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BUILDING THE MUSEUM CULTURE OF STUDENTS AND PUPILS THROUGH MUSEUM EXHIBITIONS IN THE INFORMATION TECHNOLOGIES ERA

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Abstract. Museum exhibitions are of major importance in the formation of museum culture of students and high school students, providing unique opportunities for research, learning and exploration of various cultural, historical, scientific and artistic fields. The study carried out elucidates an experimental scientific research focused on the valorization of museum exhibitions in the formation of museum culture (FMC) of students and high school students by exploring information technologies. The purpose of this research is to conceptualize the FMC of students and high school students through the elaboration of the praxeology of the targeted process in an age of information technologies. Research hypothesis: FMC of students and high school students through the museum exhibition, will be possible by determining, revealing and validating the theoretical-applicative foundations of the given process. Theoretical methods were used: analysis, synthesis, comparison and interpretation of the obtained results and practical methods: questioning, observation, pedagogical experiment, etc. Discussing and verifying the obtained results we identified, that the activities carried out during the training stage generated a positive impact on the FMC of students and high school students reflected in the change of attitudes, behaviors and value contents. The research allowed us to find that the museum exhibition can become an effective strategy for the culturalization of students and high school students on the three essential dimensions: institutional, professional, social, ensuring the promotion of national and universal values in the context of lifelong learning/permanent education.

Keywords: *museum, museum education, museum pedagogy, museum culture, museum exhibition, values, museum collections, information technologies, students, pupils.*

Rezumat. Expozițiile muzeale sunt de importanță majoră în formarea culturii muzeale a studenților și liceenilor, oferind oportunități unice de cercetare, învățare și explorare a variate domenii culturale, istorice, științifice și artistice. Studiul realizat elucidează o cercetare științifică experimentală axată pe valorificarea expozițiilor muzeale în formarea culturii muzeale (FCM) a studenților și liceenilor prin explorarea tehnologiilor informaționale. Scopul acestei cercetări constă în conceptualizarea FCM a studenților și liceenilor prin intermediul elaborării praxiologiei procesului vizat într-o epocă a tehnologiilor informaționale. Ipoteza cercetării: FCM a studenților și liceenilor prin intermediul expoziției muzeale, va fi posibilă

determinând, dezvăluind şi validând fundamentele teoretico-aplicative ale procesului dat. Au fost utilizate metodele teoretice: analiza, sinteza, compararea şi interpretarea rezultatelor obţinute şi metodele practice: chestionarea, observarea, experimentul pedagogic etc. Discutând şi verificând rezultatele obţinute am identificat, că activităţile desfăşurate în cadrul etapei de formare au generat un impact pozitiv asupra FCM a studenţilor şi liceenilor reflectat în schimbarea atitudinilor, comportamentelor şi conţinuturilor valorice. Cercetarea a permis să constatăm că expoziţia muzeală poate deveni o strategie eficientă de culturalizare a studenţilor şi liceenilor pe cele trei dimensiuni esenţiale: instituţională, profesională, socială, asigurând promovarea valorilor naţionale şi universale în contextul învăţării pe tot parcursul vieţii/educaţie permanentă.

Cuvinte cheie: *muzeu, educaţie muzeală, pedagogie muzeală, cultură muzeală, expoziţie muzeală, valori, colecţii muzeale, tehnologii informaţionale, studenţi, liceeni.*

1. Introduction

The museum exhibition still remains the most important form and strategy of museum education regarding building the museum culture of all categories of audience, regardless of the geographic area, ethnic origin, social status, family status as well as the level of cognitive development. According to modern concepts, the museum exhibition supposes the exposing of museum objects/exhibits, scientifically founded, compositionally, artistically and aesthetically organized, being labeled with textual descriptions, information and orientation boards, creating the image and specifics of museum, according to N. V. Myagtina [1, p. 95].

The history of apparition and the genesis of museum exhibitions, which served as inspiration sources, researched and culturized can be traced back to the ancient times with the establishment of *mouseion*, initially holly places dedicated to Muses, and later any social or cultural institutions owning large collections of artistic and scientific works, worship items etc. [2, p. 16]. The structural and economic changes within the society, up to modern era, resulted in fundamental modifications in the process of organising and conducting the *museum exhibitions*, thus combining the creative and technological processes, involving the competent specialists' teams covering different domains of activity as: museology, design, psychology, pedagogy, engineering, etc. In creation of a modern museum exhibition, focused on education, is aimed the testing of some particular modern strategies and mechanisms intended to produce the maximal impression over the museum audience, to trigger the interest over the content of exposed values, and maintain it.

The Romanian researcher C. Cucos states that *through the interaction with the virtual we can dive in some context, ascertain how something moves or operates, how it sounds, at the same time we can manipulate the object, evaluate the texture, weight, dimensions, smell etc* [3, p. 199].

So, the usage of information technologies in performing the museum exhibitions contributes to revitalization and extending the museum connections over a larger audience, implying in person as well as virtual tours. A high-quality virtual program, meant to promote the museum heritage, can be a valuable pedagogic tool for a higher efficiency education and culturalization process of the students and pupils.

Beginning with the importance and necessity of education and formation of museum culture of growing generations through valorisation of national and universal heritage, we outline that for supporting this dimension were built and ratified a set of normative acts, laws, ordinances, that offers opportunities and improvement mechanisms of insertion of museum culture into all education levels. Especially relevant in our opinion being: The law

of museums nr. 262 from 07.12.2017 [4]; National strategy of development Moldova, 2030 [5]; Council of Europe Framework Convention on the value of cultural heritage for society, FAR), 27th October 2005 [6], which offers strategies on promoting the cultural patrimony and the information society [7].

2. The praxeology of the organising and conducting of museum exhibitions within the context of pupils and students culturalization

The analysis of the specialty literature [8-11] allowed to conclude that the process of organizing, conducting, and implementing of information technologies in building and valorisation of museum exhibition is required to meet the following criteria:
- specification of the generic theme of the exhibition;
- facilitation of access to the thematic museum collections;
- building of a multidisciplinary team of specialists, highly competent and dedicated to the aimed domain, which will ensure the necessary support for exposing the museum collections;
- equipping of facilities with expositional technologies, which will ensure the necessary support for exposing the museum collections;
- ensuring and renovation of the required technical-material resources.

Within the same research area, we point out that the design of the museum exposition configuration and the facilities connected to them, is achieved in compliance with following important components:
- scientific design, which supposes the elaboration of the basic concept and the contend of the exhibition;
- artistic design, focusing the artistical and plastic approach of the exhibition;
- technical-material design, pointing the place of each exhibit, text label and technical means, according to N. V. Myagtina [1, p. 99].

The performed empirical and theoretical study allowed us to supplement the above requirements with some more:
- a comprehensive analysis of the domain, generic and theme of previously conducted exhibitions within the museum;
- conceptualizing and developing a preliminary plan of the exhibition project;
- designing the exhibition organising-conducting technology and revealing the required human resources/experts which will be involved in its maintenance;
- analysis and discussion of the whole exhibition organising-conducting and monitoring process;

In accordance with our study framework ideas, the researchers of the domain A. V. Anufriev, V. P. Shaherov, S. L. Shaherova, stated that exhibits/components of *museum exhibitions*, must carry a logical, common, and integral meaning aiming the optimal interaction and relation with the visitors. The museum exhibit selected for exposing is required to meet following physical, aesthetical, amd technological requirements of interaction with visitor:
- informativeness;
- accessibility;
- expressiveness;
- attractiveness [12, p. 19].

Thus, we can conclude that each outlined properties of museum exhibit, develops a fertile environment meant to stimulate the active, participatory, and heuristic learning within from the observing reception, analysis, reflection and interpreting of museum exhibits.

Within the related consensus, the researchers [12-14] states that the grouping of the objects representing the *museum exhibition* follows these principles:

- *valueness,* exhibition is composed of aesthetically and culturally valuable items;
- *unity and scientificity,* exhibitions are researched, conceptualized, and designed according to fundamental scientific criteria;
- *feedback,* exhibition is designed in conformity with age, level of personal development as well as other particularities of the audience;
- *accessibility,* elaborating and presenting the of museum exhibition is determined by socio-cultural environment.

Obviously, a well-designed *museum exhibition* elaboration and presentation concept, becomes a key-factor in formation-developing of all categories of audience (general education) or a particular contingent (specialized education, specialized students) interest and motivation in museum culture. Also is necessary to point out that both, selection principles of museum objects for *museum exhibitions*, as well as presentation technologies combined with informatisation actions, should focus on education, cultivation and promoting the museum patrimony among children, pupils, students and adults.

The researcher A. V. Sherbina considers that modern exhibitions can be also can be segregated in following essential categories:

- *contemplative,* such an approach is typical for arts museums and galleries where the exhibits are selected and exposed according to some aesthetical criteria, assuring the sensibilisation of the audience in respect to artistic value and authentic plastic perception;
- *thematic or didactic,* this type of exposing is specific especially for historical and scientific museums, where through technological means of interpretation, the museum objects are placed in some social, historic, cultural, or scientific context;
- *environmental,* in such exhibition is reproduced the atmosphere of human habitat, where have been created and used some exhibits from museum heritage;
- *systematic,* in such exhibitions the setup of objects locations from museum collection is performed into some particular order, accompanied by stands with detailed information about those;
- *interactive,* this type of exposing involves the visitor in a dialog with exhibition, for this purpose using a set of multimedia technologies, aiming to reproduce historical events of some epochs.
- *applied,* such an expositional organisation supposes a direct interaction of visitor with objects within the museum exhibition and access to the research collection [15, p. 24].

We point out the fact that museum exhibitions represent the most important way of materialization and optimal presentation of museum offers, area of interaction and communication with its audience.

3. Materials and Methods

The current research included a set of theoretical methods: scientific documenting, comparative analysis, synthesis, generalization, systematization, etc; empirical methods: polling, conversation, scientific observation, the experimental approach to ascertainment,

formation and validation; statistic-mathematical methods which backed us in processing and interpreting results, etc.

In context of theoretical research, I examined the epistemology of formation of museum culture (FMC) problem of students and pupils by museum exhibition means in the information technology age. The epistemological study and the analysis of specialty literature have grounded the conceptualization and led to the defining and delimitation of basic concepts, establishment of new theories, approaches and ideas of researchers who contributed to improvement of FMC of students and pupils.

The experimental research supposed the involvement of experimental group of students, 27 students and 27 pupils, and the totality of tools developed and validated which focused on students and pupils opinions over FMC, after watching museum exhibitions, performing surveys of students and pupils; *Counselling program and FMC of students and pupils via museum exhibition in the information age,* meant to trigger the interest and increase the educational cohesion with the discursive space of the museum exhibitions.

The praxiological approach of building the students and pupils culture via museum exhibition in information age was performed in *Before-And-After* method, reflecting the investigation methods described so far.

4. Results and Discussion

The experimental research focused on the conceptual frame research and analysis of State documents, researcher's theories and approaches identified as relevant for developing and scientific grounding of the set of pedagogical tools, valorised in organising and conducting the described pedagogic experiment.

The pedagogic experiment of research emphasizes three stages: constatation, developing and checking/verifying, being emphasized the purpose and the objectives. The study was performed on an experimental group where were implicated 27 students of the *Technical University of Moldova* and 27 pupils of the Theoretical Lyceum *Ion Luca Caragiale* from Orhei, conducted during 2019-2021 period with implication of teaching staff from the mentioned educational institutions, as well as museum staff from *National Museum of Fine Arts of Moldova*, *National Museum of Ethnography and Natural History of Moldova*, *National History Museum of Moldova*, etc.

At the ascertainment stage, in perspective of establishing and evaluating the real situation on the impact of museum exhibition on FMC of students and pupils, was developed and applied the *Opinion poll of students and pupils* with seven items, the responses supposed to be before and after formation, within the allocated facilities, with selection of one of three possible options.

The developing stage supposed the participants familiarisation with the museum education process, and building of museum culture via museum exhibitions. Were watched a set of virtual exhibitions according, organised various museum activities using computer graphic programs, online conferences etc., conducted within the *Counselling program and FMC of students and pupils via museum exhibition in the information age* framework, starting with several premises:

1. Developing the specific information technology exploration abilities and competences through increased involvement of students and pupils in formal, nonformal, research and experimental activities, regarding the formation of museum culture

2. Opportunities of applying the acquired competences which aims the museum culturalization level in professional and social contexts.

3. Continuous feedback over the messages provided by museum exhibitions, which develops the observation, reception, analysis, reflection and interpreting abilities.

Therewith, we emphasise the fact, that as an efficient achievement of the *Counselling program and FMC of students and pupils via museum exhibition in the information age* was directly impacted by such factors as: the componence of the group of educable; individual particularities of members; psychologic climate, social-cultural environment, etc.

There are following some of the formative research results, aggregated in distributed Tables 1 and 2.

Table 1

Responses regarding FMC of students, I-II year in the university (27 participants)

Item number and responses	Constating experiment		Verification experiment	
	Data	%	Data	%
1. Show interest in visiting and assimilation of museum exhibitions				
- showing no interest	6	22.22	-	-
- showing partial interest	16	59.25	3	11.11
- showing great interest	5	18.51	24	**88.88**
2. Use museum culture specific terminology in speech				
- not using	18	66.66	-	-
- partial using	7	25.92	2	7.40
- widely using	2	7.40	25	**92.59**
3. Claim that museum exhibition develops the cognition, creativity, and imagination in various contexts of learning and research				
- don't agree	8	29.62	-	-
- partially agree	15	55.55	3	11.11
- entirely agree	4	14.81	24	**88.88**
4. Are impressed visited by museum exhibitions				
- not impressed	10	37.03	-	-
- partially impressed	14	51.85	1	3.70
- very impressed	3	11.11	26	**96.29**
5. Shows interest in diversification the learning space, including through usage information technology				
- do not show interest	12	44.44	-	-
- shows partial interest	11	40.74	-	-
- shows active interest	4	14.81	27	**100**
6. Consider necessary conducting museum culture activities, including through usage of information technology within the educational institutions				

- do not consider	22	77.77	-	-
- do not know	2	7.40	-	-
- consider very necessary	3	11.11	27	**100**
7. Suggestions for improvements of museum culture within the educational institutions				
- necessity of the civilization history knowledge	23	85.18	27	**100**
- necessity of national and universal works of art knowledge	25	92.59	27	**100**
- necessity of conducting of research activities of curricular subjects in museums through usage of information technology	24	88.88	26	**96.29**
- necessity of orientation of learning to knowledge and appreciation of museum exhibits/museum heritage	21	77.77	25	**92.59**

The data were obtained following the verification and comparison of the results reflected in the questionnaires by applying mathematical calculations within the experiment, at the ascertainment/initial stage and at the final verification stage.

As can be seen in the Table 1, the results obtained from the survey of the students on the constating stage and verification stage shows considerably different results. So, we conclude that students are being aware and greatly appreciates the impact of museum exhibition in FMC.

We continue with showing and interpreting the results obtained after surveying the pupils, as follows in the Table 2.

Table 2

Reponses of pupils regarding FMC (27 participants)

Item number and responses	Constating experiment		Verification experiment	
	Data	%	Data	%
1. Show interest in visiting and assimilation of museum exhibitions				
- showing no interest	8	29.62	-	-
- showing partial interest	17	62.96	4	14.81
- showing great interest	2	7.40	23	**85.18**
2. Use museum culture specific terminology in speech				
- not using	19	70.37	-	-
- partial using	5	18.51	3	11.11
- widely using	3	11.11	24	**88.88**
3. Claim that museum exhibition develops the cognition, creativity, and imagination in various contexts of learning and research				
-don't agree	7	25.92	-	-
-partially agree	16	59.25	2	7.40

-entirely agree	4	14.81	25	**92.29**
4. Are impressed visited by museum exhibitions				
- not impressed	11	40.74	-	-
- partially impressed	13	48.14	2	7.40
- very impressed	3	11.11	25	**92.59**
5. Shows interest in diversification the learning space, including through usage information technology				
- do not show interest	11	40.74	-	-
- shows partial interest	12	44.44	1	3.70
- shows active interest	4	14.81	26	**96.29**
6. Consider necessary conducting museum culture activities, including through usage of information technology within the educational institutions				
- do not consider	22	77.77	-	-
- do not know	2	7.40	-	-
- consider very necessary	3	11.11	27	**100**
7. Suggestions for improvements of museum culture within the educational institutions				
- necessity of the civilization history knowledge	21	77.77	25	**92.59**
- necessity of national and universal works of art knowledge	24	88.88	26	**96.29**
- necessity of conducting of research activities of curricular subjects in museums through usage of information technology	25	92.59	27	**100**
- necessity of orientation of learning to knowledge and appreciation of museum exhibits/museum heritage	23	85.18	27	**100**

The data were obtained following the verification and comparison of the results reflected in the questionnaires by applying mathematical calculations within the experiment, at the ascertainment/initial stage and at the final verification stage.

Obviously, the results obtained after formation of the pupils, reflected in Table 2 shows that museum exhibitions contribute substantially to FMC of pupils through promoting, knowledge and appreciation of the national heritage.

The data were obtained at the final stage of the experiment by applying mathematical calculations to compare the FMC results of students and high school students.

On the stage of validation of data obtained, comparing results, we conclude that the difference between the two groups is insignificant. Since on initial constatation stage both, students and pupils, shown minimal knowledge of FMC, we conclude that conducted activities within the formation process had a positive impact over the FMC of students and pupils in resulted in the attitude, behaviour and value content changes.

4. Conclusions

In conclusion we consider that our research is current, original and necessary for the promotion of the museum treasure, and the results obtained confirmed the launched hypothesis and contributed to the solution of the scientific problem, focused on the pedagogical, theoretical and praxeological foundation of FMC of students and high school students through museum exhibitions in the age of information technologies. The given investigations have shown that museum exhibitions can contribute essentially to the formation of the museum culture of young people, strengthening their development as citizens who are informed and interested in cultural heritage. In the same way, we identified that the use of information technologies can stimulate the interest and involvement of students and high school students in exploring the museum treasure, offering them an interactive and engaging environment for experimentation. Therefore, our research makes relevant contributions to the field of museum culture formation, highlighting the importance of museum exhibitions and information technologies in the education of the younger generation. At the same time, it can serve as theoretical-practical support for educational institutions and museums in the elaboration, development and implementation of educational strategies in the context of promoting the national and universal cultural heritage among students and high school students.

The research carried out opens new and real perspectives for the in-depth investigation of FMC throughout the life span.

Conflicts of Interest: The author declares no conflict of interest.

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