STUDENT INCLUSION IN THE LEARNING PROCESS: GROUP WORK AND STUDY TEAMS

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Introduction

Students learn best when they are actively involved in the learning process. Theoreticians have common views and opinions about the implementation of educational processes and the different ways of transferring knowledge. Fiechtner and Davis (1992), for example, express the view that no matter the subject and regardless of the study program, student small group work encourages them to learn more about what is being taught. In their opinion, these small groups allow students to learn the material much better than when the same content is presented using other instructional methods.

Bernabe, Icaza, Delgado-Angulo (2006) point out that students take a much longer time learning new material when the classical form for delivering theoretical and practical teaching is applied. They also emphasise that students in stomatology are more satisfied with the study process when group work is applied in the learning process. Clark - Burg (2009) state that the concept of cooperative work, group work, pair work in the professional pedagogical literature is being studied, supported and applied in order to accomplish common, academic goals.

According to Beckman (1990:129), the term *collaborative learning* applies to the teaching model by which students with different levels of knowledge work and study together in small groups striving to accomplish the assigned project tasks.

A frequently used and mentioned definition that clearly describes studying through cooperation is the definition of Johnson, Johnson and Smith (1991:1) according to whom: "Collaborative education is the active experience of studying through institutional, professional and historical boundaries".

In the published literature for utilizing this kind of teaching, several terms and definitions are mentioned. For example, Johnson, Johnson and Smith (1991:2) suggest several terms that can be found which relate to this methodology: "synonyms for collaborative learning which may be used are – cooperative learning, learning through cooperation, collective learning, learning in communities, peer teaching, reciprocal learning, learning teams, study circles, study groups and working groups".

On the other hand, we should point to Smith's statement (2010:4) in which the following is emphasized: "Although in the literature all these terms for learning through cooperation are applied, nevertheless there are essential differences among them".

In all these terms, there are three general ways of including students in the process of education through the formation of groups. These are non-formal learning groups, formal learning groups and study teams. It is important to point out that, for us, these groups are

- different in their composition and
- distinct from the group of students in the current semester of the academic year.

According to Connery (1988), application of the acquired experiences and active and cooperative learning of students are very important, even essential in laying the foundation for the educational process. This author stresses that in different educational stages, we often encounter the notion of learning through creativity, which is another name for and equal to collaborative education.

In this field, in the last few decades, the authors Dowson and McInerney (2003) have published important and interesting data about reforms in the education of students in stomatology. The common aim of these changes in the education process in our study programs in stomatology was to provide a quality cadre in accordance with the rapid world changes of the twenty first century. In this regard, among many changes in the curricula in the stomatology study programs, Problem Based Learning (PBL) has been implemented. The organization of education on the basis on PBL for pre-clinical and clinical courses in stomatology studies requires specific techniques of learning in groups. This can be achieved with the formation of small groups in "pre-session", in advance of any kind of pre-clinical and clinical activities that are envisaged in the contents of professional courses.

According to Fincham and Shuler (2001), the formation of small groups is relevant in order to determine students' readiness to continue to a following phase such as the research phase, during the completion of the phases for clinical procedures. For realization of this aim, students are required to discuss the aim of the clinical check-up of patients and procedures within the therapy and professional communication with patients.

Aim

The aim of this study was to show the effect of this teaching process in different students and study group. The specific aim was to show the development of collaborative education, that is, the inclusion of students in the education process as a contemporary teaching method in the first cycle of studies in two study programs: academic studies in stomatology and professional studies for professional dental technician-prosthodontist.

Material and methods

For the realization of the aim, a total of 190 students from the first, second and third study years from two study programs were included from the Faculty of Medical Sciences, at the University "Goce Delcev", Stip in the academic year 2011/2012. From the study program General Stomatology, 130 students were included in the study, whereas from dental technician – prosthodontics there were 60 students.

Respondents were grouped according to three types of students. These groups in their composition were distinct from the student clinical groups of the current semesters of the academic year.

Designing working groups –Principle of work

Informal learning groups - ad hoc temporary groups of students within a single class session. Informal learning groups were realized as follows: the student would turn to his neighbour –student and spend two minutes in discussion regarding the question posed by the teacher. Informal groups were formed. In accordance to the attitudes of Johnson, Johnson and Smith (1991) and Smith (2010) these groups consisted of different numbers of students. During theoretical teaching **Informal learning groups** (often three groups with two students – randomly) were asked two to three questions from the lesson at the end of the class. For example, one student read the question aloud, a second student answered and the other students from the class gave their opinion about the correctness of the answer by raising their hands.

Formal learning groups - teams established to complete a specific task, usually the preparation of the laboratory experiment with writing a report, the realization of a project or the compilation of the application. Students work together until the task is finished and graded. These groups may finish the task during one session or over several working weeks. **Formal learning groups** were assigned project tasks that included preparation of certain topics using the Smith method (2010) which requires short, clear presentations of the key issues.

Study teams are long-term groups (usually existing over the course of a semester or inside the groups) with stable membership whose primary responsibility was to secure support, encouragement and help in preparation of the needed tasks. Study teams also informed their members about lectures and tasks that somebody missed in one session. For such groups, it was important to point out that the larger the class and the more complex the subject matter, the more valuable study teams can be. This view is supported by the findings of Johnson, Johnson and Smith (1991) and Smith (2010).

Study groups were groups formed inside the groups for clinical and practical teaching. Students knew the given task in advance and they had enough time available in order to be theoretically prepared for the envisaged aim. During the realization of the project task, they had the basic aim of implementing and presenting manual skills in accordance with the theoretical knowledge for certain stomatological or dental technical work envisaged according to the program of practical clinics.

The findings were noted and they are shown in the following tables.

Results

In **Table 1**, from the survey conducted, the effectiveness of the application of different ways of acquiring content knowledge during theoretical and practical teaching is shown. As well as the effectiveness of different types of learning, the results from student acceptance of this way of learning by students expressed in percentage terms from every examined group. These results were gathered by questioning students immediately after the conducted task, as to whether the selected method helped them in preparation of the given task.

Table 1. Summary of the results from non-formal, formal learning and study teams

Study program	Sem	Course	Groups with Informal learning		Groups with formal learning		Study teams	
			Effi-ciency	Accep tance	Effi-ciency	Accep tance	Effi-ciency	Accep tance
General stomatology	I	Anatomy of the jaws and dental morphology	70%	70%	90%	90%	98%	85 %
	II	Stomatological materials	75%	75%	90%	95%	85%	85%
	III	Oral Health	80%	80%	98%	85 %	85%	85%
	IV	Profilax of oral disease	95%	95%	85%	85%	85%	85%
	VI	Clinical cariology 1	85%	85%	90%	95%	95%	95%
	VI	Stomatological radiology	95%	95%	95%	98%	85 %	85%
	VI	Clinical prosthesis	75%	85 %	85%	85%	90%	98%
Professional studies for dental technician – prosthodontist	I	Stomatological materials 1	95%	95%	95%	95%	90%	90%
	II	Stomatological materials 2	85%	85%	95%	100%	95%	95%
	VI	Oral surgery	90%	95%	95%	95%	90%	95%
	V	Dental implantology	95%	95%	90%	95%	95%	100%
	VI	Dental therapy	90%	95%	95%	95%	90%	95%

The results demonstrate the value of Collaborative Learning. This is in line with the research literature where it is a widely recognized term that is related to different educational approaches that include common intellectual effort by the student or students and teachers together (Chickering and Gamson, 1991).

According to Cooper et al., (1990:1) most usually in the application of collaborative learning students work in groups of two or more students, where: "In the learning process of students in a group, they mutually seek and develop the following activities: appropriate communication, dialogue, understanding, finding solutions, determining the meaning or create final works".

Activities involving collaborative learning have always varied in their scope. However, it is important to emphasize that the most important is the research by the students for the application of the content. The advantage of this way of learning is that it goes beyond the traditional way of teaching with the teacher and his presentation or her explication.

According to Slavin (2001), collaborative learning represents significant change and is different from the typical teaching method or teaching in lecture halls. In collaborative lectures, the following processes can completely disappear: lecturing, listening, taking notes. These activities merge with all other learning processes, which are based on the discussion of students and their active work with the subject content and material. Teachers who have used approaches and methods of collaborative learning reduced their self-importance in the classroom. This applies in terms of the way teachers approach the teaching content with students, as experts- lecturers of knowledge to students, and even more as expert designers of intellectual experiences for students.

Learning through cooperation and collaborative learning in general are significantly different from traditional teaching approaches because students work together, unlike the classic way of teaching, in which students learn and compete individually, each for themselves, or against each other.

Chickering and Gamson (1991) point out that collaborative learning can be done at any time when students work together, for example, when they help each other out during the preparation of the project tasks.

Different groups of collaborative learning are designed differently and have different goals and tendencies. McKeachie, Pintrich, Lin and Smith (1986) advocate an in-depth consideration of the formation of the group of students such as what kind of group will be formed for that subject and what the structure will be. They emphasize that these considerations are very important, and only the teacher who actually organizes this process and this way of acquiring knowledge is responsible for them.

Johnson, Johnson and Smith (1991) and Smith (2010) are in favor of informal groups, as they can be organized at any time in a generation and in any size in order to check whether students understand the

material. Most groupings give students the opportunity to apply what they learn, or even to implement change (deceleration or acceleration) in the dynamics of learning.

The same authors, in relation with formal learning in groups suggest that these groups usually perform their task in one session or over several weeks. It is typical of this type of group that students work together until they complete a certain task or until their project is being assessed.

Smith (2010) gives special importance to the study teams, which in principle are long-term groups with stable membership whose primary purpose is to provide support, encouragement and assistance in the preparation of project tasks. The larger the group, he suggests, and more complex the subject, the greater is the importance of planning and the establishment of the study teams.

Cooperative learning usually takes place when students work together on a project in a small group and in the same place. According to Tiberius (1990), the creation of mixed groups is particularly helpful to students, especially for the development of their social skills.

Skills needed to work together in groups are quite different from the skills that are used to succeed in writing or at the end of most project tasks. Cooperative learning is a very useful and relevant tool in education, especially in a world where a team player is often a key part of business success.

Researchers Chickering and Gamson (1991:6) suggest that cooperation and collaborative learning bring positive results such as: "... a deeper understanding of content, increased overall achievement in the evaluation, improved confidence and higher motivation in managing during the completion process of the tasks." Cooperative learning helps students to be actively and constructively involved in content and improves teamwork skills. This way of education and acquisition of new knowledge through the process of collaboration is a very important moment in preparing students and building their professional image. They are future dentists and a large part of their professional success will depend on the potential for collaboration and communication.

As far as the realization of our research is concerned, new methods were implemented to aquire knowledge through repetition of the learning content in the academic year 2011/2012 in the Faculty of Medical Sciences in Stip.

We need to emphasize that the applied methodology was designed on the basis of the following principles:

1. **Creation of group tasks that require independence.** Students in the group perceived that they would "sink or swim" together, that each member was obliged to and dependent on one another, and that no one succeeded if anyone in the group failed. This principle is consistent with the methods proposed by Kohn (1986:7) and Smith (2010:6), according to which: "Realizing that peers rely on each other is a powerful tool in education and it is a very powerful motivator for group work ".
2. **To make the work relevant to the group.** Students must communicate group tasks, as an integral part of the whole. It is necessary to create tasks that fit and match the skills and abilities of the students. In the beginning of the study, students were given relatively easy tasks. As students learned more, the level of difficulty of the tasks continued to increase. These principles are consistent with Tiberius (1990:10), according to which: "At the establishment of formal learning groups, project tasks that allow for a fair division of labor need to be assigned ". This principle guided the formation of the groups and thus proved successful in terms of the structure of tasks, so that each member of the group could make a balanced and equal contribution to the work.
3. **Create "competition" between the groups.** Each group member had a specific part of the project task synchronized so that despite their individual work, it was necessary to align all contributions in order to achieve a whole that could be compared to other projects of other groups with formal learning.
4. **Computer-supported collaborative learning (CSCL).** Computer supported collaborative learning is one of the most promising innovations to improve teaching and learning with the help of modern information and communication technology. Collaborative groups had instructional methods whereby students themselves were encouraged or required to work together in learning tasks using this technology. The best results were achieved with the Computer-Supported Collaborative Learning which at the University is called e-learning 2.0.

Conclusion and recommendations

1. Collaborative learning in groups as a teaching method is designed to encourage students to work together.
2. It is necessary to distinguish collaborative learning from the traditional model "direct transfer", in which the professor believes that he/she should be the main pillar and distributor of knowledge and skills. When implemented in the best possible way, collaborative classes stimulate both students and teachers.
3. At its most effective, common models of collaborative learning involve students in asking, learning and understanding in coordination with each other. Joint learning requires responsibility, persistence and sensitivity, so that the result will be achieving a common purpose, for which each student is welcome to join, participate and achieve.
4. Acquiring an education in dentistry and attaining new knowledge and skills in the field of dental medicine should be based on the process of collaboration. This represents a significant link to the creation of the professional image of the future dentist.
5. In this way, based on the development potential for collaboration and communication with fellow students, fellow dentists, and primarily with patients, student dentists in building a professional prospective, are able to start with collaborative involvement during the teaching process. This prepares them for collaborative inclusion in the health care system in the future.
6. Computer supported collaborative learning (CSCL) is a most promising tool for improving teaching and learning with the help of modern information and communication technology.

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