarly, Brehm et al. (2006) and Petri (2010) implemented a program that was found to have an impact on participants’ perception of interdisciplinary education, their competence and autonomy, and on their perception of actual teamwork. Buelow et al. (2010) reported in their study that students’ attitudes towards their actual teamwork had improved and that they were better able to understand the value of their different professions.

Another dependent variable in this study was the students’ readiness for interprofessional learning scores. It was seen that following the We’re at School in Üsküdar Program, the participants displayed an increase in their readiness for interprofessional learning scores and their professional identity levels ($p < 0.005$). Similarly, Buelow et al. (2010) also reported that their cooperation-based program resulted in the readiness of the students for interprofessional learning. There is however very little evidence as to whether the skills learned are maintained over time (Lapkin et al., 2013). Furthermore, the fact that most of the participants were taking courses in different disciplines from faculty members of different disciplines might have contributed to the increase in the scores. It is said that taking courses from interdisciplinary scholars widens the interdisciplinary perspective, leading to improved

interprofessional learning (Sternberg, 2008). The research results of Astuti et al., (2020) indicate that the participants displayed an increase in the Readiness for Learning and Teamwork scores after an OTOF-CIPIPEC (One Family-Community Internship Program-Interprofessional Education and Collaboration) program ($p < 0.001$). The results of the multivariate analysis show that teamwork and perception significantly influenced students' readiness to collaborate with the other professions ($p < 0.001$), at an influence rate of 0.93%. It can be seen that program and that of Astuti et al. were successful in improving readiness for learning. While the program of Astuti et al. (2020) and Wanchai et al. (2020) made a difference in the Teamwork and Roles & Responsibilities subscale of the Readiness for Learning Scale, similar to the study by Wanchai et al. (2020) program made a difference in the professional identity subscale. On the other hand, in some previous studies, it has been reported that professional identity did not exhibit strengthening after the program (Stull and Blue, 2016). Our program did however make a difference in the professional identity scores.

It must still be noted that although the teamwork & collaboration and roles & responsibilities subscale scores were higher on the posttest compared to the pretest, the difference was not statistically significant. This may have been because programs of education in Turkey—from primary school to schools of higher learning—are all conducted with a single-discipline approach. Students therefore have very little opportunity throughout their academic studies to share their learning experiences and interact with students studying other disciplines. Some researchers add a new perspective to the subject by saying that interdisciplinary education is a culture (Holloway, 2001), and it can be said in this context that our culture is very weak in workingtogether in interdisciplinary collaboration. The matter is also one that requires the physical and mental efforts of individuals (Nancarrow et al., 2013). Soubra, Badr, Zahran and Aboul-Seoud (2018) advise that students need to not only collaborate with other health professionals but also gain more insight into their own roles in order to practice teamwork and collaboration and develop their roles and responsibilities. In addition to all these, more interaction activities and activities that will increase the culture of working together can be added to the initiatives to improve team work&collaboration and roles&responsibilities. For example, observing and speaking to different professional groups in internship environments. Finally, interactive activities can be held for the group where professional roles and responsibilities are explained.

According to McCray (2003) it is only natural that there are some difficulties in practicing interdisciplinary collaboration. Interdisciplinary work is a dynamic process. This dynamic process however was interrupted with the global Covid-19 pandemic that reached our country in March 2020. It is known that the fast-spreading and novel Covid-19 virus, with its ravaging effects, incited confusion, anxiety and fear in the community (Roy et al., 2020). The interruption in the process, as well as the fact that some of study participants fell victim to the pandemic, were factors that disrupted the achievement of the dimensions of teamwork and collaboration and of roles and responsibilities that we had expected to develop in the period of study. This may be the reason that the study did not result in differences in these dimensions. To develop significant levels of teamwork and collaboration, roles and responsibilities, this area of study should be revisited under normal circumstances of life, at a time when programs can be organized, and efforts can proceed uninterruptedly.

There is a need for new studies that explore whether or not these types of interventions maintain their potency over time, and more importantly, whether the effects achieved are reflected in future behaviors in the work setting as well as in patient outcomes. Also, the impact of interprofessional learning on undergraduate students should be investigated with randomized and control groups and larger sample sizes in longitudinal studies that research its effects after professional training has been completed.

5. Conclusion

This study of the school based, We're at School in Üsküdar program originating from the SOYAÇ model that provides the opportunity to participate in cooperative efforts and interdisciplinary learning experiences resulted in the conclusion that the program improved the perception of interdisciplinary education, increased competence and autonomy, enhanced perceptions of actual collaborative efforts, and also developed readiness for interprofessional learning and professional identity.

We recommend that health and social care departments that execute programs for undergraduate and graduate students consider benefiting from our program when they are updating their curriculums. In particular, we believe that our study will provide guidance to health and social care professionals who will be taking part in school health services in the future.

Author Contributions

Topic selection: KG, NK, SY, BTÇ, AB, ÖB Design: KG, NK, SY, BTÇ, AB, ÖB Planning: KG, NK, SY, BTÇ, AB, ÖB Data collection and analysis: KG, NK, SY, BTÇ, AB, ÖB Writing of the article: KG, NK, SY, BTÇ, AB, ÖB Critical review: KG, NK, SY, BTÇ, AB, ÖB.

Conflict of Interest

The authors report there are no competing interests to declare.

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