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THE PECULIARITIES OF PRACTICAL CLASSES STRUCTURE DURING THE DISTANCE LEARNING ON MORPHOLOGY ORIENTATED DEPARTMENTS

Skoryk V.R. ✉, Haisanovska V.O., Babii H.S. The peculiarities of practical classes structure during the distance learning on morphology orientated departments.
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ABSTRACT. Background. Nowadays distance learning is a necessary measure under pandemic circumstances, therefore, it is important to find out mechanisms to improve its effectiveness. **Objective** is to increase the efficiency of practical classes' results during distance learning. **Methods**. Sixty third course international EAs (specialty "222 Medicine", second master's level) were divided into two equal groups with two different teaching approaches of practical classes: control with classical one (material discussion followed by the practical skills implementation) and experimental with a changed indicated stages order. The data of 3 controls (pretest, intermediate test and posttest) during practical classes in the course of one semester were analyzed by criteria for non-normal distribution. **Results.** Pretest and posttest results were not significantly different in both tested and control groups within different performing level EAs ($p>0.05$). The data of intermediate tests were familiar in groups of EAs who permanently have either average ($p>0.05$) or insufficient grades ($p>0.05$), but increased in groups of EAs with constant low ($p\leq0,05$) and high ($p<0,05$) scores. **Conclusion.** Our study showed that academic performance did not heavily depend on performed practical classes' structure. However, the critical discussion of low- and high-performing EAs' mistakes lead to improvement of their understanding of nuances of gross specimen and slide description, in other words, the implementation of a number of special and general competencies enhancement. All in all, data showd that exit control results as well as final grades depended not so much on the educational approach, but on the EAs' self-study.
Key words: distance learning, testing, practical skills, pathomorphology.

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Introduction

In the present circumstances during the COVID-19 pandemic, we are teaching online for almost a complete year. We cannot deny that teaching approaches to remote practical classes are slightly different in comparison with traditional classroom learning so that we should adapt practical classes' content to current conditions. There are a lot of challenges teachers of morphologically orientated departments can face. The first challenge is the organization of practical classes stages. It is certainly necessary to allow sufficient time for each stage of practical classes such as entrance control, theory learning coherence, practical work, and exit control and adapt all the stages to online teaching. The second one is providing technical support both for teachers and EAs (EA). It is impossible to carry out the class without gadgets (smartphones or personal computers) and skills to use them. Today, it is hard to imagine teaching without a full range of digital technology which increases EA's attention, motivation, creativity, memory and contributes to getting better educational results [1]. There is plenty of available software which can be used for full-fledged training sessions. However, there is not enough just to have them. We are considering that original scenarios for each practical class drawn up based on the department's practical training sched-

ule are a key for successful teaching and learning. The third challenge is a lack of control over the learning process as well as EA's actions during the distance practical session. Consequently, it has been noticed that EA's attention is susceptible to being distracted, especially in distance learning when teachers cannot communicate with EAs face to face. It is therefore very important to organize entrance and exit control properly appropriate to current conditions [2-4]. This abstract is dedicated to discussing the pros and cons of a particular teaching approach in accordance with which one group of EAs is encouraged to fulfill macro/micro specimen description at the beginning of the class and later discuss it with their tutor, unlike our traditional approach which implies that EAs should finish slides/gross description afterward the discussion of the current topic.

The aim of the article is to compare two different approaches on purpose to increase the efficiency of practical classes' results and research how the sequences of practical classes' stages influence the effectiveness of the learning process on morphology orientated departments during distance learning.

Materials and methods

There are sixty third course international EAs (specialty "222 Medicine", second master's level) were divided into two equal groups (n=30), each of them was taught with different approaches within the spring term training sessions (detailed below). The chosen dozens had not more than three EAs whose average mark was the highest grade and not more than two EAs whose average mark was below the passing grade.

Content. A practical class is one of the crucial parts of a learning activity. It allows EAs to compartmentalize knowledge acquired during the self-preparation session and participate in a live discussion with teachers and EAs. Moreover, the training session is an opportunity for EAs to prove themselves, self-esteem, and get feedback from the tutor. Traditionally, practical classes in our department consist of the following stages: entrance control (pretest); the theory learning coherence; the instruction manual and commentary on classroom work; the classwork (the macro/micro specimen description); the exit control (posttest); the result analysis of the test control and the completed self-study work, summing up the results of the PC. The timing of every stage of the practical classes' classical approach is collected in Table 1.

Table 1

Practical class timing

№	Stages	Time (min)
1.	Entrance control (pretest) reveals a EA self-preparation for the PC	15
2.	Theory learning coherence	50
3.	Instruction manual and commentary on classroom work	5
4.	Class work. Macro/micro specimen description	30
5.	Exit control (posttest)	15
6.	Analysis of the results of the test control and the completed self-study work. Summing up the results of the PC.	10

Each part of the training session is very important and complements each other. The essence of every practical class part was briefly described below.

Entrance control (pretests) was the first stage of the training session that reveals the initial level of EAs' knowledge and the degree of their self-preparation. It was conducted in the format of test-control. The question paper comprised fifteen multiple-choice questions (MCQs) most of which were taken from the "open" KROK-1 base; meanwhile, part of the question bank was hidden. The blurred questions were ordinarily added in order to motivate EAs to study theory not only by memorizing MCQs. During distance learning, teachers are not able to supervise faithful fulfillment of tasks that is why all test suites are created uniquely for each EA. The ratio of open/hidden MCQs is 75/25% or more in favor of hidden ones.

Evaluation criteria. This kind of work was rated on a scale from 0 to 100%. Passing grade was 75% or no less than eleven out of fifteen correct answers. 6,6% corresponded to one correct answer to the one question (Table 2).

Table 2

The grades conversion to the "traditional" scale

The interpretation	"Traditional" grade	Pretest and intermediate test score	Classwork
The insufficient score	"2"	0-75%	1-4
The low score	"3"	75-79%	5-6
The average score	"4"	81-90%	7-8
The highest score	"5"	91-100%	9-10

Theory learning coherence was the most significant and time-consuming part of the practical class. The core of this stage lay in the only competencies EAs could not practice at home: oral discussion of the training session topic between teacher and EA or among EAs themselves. The conversation included etiology, main links of pathogenesis, morphological features, complications, and outcomes of diseases relevant to practical class topics. Through the oral discussion we encouraged EAs to self-study before class as well as offered a proper way to sort out self-acquired knowledge. Theory learning coherence was dedicated to increasing EAs' study motivation by deliberation of current topics and systematizing their knowledge, meanwhile, allowing tutors to evaluate the real level of EA's preparation. We strongly believed that despite MCQs being considered as inherent and generally accepted assignments for medical EA's estimation they would never replace traditional questionnaires. During distance learning we didn't move away from this rule and continue to use this stage as a key for fair examination. We still had a lively conversation with a small difference – we used modern technology such as the browser extension Google Meet as well as some universities applied [2, 3]. Due to the circumstances we could not affect during the online teaching there were some issues with the level of EA engagement and some lack of control over the class. This part of the education activity could not be replaced properly by distance format. Anyway, we did our best to make EAs involved in the process throughout the time of the training session [4-8].

Evaluation criteria. This kind of work is rated in the "traditional" scale from 2 to 5 (Table 2).

Instruction manual and commentary on classroom work was a short stage of practical classes which meant brief instruction on the following form of work and included short teacher assistents' comments about the next type of activity. During this stage, the tutor emphasized the main points of upcoming classroom self-work and moments EAs should take attention to.

Classwork: macro/micro specimen description. This stage implied EAs' self-work with micro and macro specimens. This educational activity added a practical application in theoretical orientated learning, allowing the relationship between morphological appearance, stages of diseases, and its consequences to establish. Besides, we were convinced that an individual approach prevents cheating. Each task for every EA was not repeated. During this part, EAs got both microscopic slides and gross specimens for description in the workbooks that had been developed in the view of our department academic discipline programs, where they have to indicate the correct diagnosis, characterize morphological changes, suggest causes of disease or pathological condition development, the list complications and enumerate outcomes.

Evaluation criteria. This kind of work is rated on a scale from 2 to 10. One point corresponds to one correct answer to the one question (Table 2).

Exit control (posttest) was the final control point of the training session. Posttest was carried out to assess how EAs assimilated practical class content. The form of exit control was represented by clinical tasks which contained short anamnestic and clinical data, a list of morphological changes, and five questions that included diagnosis, interpretation of morphological manifestations, an indication of complication, etc. This type of learning activity was dedicated to creating interlinkages between morphological and clinical manifestations. Moreover, clinical reasoning teaching was considered as an interesting, atmosphere, qualitative educational method [9]. These tasks were clinically oriented and taught EAs to choose an integrated approach to each particular clinical case solving and encouraged EAs to use both morphological and clinical knowledge. The clinical task is individual for every EA.

Evaluation criteria. This kind of work is rated on the "traditional" scale from 2 to 5 (Table 2). One point corresponds to one correct answer to the one question.

Results analysis of the test control and the completed self-study work. Summing up the practical class' results. This is the last part of the practical class when the teacher assistant announced scores that EAs got in previous stages, commented on mistakes, and declared final practical class grades.

Evaluation criteria. The final grade consists of entrance control, the theory learning coherence, the classwork, and the exit control results. All the grades for the practical classes' stages were summarized into the average final grade and converted into traditional scores (Table 2).

So, the tested group of EAs described macro/micro specimens at the beginning, whereas the control group of EAs completed it at the end of the training session (Table 3). Hence the key distinctive feature between the new and traditional approach lay in the fact that we offered EAs to proceed to the classwork before the topic review.

We did not just randomly choose exactly this part of the training session to replace. It is a well-known fact that one of the crucial key points of practical classes on morphology-orientated departments is gross specimen and slide description. This type of activity is extremely important for the formation and representation of basic morphological changes in organs and tissues in diseases as well as highlighting the interactions between micro/macroscopic peculiarities and the course of the disease. These implement the following general (1,

3, 4, 6) and special competencies (2, 3) according to the program of the academic discipline "Pathomorphology", educational-professional program (EPP) of specialty "222 Medicine", the second master's level, DSMU, 2019 [10]. We have believed that the replacement of classwork would increase EAs' perception of morphological patterns, improve the efficiency of practical class and KROK-1 exam readiness (provided there is a tendency towards increase "hidden" MCQ base part).

Table 3

The practical class timing of the analyzed groups

№	Analized approach stages	Time (min)	Traditional approach stages	Time (min)
1	Entrance control (pretest) reveals a EA self-preparation for the PC	15	Entrance control (pretest) reveals a EA self-preparation for the PC	15
2.	Instruction manual and commentary on classroom work	5	Theory learning coherence	35
3.	*Class work. Macro/micro specimen description*	30	Instruction manual and commentary on classroom work	5
4.	Theory learning coherence	35	*Class work. Macro/micro specimen description*	30
5.	Intermediate control of macro/micro specimens assimilation	10	Intermediate control of macro/micro specimens assimilation	10
6.	Exit control (posttest)	15	Exit control (posttest)	15
7.	Analysis of the results of the test control and the completed self-study work. Summing up the results of the PC.	10	Analysis of the results of the test control and the completed self-study work. Summing up the results of the PC.	10

To assess the effectiveness of changing the structure of a practical lesson in each test group, the *intermediate control* was additionally introduced (Table 3). In the framework of our experiment, we redistributed practical classes timing and allowed time within theory learning coherence for classwork result discussion. **Intermediate control** encompassed rapid-fire writing questions with short answers on purpose to assess EAs' understanding of patterns of morphological changes.

This kind of work is rated on a scale from 2 to 10. One point corresponds to one correct answer (Table 2).

Also as an efficiency measure it was decided to use pre- and posttest results. This kind of estimation was not selected accidentally. The pretest and posttest medical EAs' estimation helped to get better presentation and determine effects resulting from chosen interference [11].

The obtained controls results did not correspond to the normal distribution, they were represented as average values as Median and Quartiles (Me (QI, QIII); the statistic reliability of the difference was calculated by the Mann-Whitney criterion.

Results and discussion. Pretest results were summarized in Table 4.

Within EAs with insufficient score there was no statistically significant difference between tested and control groups (p>0,05), though number of EAs with unpassed topic was higher in the tested group (4 (3;4)), the same as amount of EAs with high score (6(5;7)). Moreover, not only medians were similar within different mark subgroup (or even identical within EAs with low score (Me 7), but also distribution by quartiles was analogous.

Pretest grade depended predominantly on the EA's self-preparation and reflects the level of self-studying, this was an explanation why the results of tested and control groups were not also statistically significantly different (p>0.05).

Table 4

The pretest results

Score	Tested group, n (Me(QI;QIII))	Control group, n (Me(QI;QIII))	p
Insufficient	4 (3;4)	3(3;4)	p>0.05
Low	7(5;7)	7(6;8)	p>0.05
Average	14(13;14)	15(14;15)	p>0.05
High	6(5;7)	5 (4;6)	p>0.05
p	p>0.05		

Taking into account that EAs from chosen groups did not vary excessively in entrance preparation degrees, this fact could be considered as the crucial criterion of including the selection into the research that also mentioned by Farahmand S. and colleagues [12].

Intermediate control results. Table 5 demonstrated the tendency towards bigger amount of EAs with positive marks ("3" till "5") in tested group

compare with control one according to the intermediate tests results. There were both Me and quartiles distribution higher in tested group.

Table 5

The intermediate test results

Score	Tested group, n (Me(QI;QIII))	Control group, n (Me(QI;QIII))	p
Insufficient	2(1;2)	3(1;4)	p>0,05
Low	8(7;8)	3(2;5)	p<0,05
Average	19(17;19)	18(14;18)	p>0,05
High	7(6;9)	3 (3;5)	p≤0,05
p	p>0,05		

Nevertheless, subgroups of EAs who permanently got either average or insufficient grades did not differ statistically among researchable groups (both p>0,05). But we got statistically proved increasing quantity of EAs with constant low and high scores (p<0.05 and p≤0,05 respectively). Here Me were in about 3 and bigger than 2 times (8(7;8) and 7(6;9) respectively) higher compare with Me of control group (3(2;5) and 3(3;5) respectively), and alike upper and lower quartile distribution was observed.

The only subgroup by the mark level, in which the number of EAs in the control group (3(1;4)) was more than in the test one (2(1;2)) according to the intermediate control results, was the subgroup with an insufficient level of knowledge. That could be explained by raising EAs number with low mark level, in other words, increased EAs amount who passed a topic and got positive mark.

On the other hand, that means that analyzed teaching approach turned out to be more important for the low-performing EAs who did not devote enough time for self-preparation and receive the main part of information during the practical class.

No less meaningful was the result about the possibility to elevate EAs number with high grade, because it strengthens high-quality academic performance – an important indicator of both the department and university work.

We may conclude that analyzed teaching approach could led to a better understanding of morphological manifestations and consequently, so EAs coped better with this type of control. Keller AS and colleagues also pointed that more difficult for understanding practical class part with multiple nuances demanded more attention in the first part of the discussion, when EAs concentration kept high [13].

Posttest results. From Table 6 it was observed that posttest results, as pretest data, were not noticeably different in the tested and control groups within different performing level EAs (p>0,05), but EAs number with low (7(5;9)) and high (7(3;9)) mark in the tested group still were bigger than in the control one (6(5;8) and 5(4;6) respectively). And also, as in intermediate control was seen, elevated EAs amount with “positive” mark could be explain by a presence of tendency towards decreasing EAs number with insufficient score, though statistically it was not proved (p>0,05).

Table 6

The posttest results

Score	Tested group, n (Me(QI;QIII))	Control group, n (Me(QI;QIII))	p
Insufficient	2(1;2)	3(1;3)	p>0.05
Low	7(5;9)	6(5;8)	p>0.05
Average	16(14;18)	16(15;18)	p>0.05
High	7(3;9)	5 (4;6)	p>0.05
p	p>0.05		

The academic performance was not noticeably different during the posttest results evaluation either, consequently, we can conclude that no matter what educational approach we choose, both of them are effective in distance learning conditions, provided the fact that discussion and systemic controls were considered as a base for each practical class [14].

Although the low-performing EAs from the tested group showed better intermediate control test results (p<0,05) their posttest results correspond to control group ones, but they got better perception of practical skills of morphology department with developing the skill of clinical thinking.

Conclusion

In this study, there is an evaluation of the academic performance of two groups of EAs: the tested and controlled one who had been taught two educational approaches: traditional and analyzed one within a spring term (13 practical classes) during the distance learning condition. Despite the necessity to improve teaching skills, especially during distance learning when there were so many challenges to overcome, our study showed that no matter what educational approach we choose, academic performance does not heavily depend on performed variety of the practical class content (p>0,05).

However, the intermediate control results showed that the grades of low- and high-performing EAs were noticeably increased. That means that the analyzed teaching approach for indicated EAs

groups by mark level could bring benefits in the form of improvement of their understanding of gross specimen and slide description nuances and building up skill of clinical thinking.

All in all, data shows that exit control results as well as final grades weakly depend on the educational approach but heavily depend on EAs' self-study.

Prospects for further investigations

On condition that the situation with COVID-19 pandemic tends to stagnate, there is a necessity of looking for other ways to improve teaching approach in view of more beneficial realization competences of morphological subjects.

Conflicts of interest

Authors have no conflict of interest to declare.

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Скорик В.Р., Гайсановська В.О., Бабій А.С. Особливості структури практичних занять за умови дистанційного навчання на морфологічних кафедрах.

РЕФЕРАТ. Актуальність. У даний час дистанційне навчання є вимушеною мірою в умовах пандемії, у зв'язку з чим важливо з'ясувати механізми підвищення його ефективності. **Мета.** Підвищення ефективності практичних занять за умови дистанційного навчання. **Методи.** Шістдесят іноземних здобувачів

освіти (спеціальність «222 Медицина», другий магістерський рівень) третього курсу були розділені на дві рівні групи з двома різними підходами до навчання: контрольна з класичним (обговорення матеріалу з подальшим виконанням практичних навичок) й експериментальна зі зміненою черговістю зазначених етапів. Дані 3-х контролів (вхідний, проміжний та заключний) під час практичних занять протягом одного семестру були проаналізовані за критеріями для ненормального розподілу. **Результати.** Результати вхідного та вихідного контролів статистично ймовірно не різнились між експериментальною та контрольною групами здобувачів освіти різних рівнів успішності ($p>0,05$). Дані проміжного контролю були схожі у досліджуваних групах для здобувачів освіти з постійно середніми ($p>0,05$) і негативними оцінками ($p>0,05$), але відрізнялися серед «відмінників» ($p\leq0,05$) і здобувачів освіти з постійно низькими оцінками ($p<0,05$). **Висновки.** Наше дослідження показало, що академічна успішність не залежала від представлених варіантів структури практичних занять. Однак, критичне обговорення помилок «невстигаючих» здобувачів освіти і «відмінників» призвело до поліпшення їх розуміння нюансів опису макро- і мікропрепаратів, тобто реалізації ряду спеціальних і загальних компетентностей відповідно до ОПП ОК-11 ДДМУ. В цілому, дані показали, що результати вихідного контролю, як і підсумкові оцінки залежать не стільки від освітнього підходу, скільки від рівня самопідготовки здобувачів освіти.

Ключові слова: дистанційне навчання, контроль знань, практичні навички, патоморфологія.

Скорик В.Р., Гайсановская В.А., Бабий А.С. Особенности структуры практических занятий в условиях дистанционного обучения на морфологических кафедрах.

РЕФЕРАТ. Актуальность. В настоящее время дистанционное обучение является необходимой мерой в условиях пандемии, в связи с чем важно узнать как можно больше о повышении его эффективности. **Цель**. Повысить эффективность практических занятий в условиях дистанционного обучения. **Методы.** Шестьдесят иностранных соискателей образования (специальность «222 Медицина», второй магистерский уровень) третьего курса были разделены на две равные группы с двумя разными подходами к обучению: контрольная с классическим (обсуждение материала с последующим выполнением практических навыков) и опытная с измененной очередностью указанных этапов. Данные 3-х контролей (входной, промежуточный, заключительный) во время практических занятий в течение одного семестра были проанализированы с помощью критериев для ненормального распределения. **Результаты.** Результаты входного и выходного контролей статистически вероятно не различались между опытной и контрольными группами у соискателей образования разного уровня успеваемости ($p>0,05$). Данные промежуточного контроля были сходны в исследуемых группах для соискателей образования с постоянно средними ($p>0,05$) и негативными оценками ($p>0,05$), но отличались - среди «отличников» ($p\leq0,05$) и соискателей образования с постоянно низкими оценками ($p<0,05$). **Выводы.** Наше исследование показало, что академическая успеваемость не зависела от представленных вариантов структуры практических занятий. Однако критическое обсуждение ошибок «неуспевающих» соискателей образования и «отличников» привело к улучшению их понимания нюансов описания макро- и микропрепаратов, другими словами, улучшению реализации ряда специальных и общих компетентностей в соответствии с ОПП ОК-11 ДГМУ. В целом, данные показали, что результаты выходного контроля, как и итоговые оценки, зависят не столько от образовательного подхода, сколько от уровня самоподготовки соискателей образования.

Ключевые слова: дистанционное обучение, контроль знаний, практические навыки, патоморфология.