



COLLABORATIVE LEARNING EXPERIENCES WITHIN THE NUTRITION POLICY DISCIPLINE IN THE NUTRITIONAL SCIENCES UNDERGRADUATE STUDENTS OF PORTO UNIVERSITY

Maria João Gregório
FCNAUP
mariajoaoabg@fcna.up.pt

Sandra Ribeiro
FCNAUP
sandracdribeiro@gmail.com

Pedro Graça
FCNAUP/ DGS
pedrograca@fcna.up.pt

Abstract

This paper describe and analyse the impact of an educational approach based on collaborative learning regarding a critical analyse of the new Portuguese Food and Nutrition Action Plan (PFNAP), into the students enrolled at Nutrition Policy (NP) course unit of Nutritional Sciences Undergraduate of University of Porto (UP). In our opinion this new educational approach ensure that students developed the necessary competencies to effectively meet the challenges of the public health nutrition practice.

1. Introduction

The Faculty of Nutrition and Food Sciences of UP is the only national public institution, in Portugal, responsible for undergraduate training in Nutritional Sciences (Nutritionists). Nutritionists have competencies regarding to Public Health Nutrition, which refers to the practice of preventing nutrition-related diseases and supporting/promoting the improvement of nutritional and health status of the population. Concerning to the Public Health Nutrition practice, the process of development, implementation and evaluation of population-level interventions is the main focus. To our knowledge, undergraduate programs in Nutritional Sciences, which pretends to form Public Health Nutritionists should address a core of competencies required for practice in this filed, such as: a) policy/programs development; b) collaborative working for healthy eating promotion; c) critical-thinking, decision-making and communication skills ⁽¹⁾. According to Hughes, these competencies should be in line with the need for intersectorial approaches to public health nutrition and the multi-disciplinary composition of the public health nutrition workforces ^(1,2).

NP is one of the course units present in the curricular program of Nutritional Sciences that provide the necessary competencies for the intervention in this area. In fact, this course unit takes part of the final year of the under-graduation program in Nutritional Sciences with the purpose of familiarize and engage the student in the steps and dynamics of policy-making processes, providing the students' ability to apply their learning competencies to solve nutrition challenges at the community level. To achieve this goal, we implemented a new educational approach for the practical classes of NP, based on the premises of collaborative learning. Regarding to the literature, collaborative learning is a very successful educational approach, because it give students an opportunity to engage in discussion and enable them to become critical thinkers ^(3,4). To our knowledge, collaborative skills are one of the most important skills for future public health nutritionists. These professionals should be able to solve nutrition

problems through a multidisciplinary collaboration and with different stakeholders, in order to organise efforts to protect and promote health and a better nutrition. The framework developed in this NP course focuses not only on nutritional and professional expertise, but also on collaboration with others areas and professionals ^(2,3).

This paper aims to describe and analyse the impact of an educational approach based on collaborative learning regarding the development of the PFNAP. The pedagogical process was conducted with students enrolled at NP course of Nutritional Sciences Undergraduate of UP.

2. Collaborative learning in Nutrition Policy course unit of Nutritional Sciences Graduation: a new experiential educational activity

In 2012/2013 school year, it was introduced a new educational approach for the practical classes of NP. It consists of collaborative working group sessions in order to provide students' skills and competencies to construct a national nutrition policy. During these practical classes, two practical works with a work-group methodology were conducted to produce a critical analysis of the PFNAP, in order to provide improvements to the original document, addressing the following issues: a) the framework and justification of the overall objectives of the document; b) critical discussion and improvement of specific objectives within the document; c) critical discussion and improvement of the strategies/actions to achieve the overall and the specific objectives proposed and d) define and justify indicators that are able to monitor/evaluate the strategies/actions proposed.

In this school year, there were 114 students enrolled in NP course unit during one semester. All students were divided in four section classes and each class section had 28 students. Concerning to the first work-group theme, five work-groups were formed in each class by using self-selection and a group size of five to six students. Then each work-group was assigned to work on one of the five pillars of the new PFNAP, which was attributed for each work-group, by teachers at the beginning of the semester. In each of the four practical section classes the same subject was worked by a group.

The subsequent practical work consisted in the compilation and aggregation of the different materials compiled in previous work by the different groups for the same subject, which required the combination of the four materials carried out by different groups. This second work was developed by a large teamwork (15-20 students). All work-groups should cooperate between them in order to achieve consensus work. Since these groups consisted in all students that were assigned to the same subject previously, they need to agree on the common and most strong points of views to build a final argument to present to teachers. Also they needed to agree on the topics they should throw away for lack of consensus or quality. Oral presentations were required for these two practical works, in which the students had to go beyond mere statements of opinion by giving reasons for their decisions and reflecting upon the criteria employed in making these consensus statements.

Thus, the collaborative framework of this educational methodology was based in three different dimensions of collaborative work: 1) collaborative learning among team members (small size group, 5-6 students), in which students work in a collaborative way through peer discussion to solve a problem); 2) collaborative learning between teachers and students (sharing knowledge between teachers and students in a collaborative way, in which teachers acts as a mediator, guiding students' searching information, stimulating discussion and giving feedback about the

work development) and 3) collaborative work between different groups of students who have been working in a separately way to solve the same problem (large size group, >15 students). This collaborative work was also extended to the moment of assessment in which the groups had to prepare their group presentation and be prepared for the questions asked during the presentation.

3. Evaluation

Although this type of methodology has resulted in a high adherence and motivation to the work and oral presentations of high quality it was necessary to have a component of self-evaluation by students. So, we carried out an online questionnaire, in order to evaluate the students' perception regardless to this type of collaborative learning. A six-point *Likert*-type scale was used for all items of the questionnaire (1="strongly disagree" and 6="strongly agree"). The questionnaire, which was anonymous, was divided into three parts to evaluate different aspects of the work done during the semester.

Table 1. Students' perception regarding to the competencies acquired through NP course unit (n=21).

	Strongly disagree	Disagree	Tend to disagree	Tend to agree	Agree	Strongly agree
A. Critical analysis of Portuguese Food and Nutrition Action Plan						
Increase the knowledge concerning nutrition policy development	0%	10%	14%	52%	24%	0%
Increase the analytical/critical thinking skills regarding to nutrition policies	0%	10%	19%	57%	14%	0%
B. Collaborative work during the classes						
Increase work-group competencies	5%	5%	29%	52%	10%	0%
Increase conflicts manage skills	0%	10%	33%	43%	14%	0%
Increase the ability to lead well with other opinions and integrate them in the work purpose (consensus building)	0%	5%	30%	45%	20%	0%
Increase the ability to work in large groups (>15 persons)	19%	10%	24%	33%	14%	0%
C. Development skills for the future professional activity						
This course unit increase my knowledge and skills that will be helpful for my future professional activity	5%	24%	24%	33%	14%	0%

A total of 21 students answered the questionnaire. Despite the incentives to students to fill-in questionnaire, explaining them that their opinions and feedback will be heard and take into account for the planning of the NP unit course in the next school year, we found a low response rate in this study (18,4%). The low response rate found in this study could be explained by the

students' perception that their participation in the questionnaire will have not directly benefit for them. Furthermore, we ask them to fill the questionnaire during the exams season, which could also have a negative influence in the response rate.

The most of the students (76%) agree or tend to agree with the fact that this kind of methodology provided knowledge and skills regarding to definition/implementation/evaluation of nutrition policies. Likewise, 71% of them reported that this course unit had improved their critical thinking and them analyse capacity regarding to the PFNAP. Regarding to the issue of the collaborative learning, 62% of students had reported that this type of work had increased their competencies on collaborative work, 65% agree or tend to agree that they had improved the ability to lead well with other opinions of the members' group in order to achieve consensus and, 57% of them reported that this work increase their conflicts manage skills. Although, data shows that 52% of students found it difficult to congregate the different contributors in large groups (>15 persons). In fact, working in-group seems to be difficult to put into practice by students. During the classes, we found that in some groups, they worked in cooperative way instead of collaborative. Some work groups used to deconstruct activities into divisible parts, so that each group member worked on a separate part of the activity. Regarding to the importance that students attributed to the competencies and skills providing by this course unit for their future professional activity, the perceptions of the students are quite divided.

Conclusions

In our opinion this new educational approach ensure that students enrolled in the NP course unit develop the necessary competencies to effectively meet the challenges of the public health nutrition practice into them future professional activity. This educational approach ensure that students develop: a) policy-making and policy analysis competencies, by working in group to develop/analyse nutrition action plans, it goals, actions and evaluation tools; b) collaborative working skills, finding ways on how to lead with different colleagues' opinions to solve a common problem, in order to achieve consensus; c) decision-making skills, using analytical, critical thinking and problem-solving skills to make decisions effectively and d) interpersonal skills, developing competencies on how to communicate, negotiate and manage conflicts into the team work. However, there are some disadvantages of collaborative learning. Students have more control and autonomy on selecting their own information to find possible solutions to problems, so that there is the possibility to be not the best ways to solve the problems proposed. Furthermore, as in any work group, some members may contribute while others do not.

To our knowledge this type of work, in collaborative situations, will be important to a better performance on the critical-thinking. The group diversity in terms of knowledge and experience contributes positively to the learning process. This type of collaborative learning provided students with opportunities to analyse and evaluate the ideas of the others groups. This provided further discussion, and this kind of interaction was very helpful to improving solving strategies, because students are confronted with different interpretations of the given solution. It is also important to remember that this collaborative environment promotes ethical behavior and mutual respect necessary for future professional practice.

It can be concluded that this type of collaborative learning between groups fosters the development of critical thinking through discussion, clarification of ideas and evaluation of other's ideas.

In our opinion this education approach will ensure that students enrolled in the unit course of Nutrition Policy develop the necessary skills and competences regarding to collaborative working and to critical thinking to effectively meet the challenges of the public health nutrition profession well into the future.

"Public Health Nutritionists will be sufficiently competent in public health to be able to collaborate effectively with others and with specialists in other areas or contexts."

Bibliography

1. Chenhall, C. (2006). *Competencies for Public Health Nutrition Professionals: A Review of Literature*. Dietitians of Canada in partnership with Public Health Agency of Canada.
2. Hughes R. (2005). A competency framework for public health nutrition workforce development. *Australian Public Health Nutrition Academic Collaboration*.
3. Hugues R. (2003). A conceptual framework for intelligence-based public health nutrition workforce development. *Public Health Nutrition*. 6(6). 599-605.
4. Gokhale A. A. (1995). Collaborative learning Enhances Critical Thinking. *Journal of Technology Education*. 7(1).
5. Gerlach J. M. (1994). Is this collaboration? In Bosworth K and Hamilton SJ. Collaborative learning: Underlying Processes and Effective Techniques. *New Directions for Teaching on Learning*. Nº 59.

Questions and/or considerations for discussion

The fact that students attributed low or medium importance to the competencies provided by this course unit for their future professional activity seems to us quite interesting and also worrying in that the collaborative skills are not considered important for their current training and performance of their profession in the future. In fact, for students, professional skills related to direct contact with the patient or technical knowledge of nutrition, are for example, considered quite more important. However, employers consider collaborative skills an essential professionalability. One important aspect is that students may eventually respond and focus their responses on the course units contents by itself, and not the method of learning and their impacts on future competencies Note that most of these students had a previous period of learning where the incentives to solve shared problems has been relatively little explored. These learning methodologies and ability to reach consensus need to be explored since early, particularly in the health sciences students.