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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-

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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. Dnipro State Medical University, Dnipro, Ukraine.

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≤0.05) 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 showed 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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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 (speciality “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.

| № | 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         |

Table 1

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).

| 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       |

Table 2
**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 assistants’ 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).

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 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         |

**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

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

| Score       | Tested group, \(n\) | Control group, \(n\) | \(p\) |
|-------------|----------------------|----------------------|------|
| 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)               | \(p<0.05\) |

Nevertheless, subgroups of EAs who perma-
nently got either average or insufficient grades did
not differ statistically among researchable groups
(both \(p>0.05\)). But we got statistically proved in-
creasing quantity of EAs with constant low and
high scores (\(p<0.05\) and \(p\leq0.05\) 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 ob-
erved.

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 per-
formance – an important indicator of both the de-
partment and university work.

We may conclude that analyzed teaching ap-
proach could led to a better understanding of mor-
phological 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, ele-
vated 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 (\(p>0.05\)).

The academic performance was not noticeably
different during the posttest results evaluation ei-
ther, consequently, we can conclude that no matter
what educational approach we choose, both of them
are effective in distance learning conditions, pro-
vided 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 cor-

ted to control group ones, but they got better perception of
practical skills of morphology department with de-
veloping the skill of clinical thinking.

**Conclusion**

In this study, there is an evaluation of the acade-
ic performance of two groups of EAs: the test-
ed 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 where there were so many chal-

genues to overcome, our study showed that no mat-

ter 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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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 зміною 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 різилися 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<0,05) і здобувачів освіти з постійно низькими оцінками (p<0,05). Висновки. Наше дослідження показало, що академічна успішність не залежала від представленних варіантів структури практичних занять. Однак, критичне обговорення помилок «невстигаючих» здобувачів освіти і «відмінників» призяло до поліпшення їх розуміння нюансів опису макро- і мікропрепаратів, тобто реалізацію ряду спеціальних та загальних компетентностей відповідно до ОПП ОК-11 ДГМУ. 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.