

PERCEPTION REGARDING THE ACQUIRING OF DIDACTIC COMPETENCES OF THE STUDENTS FROM THE FINAL YEAR AT THE SPECIALIZATION PHYSICAL AND SPORTS EDUCATION, IN THE ONLINE EDUCATIONAL PROCESS

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Abstract: *The pandemic context imposed in the educational process a series of procedural and didactic adjustments, felt especially in the vocational specializations. The present study investigates the level of development of cognitive competences in the online educational system for third year students, specializing in physical education and sports. A questionnaire was applied aiming at: interaction at courses and practical works and the perception of the development of cognitive competences. The results showed an average level of participation and acquisition of cognitive competences. The online educational process by limiting active participation, reduces the training of practical and cognitive competences of future specialists in the field.*

Key words: *cognitive competences, students, Physical education and sports, proactive*

1. Introduction

The pandemic context is highlighted by the decrease of active, effective physical exercise of students from the physical education and sports program to practical disciplines and an adaptation for the online teaching system which determined a series of difficulties in corroboration and

transposition of theoretical knowledge into effective practice in the development of specific competences and abilities.

Starting with February 2020, due to the pandemic, through the regulations imposed on social distancing and hygienic aspects, in the educational field, there was a major change by transforming active activities from real and natural

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environment into a relatively passive activity carried out mainly in virtual environment.

In the vocational specializations, the didactic, procedural and methodological adaptations had significant and varied adjustments, by diminishing the active physical exercise in the practical disciplines and an adaptation to a system of exclusive online teaching in the theoretical disciplines.

The online academic teaching activities take place in two ways: 1. Synchronous through the facilities of e-learning platforms where there is a real-time interaction with and between students, and 2. Asynchronous which ensures a time interval between the materials transmitted by the teacher and processing by the student [9].

Synchronous activities according to specialists [12] are effective if student groups are restricted while in asynchronous activities the number of students is not a limitation, both ways requiring new and expanded competences, both for teachers and students.

Regardless of the way of organizing the online university educational process, it must be oriented towards the student's acquisition of specialized competences.

Students from the Physical and Sports Education (PES) specialization, being a vocational specialization, must have first of all a higher level of motor capacity to which are added the cognitive and social capacities. The limitations imposed by the online system diminish the interconnectivity between these three capacities, which presents a difficulty between the corroboration of the theoretical contents with the effective practice, between the passive online

representation with the real one, leading at the same time to a restriction of creativity, imagination, innovation and social integration.

During the schooling in the academic system, in the specialization of PES, future specialists, teachers of physical education and sports are prepared.

The final purpose of the educational system of the students from the specialization physical education and sports consist in the transfer and acquisition of a baggage of specific knowledge and the formation of the specialized competences, useful in the future career [11], [16].

Among the general objectives of university education in physical education and sports programs we mention: (a) the development of experimental skills, design, problem solving and analysis; (b) developing data recording and analysis skills; (c) development of practical skills; (d) development of communication and interpersonal skills; (e) developing the capacity for abstraction and generalization; (f) integration of theory and practice; and so on [8], [18].

In addition to specialized competences, an important role in the academic training process also concerns the cognitive competences of knowledge processing and organization (analysis, synthesis, comparison, abstraction, generalization, extrapolation, interpretation, etc.), involving complex mechanisms in accordance with the training objectives pursued [4].

Cognitive abilities to exploit and capitalize on knowledge in intellectual activity, according to specialists are of two kinds [13], [6], [17], namely:

I. Cognitive capacities for primary exploitation and capitalization:

- a. Capacities for applying knowledge in familiar contexts;
 - b. Capacities to transfer knowledge to new contexts,
 - c. Capacities to achieve complex intra- and inter-contextual connections, of interdisciplinary type.
- II. Cognitive capacities of secondary / complex exploitation and capitalization:
- d. Critical thinking capacities;
 - e. Creative thinking skills;
 - f. Capacities for design. intellectual activity; metacognitive abilities

We mention the fact that for the students of the year they finish their undergraduate studies, in the current pandemic context, the internships in the educational units present a barrier determined by the lack of institutional access, which makes it difficult to apply theoretical knowledge in effective practice with students minimizing the chance of this experience which represents the finality of the educational act at this level.

We took in this study the third year students because we consider that they have an educational experience of almost two years in the classical system, completed from February 2019 with the experience of education in the online system, subjects of the study having the capacity to be able to concretely identify the comparative educational acquisitions between the two on-site and online teaching systems.

The current study started from the assumption that the perception of students in the PES undergraduate program, regarding online teaching, will contribute to optimizing the academic teaching process and identifying new teaching and learning solutions to achieve specific goals and professional

competences of future specialists in the field.

2. Materials and Methods

2.1. Study participants

A total of 43 third-year students, 12 (27.9%) girls and 31 (72.1%) boys, with an average age of 21.74 years, from UMFST G.E. Palade from Tg. Mures, specialization PES. Study participation was anonymous and voluntary, and students could withdraw from the study without any consequences.

2.2. Procedure

The research aims at a qualitative method of data collection and analysis, by applying a questionnaire designed by us on the online platform used in the teaching process called Blackboard. Only those questionnaires that were complete were validated.

The study took place between October 20-30, 2020, the students having an activity in online teaching from February to May related to the academic year 2019-2020 and starting with September 14, the academic year 2020-2021.

For this manuscript all authors have an equal contribution.

2.3. Measures

A questionnaire was applied in this study, which included 11 items, scored on a 5 points Likert scale, where for the first two questions 1 represents totally inactive and 5 - very active, and for items 3-11 the answers were 1 - inefficient and 5 - excellent.

The questions focused on three aspects:
1. The level of active involvement in courses and practical works;

2. Methodological aspects such as: relevance of theoretical expositions and comparative media with motor practice in the formation of practical competences; imaging and verbal methods used, clarity and consistency of exposures.

The third aspect consisted in assessing the development of cognitive competences, namely: the ability to generalize abstract, combine theory with practice and develop methodical content.

The Cronbach's Alpha coefficient for 11 items was $\alpha = .873$, suggesting that the items had very high internal consistency.

The research results were processed in SPSS 20, calculating the statistical indicators: arithmetic mean (X), standard deviation (SD), one sample t- Student test; Multivariate Test by ANOVA. The significance threshold considered relevant for the study was $p < 0.05$, 95 % confidence interval (CI).

2.4. Results

The most relevant results and descriptive information are presented in the table no. 1.

Following the analysis of the answers, it is observed that for the first two questions regarding the active involvement in courses and practical works conducted online, the students appreciated that they have a partially efficient average

participation of 55.8% giving 3 points to courses and a very efficient participation at practical works of 30.2%. It is observed that no subject is totally inactive in the practical works compared to 2 students who appreciated that they did not have any activity in the courses.

The methodological aspects according to table 1 recorded the following answers:

- The online activity of the practical works 17 students representing 39.5% consider that this way of performing is inefficient and only one respondent appreciated that it is excellent. The majority of 41.9% consider it to be partially efficient.

- Regarding the relevance of theoretical and average exposures compared to motoric exercise, in the formation of practical competences, 41.9% consider that it has an average efficiency, and the level of understanding identified by item 5 on clarity and consistency of explanations of online comparative to on-site exercises, 34,9% appreciate that it has only a partial efficiency.

- Imaging methods have an average mentioned efficiency of 41.9% of the subjects compared to the verbal methods which are considered efficient by 46.5% of the respondent.

Table 1

Centralizer with the weight of answers according to the Likert scale (5) on each item of the questionnaire

Answers Item	1		2		3		4		5	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
How much do you think you are active in the courses	2	4,7	7	16,3	24	55,8	10	23,3	-	-
How much do you consider yourself active in practical activities	-	-	8	18,6	12	27,9	13	30,2	10	23,3
What do you think about practical activities being done online instead of on-site	17	39,5	18	41,9	6	14,0	1	2,3	1	2,3
Appreciate the relevance of theoretical and media exposures compared to motric exercise in the formation of practical competences	5	11,6	12	27,9	18	41,9	6	14,0	2	4,7
Appreciate the clarity and consistency of the explanations of teaching online exercises compared to the on-site ones	3	7,0	15	34,9	14	32,6	7	16,3	4	9,3
Appreciate the imaging methods used in teaching	-	-	2	16,3	18	41,9	11	25,6	7	16,3
Appreciate the verbal methods used in teaching	-	-	-	-	17	39,5	20	46,5	6	14,0
Appreciate online teaching in developing your ability to generalize	1	2,3	13	30,2	22	51,2	7	16,3	-	-
Appreciate online teaching in developing your abstraction skills	-	-	10	23,3	26	60,5	7	16,3	-	-
Appreciate online teaching in developing your ability to combine theory with practice	4	9,3	7	16,3	23	53,5	4	9,3	5	11,6
Appreciate the online teaching on the elaboration of methodical contents (methodical lines) in PES	-	-	7	16,3	18	41,9	15	34,9	3	7,0

N - number of subjects, % - percentage of total responses per item, with bold I highlight the best result reported to Likert scale (1-5) per item.

Regarding the formation of cognitive competences regarding generalization, abstraction, the ability to combine theory with practice and the ability to conceive methodical lines, most students awarded 3 points, interpreted as having only an average efficiency.

Overall evaluation of the questionnaire (Table 2.) highlighted that the recorded values were statistically significant for $p < .05$, for all items. The arithmetic mean recorded on the entire questionnaire is 3,019.

Table 2

Statistical analysis of the ratio of answers according to the Likert scale (5) on each item of the questionnaire

	N	Min.	Max.	X	±SD	One simple test	
						t	P
How much do you think you are active at the courses	43	1.00	4.00	2.976	.771	25.312	.000
How much do you think you are active at practical activities	43	2.00	5.00	3.581	1.051	22.328	.000
What do you think about the practical activities being carried out online instead of on-site.	43	1.00	5.00	1.860	.914	13.333	.000
Appreciate the relevance of theoretical and media exposures compared to motric exercises in the formation of practical competences	43	1.00	5.00	2.720	1.007	17.706	.000
Appreciate the clarity and consistency of the explanations of teaching online exercises compared to the on-site ones	43	1.00	5.00	2.860	1.081	17.337	.000
Appreciate the imaging methods used in teaching	43	2.00	5.00	3.418	.956	23.425	.000
Appreciate the verbal methods used in teaching	43	3.00	5.00	3.744	.693	35.415	.000
Appreciate online teaching in developing your ability to generalize	43	1.00	4.00	2.814	.732	25.204	.000
Appreciate online teaching in developing your abstraction skills	43	2.00	4.00	2.930	.632	30.390	.000
Appreciate online teaching in developing your ability to combine theory with practice	43	1.00	5.00	2.976	1.057	18.457	.000
Appreciate the online playback regarding the elaboration of the methodical contents PES	43	2.00	5.00	3.325	.837	26.046	.000

where:

- N- number of subjects,
- X – mean of points,
- SD – standard deviation,
- t – Student test values,
- p – probability level.

Referring to the choice of answers, it is observed that at items 2,6,7,9 and 11, no subject chose the value 1 representing the total inactivity or inefficiency of the

targeted aspects. And at items 1,8,9 no subject ticked the value of 5 points, meaning an excellent or very active efficiency.

The active participation of students in the online system, the courses registered an average value of $2,976 \pm .771$, and the practical work of $3,581 \pm 1,051$.

Among the cognitive competences, the generalization capacity registered an average value of $2,814 \pm .732$, the abstraction capacity $2,930 \pm .632$, and the capacity to combine theory with practice of $2,976 \pm 1,057$.

3. Discussions

The results of our study highlighted the fact that the educational system developed in the online environment has an influence on the degree of active participation, the efficiency of the applied methodology and in the development of specific cognitive competences in future specialists, current students in the final year.

The online educational system that includes teaching, learning and assessment requires a rapid adaptation from a classic system in which the teacher was the moderator and initiator of the whole activity without any interpenetration between him and the students, requesting active and proactive involvement, to a system in which the whole Educational relationships is dependent on the facilities of the e-learning platform used.

These digital barriers negatively influence the active and real-time participation of students in educational activities, especially in the practical-methodical ones, because the effective practice is replaced by a passive methodical acquisition. These aspects were also highlighted in our study on active participation in courses or practical activities, where the answers were at an

average participation. These results are in agreement with another study [5] that aimed at certain competences training programs in the online environment where participation was around 54%.

The methodological aspects used in online teaching at university level were between partially efficient and environmentally efficient, because teachers have at their disposal only a digital dissemination of learning materials and tasks to students.

A study on the digitized methods used in the educational process showed that in the pre-covid period, e-mail was the easiest tool used in 63% of the teacher-student relationship [2], [5].

Regardless of the specific way of transmitting didactic information, the role of academic education is to form the competences necessary for specialization. The lack of interaction and the practical performance of certain tasks in the online system can produce a significant gap between the targeted performance and the real one perceived and mastered by the subjects of the educational act. In this sense, specialists recommend that feedback should be a component of online education, in order to adjust certain aspects [1], [6].

According to the results of our study, the perception of the acquisition and development of specific cognitive competences is formed in a narrower spectrum, having a medium efficiency. According to this finding, specialists believe that in order to face the challenges we must find other opportunities to reshape professor's education at physical education in higher education institutions [3] in the experiential manner of teaching and learning in physical education.

The acquisition by future specialists in the field of physical education and sports of knowledge and skills in the online system is a controversial aspect for specialists [14], but everyone believes that the goals must be achieved by finding solutions that streamline the connection between theory and practice. Insufficient opportunities offered by e-learning platforms regarding the practical performance of certain educational aspects have in the perception of specialists negative effects [15], [19] which can be amplified in the context of the uncertainty of the duration of maintaining the online system.

Generalization and abstraction, in the perceptions of our students, are partially developed, due to the limited possibilities offered by the online system to apply the theory in practice, to offer optimal visions in the design of applicable and reliable methodical lines. In this sense, the specialists consider that the applied methodology must be proactive, offering the possibility to maintain connections and contact with the real and practical aspects of students at the academic level [20].

A SWOT analysis of the online education system in 5 countries, on students and teachers from the physical education specialization, highlighted the fact that practical face-to-face experience is essential, physical contact between students and teachers provides timely experiences, and academic staff in providing teaching materials do not always have an effective level of adaptability [10].

Among the limitations of this study, we consider that the most important are: the limited number of subjects and the impossibility to apply effective practical

tests to support the results. In this sense, we consider that several studies should be carried out aimed at training teaching competences and a comparative analysis between the classic and online system on methodical acquisitions, as well as the impact, of perspective, adaptations by lack of corroboration of theory with effective practice in preparing future specialists in the field of physical education and sports.

The strengths of the study consisted in investigating students' perceptions regarding developing complex cognitive skills specific to physical education at the academic level, awareness of active participation in the online educational process, perception of the effectiveness of the methodology addressed by teachers in transmitting and evaluating information.

4. Conclusions

The cognitive competences of the future specialists in the field of physical education in the conditions of online teaching present a real syncope, due to the lack of practical applicability of the theoretical notions.

The level of development of certain cognitive competences has an average efficiency, which for the moment, can be adjusted by proactive and conscious involvement of both students and teachers, in order to reduce the formative gap. Continuing this online system, without interaction and physical participation, will have negative effects which are difficult to be recovered.

References

1. Boud, D.: *Feedback: Ensuring It Leads to Enhanced Learning*. In: *The Clinical*

- Teacher, 2015, vol. 12, p. 3–7. doi:10.1111/tct.12345
2. Eickelmann, B., Drossel, K.: *School at a Distance*. Berlin, Vodafone Stiftung, 2020.
 3. Flores, M. A.: *Preparing Teachers to Teach in Complex Settings: Opportunities for Professional Learning and Development*. In: European Journal of Teacher Education, 2020, 43 (3), p. 297–300. doi:10.1080/02619768.2020.1771895
 4. Kaiser, G., König, J.: *Competence Measurement in (Mathematics) Teacher Education and Beyond: Implications for Policy*. In: Higher Education Policy, 2019, vol. 32, p. 597–615. doi:10.1057/s41307-019-00139-z.
 5. König J., Jäger-Biela, D. J., Glutsch, N.: *Adapting to online teaching during COVID-19 school closure: teacher education and teacher competence effects among early career teachers in Germany*. In: European Journal of Teacher Education, 2020, 43(4), p. 608–622. DOI: 10.1080/02619768.2020.1809650
 6. König, J., Bremerich-Vos, A., Buchholtz, C. et al.: *Pre-service Teachers' Generic and Subject-specific Lesson-planning Skills: On Learning Adaptive Teaching during Initial Teacher Education*. In: European Journal of Teacher Education, 2020, 43 (2), p. 131–150. doi:10.1080/02619768.2019.1679115
 7. Lee, J. F. K.: *Enhancing Preservice Teachers' Professional Competence through Experiential Learning*. In: Journal of Education for Teaching, 2019, 45 (3), p. 353–357. doi: 10.1080/09589236.2019.1599507
 8. Mijaică, R., Balint, L.: *School Physical Activities between the Formal and Nonformal Education*. In: Procedia - Social and Behavioral Sciences, vol. 76, 2013, p. 503-510,
 9. Moorhouse, B. L.: *Adaptations to a face-to-face initial teacher education course 'forced' online due to the COVID-19 pandemic*. In: Journal of Education for Teaching, 2020, DOI: 10.1080/02607476.2020.1755205
 10. O'Brien, W., Adamakis, M., O'Brien, N., et al.: *Implications for European Physical Education Teacher Education during the COVID-19 pandemic: a cross-institutional SWOT analysis*. In: European Journal of Teacher Education, 2020, 43(4), p.503-522, DOI: 10.1080/02619768.2020.1823963
 11. Paun, E.: *Pedagogie. Provocări și dileme privind școala și profesia didactică (Pedagogy. Challenges and dilemmas regarding the school and the teaching profession)*. Iași, Ed. Polirom, 2017.
 12. Peachey, N.: *Synchronous Online Teaching*. In: Digital Language Learning and Teaching. 2017, p. 143–155, New York, NY: Routledge.
 13. Popa, O. R., Bucur, N. F.: *Teacher competences: towards a definition framework*. In: Journal of Pedagogy, 2017, vol. 1, p. 23 – 39 <https://doi.org/10.26755/RevPed/2017.1/23>
 14. Quennerstedt, M.: *Physical Education and the Art of Teaching: Transformative Learning and Teaching in Physical Education and Sports Pedagogy*. In: Sport, Education and Society, 2019, 24(6), p. 611–623. doi:10.1080/13573322.2019.1574731

15. Sahu, P.: *Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff*. In: *Cureus*, 2019, vol. 4, p. 4–9. doi:10.7759/cureus.7541.
16. Savva, M.: *Specificul structurii personalităţii cadrului didactic: abordări teoretice (The specific of the teacher's personality structure: theoretical approaches)*. In: *Studia Universitatis Moldaviae*, 2018, 5(115), Seria Stiinţe ale educaţiei” p. 67-76
17. Talaghir, L. G., Ionomescu T. M.: *Study regarding the implementation of the innovative theoretical component in the school curriculum for physical education within the Romanian school system*. In: *The 10th International Conference on Education and New Learning Technology*, Palma, 2nd-4th of July, 2018, p. 6169-6177.
18. Tohănean, D. I., Turcu, I.: *Comparative study on the level of psychomotricity of students (1st and 2nd year)*. In: *Bulletin of the Transilvania University of Brasov, Series IX, Vol. 10(59) No. 2*, 2017, p. 123-128.
19. Toquero, C.M.: *Challenges-and-Opportunities-for-Higher-Education-Amid-the-Covid-19-Pandemic-the-Philippine-Context*. In: *Pedagogical Research*, 2020, 5 (4): em0063. doi:10.29333/pr/7947
20. Zhai, Y., Du X.: *Addressing Collegiate Mental Health amid COVID-19 Pandemic*. In: *Psychiatry Research*, 2020, vol. 288, 113003. doi: 10.1016/j.psychres.2020.113003.