

Article

Validation of an Instrument on Perceptions of Heritage Education through Structural Equation Modeling

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Abstract: The aim of this paper is to analyze the validity of a questionnaire designed to analyze teachers' perceptions of how heritage is taught. The methodology used is quantitative with a non-experimental design based on a Likert-type questionnaire. The sample is non-probabilistic and consists of 132 primary education teachers from the region of Agrigento (Sicily, Italy). For the data analysis, a structural equation model has been employed. The results show that the validated questionnaire explains the variability of 60% of the surveyed teachers. The teachers identify three teaching approaches in accordance with the theoretical approach of the research: a traditional approach based on the memorization of contents, with which 58% of the teachers identified; a student-based model focused on active learning strategies (23%); and an intermediate model (21%). Consequently, a renewal can be appreciated in the teaching of heritage that can encourage the promotion of training with regard to heritage education and the use of an active teaching methodology. Finally, the instrument has been validated and shown to be appropriate, which implies that the conclusions drawn from applying the model serve to explain teachers' perceptions of heritage teaching.

Keywords: teaching approaches; heritage; structural equations; primary education; Italy



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1. Introduction

Heritage education has the arduous pedagogical task of shaping future citizens and strengthening their civic conscience and sensitivities, leading them to become indistinctly aware of their past and their roots and, therefore, of their true identity. Its aim is, in effect, to promote their national and cultural essence, to recognize themselves therein and to be able to create a more stable and solid civic conscience in the future. However, heritage education should not be understood merely as a series of teachings to promote the protection of heritage assets. Rather, its ultimate aim, via a profound raising of awareness among citizens, consists of the acquisition of their own direct and active role in the construction of cultural heritage. This offers an added value to the current reality and, thus, requires consideration and protection: it belongs to each individual of each community and “it would be paradoxically useless to preserve it if it were not used in some way” [1] (p. 15).

In the 1980s, the Council of Europe fostered the “pedagogy of heritage”, which in Italy came to acquire the name “heritage education”. According to this methodology, teaching was based on heritage and implied “active teaching methods, a cross-cutting curricular proposal, an association between the educational and cultural sectors and the use of the widest variety of means of communication and expression” [2] (p. 24).

However, these theories and reflections were definitively recognized with the enactment of Recommendation R(98)5 of the Committee of Ministers to the Member States concerning Heritage Education, which identified the social role of education as a transnational value of cultural mediation. A multidisciplinary methodological system was created that was capable of articulating knowledge, means of communication and pathways for interactive learning about heritage, places and cultural manifestations. Other projects also promoted by the European Union after the year 2000 were HEREDUC (Heritage Education)

and, later, AQUEDUCT (Acquiring Key Competences through Heritage Education). Full conceptual maturity was not reached, however, until 2005, when a report was written by Tim Copeland that stated that heritage education was not a discipline, but a type of education similar to education in human rights. This document was assimilated and its contents taken up by [2] who analyzed its meaning in greater depth.

Heritage education is configured, therefore, as a new type of education, the main objective of which is not the mere transmission of contents, but rather the updating of heritage in the contemporary world as a bearer of meanings and values that can improve, both culturally and socially, the quality of life of each individual. It is important to clarify that heritage education is not a discipline, but a true “education” on a par with human rights and education for citizenship and should, therefore, present points of contact with different pedagogical-didactic approaches.

The ultimate aim of heritage education lies in the need to shape citizens who are conscious of their role within society and of heritage itself in an active and, above all, responsible way. Its absence would lead to the neglect of the cultural roots of a society and would drag down both individual and collective identity, exerting a negative influence not only on the relationship between individuals but also on that of the individual with the territory. Therefore, within its conceptual perspective, heritage education incorporates “education for interculturality”, with heritage being the fruit of continual cultural contamination over the course of centuries and a new perspective in the relationship with the spatial context in which people live: “It is clear, therefore, that in education for a conscious, responsible and active citizenship, which is open to others and attentive to its territory, heritage is “an end, an object and an instrument” [3] (p. 132).

However, when defining heritage education, it is important to remember certain fundamental concepts of the general teaching and learning process that can be channeled into a single concept, namely, that of “interaction”, which consists of two main aspects, one individual (intraindividual) and the other social (interindividual). The former implies the student working on him/herself based on his/her previously held ideas to which, through teaching, new information is added giving rise to a self-organization or self-structuring of knowledge. In the second case, social interaction connects several individual interactions, creating an interconnected cultural mesh within a group of people. Based on this description, it is easy to understand how teaching and learning processes cannot be analyzed as elements that are isolated and disconnected from knowledge but that, on the contrary, they should be considered to be based thereon.

Refs. [4,5] consider this way of transmitting heritage as a place of discovery, research and knowledge to be the best form of interaction. It is necessary to develop and experience learning models in which the student, having recognized the recreational and curious nature of human learning [6], becomes the main builder of his/her own knowledge [7]. Through classroom research, the aim is to reach beyond the merely functional knowledge of the heritage asset, targeting its essence as a testimonial element of the mark of a dynamic past, the echo of which has reached us in the present [8].

However, a pedagogical application such as this is certainly not devoid of difficulties. Indeed, Refs. [9,10] agree on the fact that the formulation of official curriculums does not correspond with the knowledge taught in the classroom. Equally important is the contribution of [11], who mention the vulgarization of current knowledge of the past, which is full of stereotypical ideas, and highlight the serious educational problems that this causes. The abuse of textbooks as a teaching resource in subjects that teach about heritage leads to a passive form of knowledge in which the student memorizes the information in a mechanical way. Ref. [12] introduced the idea of the role of the mediator between society and heritage acquired by education and how it falls upon the education system, via its structures and all its available means, to take on the role of cultural agent for the dissemination and transmission of heritage education.

Other problems lie in the exclusively monumentalist vision of heritage, forgetting its more cultural dimension on which the identity of each individual is based and the defi-

ciencies of teachers who have not received adequate training in heritage education [13–16]. Ref. [17] state the pressing need to train teachers in such a way that they have the necessary knowledge related with the teaching of heritage. Faced with such problems, it is easy to accept that the decisive idea lies in active learning, based on a participatory methodology in which the reasoning and considerations of students are given priority [18–21].

In active and participatory learning, the student should take on a leading role. Therefore, for him/her to appreciate the past and to understand the importance of historical stratification as a means of connecting with the present, his/her curiosity must be aroused via experiences that provoke reflection and meditation, coming into direct contact with heritage elements [22]. Unfortunately, in spite of the fact that the dedicated bibliography outlines problems and solutions on a theoretical level, in practical terms there is still a heavy bias towards the traditional method of teaching, based exclusively on listening and learning by heart in the classroom.

On the basis of two variables such as intentions and educational strategies, two main approaches have been established into which teachers' ways of teaching can be classified. The first is a teacher-centered teaching approach and the second is a learner-centered teaching approach. In the teacher-centered approach, the main intention of the teaching and learning process is the transmission of knowledge to the students. The most commonly used teaching method in this approach is the lecture and the main resource is the textbook. Students have a passive role, because the learning of content takes place mainly through memorization. In addition, the most commonly used type of assessment is the final assessment.

In contrast, in the student-centered approach, the intention of the teacher is the student's competence development. For this reason, the teacher acts as a guide in the students' learning of knowledge. Students are active subjects in the teaching and learning process. The methodology used by the teacher promotes classroom research, debates and other active teaching methods (gamification, flipped classroom, problem-based learning . . .). In this way, students' skills and competences are worked on in the classroom and not only the knowledge of theoretical contents. Finally, assessment is carried out throughout the teaching and learning process, with frequent feedback between teachers and students.

The diagnosis of teaching approaches began to be carried out in the 1990s. The first published studies were by [23,24]. Ref. [23] interviewed 24 teachers and asked them about their intentions when teaching and the way they teach using a questionnaire entitled "Approaches to Teaching Inventory (ATI)". The responses resulted in the identification of five models that emerged from combinations of four types of intentions and three types of strategies, which were more or less learner-centered. Model A (transmission of information) and B (acquisition of concepts) are teacher-centered. Model D (conceptual development) and E (conceptual change) are student-centered. Finally, model C is an intermediate approach between teacher and student [23].

At the same time, Ref. [24] also carried out research to design an instrument to identify teachers' teaching approaches. In fact, they designed the "Questionnaire on Teaching Models (QTM)". The data obtained also allowed them to identify two contrasting teacher-centered and student-centered models. A few years later, Ref. [25] conducted qualitative research in which they concluded that teaching approaches are strongly influenced by the teacher's conception of teaching. Consequently, they argued that for a real change in the quality of teaching to take place, the teacher's conception of the teaching and learning process had to change. It was not enough to improve teachers' teaching methodology or provide them with more innovative resources if their conception of teaching was traditional.

Later, Ref. [26] carried out a review of the instrument they had designed (ATI) in order to verify its validity and check that it allowed them to establish relationships between the way in which teachers carry out their teaching work and the way in which their students approach their learning, that is, between the teaching approach and the learning approach. Along the same lines, Ref. [27] in turn classified teachers in his research into three levels, depending on the focus of interest on which teachers approached their teaching.

In Spain, there has also been a quite extensive line of research into teaching approaches at different educational stages [28–33]. As mentioned above, in general two or three teaching models are identified, depending on whether an intermediate model is added that brings together characteristics of the other two. This three-approach model is the one used in this research because it is the most frequent in curricular and training contexts in the Italian case [34–37]. Other countries where similar studies have also been carried out in terms of diagnosing the teacher teaching approach are, for example, Portugal [38–40], the United Kingdom [41,42], Canada [43,44], Sweden [45], the United States [46,47] and Latin America [48].

2. Materials and Methods

2.1. Objective

The purpose of this research is to validate, by means of structural equation modelling, an instrument based on the one designed by [23] and its subsequent adaptations to identify the heritage teaching models used by teachers in primary education [22,29,32,49]. The questionnaire has been designed with three models of heritage education in mind. The first is student-centered (Model S “student”) and aims to make the learner the protagonist of the teaching and learning process. The second focuses on the teacher and aims to transmit theoretical knowledge to the students (Model T “teacher”). The third is an intermediate model that has characteristics of both (Model I “intermediate”).

2.2. Instrument

The questionnaire has been designed within the framework of a doctoral thesis carried out in the doctoral program in Education at the University of Murcia. This thesis is further derived from a national research project funded by the Spanish Ministry of Science and Innovation. The questionnaire on heritage teaching was designed using the Google Forms application and was entitled the “EducPatri Questionnaire”. The questionnaire has an identification section and three thematic blocks with twenty closed questions consisting of a five-point Likert-type response scale.

The first part of the questionnaire deals with identification and has three fields to collect data of a socio-demographic nature (sex, age and type of school in which the teacher works). Based on the first two aspects, which are crucial in any kind of sociographic analysis, the contrasting assumptions are made, as it is appropriate to know whether there are significant differences between men and women or according to age in the responses obtained. In the recommendations for the gender variable of the survey, in addition to the male and female options, a third field was included in case the respondent preferred not to answer the question. In relation to the question of age, a ten-year interval was set, starting at the age of 31, as this was the age of the youngest participant to complete the survey, and ending with the option of over 60, due to the fact that 67 is the retirement age for teachers in Italy. Finally, as far as the type of school is concerned, the independent variable makes it possible to establish a classification between private and public schools in the Agrigento region.

The first thematic block incorporates four items relating to the perception of heritage by the participating teachers. Firstly, it asks about their knowledge of regional heritage (item 7). This type of heritage is specified due to the fact that the design of a proposed educating city is fundamentally linked to local heritage. The participants were also specifically asked about their knowledge of the International Association of Educating Cities (item 20). In this block, the teachers were also asked about their level of training in heritage education (item 8). This item is considered necessary due to the fact that, in order for primary students to know about regional heritage, it is not enough for teachers to know about it, but they must also know how best to teach it. Finally, an item was also included in this block to ask teachers why they believe it is important to teach heritage to students (item 17). This question is essential in revealing teachers’ perceptions on the purpose of teaching heritage in primary education.

The second thematic block is the largest with a total of 13 items. It includes two items (items 4 and 5) to inquire about the teachers' perspectives on the presence of heritage in the state history curriculum, annual programs, history books and history lessons. Items 6 and 16 ask about the frequency of teaching various types of heritage, according to the classification made by [4] and the historical periods related to the heritage taught. There are two items included in this block to investigate what they thought about their students' perceptions of heritage, their interest in general (item 14) and their level of knowledge at the end of the academic year (item 18). Item 15 inquires about the difficulties related to heritage teaching (item 15) and item 19 about their teaching profile or approach.

In addition, there are six items that address the perception of the teachers interviewed on their methodology of teaching heritage. It is these items that are used for validation in this paper via structural equation modeling. Item 9 asks teachers about the frequency with which they teach heritage-based skills. The options for item 16 are based on first- and second-order concepts that have been used in history education research [50–52] and that have been adapted to heritage teaching for this study. First-order concepts refer to theoretical content while second-order concepts are related to skills. In historical education, these competences have been developed by [43]. Specifically, the big six historical thinking concepts defined by these authors were employed: historical relevance, the identification of causes and consequences as well as changes and continuities in historical facts and processes, source analysis, historical perspective and ethical dimension. To these options was added an adaptation of the historical consciousness competence defined by [53] and two options summarizing the historical thinking skills outlined by [54], which are related to the method of the historian and connections between the past and the present.

The strategies, activities and resources used in teaching heritage are investigated in items 10, 11 and 12. Specifically, items 10 and 11 refer to methods, strategies and resources considered to be traditional or innovative. Masterclasses, textbooks and heritage monographs were selected as traditional elements. Methods such as flipped classroom, role-playing, project- and problem-based learning and digital resources, such as virtual visits, mobile applications on heritage and videogames, were considered as more innovative methods and resources, as they imply more student participation. This classification was made by looking for a correlation between the approaches. In order to achieve this, two divisions were initially made. This classification into traditional and innovative methods and resources can be seen in other works such as [55,56]. Item 12, which focuses on the types of activities that pupils perform according to the cognitive level of the task or tasks required, was based on the classification of three levels of difficulty (low, medium and high) as can be seen in [57,58].

Finally, in relation to the teaching process, item 13, which is based on the teachers' evaluation of the teaching of heritage and specifies the assessment tools (exercises, practical work, written examination and questionnaire), refers to work that establishes the need to give greater importance to evolution in the process and not so much to the final evaluation, with a focus on the renewal of the evaluation tools in such a way that they can be adapted to a formative and more skills-based evaluation as opposed to the reproduction of contents, as is the case with more traditional tools such as written tests or questionnaires [49,59].

2.3. Research Design

This study in the field of education has a diagnostic methodology based on a quantitative approach. Data collection was based on a closed-ended questionnaire with five-value Likert-type responses.

2.4. Participants

The study is based on a convenience sample consisting of 132 in-service teachers. The criterion for inclusion was that participants had to be primary school teachers in the region of Agrigento (Sicily, Italy). Of these 132 in-service teachers, 30 (22.7%) of the teachers surveyed were men and 102 (77.3%) were women. The age of participants was classified

into four age ranges: 31 to 40 years of age (11.5%), 41 to 50 years of age (53.9%), 51 to 60 years of age (19.2%) and over 61 years of age (15.4%). The first rank was taken on the basis of the youngest participant.

2.5. Procedure and Data Analysis

The design of the questionnaire was carried out in the 2019/2020 academic year and was validated by five specialists from the research lines of didactics of heritage, didactics of history and the area of research methods and diagnosis in Education. For the validation of the questionnaire, a mixed guide was designed with closed Likert-type scale questions and open questions in which the validators could include their comments. The criterion for eliminating questions from the questionnaire was to obtain an average of less than three out of five points. None obtained this score, but the formulation of some items was modified due to the validators' suggestions. After the validation of the questionnaire by the experts (December 2021), the questionnaire was translated into English and submitted for validation to the Ethics Committee of the University of Murcia (March 2022).

For the validation of the construct, both an exploratory and confirmatory factor analysis were carried out using a structural equation model. These analyses were carried out on the items of the questionnaire that were related to teaching methodology. This was due to the fact that it is these items that make it easier to identify a teacher's teaching approach, i.e., to discover whether the teacher occupies a more prominent role in the process of teaching and learning heritage, whether he/she yields the leading role to the pupils or occupies an intermediate position. In this sense, the items of the questionnaire selected were as follows: items 9.1–9.10, items 10.1–10.10, items 11.1–11.12, items 12.1–12.3 and finally items 13.1–13.4.

The exploratory and confirmatory factor analyses were carried out with SPSS v.28 and Amos. This procedure (validation, ethics committee certification, data collection and analysis) was carried out over the 13 months prior to the writing of this paper (December 2021–January 2023).

3. Results

The exploratory factor analysis begins with the analysis of communalities (h^2). Communality is the sum of the squared factorial weights of each of the rows. In Table 1, the communality values for each item are shown. It can be observed that only item 10.3, which refers to the application of role-playing in the classroom, is below 0.400, while all other items are close to 0.700 and 0.800. Therefore, the analysis of the communalities offers a good value approaching 1000. This determines that the items are retained and it is, thus, possible to continue with the next step, namely the identification of factors.

Table 2 shows the total explained variance of the obtained factorial model. According to the data, up to 11 independent factors can be extracted. With these 11 factors, 100% of the variance can be explained, although this does not achieve the goal of reducing the number of dimensions required to explain the data. Therefore, the software, in addition to including the 11 factors, identifies that the most suitable solution is three factors, since eigenvalues exceeding 1 or approaching unity are selected, as in the case of the first three factors (3.406, 2.030 and 1.206). To arrive at this three-factor model, which explains 60.4% of the total variance, the principal component extraction method was employed. This method assumes, by default, that it is possible to explain 100% of the explained variance, as the most appropriate number of factors will be those that explain a greater percentage of the variance. Generally, the model obtained can be accepted above 50%. The higher the percentage explained, the more precise the identification of the factors will be. Therefore, the three-factor model that would correspond to the theoretical model used for the construction of the questionnaire must explain 60.4% for it to be considered valid.

Table 1. Communalities.

Items	Start	Extraction
9.1	1.000	0.762
9.2	1.000	0.867
9.3	1.000	0.736
9.4	1.000	0.787
9.5	1.000	0.727
9.6	1.000	0.846
9.7	1.000	0.757
9.8	1.000	0.794
9.9	1.000	0.883
9.10	1.000	0.672
10.1	1.000	0.680
10.2	1.000	0.614
10.3	1.000	0.338
10.4	1.000	0.673
10.5	1.000	0.793
10.6	1.000	0.763
10.7	1.000	0.764
10.8	1.000	0.734
10.9	1.000	0.736
10.10	1.000	0.861
11.1	1.000	0.716
11.2	1.000	0.758
11.3	1.000	0.700
11.4	1.000	0.665
11.5	1.000	0.690
11.6	1.000	0.665
11.7	1.000	0.757
11.8	1.000	0.853
11.9	1.000	0.902
11.10	1.000	0.670
11.11	1.000	0.753
11.12	1.000	0.603
12.1	1.000	0.743
12.2	1.000	0.766
12.3	1.000	0.869
13.1	1.000	0.593
13.2	1.000	0.599
13.3	1.000	0.649
13.4	1.000	0.485

Note. Extraction method: principal component analysis in SPSS software v.28.

Table 2. Total explained variance.

Factor	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.406	30.962	30.962	2.889	26.266	26.266	2.816
2	2.030	18.450	49.412	1.526	13.876	40.142	1.481
3	1.206	10.962	60.374	0.770	7.000	47.141	1.215
4	0.902	9.109	69.483				
5	0.842	7.657	77.139				
6	0.630	5.731	82.871				
7	0.602	5.472	88.343				
8	0.393	3.577	91.920				
9	0.384	3.492	95.412				
10	0.261	2.370	97.782				
11	0.244	2.218	100.000				

Note. Data extracted from SPSS v.28 software. Principal component extraction method.

It should be remembered that the questionnaire was constructed on the assumption that three methodological models may exist when heritage is to be taught in the classroom. The first is the student-centered model (model S “student”) with the use of more active teaching strategies and more varied and innovative resources. The second is the traditional model based on the leading role of the teacher (model T “teacher”) and the use of resources and strategies such as the masterclass and the textbook. The third is an intermediate model (model I “intermediate”) in which, although the teacher still directs the teaching and learning process, there is greater interaction and participation on the part of the students. The fact that 60% was obtained in the identification of the three factors confirms that the questionnaire was carried out in the correct way and serves its intended purpose, i.e., to reveal the approach and methodology used by teachers when teaching heritage-based contents in the context of primary education in the region of Agrigento (Table 2).

In this table, it can be seen that the loads are not evenly distributed among the three extracted components. In fact, the second (13.9%) obtains almost twice as many items as the third (7%) and the first (26.3%) twice as many as the second. Therefore, based on this table, it can be assumed that there are more items in the questionnaire that are located in the first component than in the second and third components. In order to discover which items are located in each of the components, a component matrix was extracted using the SPSS v.28 program, as can be observed in Table 3.

Table 3 shows the distribution of the items among the three main components or factors extracted. In order to belong to one or the other, a value higher than 0.400 was selected, as is traditionally the case in this type of analysis. This table confirms that item 10.3 had a value lower than 0.400 in the communality test due to the fact that this item loads both factor 1 (0.464) and factor 3 (−0.428) in a similar way. It was left in factor 1, as the value was a little higher.

Before analyzing each factor, complementary tests were carried out to check reliability using a structural equation model (SEM). The indices that were calculated were the χ^2 statistic, since it is a questionnaire with a Likert-type response scale, for which it is recommended in these cases to carry out a robust χ^2 estimation through weighted least squares (DWLS). Furthermore, model fit indices were also calculated (Tucker Lewis Index, Comparative Fit Index, Kaiser–Meyer–Olkin Index and the Root Mean Square Error of Approximation). These indices measure the absolute difference between the relationship structure of the proposed theoretical model and the observed data, taking into account the number of indicators and sample size. Taken together, the values obtained show that there is a good fit between the constructs of the questionnaire and the theoretical structure.

Specifically, the χ^2 value was 32.9465, with 27 degrees of freedom and a probability level close to 0.0 (0.000), and therefore less than 0.05. In the case of the RMSEA absolute fit index, a value less than 0.07 indicates an adequate fit. In this case, there was a minimum value of close to 0 and a maximum value of 0.0366101. Therefore, the coefficient expresses an excellent fit. As for the incremental fit indices, the TLI value is 0.9266202 and the CFI is 0.9634380. Both values are close to 1, resulting in a very good fit. In the KMO test the value is 0.901 and there is a significance of 0.000 for the extraction of three components as the optimal number. After obtaining these indices, a three-factor structural equation model was created using the SPSS v. 28 and AMOS program. In factor 1, the Average Variance Extracted (AVE) is 0.6217. Therefore, since it is greater than 0.5, it indicates that the construct explains more than half of the variance of all its component indicators. In addition, the Composite Reliability (CR) of factor 1 is 0.99. The items with loads resting on the first factor are represented in Table 4.

Table 3. Component matrix.

Items	1	2	3
9.1	−0.021	0.578	−0.352
9.2	0.856	−0.117	−0.088
9.3	0.194	0.573	−0.397
9.4	0.836	0.030	0.005
9.5	0.679	−0.363	−0.108
9.6	0.876	−0.246	0.014
9.7	0.818	−0.235	0.134
9.8	0.771	−0.287	0.282
9.9	0.725	−0.408	0.275
9.10	0.807	−0.126	0.059
10.1	−0.308	0.484	−0.164
10.2	0.723	0.004	−0.193
10.3	0.464	0.008	−0.428
10.4	0.573	−0.170	−0.524
10.5	0.831	0.004	−0.125
10.6	0.659	0.016	−0.085
10.7	0.683	−0.124	−0.468
10.8	0.755	−0.382	0.078
10.9	0.251	0.687	−0.185
10.10	0.583	−0.381	−0.277
11.1	0.449	− 0.565	−0.084
11.2	−0.243	−0.217	0.569
11.3	−0.136	−0.168	0.648
11.4	0.385	−0.243	0.646
11.5	0.775	0.142	−0.002
11.6	−0.017	0.586	−0.014
11.7	0.561	−0.225	0.531
11.8	0.744	0.047	0.380
11.9	0.391	− 0.579	0.330
11.10	−0.108	−0.289	0.483
11.11	0.818	0.249	0.144
11.12	0.285	−0.042	0.575
12.1	0.030	0.702	−0.196
12.2	−0.032	−0.333	0.676
12.3	0.703	0.147	0.007
13.1	0.011	−0.223	0.618
13.2	0.463	0.205	0.283
13.3	0.389	0.587	−0.111
13.4	0.215	0.071	0.563

Note. Extraction method: principal component analysis carried out using the SPSS v.28 program. Bold indicates the assignment of each item to Factor 1, 2 or 3.

Table 4. Questionnaire items associated with the first factor.

Item	Question	Answer Option
9.2	How often do you teach the following content and skills to your students through heritage?	Teaching analysis from primary sources
9.4	How often do you teach the following content and skills to your students through heritage?	Teaching change and continuity of historical processes
9.5	How often do you teach the following content and skills to your students through heritage?	Teaching the historical relevance of characters and events
9.6	How often do you teach the following content and skills to your students through heritage?	Explaining the ethical dimension of historical facts
9.7	How often do you teach the following content and skills to your students through heritage?	Teaching understanding the past with a historical perspective

Table 4. Cont.

Item	Question	Answer Option
9.8	How often do you teach the following content and skills to your students through heritage?	Teaching historical discourse (historical method)
9.9	How often do you teach the following content and skills to your students through heritage?	Linking the past with the present
9.10	How often do you teach the following content and skills to your students through heritage?	Teach historical awareness: explain conflicting issues through heritage
10.2	How much do you use the following teaching strategies to teach heritage?	Flipped classroom
10.3	How much do you use the following teaching strategies to teach heritage?	Role-playing
10.4	How much do you use the following teaching strategies to teach heritage?	Debates
10.5	How much do you use the following teaching strategies to teach heritage?	Problem-based learning
10.6	How much do you use the following teaching strategies to teach heritage?	Project-based learning
10.7	How much do you use the following teaching strategies to teach heritage?	Research
10.8	How much do you use the following teaching strategies to teach heritage?	Teaching how to analyze sources
10.10	How much do you use the following teaching strategies to teach heritage?	Collaborative learning
11.5	How often do you use the following teaching resources to teach heritage?	Videogames
11.7	How often do you use the following teaching resources to teach heritage?	Virtual tours or multimedia resources
11.8	How often do you use the following teaching resources to teach heritage?	Educational mobile applications
11.11	How often do you use the following teaching resources to teach heritage?	Games
12.3	How often do students do the following types of activities in class?	Activities that help to understand heritage as a primary source for the elaboration of a historical narrative about the past at a higher cognitive level
13.2	How do you assess your students' learning of heritage?	Through the practical work I design

In Table 4, it can be observed that all the historical thinking skills or second-order concepts mentioned by [43,53] are ascribed to factor 1. On the other hand, in the items related to methods and strategies, those that foster active student participation, such as problem-based learning, projects, research, etc., are ascribed to factor 1. Among the resources included in item 11, games and resources related to new technologies (educational applications on mobile phones, virtual visits, videogames) are ascribed to factor 1. Finally, it is also emphasized that the activities bound to this factor are of a higher cognitive level and, as far as assessment is concerned, practical work through projects is included in this first factor.

Therefore, in factor 1, most of the items are associated with the development of historical thinking through heritage teaching and the classroom use of participatory strategies and innovative resources. This is also the case in the design of activities the aim of which is for students to build their own knowledge based on the analysis of the heritage asset. This factor would be related to the teaching model that [23] identify as the student-centered approach, in which the spontaneous construction of knowledge by students is promoted through their active participation in the teaching and learning process (Figure 1).

In Figure 1, it can be seen that the items most closely related to the student-centered approach model are 9.9 (linking the past with the present), 9.10 (teaching historical awareness: explaining conflictive issues through heritage) and 9.8 (teaching historical discourse). In the case of the items related to teaching strategies, the item that most closely relates to the model is 10.5 (problem-based learning). In relation to resources, the most related item is item 11.7 (virtual visits or multimedia resources). The item most related to heritage is item 12.3 (activities that help to understand heritage as a primary source for the elaboration of a historical narrative about the past), which corresponds with a higher cognitive level. Finally, the item most closely related to the type of assessment is item 13.2 (evaluation via practical work). Within this student-centered model, taking into account the answers of the participants, the items that relate least (due to the fact that they have a value lower than 1) are items 11.8 (mobile learning applications), 10.2 (flipped classroom), 11.5 (videogames) and 11.11 (games).

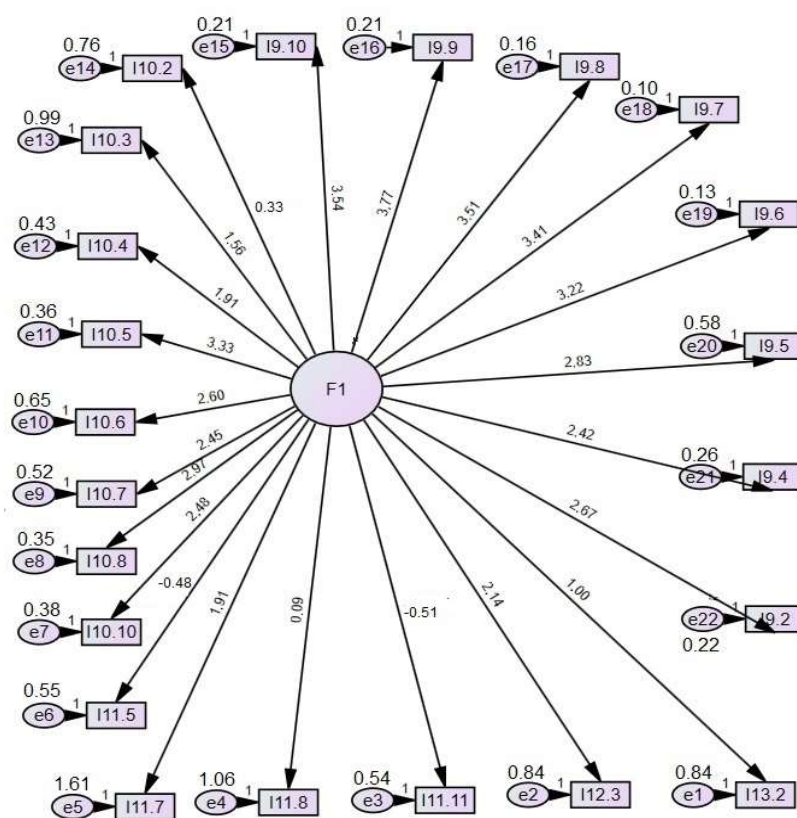


Figure 1. Structural equation model. Factor 1.

In Table 5, it can be observed that factor 2 is bound with the content, strategies, resources, activities and assessment tools associated with a more traditional teaching model [55,56,58]. Specifically, item 9.1 is bound to theoretical content, item 10.1 is associated with the masterclass, item 11.1 relates to the textbook, item 12.1 is bound to activities with a low cognitive level and item 13.3 is related to the evaluation of students by means of a final written test (Table 5).

Table 5. Questionnaire items associated with factor 2.

Item	Question	Answer Option
9.1	How often do you teach the following content and skills to your students through heritage?	Teaching knowledge (theoretical content)
9.3	How often do you teach the following content and skills to your students through heritage?	Teaching multicausality and the consequences of facts
10.1	How much do you use the following teaching strategies to teach heritage?	Masterclass
10.9	How much do you use the following teaching strategies to teach heritage?	Autonomous and individual learning
11.1	How often do you use the following teaching resources to teach heritage?	History textbook
11.6	How often do you use the following teaching resources to teach heritage?	Guided tours (museums, archaeological sites, etc.)
11.9	How often do you use the following teaching resources to teach heritage?	Photographs
12.1	How often do students do the following types of activities in class?	Activities to describe the basic characteristics of heritage
13.3	How do you assess the students' learning of heritage?	Final written test

In Figure 2, it can be observed that the items that relate most closely to the teacher-centered approach model are 9.1 (teaching knowledge), 9.3 (teaching multicausality and the consequences of facts) and 13.3 (evaluating by means of a final written test). According to the participants' answers, the items that relate least to the model are 10.9 (autonomous and individual learning) and 11.6 (guided visits to museums, archaeological sites, etc.). In

factor 2, the Average Variance Extracted (AVE) is 0.440 and the Composite Reliability (CR) is 0.85.

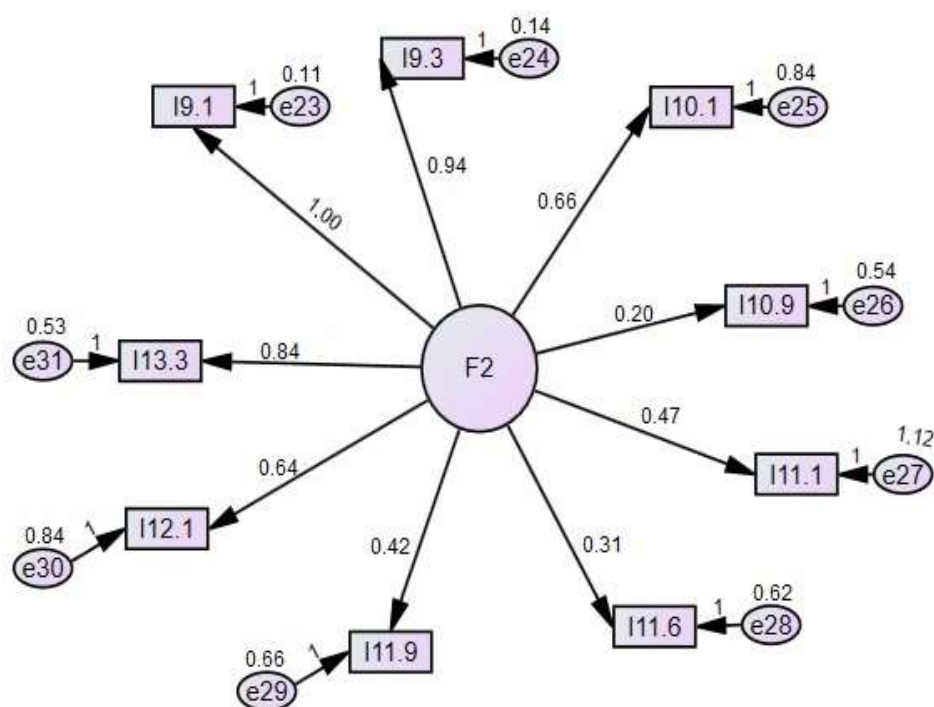


Figure 2. Structural equation model. Factor 2.

In Table 6, it can be seen that the assessment tools, resources and types of activity characterizing an intermediate teaching model are tied to factor 3, according to the answers given by the participants. In activities working on heritage, students must have an intermediate cognitive level and the assessment tools are based on questionnaires or questions with multiple-choice answers. The resources range from heritage monographs and documentaries, which are more classical in nature, to resources in which more student participation takes place, such as workshops.

Table 6. Questionnaire items assigned to factor 3.

Item	Question	Answer Option
11.2	How often do you use the following teaching resources to teach heritage?	Specific books on heritage
11.3	How often do you use the following teaching resources to teach heritage?	Films
11.4	How often do you use the following teaching resources to teach heritage?	Documentaries
11.10	How often do you use the following teaching resources to teach heritage?	Oral sources
11.12	How often do you use the following teaching resources to teach heritage?	Workshops
12.2	How often do students do the following types of activities in class?	Activities to understand the heritage element by contextualizing it in its spatial and temporal coordinates (intermediate cognitive level)
13.1	How do you assess the students' learning of heritage?	Through the exercises in the textbook
13.4	How do you assess the students' learning of heritage?	Through a written test (questionnaire)

Figure 3 shows that the items that relate most to the model of the intermediate approach (teacher-centered but with more student participation than the traditional model) are items 11.2 (heritage-specific books) and 11.10 (oral sources). On the other hand, according to the participants' answers, the items that relate least to this model are 11.12 (workshops) and 13.1 (assessing through textbook exercises). In factor 3, the Average Variance Extracted (AVE) is 0.443 and the Composite Reliability (CR) is 0.78.

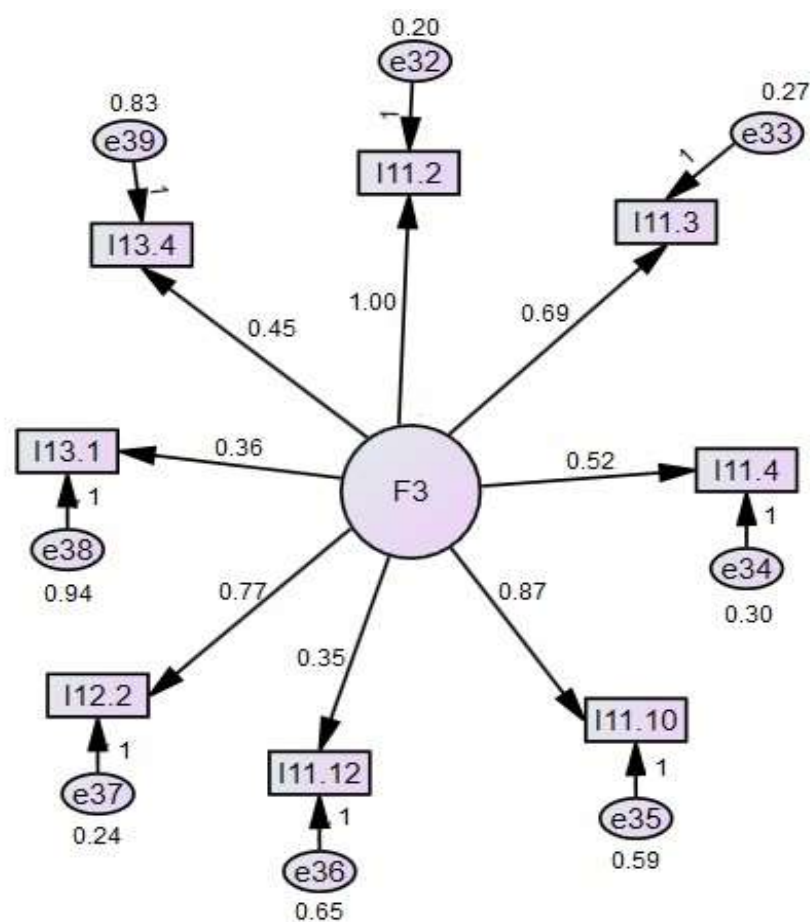


Figure 3. Structural equation model. Factor 3.

Finally, for the validation of the questionnaire, 30 questionnaires completed by the participating teachers were randomly selected to perform the Cronbach's alpha test using SPSS v.28. These questionnaires were separated from the total number of questionnaires completed by the teaching staff ($n = 132$). This test is used to measure the reliability of the instrument, based on the correlation analysis of its items. The result of the Cronbach's alpha test was 0.942 for the total items of the EducPatri questionnaire. In addition, in order to check the normality of statements 9 to 13 of the questionnaire, the Kolmogorov–Smirnov test was carried out and the value of the Sig. asin. (bilateral) was less than 0.05. Therefore, it is concluded that the null hypothesis indicating the non-normality of the distribution of the data is accepted. Consequently, the hypothesis testing analyses to be carried out will be performed by means of non-parametric tests.

Taking into account the answers given by the 102 teachers surveyed, it is possible to identify which teaching approach each of them is closer to. This is important in understanding whether heritage is taught with a more traditional or more student-centered methodology, or an intermediate position in which the teacher assumes a leading role although student participation is greater than in the traditional model. For this purpose, a hierarchical cluster analysis was carried out using SPSS v.28 on items related to strategies, resources, types of activities, assessment and contents (first- and second-order).

Figures 4 and 5 show the distribution of the cases (participants in the questionnaire) grouped, according to their responses, into three large groups. The first is the largest ($n = 58$), while the second ($n = 23$) and third groups are similar in size ($n = 21$). Table 7 presents the mean value of each group identified with a specific factor. Factor 1 is associated with a student-centered teaching model (model S). It is the factor that satisfies the majority of teachers, taking into account the answers given to the questionnaire. Factor 2 (model T) corresponds to a traditional teaching approach, with less than a third of respondents

associating themselves with it. Finally, in a similar proportion, factor 3 (model I) refers to an intermediate teaching methodology in which the teacher remains the leading figure in the teaching and learning process although students are more involved in the lessons than in model T (Table 7).

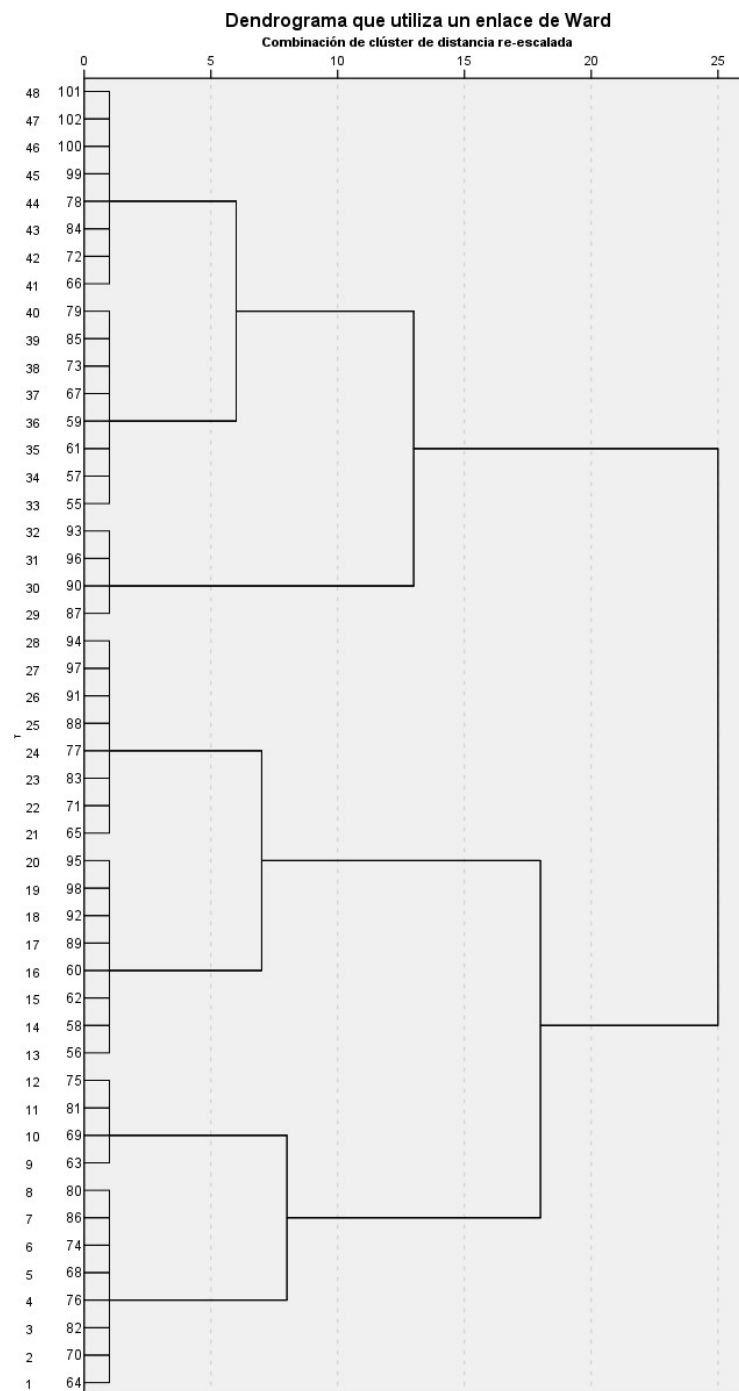


Figure 4. Dendrogram.

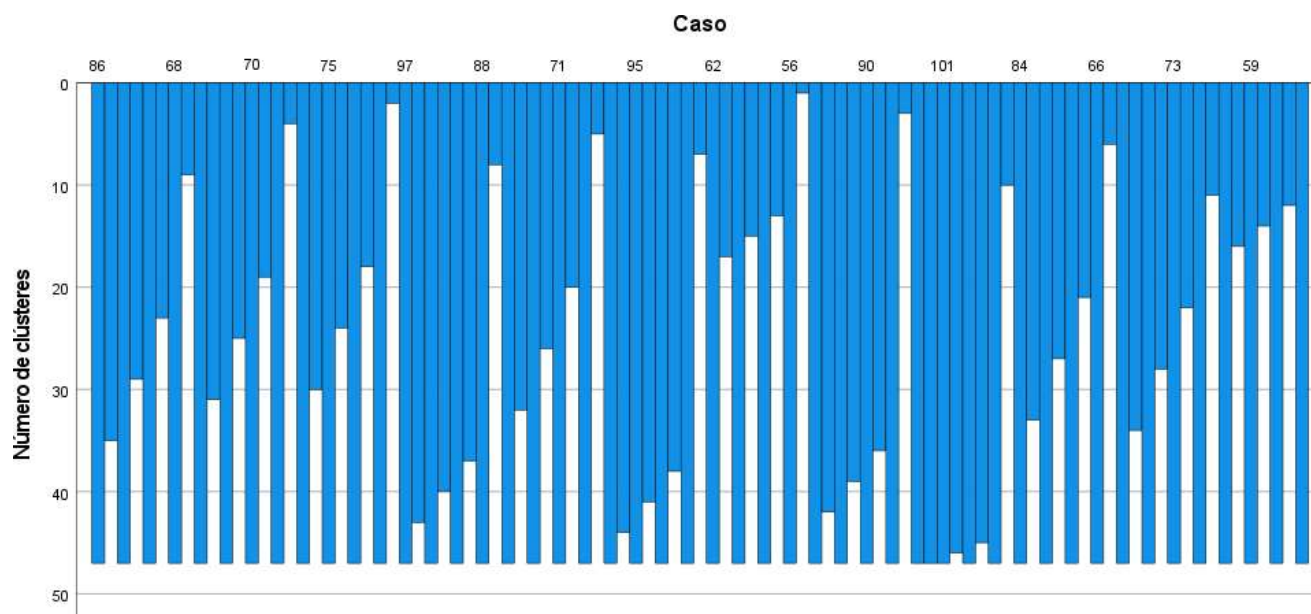


Figure 5. Case–Number of clusters.

Table 7. Results of regression analysis for the three factors.

Average Linkage (Between Groups)			REGR Factor Score 1 for Analysis 1	REGR Factor Score 2 for Analysis 1	REGR Factor Score 3 for Analysis 1
1	N	Valid	58	58	58
		Missing	0	0	0
	Mean		0.0077341	0.0178238	−0.0673052
2		Standard dev.	0.92700789	0.89030283	0.81018227
	N	Valid	23	23	23
		Missing	0	0	0
3		Mean	0.3018193	−0.5470886	1.5282909
		Standard dev.	0.17188340	0.37138275	0.25182663
	N	Valid	21	21	21
		Missing	0	0	0
	Mean		−1.4623146	0.3579488	0.2611032

Note. Data extracted with the SPSS v.28 program.

4. Discussion and Conclusions

The results obtained in this study, following the application of the structural equation model, confirm that primary education teachers in Agrigento in Sicily (Italy) perceive the three approaches to teaching from which the EducPatri questionnaire was designed. This implies that the instrument is valid for the diagnosis of the teachers' approaches to the teaching of heritage. Therefore, the validated instrument can be employed in other national and international studies with similar aims. Based on the study carried out, the sample could also be extended to other regions in Italy and to other countries. In the Italian case, it would be important to contrast these results with other regions of northern Italy (Bologna, Padova, Venice) where there are groups of heritage and history education with a long history. The application of this instrument offers the possibility of starting from information that can be analyzed quantitatively. At present, no instrument similar to the one validated in this study has been published in Italy. Therefore, the results derived from the application of this questionnaire can provide valuable information on how heritage is taught in regions with different characteristics.

In addition, it could be of interest to compare the results among the teachers surveyed with regard to the stage of education in which they teach heritage, their years of teaching

experience or sex. This would open up the line of research to the analysis of the contrasting of hypotheses and would enrich the conclusions obtained. The sample could also be improved if, rather than being a convenience sample, a broader study of a probabilistic nature was proposed. In any case, this instrument can be added to others designed and validated in recent years for the analysis of teachers' perceptions regarding approaches to the teaching of history [56,57,60].

The results obtained in the classification of the surveyed teachers leads one to think that changes are taking place in approaches to the teaching of heritage, as has also been detected by other authors [28,48,59,61]. However, these advances in terms of methodology are still insufficient to put an end to the presence of a traditional method of classroom teaching [25].

Along these lines, although teachers consider the use of less traditional resources, they continue to use mechanisms for evaluation oriented towards the transmission and memorization of information [41,42,62]. Other studies have also demonstrated these discordances, associating them to the desire for change among teachers and to the improvement of their teaching, as well as to the influence of education policies that emphasize a student-based teaching approach and the development of key competences [28,57,58].

Different studies have shown that teaching methods are strongly influenced by the teacher's perception of the teaching and learning process [23,63,64]. In this way, the teaching model influences the teacher's methodology and, in turn, the greater or lesser involvement of students in their learning. Therefore, if a teacher has a traditional notion of teaching it is most likely that, when teaching heritage, he/she will use a conventional lecture method and teaching material such as a textbook. Currently, there are different studies that have linked a perception of a more student-centered teaching model with the use of more innovative resources such as new technologies and strategies that favor student participation [65,66].

For this reason, it is important that teacher training includes the teaching of the different teaching models and their repercussions on student learning. It is not enough to train teachers in active strategies or to provide teachers with technological resources if there is no change in their perception of why they teach heritage and if a teaching model whose purpose is solely the transmission of knowledge and not reflective learning is not modified. This reflective learning in relation to the study of heritage should lead to the understanding of sustainability and conservation policies: an active citizenry that protects heritage not only as something with intrinsic value, but also as a primary source for understanding society [43].

To do this, students must be more involved in the teaching and learning process through active methodologies such as problem-based learning, service-learning, challenge-based learning and gamification and the use of video games and virtual reality [67–70].

Therefore, it must be taken into account that the teaching of heritage should be contemplated via the planning of specific projects integrated into the history curriculum. In [71], an example of the teaching of heritage carried out via "Patrimonializarte", a specific project implemented in Galicia (Spain), was demonstrated. The basic assumption of this project was that one essential element for carrying out an efficient and effective heritage education project is the necessary connection with teaching methodologies that imply the massive use of technology. This trend, which is embedded in the Spanish education system [28], is very similar to the Italian case analyzed here in which an association is generated between the teaching of heritage and innovative teaching employing ICT. The students involved in the project took on a leading role in their own learning precisely due to the technology with which they were naturally familiarized. This is also demonstrated in the dissemination of the results of the project by the students themselves using common virtual tools.

The results of the present study in the region of Agrigento do not indicate a lack of the use of multimedia resources by primary education teachers in general, but rather the non-use of m-learning via smartphone applications. A future line of research could be to

examine in more depth the reasons why the teaching of heritage via mobile applications is still rare, taking into account the widespread use of smartphones in everyday life.

In terms of methodology, it would be of interest if teachers began to perceive the analysis of heritage via a scientific method (small research projects in the classroom) as one of the teaching strategies that identify a student-based teaching approach. The construction of student knowledge based on guided analysis by the teacher, thus enabling the interpretation of heritage (natural, cultural, historical, archaeological, artistic, intangible environment, etc.), is fundamental for there to be a change of paradigm in teaching approaches. In this regard, [72] stated the need for schools and heritage institutions (such as museums) to increase their collaboration for the design and carrying out of heritage education projects, thus bringing about skills-based learning. For this to occur, the use of active learning strategies must be encouraged, in which students and the visiting public actively participate in the construction of heritage knowledge rather than merely receiving information transmitted in a more or less motivating manner. Furthermore, the study and analysis of heritage sources help students to understand the living effect of history and contribute towards the stimulation of historical consciousness.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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