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A SURVEY FOR STUDENTS' EXPERIENCE IN SMALL GROUP LEARNING CLASSROOM OF HISTOLOGY

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Abstract

Small group learning during practical sessions of histology & embryology was adopted to overcome students' 'authority-dependence' and to enable creative thinking and learning in a socially cohesive group, for enhancing the learning process and developing certain skills.

The study aims to identify students' perception of the usefulness (in general) as well as of certain advantages of the learning process and gaining self-confidence.

Online survey consisting of 13 questions/statements the students are supposed to give opinion on, by stating degree of agreement. Results are based on a four grade Likert type scale of evaluation.

About half of the students practicing small group learning for the first time, expressed a strongly positive opinion in the survey. They find this method of cooperative learning favorable for: enhancement of the learning process, rational organization of time, conclusion drawing, learning how to apply knowledge in practice, rising motivation.

Over all, students practicing small group learning for the first time find the cooperative learning very useful. They elucidate its positive effect on time organization and rationalization of the learning process and knowledge applying. The findings are encouraging and motivating for our continuous work with small group learning. They also highlight the need of working on improvement and creating additional ways to promote students' participation - especially in questioning, answering and statement elaborating.

This project has got ethical approval from the Committee for ethical research with humans. The survey which is part of the project was performed with the understanding and consent of the students.

***Key words*:** Small group learning, students' perception, survey

Introduction

The traditional approach where the teacher is the sole creator and leader of the learning process provokes "authority dependence" instead of encouraging initiative, creative thinking, development of intellectual skills and taking responsibility for one's own learning. [1].Such passive role of the student has deleterious impact on his/her interest for the subject and the studies as a whole, often resulting with non-completion. The situation has been defined as a 'deficit-discourse' shift [2]. When the academic society decided to change this teacher-centered approach, not by improving teaching techniques, but trough 're-conceptualization' of the teaching and learning interface as social interaction [3], the small group learning was within the newly introduced methods [4].

We introduced small group learning (SGL) method in the second semester during practical sessions of Histology for the graduate students of medicine. At the end of the semester, the influence of the SGL over student's activities, interests and skill acquisition were subject of investigation. But the starting milestone of our long-term planned evaluation of the method's positive and negative effects was the students' perception of the method.

Aim and tasks

The general aim of this study was to observe the students' perception of the effect of the small group learning method, with special focus on the following research goals:

1. Whether the small group learning method attributes to building a proper attitude towards learning,
2. Whether the small group learning method attributes to confidence building,
3. Whether the small group learning method has other positive effects, and
4. Weather students consider the small group learning method a useful methodological approach

Material and methods

Participants: 302 second semester (first academic year) students, enrolled for attending Histology and Embryology 2, practical studies.

Contents and aim of the practical studies: The task of every practice session was to study the histological structure of an organ system. The general goal was acquiring a set of competencies based on these skills: 1) to identify an organ's structural specificity underpinning its functions; 2) to give rational explanations of acquired knowledge, and 3) to use the acquired histology knowledge in the context of "initial clinical thinking" as one of the basic competences at this level of medical studies.

Method for creating practical learning: Simultaneous independent classroom activity of several small teams (groups of 4 students). Each group begins brainstorming based on previous knowledge, then continues with analysis of the specimens and mutual teaching within the team. What follows is an elaboration within the group on what was discovered, a discussion of opposed opinions, drawing conclusions and, if possible, suggesting topics for further in-depth reading. The tutor's role is to mediate the process of learning. Experiences described in the literature,were of great help during creating our ideas and methods [5,6].

Method of collecting data needed for the research: Each of the 302 students completing the Histology and Embryology - 2 course was offered an anonymous questionnaire (conducted electronically), in the form of 13 questions (based on a four grade Likert type scale of evaluation). The taker of the questionnaire determines to which degree they agree with the offered statements referring to the perception of the described way of work in small groups (Attachment 1).

Method of analysis: The gathered data were elaborated by statistic program SPSS 17.0. The primary orientation in the quantitative analysis was descriptive statistics. Percentage of four grades of agreement (for each statement) was determined. Then, by reframing the list according to statements contextual and semantic-area, the list was regrouped as presented on Table 1 and four categories of opinions were created.

Statements indicating influence on building proper attitude towards learning	From question No.
SGL helps me to beneficially use learning time	4
SGL helps me simplify the process of learning	5
SGL helps me precipitate most important parts of the material	6
SGL evokes satisfaction from working and studying	7
SGL motivates preparation prior to attending lessons	10
SGL motivates further home learning and reviewing activities using a Study guide	11
SGM teaches how to use knowledge of organ structure in the context of "initial clinical thinking"	13
Statements indicating influence on confidence building	From question No.
SGL encourages question posting (asking),	1
SGL encourages explaining and peer teaching	2
SGL encourages discussion partaking	3
Statements indicating other positive effects on students' personal traits	From question No.
SGL helps to better know the colleagues	8
SGL evokes responsibility for the success of the group	9
General perception of usefulness	From question No.
SGL is in general a useful method of learning	12

Table 1. - The classification of statements in categories of contextual and semantic areas

Results

The survey was accepted and the list of statements were answered by almost every (300 from 302) student.

We evaluated the results of the survey based on percentage of answers expressing different levels of agreement with proposed statements. The extremely low number of negative answers (with complete disapproval with the statement as "no") was the reason for grouping them with those answering "little / rarely". Thus, three categories of answers appear in the following table.

Level of acceptance: → STATEMENT concerning: ↓	**1-no or 2-little / rarely**	**3- moderately / occasionally**	**4- very / often**
I. Learning attitude building	% from	300	students
Beneficially use learning time	14.0 %	36.6 %	49.7 %
Simplify processes (method) of learning	19.7 %	39.0 %	41.3 %
Precipitate important parts of the material	15.7 %	33.3%	51.0 %
Feel satisfaction from having worked and studied	17.0 %	36.7 %	46.3 %
Acquire habit of preparing for the next session	22.0 %	37.7 %	40.3 %
Continue further home learning and reviewing activities (use Study guide)	47.7 %	32.7 %	19.7 %
Learn how to implement knowledge of organ structure	25.0 %	32.3 %	42.7 %
II. Confidence building			
Gain courage to ask	22.4 %	52.3 %	25.3 %
Gain courage to explain and tutor colleagues	23.6 %	43.7 %	32.3 %
Gain courage to participate in discussions	25.3 %	38.0 %	36.7 %
III.Positive effects on personal traits			
Get to know colleagues in the group better	24.6 %	24.7 %	50.7 %
Feel responsible for the success of the group	24.0 %	37.0 %	39.0 %
IV. General perception of usefulness			
Found studying with the “small group” method to be beneficial	20.3 %	37.0 %	42.7 %

Table 2: Percentage of students with different level of agreement with offered statements

According to data presented in table 2, the percentage of students who choose the highest level of approval (“very / often”) is not large, but is higher for almost every proposed statement.

To be more precise, the numerical data are in favor of the following:

For almost all statements categorized as influential for building learning attitude (I.), obviously the highest number of students (in range from 40.3% to 51.0%) are prone to acclaiming that SGL method is “very” beneficial. Opposite opinion (“no or little/rarely”) is given by a much lower percentage of students (from 14.0% up to 22.0%). Percentage of students stating experiencing

"moderate" influence is in between. This amounts to a predominantly positive perception of the beneficial influence of SGL for building proper attitude towards learning.

Exception is obvious in students' agreement with the statement concerning additional home activities ("Continue further home learning and reviewing activities using the Study guide"), as a much higher percentage of students has neglected this opportunity.

One of the targets of the method of learning in small groups (to ease the students into a new academic ambient) is to enhance their confidence. The impression whether such effect was achieved (II.), was built trough their answers concerning: gaining courage to ask, to explain, to peer teach and to participate in discussions. The percentage of strongly positive answers is not significantly higher from negative answers (with the exception of gaining courage to take part in discussions).

Based on students' agreement with statements declaring other beneficial effects (III.), we have concluded that SGL method for 39.0% to 50.75 of students allowed: to get to know each other better (inevitable for building mutual trust and peer teaching), as well as to evoke feeling responsibility for the success of one's own group (as a prerequisite for successful team work).

As to the general perception of this newly adopted method of learning (IV.), 42.7% percent of (300) students found studying with the "small group" method to be very beneficial.

Conclusions

1. The students learning histology for the first time through the newly accepted method of small group (SGL) showed great interest to share their impressions.

2. A high percentage of students (ranging from 41% to51%) were prone to stating that the SGL method was "very" beneficial for: purposefull use of studying time, simplifying mode of studying, precipitating important points, learning how to apply basic knowledge in further clinical reasoning, experiencing satisfaction while studying and motivation towards one's own learning success. We conclude that students perceive the SGL method as positively influential for building learning attitude.

3. Students also find learning through social interaction beneficial for getting to know each other better and for promoting feeling of responsibility for the success of the group. Hence, we may conclude that SGL initiates other positive effects on students' personal traits.

4. The percentage of students who feel free to post questions, elaborate on and give explanation to statements, peer-teach and take part in discussions was not significant. Even the percentage of students who practice after-school home reviewing activities was much lower than expected. We conclude that only one semester of practicing SGL has not been efficient for either significant confidence building, or promoting students' self-reviewing activities.

5. Although self-report data always have the limitation of accurate assess, our general conclusion is that students experience positive effects from SGL implementation as this method of learning is shown to be an example of rational organization of study process and positive for both stimulation of cognitive processes and building positive personal traits. The findings are encouraging and motivating for our continuous work with small group learning method, but they also highlight the need of working on improvement additional ways to promote students' participation - especially through questioning, answering and statement elaborating.

Discussion

The main point in introducing the small group learning method was to correct the drawbacks of the traditional teaching methods (listed in the introduction).
The analysis of the effects achieved upon completion of the first year since introducing the method (changes in the interest shown towards the subject and building abilities to independently elaborate on newly acquired knowledge) was presented in our previous report [7]. This particular field leaves room for follow-up on students' progress in these domains during the upcomping years, which we believe

will be influenced by our tutoring and further betterment in the execution of the method. According to Taylor & Bedford (2004) the extent to which lecturers attempt to assist groups of students to experience effective group learning processes is considered as important factor in promoting student retention and success[8].

We thought that students' impressions from the new method are of equally great importance. The students are not only participants, but the vectors of the learning process and the effort they invest is in correlation with whether they experience positive effects from a new method implementation. As Benjamin L. Wiggins et al. (2017) state in their article, the underlying experience and motivations is driving students' engagement [9]. Therefore, at the end of the first year, we simultaneously asked for their opinion given through filling out a questionnaire.

We established that studying in small groups enabled 41-50% of the students to purposefully use their studying time, simplify modes of studying, precipitate important points, find knowledge applicable and experience some level of satisfaction while studying. This implies that this method has shown to be an example of rational organization of the study process, which is a prerequisite for stimulation of cognitive processes, as was concluded by Davidson, N.,& Major C.H., and Johnson D.W., et al [10,11].

The insight in the purposefulness and the feeling of accomplishment has an important emotional impact in students' progress, thus further motivating success [12]. This is supported by the data revealing that 40.3% of the students started preparing for the next practice lesson at home. This leads to students becoming potentially more cooperative during lessons and contributive to further improvement of group learning.

Acquiring skills for explaining (elaborating on) new findings is one of the prioritires of our project. The students start acquiring this skill during practice, through processes of discussion, opposing opinions and drawing conclusions. Further individual work is guided by the study guide questions that need answering and elaboration. Unfortunately, the questionnaire showed that only a small percentage of the students practice this particular activity. We would like to believe that this might be due to the already established perception that the efficacy of the applied method does not impose the need for further learning activities at home. Also, the possibility of students not fully realizing the point and the end goals of this type of education cannot be ruled out. Of course, these are just a fraction of the palette of possible reasons - a topic needing deepened research modules, using quantitative statistical methods - which surpasses the format and research goals of this particular study.

By practicing how to implement histology knowledge through an activity called "initial clinical thinking", the students realize the importance of basic knowledge for correct clinical thinking. The very acknowledgement of this fact is expected to serve as a teaser initializing more profound interest in studying histology.The meta-analysis examining over 168 studies of undergraduate students, conducted by Johnson, D. W., et al (2014) , shows that students learning in a collaborative situation became able for profound reasoning and higher-order problem solving than students working alone [13].

The existing hesitation to ask questions probably arises from the awareness of the insufficiency of one's knowledge. Also, the inherent feeling of inferiority to the tutor as a figure of authority in the field cannot be ruled out.

Although still in relatively low percentage, the existing initiative for peer teaching (as one of the crucial targets of the project) indicates that some students have already achieved higher level in the learning process. Taking part in discussion is considered an indicator for a well created ambient for mutual trust which aids peer tutoring and complementing. Group dialogue helps students make sense of what they are learning and what they still need to understand or learn (Ambrose S.A. et al.

(2010) and Eberlein T. et al. (2015) [14, 15]. Discussion with confronting opinions helps widen the perspectives and discover ideas for exploring literature.

We have also received students' strong confirmation that during small group learning students become closer, practice good collaboration and experience a new feeling of responsibility for the success of the group as whole. These findings are in correlation with the experience in the research works of Bennett, L. M., & Gadlin, H. (2012) and Jackson, D., et al. (2014) [16, 17].

	Method of active learning in a small group	1 no	2 little/ rarely	3 moderately / occasionally	4 very / often
	Allowed me to				
1	Gain courage to ask				
2	Gain courage to explain and tutor my colleagues				
3	Gain courage to participate in the discussion				
4	Beneficially use the time planed for learning				
5	Simplify my process (or method) of learning				
6	Extrapolate the most important parts of the material				
7	Feel satisfaction that I have worked and studied				
8	Get to know better the colleagues in my group				
	Encouraged me to				
9	Feel responsibility for the success of my group				
10	Prepare at home for the next session				
11	Continue further home learning and reviewing activities (use Study guide)				
	Brought benefits				
12	I found studying with the "small group" method to be beneficial				
13	By using the suggested clinical examples I have learned how to use my knowledge of organ structure				

Attachment 1 - Questionnaire anonymously filled by the students

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