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EXPERIENCE FROM THE IMPLEMENTATION OF MULTIMEDIA APPROACH TO TEACHING FOR DEVELOPING PROFESSIONAL COMPETENCE

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***Abstract**: Multimedia approach has been increasingly used in the education of university students in recent years. It is not only modern but also particularly necessary in the process of teaching and acquiring knowledge and skills – this is a methodology that is not sufficiently developed. Unfortunately, there are few sources presenting experience from its practical implementation. Often, preference is given to traditional instructional methods, strategies and approaches as in time they have proven effective in acquiring the knowledge and skills necessary in practice. In this aspect, multimedia approach offers great flexibility and high potential as a teaching tool in education. On the whole, the content of this report presents the author's extensive experience and her ambiguous conclusion that the modern psycho-pedagogical profile of the digital generation of students, compulsory requires introduction of innovative instructional technologies. The implementation of this relatively new approach to teaching students results in more profound gain of theoretical knowledge and more effective development of practical skills and experience, which in turn forms a higher level of professional competence.*

The findings of this research supplement the existing evidence of the importance of applying innovative instructional practices and support the implementation of multimedia mixed approach to educational process.

Students highly appreciate the implementation of various audio-visual training methods, find them useful in their preparation for practical exams and in building skills before, during and following the academic lectures.

The article targets lecturers and supervisors of future specialists in various professional fields, students at higher schools, teachers interested in these issues.

***Keywords**: teaching, students, teachers, innovative teaching methods, multimedia, mixed approach in education, professional competence, assessment of acquired skills.*

1. Introduction

The contemporary generation of students, which is often referred to as "digital", requires training that is entirely consistent with the newest achievements in the development of both informational and communication technologies [1, 2, 3, 4]. Thus, lecturers face new challenges while teaching and preparing educational resources. Video methods are educational technologies that are currently developing. They find place in forming both manipulation, and communicational skills when adequately incorporated in a traditional curriculum. Such pedagogical method turns out to be quite effective, and assists the future specialist in the process of developing different competences. Assessment on one hand, and manipulation skills on the other, are visually intensive subjects, and video materials can be effectively employed in the process of mastering those, in the capacity of an innovative technology and via a carefully designed curriculum [5]. There are various studies, regarding the usefulness of video materials within the process of training in different fields. In this regard, the current article attempts to represent the authors' point of view of their effectiveness in educational activities.

It's of great importance future specialists from different professional fields perfectly master manipulation techniques, and excel in naturalizing the utmost details of those. In the process of training, it's absolutely compulsory to practice the procedures to the fine details, and to develop and master skills to the level of automatism, before practically applying them. Besides, students need to learn how to overcome negative emotions and maintain balance between developing both technical skills and professional behavior. The current elaboration presents video-teaching – a contemporary and effective

technology as an element of the multimedia approach, which expands, and sometimes even substitutes, traditional training methods. Thus, the author is trying to go beyond the notion of the typical image of university, in which the teaching process takes place in a semi-empty lecture-hall with a boring black or white board. Moreover, we should take into account that the modern educational practices are concentrated in the necessity of making education less formal, and also stimulating the interaction between students and lecturers in order to motivate students strive for obtaining realistic knowledge, not just passing the next exam and getting a grade. Applying new and modern practices into the training process, demonstrates tremendous potential and promising results, as it, being an interesting and different approach, manages to attract the student auditorium.
In the last few years, while mastering a new manipulation technique or a procedure, preference has been given to combining both educational and self-educational approaches, which incorporate traditional methods with such that apply new training techniques. The findings of the research complement the existing evidence promoting teaching, entirely directed to obtaining practical skills, and support the necessity of applying a mixed multimedia approach in training, which in itself is focused on developing professional competences.

Purpose of the report:

The purpose of this report is to present theoretically, and empirically evidence of the didactical expedience of applying multimedia approach, and video materials in particular, within the innovative educational environment of the higher education.

2. Explanation

The dynamic development of both science and technology, and especially IT, impose one of the global trends in labor market – the growing necessity for better qualified staff.
University lecturers of today, in comparison to their predecessors, stumble upon quite different challenges in training future specialists. On the other hand, changes and intensive development in various fields of science in the last couple of decades, set high requirements for the academic society, especially when taking into account the reduced time to teach, as compared to the past [6]. This dynamic imposes the necessity for taking adequate measures to optimize and adapt the educational materials for the real situation.
Sparing time on teaching with new educational technologies has proved to be hard, since there are limits that come from different state requirements, and also because of busy school curriculum. It's well known that in traditional education models, the leading role is that of the trainee, who controls his own preparation. The change towards an education system that is focused on forming competences, emphasizes not merely on the process itself, but on the outcome of it.
Electronic education is based on using Internet technologies, which aim to provide multiple solutions for optimizing the introduction of new knowledge and its mastering. It can be used by the lecturers in order to increase both the effectiveness, and efficacy of teaching interventions, in the context of the aforementioned scientific and pedagogical challenges. It's a well-known fact that the electronic education is getting quite popular in the last decades, and its application is diverse in different educational institutions. The rapid development of the communicational and informational technologies, and the incursion of the worldwide web in everyday life, has a significant influence on education itself. Most of the universities provide computer networks for their students, which are a central and necessary component of the academic environment. This progress brings new possibilities and challenges in education, and influences not just the teaching style, but also the way students study, and the design and accomplishment of the curriculum [7]. The plenty of information that is accessible via Internet, is unprecedented and both lecturers and students need to be trained to manage this resource effectively. Universities need to formulate clear strategies, so they could identify the problems which arise resulting from using informational technologies in the educational process.

Over the last few years, universities significantly modified their approach, taking into account the necessity of access to computer technologies for lecturers and students. Not so long ago, *computer technology* was a term that was limited only to processing texts, and scientific informatics wasn't interiorized or completely understood. In the time course of less than two generations of students, communicational and informational technologies obtained a new position, and took the place of an

integral component of the learning environment in all professional fields. This transition became possible thanks to two factors: the swiftly lowering price of PCs on one hand, and on the other – the advent and progress of worldwide web.

Just a decade ago, students began their education without Internet being so universally and easily accessible. Now, the ubiquitous access to computers and cell phones and the world wide web, means not only new students have a level in computer literacy already, which is even higher than that of some of the lecturers, but also, that they've got greater expectations. Universities invest quite a lot in computer technologies not only so they could attract the best students, but also because both communicational and informational technologies are regarded as a significant factor for achieving professional competences, as the occupation becomes more and more dependent on electronic information.

Now, higher education institutions have new tasks and goals, which lead to the conversion of educational values. On one hand, self-organization in both academic and professional work needs to be achieved, and on the other, development of capability and mastering of professional competences has to be guaranteed.

Elaboration and development of both technology and methodology in electronic education in universities, contributes to solving many pedagogical and psychological problems. Using informational and communicational technologies is a new level of mediation for both students' and lecturers' mental and communicative activities. The modern purposes of professional education can only be effectively achieved by those lecturers, who have got a developed methodical documentation, a high level of pedagogical competence and ability to apply innovative educational practices. It's known that many lecturers find it difficult to model and design the educational process, especially when having to implement innovative technologies for learning. University video training finds a theoretical interpretation on the stage of pedagogical design with its material and pedagogical elements. All of this has its place in building an educational process, which includes:
-formulating the goals of training;
-transition from the general aim, to its concretization; a preliminary estimation of the level of the trainees;
- a set of education procedures and score evaluation.

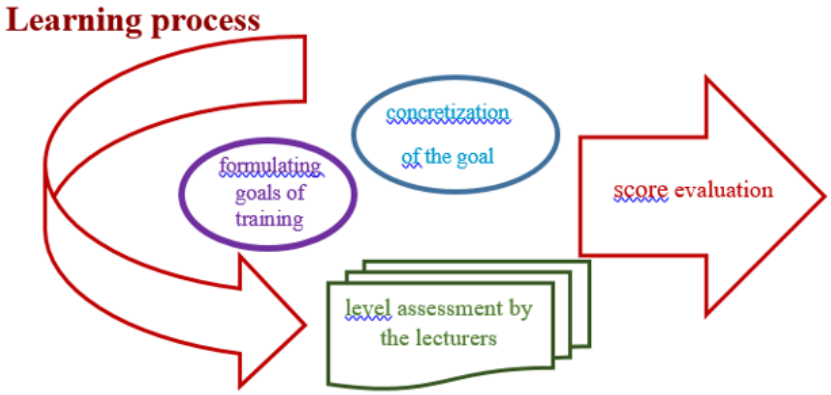

Figure 1: Cycle for using video training within the educating process of specialists in different fields

Thanks to this reproducible structure, the educational process that is comprised by isolated blocks, filled by different content but with a general structure, takes on a module characteristic. Video-training requires a careful and detailed planning of the process and its organization, a clear standpoint of the goals and tasks of training, preparation for the necessary materials and a possibility to guarantee interactivity of the learners, and also a feedback between lecturer and learners. All of this gives a possibility for both individual, and group work. Within individual education, materials need to be constructed in a way they could form opportunities for independent creative work for the students. Organization of group work has to be accomplished in such a way, that it leads to active cognitive process, directs towards finding and analyzing different information sources. One of the video-training's

important components is its organization. The technology of collective interaction is based on intragroup, and intergroup collaboration. At the end, it's important a group outcome be achieved within the learning activity, which includes a specific contribution by each student.

The communication organized by the lecturer, which renders the personal characteristics of each student, provides possibility for the learners' thinking development in the process of joined creative searching and solution of tasks, settles their interpersonal relationships, and leads to mastering of ways to perform collaboration. Besides, such a way of process organizing, in which lecturer and students actively communicate together, gives a rise to situations in which everyone's achievement is a success for others. Video methods as a technology of group interaction, provide a wide use of research and problematic methods, aiming to increase knowledge acquired in both individual and teamwork.

For the realization of all set tasks in video education, the lecturers' qualified leadership is highly important. They need to manage students' learning activity, and actively participate in the group by performing a specific function in the collective educational activities.

Using innovative technologies is justifiable, especially when it leads to effectiveness for both the learning process and interactive reciprocal action, and also to the realization of pedagogical purposes. When implementing contemporary interactive technologies, part of which are also video materials, lecturers need to approach tactfully and observe the harmonic proportion between traditional and electronic educational technologies.

The increasing of activities associated with the Internet, and the development of educational technologies, influence every educational institution. Their introduction in the learning process outlines the way in which they can be included, in support of self-preparation and teaching in different fields. The development of a comprehensive and high-speed informational network influences traditional training, but the ways in which it is obtained, is an object of serious discussions. The intra-university networks develop and transform the communication in the Faculty and this infrastructure is more and more used for providing an integrated training environment, while e-mail is turning into a main tool for communication between the students and the university.

Social media is defined as a type of online media, where people communicate, partake, share things, make groups, put bookmarks and mark important to them things. Most of social media encourages discussions, feedback, voting, commenting, and also sharing. The comprehensive character of social media is indisputable. There is content for every interested party. It is more like a bilateral discourse rather than a one-man presentment, as it is in traditional media.

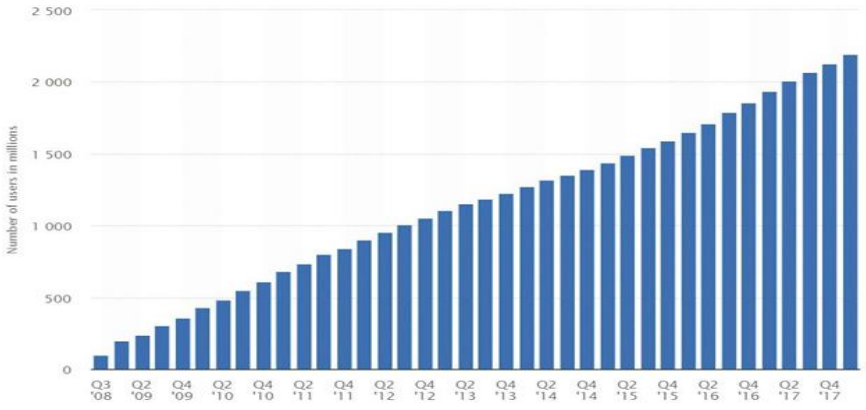

Figure 2: Statistics for the monthly active users in Facebook worldwide (Facebook 04/25/18)

The chart in figure 2 shows statistics for the number of monthly active users in Facebook globally. The dynamics between 2008 and 2018 inclusively, is shown here. According to data of the first four months of 2018, Facebook got a total of 2.19 billion users on a monthly basis. In the third quarter of 2012, they have surpassed 1 billion in number, making Facebook the first platform with such a record. Active users are considered those who have logged in at least once for the last 30 days. All this points to Facebook being the most popular social network in the world.

Founded in 2005, YouTube is comparatively the largest video-sharing online platform worldwide. It has a great variety of content, generated by both users themselves, and corporative media, which includes music videos, TV shows, blogs (ads), short original videos, entertaining videos and instruction ones with a wide range of themes – from help in acquiring language skills, to everyday topics, as well as videos with educational content. Data shows:

1. The total number of monthly active users is 1.57 billion;
2. The total number of daily active users is over 30 million;
3. Average continuity of one stay in YouTube is 40 minutes, which makes for a growth of 50% annually.
4. YouTube offers services in 88 countries, in 76 languages, or a coverage of 95% of all Internet users worldwide.
5. The average number of users in Bulgaria increased with up to 1632 users, only for March 2018 [8].

All this proves social networks and video platforms have a huge educational potential, which ought to find its place in the training of specialists. The ease of use and broad access to online platforms, make them excellent additions to push technology, and particularly a way of providing educational materials. Contemporary students progressively apprehend new technologies as a method of training, and have advanced to a degree where traditional forms of XX century are no longer current for them. The lectures are podcasts, the textbooks are e-books, and the pharmacopoeias – web-based applications. But integrating new technologies in universities may be a challenge with different levels of perfecting, which need to be acquired by both trainers and trainees.

In 2012, the author of the current article developed and suggested 5 training video films to students and lecturers from around the country, on the following topics:

-Basic procedures for preventing nosocomial infections;
-Testing and recording of breathing;
-Testing and recording of pulse;
-Measuring and recording of blood pressure;
-Measuring and recording of body temperature.

The research work is described in a treatise in 2013 [4].

This information resource is already nationally acknowledged, and is employed in other universities.

Another educational video resource that shows good practice, is the addendum developed for Android Operational System, named “Mobile application Obstetric and Nurse care” which is a collaboration between students and lecturers from the department, and presented within the Students’ scientific session in May 2014. It helps all students and has a simplified and functional design, as it suggests valuable advices of caring for young mothers and newborn children (by taking obstetric case history, course of uncomplicated delivery, care for both the newborn child and the new mother, etc.). The addendum is locally used and not uploaded online, and is practically a creative resource, with students participating in favor of simulation of practical skills in fields from the module *Special nurse and obstetric care* (the addendum works only with Android OS) [9].

For years on now, the staff of department of Health care of the Faculty of Public Health and Health Care of the Ruse University, is working on the problem of including new interactive forms of training. This is the reason behind the decision participants in the project, part of Fund Research of Ruse University №2015-FPH, titled *Model development of video algorithms for injection technique,* to develop video algorithms for injection technique and thus, contribute to a more successful acquisition of professional competence for the students. Precisely in search for an answer of the following challenge, and with an exclusively high motivation, lecturers and students have set the ambitious task to discuss and prepare video algorithms for injection technique that can be delivered to all learners. Students had the opportunity to not only perfect themselves in those manipulations requiring great responsibility, but also to prepare themselves for control procedures. When they felt enough prepared for the manipulation, they filmed it. Of course, they had the chance to do a few filming takes, until they were quite sure that they have performed the manipulation optimally. If they were to have the least doubts, they could re-record the video algorithm, until all the criteria had been covered. This guaranteed students do achieve the standards required for the different types of injection manipulations, and also develop a higher degree of professional competence, and at the same time gives opportunity for self-control and building of self-esteem. The best video algorithms are based and accessible via YouTube. Interest towards such type of

educational resources has turned out to be tremendously huge. The evidence for this interest is demonstrated with the next table (Table 1):

Display of video algorithms for injection technique in YouTube

Video algorithm	May 2015	May 2018	January 2019
1. Hypodermic injection	1678	26981	35495
2. Percutaneous injection	510	4236	5569
3. Intramuscular injection	2674	55000	67868
4. Intravenous injection	631	5761	7311
5. Venous infusion	832	21856	27721
Total	6.3 thousand views	110.8 thousand views	141.7 thousand views

At the beginning of January 2019, video algorithms are viewed more than 141,7 thousand times. More than 300 users are subscribed for the video channel. This data provoked us to perform a more detailed research on the matter.

3. Research

Methodology. The current research employs a voluntary and anonymous online survey was conducted in May 2018, utilizing Google Forms platform. A total of 317 respondents participated in the research. The instruments of the survey included three original questionnaires – one for students, one for experts, and a focus-group one. The experts who took part in the test, were 38 – mainly lecturers in the field of higher education in the professional direction of *Health care*, from Ruse University *"Angel Kanchev"*, Medical University of Varna "*Prof. d-r P. Stoyanov"*, Medical University of Sofia, Medical University of Varna's Shumen branch. The questionnaire contained 11 questions, 8 of which were closed, and 3 were open questions. The second respondent group consisted of 261 students from regulated specialties *Nurse* and *Midwife* of the aforementioned universities. They've answered 2 open and 8 closed questions. A focus-group is formed by the students, whose role was to clarify disputed elements, and receive particular opinions and recommendations. There were 15 questions – 9 closed and 5 open. The results from the focus-group of students will be demonstrated in the current article.

Results. For the purpose of the survey, it was firstly necessary to specify how much the respondents have taken advantage of the alternative teaching materials – video algorithms for injection technique, and for measuring and recording somatic signs, as an opportunity was provided for them to choose between only one, or all of the types of video lessons (Figure 3).

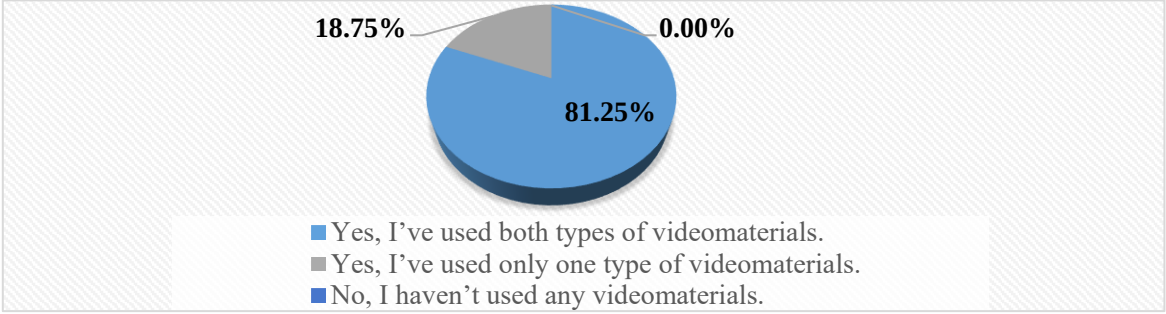

Figure 3. Data of the usage of the suggested video algorithms by the focus-group

Those results demonstrate the popularity of the training video materials. The focus group (100% of those respondents) admits that they have used the educational videos. The majority of students (81,25%) have used both types of video algorithms, whereas the smaller part of them (18,75%), have used only one type of materials.

The next question records the students' preferences of the different types of videos (figure 4).

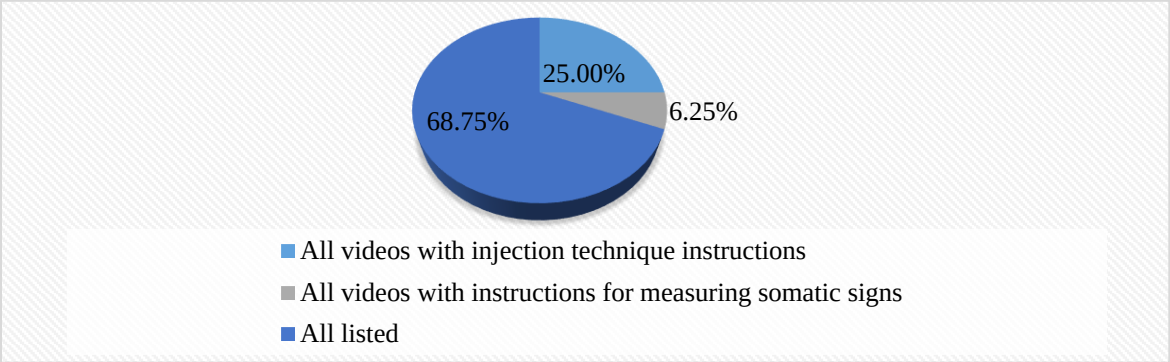

Figure 4. Data of the students' preferences of video algorithms

More than a half of the students – 68, or 75%, state that they use both types of materials with equal preference. Yet, we can report that the video algorithms with instructions on injection techniques, are more popular in comparison to those on measuring somatic signs – 25% of the students have used them, compared to somatic signs videos – 6,25%. This verifies the observation, that the injection technique is far more difficult for the students than recording somatic signs, and therefore it generates more interest.

Figure 5 shows much more specificity and clarity concerning hot points in the training process, and the specific deeds that impose more alternative training methods. Figure 3 clearly shows that the most preferred video algorithms are those for performing intramuscular injection – 68,75%, after which comes the intravenous injection – 62,50%, hypodermic injection – 43,75%, intravenous infusion – 25% and percutaneous injection, also 25%. A considerable per cent of the respondents (31,25% of them) have stated that they've used all video algorithms equally often. Sophomore students in their second year of education from the focus-group feel more confident, and need much less instructions for measuring somatic signs.

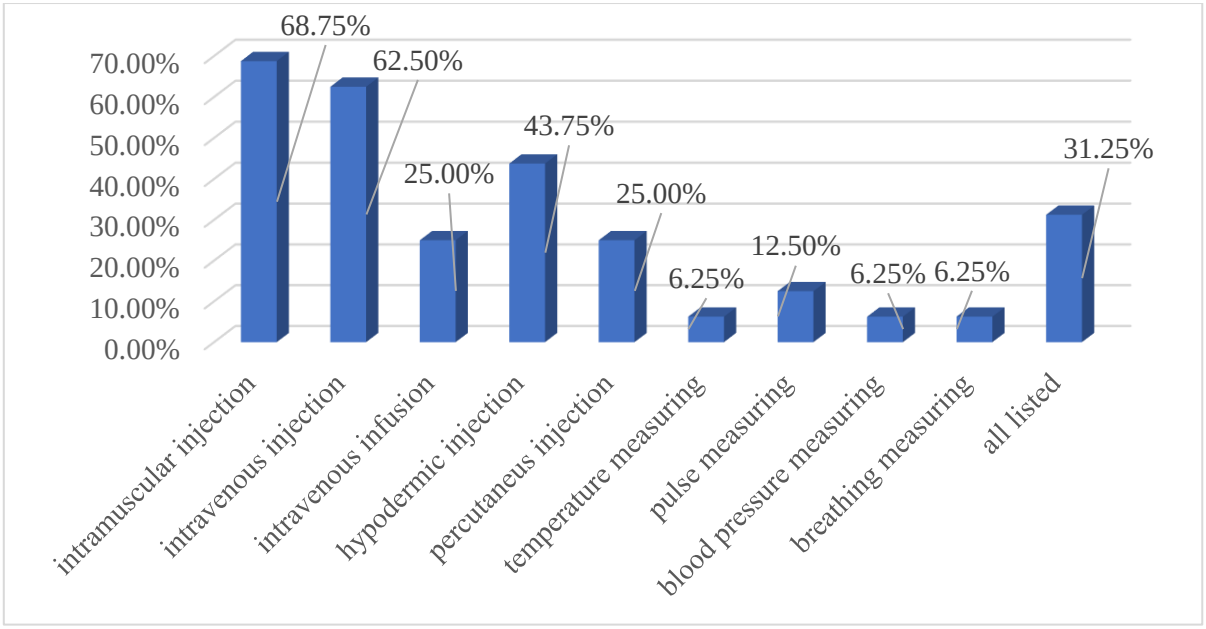

Figure 5. Focus group students' preferences of particular video algorithms

This trend could also be explained by the fact that both invasive, and non-invasive procedures are of different risk to the patient. The invasive ones make students more anxious, and this necessitates more training methods, in order to help them feel more confident in performing them.

An important task of the research, conducted with the focus-group, is to identify in what situations students would use the video algorithms. They are provided with a choice of different training options for enhancing their self-preparation via video materials. The respondents could mark more than one option of their preference, and the most popular strategies, which include training video resources, are graphically shown in Figure 6.

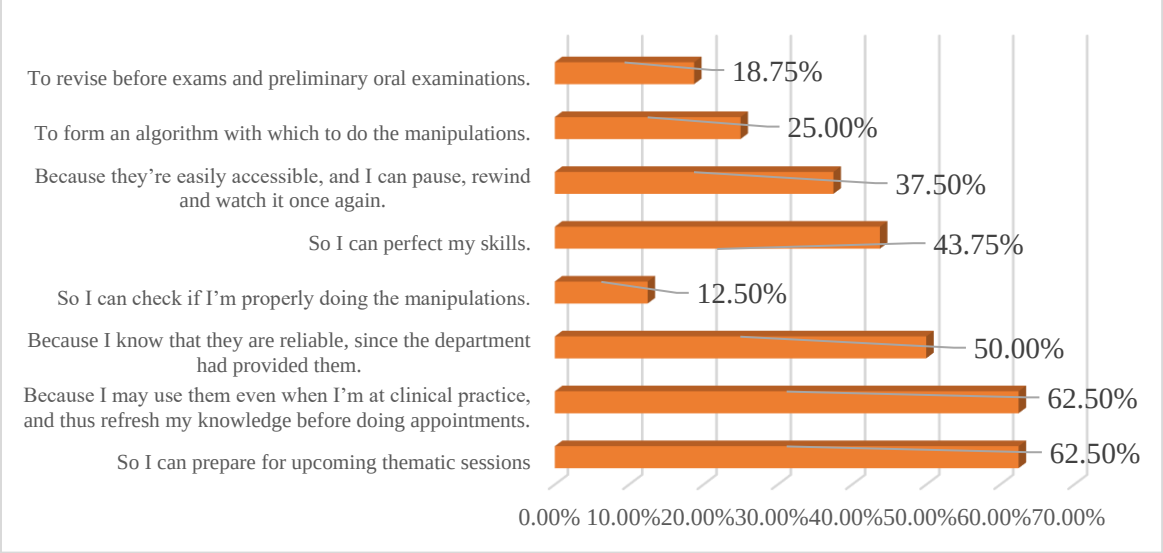

Figure 6. The students' opinion of using video algorithms in their training

Respondents use video algorithms most often to revise before exams and preliminary oral examinations. In a situation which suggests already acquired knowledge, and a necessity of a quick and effective method for consolidation and refreshment of knowledge, the training video resource is 62,50% popular among the students. The same per cent of preference is demonstrated for using video algorithms for assimilating an algorithm necessary to perform the manipulations. Half of the students - 50%, use the training material as it's accessible and allows pausing on a particular step of the implementation of action, it suggests unlimited possibility to be viewed again and again, and also to emphasize on a specific phase of the instructions, according to the individual educative necessities. A considerable per cent (43,75%) of the respondents, state that they use the video algorithms, in order to check how properly they perform the displayed manipulations, and rely on the training video resource to serve them as a corrective during their self-preparation. 37,50% of them share they're feeling more confident when using exactly those materials, since they're being provided by the Department of Health care. This makes them calmer and more confident the information is reliable, and displayed manipulations are properly performed.

Discussion. During the inquiry, the respondents were provided with a possibility to express in their own words, the observation on using video algorithms. Some of their opinions direct us to strategies for a greater satisfaction of their educative necessities. The thematic analysis has defined several main trends, concerning how students use video algorithms, to form their clinical skills:

1. *For a revision:*

The students state that the video materials are useful to them for self-preparation of examination procedures – an oral exam in the clinical base, or a practical exam. The practical testing within the students' curriculum of *Health care,* allows them to perform clinical work.

"I could always put on the video when I remember, so I can remind myself some things."

"I used the video algorithms while revising for the exam procedures, so I could aid my theoretical, and practical knowledge. I think I need a good balance between reading, watching and working."

2. *Constructing a process of developing skills "step by step"*

Students have used video materials and textbooks, which helped them build their own process for a new skill that needs to be assimilated. The presence of video algorithms, and the opportunity to watch them many times, is perceived by students as a chance to construct their own line and speed, and to interiorize.

"I use them to form my own algorithm, so I can remind myself if I had forgotten some step of it while performing the relevant manipulation."

"The algorithms looked too complicated to me, but when I carefully combined what I have read in the textbook with the video material, then I was clear about the steps in which the manipulation is accomplished, and managed to form my own correct way of performing."

3. *Repetition/accessibility*

The opportunity of the students to access anytime and place, is perceived as a key characteristic of the video materials. All students have watched them many times.

"I could always rewind the video lesson to stress on something that is not clear to me, and also so I can see it one more time, wherever and how I want it. This is helpful to me, considering the overloaded program I've got."

"I've watched all videos, since by those visual methods, I consolidate my knowledge and algorithms for performing them in practice. The videos are made with the exact trends, clear and easy to understand, and they last long enough."

"I use them most often before an exam, or a colloquium, since they're easy to access. They give me a concept for the real performing of the manipulation."

4. *Refinement of skills*

Students share using video algorithms gives them a chance to perfect their own skills, through watching them, while performing the relevant manipulations. Trainees work together so they could watch, exercise and precise their technique.

"I was using the video algorithm, while exercising on the injection technique. This helped me learn better, how more clearly to define the place of the puncture, where to put my hands, how to withdraw the medication from ampule, how to hold the syringe, how to do the puncture. Every next time I was watching the video, I was doing better and better."

"I consolidate my knowledge while watching them."

"I use the video algorithms to check whether I'm properly doing the manipulation in practice".

5. *Authenticity*

The fact video algorithms are provided by the department of Health care, is important for students. This serves as a guarantee for the trainees, which allows them to be confident about using the right materials to develop an adequate approach for acquiring the necessary skills.

"The fact that those videos were provided by our lecturer, and aren't casual, allowed me to use them more confidently, and calmly".

6. *Accessibility within clinical practice*

The students are positive toward having unlimited access to educational video resources in injection technique, and measuring and recording somatic signs within their clinical training. Most of the trainees state that they have used the videos, while being on a clinical practice. The video algorithms are being used for reminding, review, discussion and checkup of the manipulation technique, before applying it to the patient. This educational resource helps the students feel more confident in building their skills within the practice.

"I used them when I was a freshman, before and during the practice, so I can refresh my knowledge and form a proper algorithm for working in a real environment."

"This spares me time and perfectly refreshes your knowledge, when you already got a theoretical base. They're accessible in clinical bases too, which makes you feel secure to look at and check before working with the patient".

A great deal of importance for the training team from the department of Health care, is to have a clear idea of what is the respondents' opinion of the process of assimilating the different manipulations, and

internalizing the procedure itself. Respondents were provided with an alternative option to choose from different training approaches (Figure 7).

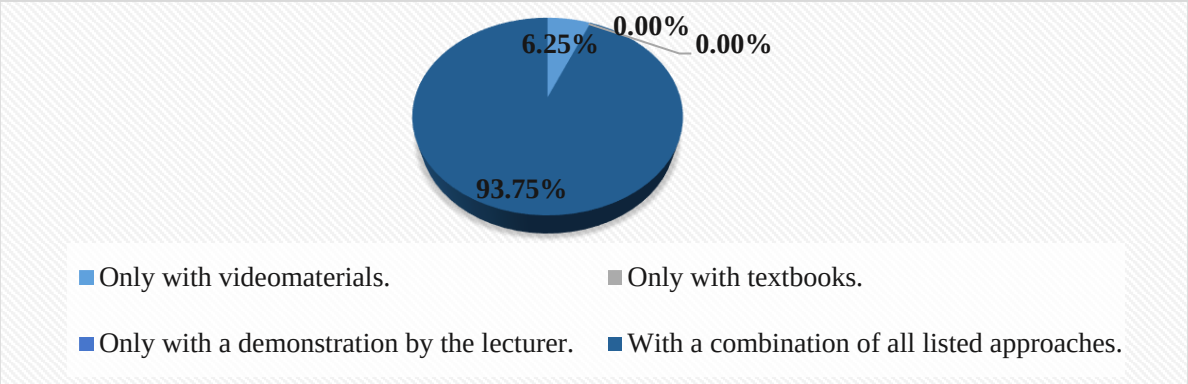

Figure 7. The respondents' preferences in regard to training methods for assimilating procedures and manipulations

Almost all of the students – 93,75% of them – think a combination of using both video materials and textbooks is needed, as well as a demonstration by the lecturer. Those things would be most helpful to them in studying the various interventions, which they are expected to learn. Barely 6,25% of them think that only video algorithms would be enough for achieving this goal.

Respondents are provided with the option to motivate their own point of view, and tell more about it:
"Because what is written in textbook, needs to be demonstrated with a dummy by a lecturer, it's desirable for us to perfect ourselves at home, and at the end in front of the lecturers, so we can be more confident in our knowledge and possibilities."
"Because by using just the textbook, for me is not possible to imagine how things are done. I must watch how exactly the relevant manipulation is done."
"Because it's easier to remember with a combination of all listed methods".
"I think so, since we feel more interested in it and have a greater wish for practicing and performing."
"The results are better with a combination of all methods."
"All different ways give a different view on the material, and this helps memorizing and understanding it easier."
"When a manipulation is seen by the student in several different ways, then it is more adequately reproduced."
Students have an explicit opinion, that it's optimal to combine all training methods – video materials, text resources – textbooks, handbooks, reference books, working with a lecturer – demonstrations, discussions, consultations, independent exercises, multiple exercising of the taught materials, and audio materials.

The type of training environment, which best engages students to internalize skills, directs to a mixed multisensory approach. Both experts and students are convinced of the advantage of feedback, which is directed to correction and encouragement by the lecturer during lessons. Most of them do agree, that it's best to learn a manipulation via a combination of different methods. This combination of video resources, independent exercises, demonstrations by lecturers and multiple repetitions, is perceived as a key combination of forming connections between achieving theoretical knowledge, and developing practical skills. While identifying those different methods, it becomes clear that everybody appreciates various multisensory resources, including listening, watching, reading, discussing and working. The inclusion of video resources in training package, which allows both demonstration and practice, is regarded as a good combination.

4. Conclusion

In the course of the research of students' professional preparation in the process of education in Health care, the didactical foundations of mastering professional skills via video algorithms, are laid; and the significant function of video methods in the content structure of education in different fields, is revealed.

A key moment is to define the specifics of the learning environment, in which students from different professional directions are being prepared in regard to their specific field, and also taking into account new realities, prompted by the vehement incursion of electronic technologies in education.

The results demonstrate the flexibility of video materials, in their role of a training video resource. All students and lecturers, included in the research, have used training videos in their activities within Health care education. This is an evidence in support of introducing such educational resource as a format which is recognizable by the digital generation of students. The fact that the materials are used not just in the classrooms, scientific labs and the clinical base, but also outside of them, anytime of the day, is of significant matter. This demonstrates the flexible, comfortable and mobile characteristics of the contemporary training resource, thus it could be regarded as a way to encourage trainees to access the video resources whenever, wherever and as much often as they`d like to. The presence of an easily accessible resource motivates students to exercise independently, which leads to a significant increase of effectivity of the training process, especially when they're provided with access to a video demonstration.

It is interesting students use video materials and textbooks, in order to construct their own process of each manipulation that needs to be assimilated. When they watch and exercise simultaneously, students manage to qualify themselves multiple times, and eventually formulate an algorithm for every single skill. Such structuralized approach may be regarded as one promoting profound knowledge, as the trainee internalizes this process for himself. Within this research, students have stated the opinion video algorithms are a useful means of electronic education. The fact is future specialists belong to the contemporary digital generation of students, and highly appreciate online video materials. They're definitely doing well when they both practice and use them, and they show better skills during their exams.

This research demonstrates students appreciate using video materials as an important factor in the process of learning new skills, and think those resources are quite important for them, especially in regard to constructing initial psychomotor skills. Video materials are easily accessible and supple and are spread via means, which are known to the digital generation of students. It's obvious that video succeeds in motivating and encouraging students to exercise outside their study rooms and hours and promote both independent, and team learning.

Video materials serve for audio, visual and kinesthetic help and improve studying of manipulation. Of course, students do attach importance to traditional educational strategies, too. For example, they prefer demonstration and feedback from a lecturer, combined with new technologic means. The trainees share they see the benefit of demonstration in a real environment, feedback, correction and encouragement by a lecturer within their studies. They predominantly share the opinion it's best to learn a skill via a combination of different methods, and video training needs to be used as an addition, not a replacement of the lecturers' demonstration.

Building onto these ascertainments and the benefit, which experts and students identify in electronic education, in regard to developing clinical skills and professional competences, we come to the conclusion the analysis and scientific researches in this field have to continue. The combined approach in studying and teaching skills and professional competences, should be integrated in the curriculums of students from all fields.

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