Distant studying experience reflection during pandemic of COVID-19 (on the example of teaching in the technical university)

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Abstract. Changing over distant teaching during the pandemic COVID-19 is considered as pedagogical experiment. Conditions and methods of private teacher’s experiment carrying out on the bases of humanitarian subject teaching in the technical university are described: the lists of pedagogical and informational and communicative technologies used on lessons before pandemic and during high-alert mode. Comparison of students’ lessons attendance is made when different formats are used, using possibilities of the feedback, interaction with each other, peculiarities of doing tasks are analyzed. Advantages and disadvantages of online lectures and practical lessons are analyzed according to the teachers’ and students’ point of view. In the article’s conclusion the ascent is made up on the personal senses lost analyses and personal knowledge transmission impossibility using distant methods strictly.

1. Introduction
It’s known that pedagogical process is always directed to reaching some teaching goals. The teaching process subject chooses teaching content, forms, methods, technologies and means of education. He directs range of resources on the object of teaching process having in one’s disposal. In the end there is a result which is obligatorily compared to the goal setted before and they should theoretically coincide [1].

This scheme at its core is deeply pedagogical. There are no psychological mechanisms in it, there are only object, subject, goals and means of reaching. But any pedagogical experiment is easily constructed within this framework as a result of form, methods and didactic means changing.

To extract useful information in changed conditions there remains to add some external observer and to determine certain examination goals. The experiment was launched accidentally in the whole world this year out of any goals and aims by forth of particular circumstances (which was coronavirus pandemic this year). Teachers and students became tested people.

The one and the other can easily become the researchers in regard to changed teaching process one has only refer to human mind’s special abilities which is ability to be examiner and performer towards its own activity towards reflection [2].

2. Methods
1. Students’ beliefs research about perfect teacher in the framework of pedagogical and androgogical lesson which is made on the bases of interaction technology World Café (spring 2019).
2. Natural pedagogical and psychological experiment on changing over distant teaching with the help of modern informational-communicative technologies usage (spring 2020), made on psychological subjects lessons in a technical university.

3. The research object:
Second year Masters of civil engineering faculty in a technical – 120 people (2019).
Students and Masters of junior years of internal and extra-mural studying – altogether 240 people (2020).

4. Subject research
Students’ behavior on psychological subjects lessons using distant teaching format comparing to classroom studies.

During pedagogical and androgogical basic lesson on the topic “Professional education teacher’s personality” which is made with the help of interactive technology World Café students were creating perfect teacher portrait at one stage of work. 8 junior Master groups took part in it (15 people a group on average). They were working in teams (4-5 teams in a group).

Material analyses given by the students at the end of the lesson showed that in 6 groups from 8 one from 5 teams described perfect teacher as “robot” or “artificial intellect” (in one even two teams).

Student’s dream partly became true suddenly in 2020 in spring. Studying goals, subjects, objects left the same in distant teaching format but didactic means fundamentally changed. As for the content officially there were no changes in educational content which regulates studying process according to reference documents. But there is a theory that declared content has changed (as a result of possibilities and technological specific character). We must find out to what extent the content has…

We’ll describe in details private pedagogical experiment conditions and organization as a part of general occasional experiment. The university and studied subjects: technical university, humanitarian subject. Levels: bachelor’s and master’s degree program. Form of studying: internal and extra-mural studying. Study duration – 2.5 months. Community, programs, technologies: in the framework of educational process and distant teaching were:

• Moodle;
• Mail;
• Whatsapp;
• Zoom;
• Teams;
• mobile communication.

Lectures Format offered to the students during distant educational process were the following:
• lecture-presentation (nuanced) – the number of slides for several lectures was up to 60;
• lecture-presentation with audio-files put on presented slides (students could examine the slide carefully and listen to the audio file a lot of).
• Zoom lectures (the presentation was translated and commented with teacher’s speech and explanations). Students’ were asked questions and offered to give feedback to the material learned during the lectures in this form of work.

Practical studies in reality became lectures based on explanation and illustrative method of teaching and individual studies under distant format. All actions for lessons preparing which could be done without active teacher’s help were given to students as individual studies. When some questions occurred during students’ individual studies they could write on e-mail or Whatsapp or call the teacher personally.

Before the pandemic lectures and practical studies were held in the classroom as a part of classical class-and-lesson system. Lectures were given in the format of combination of traditional explanation and illustrative method of teaching and logbook technology with supportive notes which was the presentation for students (including those given in a brief way in the studying Moodle).
5. Results
Comparative analyses of students’ behavior before and in the process of the experiment with format and educational means change was made including several points: lessons attendance, feedback usage, technical means when joying webinars, doing home tasks (look tables 1, 2, 3).

Table 1. Lessons attendance.

|                              | Bachelor’s degree | Master’s degree (internal studying) | Master’s degree (extra-mural studying) |
|------------------------------|-------------------|-------------------------------------|----------------------------------------|
| Classroom studies (before pandemic) – lectures | 66 percent        | 85 percent                          | 92 percent                              |
| Classroom studies – practice | От 50 до 75 percent | От 66 до 75 percent                   | 92 percent                              |
| Distant format (online lectures) | От 33 до 50 percent | 40-80 percent                       | 90 percent                              |
| Distant format (practical studies) | 40-60 percent     | 33-60 percent                       | 92 percent                              |

Table 2. Students’ technical means usage peculiarities in the process of distant online classes, feedback activity, students’ cooperation with each other on the lessons.

| Technical means usage   | Junior years | Master’s degree | Extra-mural studying |
|-------------------------|--------------|-----------------|----------------------|
| Chat                    | +            | + (1-2 people from studying group) | + (about one third) |
| Microphone              | + (1-2 people from studying group) | + (60-80 percent of those who are online) | + (about one third) |
| Camera                  | -            | + (1 person from studying group) | 1-2 people from course |
| Feedback activity online (to the teacher’s point of view) | Low | Above average | Average |
| Students’ cooperation with each other on the lessons | More like exception | Less active than in the classroom | More like exception |

Table 3. Characteristics of tasks given distantly.

|                              | Bachelor’s degree | Master’s degree (internal studying) | Master’s degree (extra-mural studying) |
|------------------------------|-------------------|-------------------------------------|----------------------------------------|
| Written Before pandemic      | Low activity      | Inactive, delaying till the last    | Changing activity level – higher before exams |
| Oral (before)                | Activity is higher than before the pandemic | Active, after lessons on certain topics | The same like before the pandemic |
| After                        | Average level of activity | Active, with pleasure | Active |
|                              | Low               | Preference for preparing written papers to online reports | - (not assumed under the program) |
It bears mentioning that low studies attendance shouldn’t be connected with only educational format. As for junior years there are more than 50 percent of students from other cities, they studies from home and considering our countries’ characteristics (8 time zones) some students had no physical possibility to join in Moscow time.

As for Master’s degree this part of students received an increment working load. About 90 percent of masters double-jobbed studies and work (about 70 percent of masters’ work in specialization). During the pandemic they continued to work on their places but also they carried out duties of colleagues older 65 who had to be in self-isolation and not all of them coped with distant work format.

6. Discussion
1. Let us draw attention to some advantages of online lectures (organizational and psychological aspects).

Teacher’s comfort when giving lessons from home: computer and internet availability, access to all needed files, no need to spend money on packing up and getting to work. If there is no connection the lecture will be canceled while when the lecture is given in the classroom and there is no computer and possibility to open the presentation in a certain format one will have to give information without support of electronic didactic means using only notes, board and chalk. In other words, teacher’s time and physical-psychological spending will be much higher than if giving lectures at the classroom than working online.

According to the students’ response the most comfortable and convenient were lectures-presentations with attached audio files posted in Moodle. The main format advantage is that there are no time restrictions.

2. The main disadvantages of distant education especially if one uses personal computer are: static pose leading to hypodynamia development. When one use a laptop this negative effect is taken away but not everybody has equipment and besides needed programs for studies sometimes can’t be loaded. In any case eyes work at their limits (it’s a fact that when online studies are conducted according to classroom studies schedule the teacher and students offend all health and safety regulations.

The problems are in technical provision of online education and in subject and object educational process readiness (the readiness of object is higher automatically). And in this case teacher’s possibility to ask help of a younger generation of teacher and even to their own children and grandchildren who has already learnt these technologies playing computer games becomes a huge advantage.

And finally some words about content changings under distant studies.

To the author’s point of view the quality of practical studies suffered most of all (absolutely if we mean psychological studies).

As for the lectures the situation is not so bad from the first sight. In the end a good student’s book with high quality questions and tasks and logical information presentation is rather informative and a good support in any subject learning.

But during the process of studies students learn not only common things and notions (or methods or formulas). When transition from learning some things to practice is happening one can find out that except evident knowledge in the process of direct problem solution, design, conflict solution and so on (which students get from books and notes) the student gets knowledge of something not evident, personal.

So D.A. Leontjev shows sense which is given to personal meaning in studies by foreign researchers: authors of psychological-pedagogical conception of self-studying Sh. Harri-Augstein and L. Thomas [3] consider that “the central thing for self-understanding and self-learning is interpretation of personal meaning” [4, 5]. The process of studying with the position of personal constructors theory is considered as new meanings construction and reconstruction of old ones in the direction of strengthening of their correspondence to personal goals and real relationships which a person enters [6]. «People look for meanings. Meaning creation and the process of personal knowledge reaching is the whole studying» [3].
According to studying process it’s especially important that meaning is not only personal but also can be transferred and exchanged [6]. A real space where personal meaning exists is conversational space living like the content of a personal meaning [5].

In other words: another focus of attention, another version or interpretation of the text by the teacher – and nobody knows exactly what – but can lead to personal meanings “matching” which have been formed by the teacher and connected with given material and which are formed in the process of studying by the students.

But personal meaning exchange in the process of online or distant studies becomes still restricted and sometimes even impossible: meaning edges can be seen in person’s voice, intonation, gestures, mimic and in the selection and order of examples presentation. And gaining meaning by the students is estimated by eyes contact, their glint, pose and gestures (we’ll not mention questions because of their low feedback) all this is that can’t be estimated when the camera is switched off.

There is a way which is offered actively now: discussions with courses moderators but in fact this is some kind of substitute and transmission of already transmitted things… It is not unlikely that when one use such a way of studying the loss of personal meanings and the most secret thing – personal knowledge - will happen more often than not [7]. In other words the content of education is changing unpredictably. And that’s really horrible.

7. Conclusion
Ending up the article I want to come back to student’s attitude to taking part in the process of education with artificial intellect instead of a human being: on Zoom and Teams webinars students happily remembered lessons where there was a living contact with teacher and they dreamed about coming back to previous classrooms studies.

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