



THE MUSEUM-SCHOOL MENTORING MODEL AND PERSONALIZATION OF EDUCATION

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Abstract/Izveček

Museums are certainly a potential source of excellent mentors for students at all levels of education. It is realistic to expect that a model of personalized learning with a complex system of mentoring, would yield positive results. The article deals with the attitudes of teachers, museum educators and curators on forms of mentoring in the process of personalizing education at the primary level in Croatian schools. Qualitative methodology (semi-structured interviews) was used in the research. The results of the study indicate positive attitudes of teachers and museum educators/curators towards joint mentoring through networks across educational and cultural community institutions.

Keywords:

personalization of education, joint museum-school mentoring of students, attitudes of teachers and museum experts.

Model skupnega muzejsko-šolskega mentoriranja in personalizacija učenja

Muzeji so nedvomno potencialni vir odličnih mentorjev za učence na vseh stopnjah izobraževanja. Model personalizacije učenja, ki temelji na kompleksnem sistemu mentorstva, je lahko zelo uspešen. Članek obravnava stališča hrvaških učiteljev, muzejskih pedagogov in kustosov do različnih oblik mentorstva v procesu personalizacije učenja in poučevanja na primarni stopnji izobraževanja. V raziskavi je bila uporabljena kvalitativna metodologija (polstrukturirani intervjuji). Rezultati raziskave kažejo na pozitiven odnos učiteljev in muzejskih pedagogov/kuratorjev do skupnega mentorstva v okviru povezovanja med izobraževalnimi zavodi in institucijami kulturne skupnosti.

Ključne besede:

rast števila starejših, formalna in neformalna oskrba starejših, socialnopedagoško delo s starejšimi.

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Introduction

The formal educational sector has always considered museums to be desirable partners in the community. According to research by Hooper-Greenhill (2007), as many as 84% of children attending primary or preschool education in England are involved in organized museum visits. Mileusnić (2022) points out similar aspirations in Croatia, emphasizing that special attention should be paid to the design of activities and the creation of educational materials for children, especially museum handbooks for children.

Personalization of education nevertheless imposes new challenges. In Croatian pedagogical practice, the personalization of education through dual individual mentoring of students takes place most often in the student-teacher-parent relationship. Such collaboration sometimes encourages student progress tailored to individual needs, but with relatively little use of local community potential. It should also be emphasized that students without the strong support of parents or caregivers find it more difficult to use all learning opportunities in their own educational environment. Virtual instruction in the context of the COVID-19 pandemic required an exceptional commitment by the parents or caregivers of children in primary education (Tonković et al., 2020) and proved challenging even for well-educated and highly motivated parents. Mentoring is a demanding task and should therefore involve planned and coordinated action by several pedagogically competent experts from different basic professions. However, even in such an educational microsystem, parents have an important role to play, especially with primary school students.

From a museum perspective, the question of how museums can turn their role as an optional partner in education into a role of participants in creating different models of learning in modern social conditions becomes important. In formal education, almost everyone today welcomes contextual interdisciplinary learning (Zmuda et al., 2015). The focus is no longer only on mastering the content but also on achieving learning outcomes that deal with the adaptation and application of learning content and research in real or pedagogically created problem situations. This is also the essence of current curriculum aspirations in Croatia (MZOS, 2019). The formal education sector has always considered museums and libraries to be desirable partners in the community. Why then do museums not participate in current debates about curriculum changes in education?

Museums, with their highly expert employees, are certainly a potential source of excellent mentors for students at all levels of education, and it is realistic to expect that the model of high level of personalized learning, which implies a complex mentoring system, would give them the role they deserve in education.

Personalization in education

Personalized education in modern circumstances is gaining in value. This does not mean that there is no collective education, but that in the education of each individual, his/her personalized needs and desires are considered important. "Personalised learning in education can be understood as the drive to tailor education to individual need, interest and aptitude so as to fulfil every young person's potential" (DfES, 2004, 4).

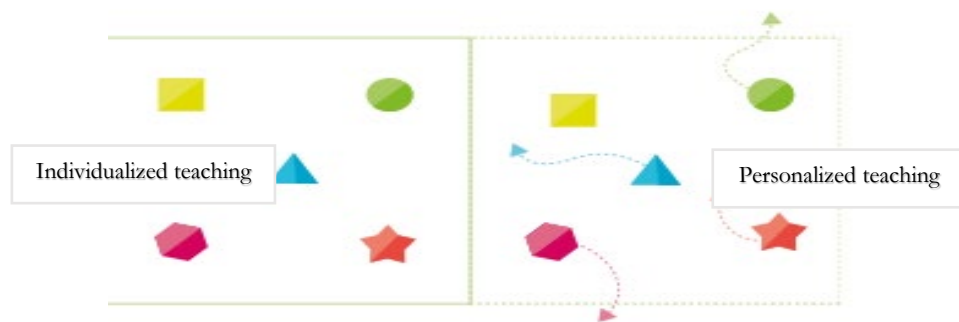
Personalization of educational activities is often unjustifiably equated with the notion of individualization. It is not individualised learning where pupils sit alone at a computer. In personalised learning, all participants in personalization need to be responsible in order to achieve outcomes. As opposed to that, individualised learning only expects that teachers will direct individual pupils towards their own goals. With the quality personalization of the educational process, however, the student is truly at the centre of the learning process. He identifies his own learning goals, follows his own patterns, chooses his own methods, analyses his own preferences, decides what and when to learn, and uses technology and mental learning, but despite all this, he still needs a teacher as a mentor (Guzik, 2015). Students act differently as members of a social group or as individuals in a particular context. According to Spears and Lea (1994), as members of a social group, they are inclined to perceive group norms and standards, and their motivations follow the group intentions. As individuals in a particular context, the sense of an individualized personalization system drives them to focus on their individual needs.

As Fan and Poole say (2006, 185), the key issues in the implementation of personalization are built on three main pillars: "the aspect of the information system that is manipulated to provide personalization, the target of personalization and the one who does the personalization". The personalization framework is determined by factors such as the type of personalized educational service, the control a student has over their learning, and the degree of adaptation to each student. It is possible to notice a difference in modalities of personalization in terms of context, people, and goal.

The curriculum approach (Previšić, 2007) opens new possibilities for structuring teaching content in the process of co-construction of the school curriculum and the related design of teaching activities for both formal and informal learning. We start from the assumption that the student can take more control over the curriculum of his own education through personalization in education than during the individualization of his education, i.e., he can participate more actively in its co-construction (Kisovar-Ivanda, 2016). According to the model of personalization that we advocate in the context of museum-school mentoring, the student not only needs a schoolteacher as a mentor, but also chooses different mentors in other, informal learning environments, including the museum.

Museum mentors and personalization of education

By personalizing learning through a combined model of school and museum education, students take control of their learning with the help of multiple connected mentors (Merritt, 2014). In this case, students are allowed to decide in which direction to go, directing themselves within flexibly structured curricular frameworks.



Picture 1. Difference between individualized and personalized education (adjustment of the scheme according to Guzik, 2015)

Carefully designed mentoring implies the existence of learning networks across educational and cultural community institutions, in which museums establish effective partnerships with schools.

In such a partnership, schools and museums can design individual learning experiences that are tailored from the perspective of each individual student and his/her personal needs.

The key to such personalization lies in effective coordination between the schoolteacher, as the initiating mentor, the museum curator/educator as the mentor for the specific area, and the intrinsically motivated student as the main link in this learning network.

Miliband (2006) describes five phases of personalized learning: (1) Assessment phase – Teacher and students work together in a formative manner to identify strengths and weaknesses; (2) Teaching and learning phase – Teachers and students select learning strategies; (3) Curriculum choice phase – Student chooses the curriculum, creating a pathway for student choice; (4) Radical departure from typical education models phase – Built on student progress, this phase provides teachers the flexibility to choose their own teaching strategies; (5) Education beyond the classroom phase – Using social and community connections, students personalize their surroundings (with the help of the teacher, when needed) to create their ideal learning environment.

While creating an appropriate learning environment and designing individual learning experiences for students, a museum mentor sometimes involves the use of new digital technologies and digitized content. New digital technologies are often used to provide context for museum objects as well as to personalize learning in museums. According to Antoniou et al. (2020), augmented reality can project a museum object into its original environment, which can be important in both real and virtual learning contexts. By introducing the digital dimension into the pedagogical interaction of students, teachers and museum mentors, the complex and multidimensional situation becomes even more complex and requires additional flexibility from the personalized educational process.

Methodology

The research was conducted in 6 museums and 7 schools in Zagreb, Zadar, Biograd and Nin in Croatia, and it included 11 museum educators and curators, as well as 12 primary school teachers. An effort was made to gain an in-depth insight into the issue of personalization by applying a qualitative approach to the research.

The main purpose of this study is to refine our understanding of how museums and schools can make use of personalized educational products through a combined model of the museum-school mentoring model.

A qualitative approach was essential for collecting significant data, and research questions were answered by data collection, using semi-structured interviews. According to Megaldi and Berler (2020), the semi-structured interview is an exploratory interview that is generally based on a guide, and it usually focuses on the main topic that provides a general pattern. It allows researchers to acquire in-depth information and evidence from interviewees while considering the focus of the study.

The semi-structured interview with museum mentors (curators/museum educators) was guided by framework questions on (1) ways to individualize work with students in the museum, (2) curricular content they consider most appropriate for collaboration with students and teachers, (3) the ways in which such collaboration affects the work of museum mentors in general, and (4) the difficulties encountered in collaboration. The semi-structured interview with teachers was guided by framework questions about (1) the help of museum mentors in individualizing work with students, (2) curricular content they consider most appropriate for collaboration with museum mentors, (3) the benefits of such collaboration from their perspective, and (4) the difficulties they face in collaboration with museum mentors.

The interviews were transcribed and summarised to help with the analysis. An approach of a posteriori analysis (Halmi, 2013) was followed as a way of analysing the data collected through semi-structured interviews. Thematic analysis (Gibson, Brown, 2009) was chosen to analyse data according to the share of subsequently formulated summarized similar formulations (a posteriori method) in the expressed statements of all respondents.

Results

Since we sought to establish the views, opinions, knowledge and experiences of museum educators/curators and primary level teachers, we used thematic analysis with an inductive approach (a posteriori approach), allowing the data to determine our themes. It should also be emphasized that at the same time a semantic approach involved analysing the explicit content of the data. After coding the qualitative data and identifying patterns among them, we began coming up with themes.

The percentages used in describing the representation of attitudes and experiences in the tables were used in a descriptive context and do not represent a deviation from the qualitative paradigm.

Table 1. Personalization procedures suggested by museum mentors

Representative statements about procedures	Themes	f	N	%
We design special lectures / workshops for individual students / classes.	individualized lesson design	11	11	100%
We adapt each topic to the age of the children and their (pre) knowledge.	adjustment to the child's age	11	11	100%
We talk to students about their experiences and offer them new experiences.	adaptation to individual experience	7	11	63.63%
We give students individual tasks, such as drawing, modelling with plasticine or microscopy.	individual tasks	6	11	54.54%
Individual students could be given special assignments to work on individually or in small groups.	individual tasks	6	11	54.54%
We encourage students to make a poster with a presentation of research work on specific topics from the curriculum.	poster presentation of curriculum outcomes	6	11	54.54%
We facilitate access to the research approach for teachers who may not be in frequent contact with scientific work.	presenting a scientific approach	5	11	45.45%
In addition, to assist their teachers in designing individualized teaching content.	assistance with content design	5	11	45.45%
As curators we could help by mentoring students.	mentoring students	4	11	36.36%
The student receives certain tasks related to the topic and solves them independently (with the help of a museum educator and teacher).	encouraging student independence	3	11	27.27%
We expect student initiative in asking questions and we encourage such initiatives.	encouragement of student initiatives	3	11	27.27%

The themes identified in Table 1 answer the question: Which personalization procedures are suggested by museum mentors? All museum mentors consider individualized lesson design and adjustment to the child's age to be important (100% of respondents). The data in Table 1 indicate a museum mentoring approach that favours collaboration with groups of students and their teachers. All curators and museum educators are engaged in group pedagogical activities (100%), but 54.54% of them additionally encourage individual students in activities in accordance with their interests. These research participants consider the following measures to be important: adaptation to individual experience, individual tasks, and individual poster presentation of curriculum outcomes. In addition, 36.36% of respondents believe that they could individually mentor students, while 27.27% of respondents already cooperate with teachers and individually mentor students. These research participants consider the following methods important: presenting a scientific approach to the teachers with whom they collaborate and the students they mentor, helping teachers with content design, mentoring students, encouraging student independence with specific tasks and encouragement of student initiatives when asking questions independently.

The themes identified in Table 2 answer the following question: Which personalization procedures are suggested by teachers concerning the same issue as by museum mentors in Table 1? All teachers consider organizing individual student consultations with the museum mentor to be important (100% of respondents). They also consider it important to explore the potential for individualizing the pedagogical work in cooperation with the museum mentor (91.66%). More than half the teachers believe that the diversity of the joint approaches to pedagogical issues will intensify the cooperation between teachers and museum educators. Teachers also consider innovative learning approaches important (33.33%) because they consider it important to observe pedagogical problems from a changed perspective. Teachers also consider innovative learning approaches important (33.33%) because they consider it important to observe pedagogical problems from a changed perspective.

Table 2. Personalization procedures suggested by teachers

Representative statements about procedures	Themes	f	N	%
Organize individual student consultations with an individual museum mentor when this enriches his / her learning.	individual student consultations with the museum mentor	12	12	100%
Study the potential for individualization of pedagogical work together with the museum mentor.	cooperation with the museum mentor	11	12	91.66%
Prepare different approaches to the same topic, as well as different ways of realization, together with a mentor at the museum.	the diversity of the joint approach to pedagogical issues	7	12	58.33%
Increase the level of innovation in work and observe pedagogical problems from a changed perspective.	innovative approaches	4	12	33.33%
Transfer pedagogical knowledge, experience, and skills to conduct museum education in accordance with the highest school pedagogical standards.	transfer of pedagogical competences	3	12	25 %

They believe that the level of innovation in learning during cooperation with mentors in the museum should be raised. Additionally, 25% of teachers emphasize the importance of transferring pedagogical competencies to museum employees in order to conduct museum education in accordance with the highest school pedagogical standards.

The themes identified in Table 3 answer the following question: Which curriculum content do the museum mentors consider most suitable for cooperation within the framework of personalization of learning? Potential and current museum mentors identify the curricular content most suitable for joint student mentoring with teachers in the curriculum subject Nature and Society Education. They consider an organized approach to nature and to the diversity of the living world (54.54%).

Table 3. Adequacy of curriculum content from the perspective of museum mentors

Representative statements about adequacy of curriculum content	Themes	f	N	%
The content that is most suitable for cooperation with teachers and students can be found in the subject Nature and Society Education.	Nature and Society Education	11	11	100%
In the Croatian Museum of Natural History, they could get acquainted with the organized approach to nature.	organized approach to nature	6	11	54.54%
Representations from the past of the homeland.	the history of the homeland	5	11	45.45%
Models that can explain individual features and illustrate the diversity of the living world.	diversity of the living world	6	11	54.54%
Issues of energy, sustainability, and waste management, related to the subject curriculum Nature and Society Education.	issues of energy, sustainability, and waste management	3	11	27.27%
Some content that museums can offer is very rare in nature, some are inaccessible without long-term professional work, and some content has meanwhile disappeared from our environment.	phenomena that are no longer present in nature	1	11	9.09%

To a lesser extent, the history of the homeland is considered important for cooperation on curricular content, as well as phenomena that have disappeared from the student's environment and can no longer be found in nature and the everyday life context.

Table 4. Adequacy of curriculum content from a teacher's perspective

Representative statements about adequacy of curriculum content	Themes	f	N	%
History of the place in which they live or the homeland	the history of the homeland	12	12	100%
Traditional way of dressing, eating, and working in the homeland of students	traditional ways of life	12	12	100%
The living world and the natural environment	ecosystems,	12	12	100%
Sustainable development, preservation, and protection of the environment, biodiversity, and coexistence in nature.	environmental issues	9	12	75%
Energy as a macro concept	energy and its use	3	12	25%

The themes identified in Table 4 answer the following question: Which curriculum content do teachers consider most appropriate for cooperation within the framework of personalization of learning? All teachers (100%) consider the history of the homeland, traditional ways of life and various issues related to ecosystems in the homeland to be the backbone of cooperation. To a lesser extent, teachers mention environmental issues (75%) and energy (25%), as a curricular concept that includes forms of energy, their conversion and use in everyday life. These reflections on curriculum links to museum content and activities reveal considerable agreement between the statements of museum mentors and those of teachers. Museum mentors create links with subjects in accordance with their previous experience (Nature and Society Education, Art, History). Teachers, on the other hand, mostly mention topics and concepts in accordance with the new curriculum structure in Croatia. It is noticeable that the approach of museum mentors and teachers undoubtedly opens space for cooperation in the process of personalization of learning.

Table 5. Advantages of personalized collaboration for the work of museum curators and educators (museum perspective)

Representative statements on the advantages of personalized collaboration from museum perspective	Themes	f	N	%
We design occasional workshops to identify the individual interests of students in groups, in cooperation with teachers who bring children to the museum.	organization of joint workshops	7	11	63.63%
We strive to create new content that is appealing and useful to students. For example, in the conditions of a pandemic, we also created virtual educational content.	Creation of new, appealing, and useful content	6	11	54.54%
We are starting to use our research kits to illustrate the curator's research activity and for the students' research activities.	research kits for the curator's and the students' research activities	3	11	27.27%
Collaboration would affect the work of curators because we would have to find extra time for our work with students and their teachers.	more efficient organization of time for joint education	6	11	54.54%
We should be in close collaboration with teachers, as museum curators are not necessarily familiar with the teaching curriculum.	intensive cooperation with teachers	3	11	27.27%

The themes identified in Table 5 answer the following question: What are the advantages of personalized collaboration for the work of museum curators and educators (from a museum perspective)? As can be seen in Table 5, museum curators and educators start from planning work with groups of students, but in the process of personalization, they use group work situations to identify individual interests of students. They consider organizing joint workshops (63.63%), creating new, appealing, and useful content (54.54%) and more efficient organization of time for joint education (54.54%) to be important.

They are aware that a personalized mentoring approach requires more working time than working with groups of students. Moreover, 27.27% of research participants from museum institutions consider the creation and use of research kits for the curator's and/or the students' research activities as the most important possibility, as well as intensive cooperation with teachers, since museum curators are not necessarily familiar with the teaching curriculum.

Table 6. Advantages of cooperation from the teacher's perspective

Representative statements on the advantages of personalized collaboration from the teacher's perspective	Themes	f	N	%
Experience the satisfaction of students and teachers	satisfaction of students and teachers	12	12	100%
Additional student motivation	student motivation	12	12	100%
Developing additional interest in independent work in museums	interest in independent work in museums	7	12	58.33%
Easier selection of the most interesting and attractive topics at a time	easier selection of the most interesting topics	3	12	25%

The themes identified in Table 6 answer the following question: What are the advantages of personalized collaboration from the teacher's perspective? The results of the interpretation of the data in Table 6 show that all teachers (100%) believe that the museum increases student motivation and the experience of student and teacher satisfaction.

More than half of teachers (58.33%) believe that such cooperation will encourage students to take an additional interest in working independently in museums. Teachers also mention easier selection of the most interesting and attractive museum content for students as an important factor in considering collaboration.

Table 7. Difficulties in achieving cooperation from the perspective of museum mentors

Representative statements on difficulties in achieving cooperation	Themes	f	N	%
Students from more distant schools pay extra for transportation to our museum, which increases parents' expenses.	additional transportation costs	9	11	81.81%
Curators cannot spend more time on pedagogical work because they have too many other professional responsibilities.	overloading of curators with other professional duties	6	11	54.54%
The extra effort to make the content they deal with simpler, age-appropriate for the students they mentor.	additional effort in adapting the content during individualization	5	11	45.45%
Occasional unavailability of curators, owing to their participation in many field research projects.	Curator's participation in many field research projects	3	11	27.27%
Collaboration would affect the work of curators because we would have to find extra time for our work with students and teachers.	difficulties with finding additional time for collaboration	4	11	36.36%
Insufficient school time for extracurricular cooperation with other institutions.	insufficient time for extracurricular cooperation in schools	3	11	27.27%
Lack of motivation of teachers who are already overloaded with the amount of teaching content they must master with students.	lack of motivation of overburdened teachers	3	11	27.27%

The themes identified in Table 7 answer the following question: What are the difficulties in achieving cooperation from the perspective of museum mentors? Table 7 shows that museum mentors (81.81%) see additional transportation costs due to the personalization of education in remote schools as a potential problem for parents of students.

They also consider their own overburdening with regular museum professional duties (54.54%) to be an obstacle to more intensive engagement in a personalized approach to school-museum projects. Potential museum mentors also believe that additional effort in adapting the content during individualization and curators' participation in multiple field research projects (45.45%) can make it difficult to implement such a complex model of cooperation. Also, to a lesser extent, they think that difficulties with finding additional time for collaboration as well as insufficient time for extracurricular cooperation in schools could be negatively affected by teacher overload with teaching and administrative responsibilities.

Table 8. Difficulties in achieving cooperation from a teacher's perspective

Representative statements on difficulties in achieving cooperation	Themes	f	N	%
Spending extra money on transportation and organization	spending extra money	9	12	75%
Spending extra time in an already overloaded work schedule	spending extra time	10	12	83.33%
Insufficient support from school management	insufficient professional support	4	12	33.33%
Insufficiently developed museum network in the place where the student attends school.	insufficiently developed museum network	4	12	33.33%

The themes identified in Table 8 answer the following question: What are the difficulties in achieving cooperation from the perspective of teachers? As the main difficulties in initiating more significant personalization in learning in collaboration with museum mentors, teachers see the lack of time in overcrowded work assignments (83.33%), lack of money to support collaboration at the individual level (75%), insufficient professional support from school administrators (33.33%), and in some places, the underdeveloped museum network (33.33%). In this sense, it would be useful to initiate financial support for joint educational activities between museums and schools (with the aim of personalizing education) by the local community.

Conclusion

The results of this study indicate positive attitudes of teachers, as the main student mentors, and museum educators/curators as associate mentors towards carefully designed mentoring through networks across educational and cultural community institutions. However, these positive attitudes differ according to some determinants related to the different professional perspectives of teachers and educators in museums. Although curators and museum educators are usually engaged in group pedagogical activities, they point out that they use the situation of working in groups to additionally encourage individual students in activities in accordance with their interests. Despite the pursuit of individualization, we can conclude that the idea of personalization through the cooperation of school and museum mentors has not come to life in its full sense.

Personalization in the full sense would imply joint mentoring of students by the teacher and the museum educator on a specific topic in which the student is particularly interested. The results of this study show that, among these participants, only 27.27% of museum educators and 25% of primary school teachers have clear views on personalization in the full sense. The results further indicate that the reasons for the small percentage favouring inclusion of such personalization in museum-school cooperation are different. From the perspective of museum curators / museum educators, the difficulties that could hinder the implementation of collaborative personalized learning in the museums can be summarized as follows: too many other professional responsibilities, extra effort to simplify the content to be age-appropriate for students, and occasional unavailability of curators because of their participation in many field research projects. They would have to find extra time for working with students and teachers. In addition to all the above, they note a lack of motivation among teachers who are already overloaded with the amount of teaching content they must master with students. From the teacher's perspective, the difficulties that could hinder the implementation of collaborative personalized learning in museums can be summarized as follows: additional costs for transportation and organization, spending extra time in an already overloaded work schedule, insufficient support from school management, and the insufficiently developed museum network in the place where the student attends school.

It is noticeable that the idea of multidimensional joint personalization is known to museum and school professionals, but its full realization would require considerable effort from enthusiasts in both institutions. In addition, for implementation, it would be necessary to promote the idea to members of the administration in both schools and museums and to seek financial support from the institutions of the local community.

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