Heritage education: exploring the conceptions of teachers and administrators from the perspective of experimental and social science teaching

ABSTRACT

This paper describes a research project into heritage education. Taking an interdisciplinary perspective from within the field of Experimental and Social Science Education, it presents an analysis of teachers' and administrators' conceptions of heritage, its teaching and its dissemination in Spain. A statistical description is provided of the results of a questionnaire. A factor analysis (FA) was applied to explore possible conjectures accounting for the correlations between the variables with respect to both the conceptualisation of heritage and its teaching and dissemination. The results emphasise the relevance of academic background, initial training and professional context with regard to the conceptualisations of heritage held by the different groups.

Keywords

Heritage Teaching and Learning, Conceptions of Heritage, Formal and Non-Formal Education, Teacher Beliefs, Teacher Training and Heritage Administrators

1. INTRODUCTION

Our heritage is something which forms a part of our daily lives and yet it has been traditionally approached in largely abstract terms when it comes to the teaching and dissemination of the subject. Recent decades have seen some, though not many, educational and promotional initiatives within the field and currently environmental education, citizenship training and scientific literacy, three key disciplines

encompassing heritage studies, are gaining importance throughout the educational system.

It is our view that, in contrast to a reductionist understanding of the term, heritage should incorporate the full spectrum of natural, scientific, social and historico-artistic artefacts within a comprehensive and systemic conception of the term. Conversely, there is a growing tendency to incorporate educational concerns into a wide range of heritage contexts, such as museum programmes, archaeological sites, popular festivals, and visitor centres (Calaf, 2008; Hooper-Greenhill, 2007; Rennie & Johnston, 2004; Xanthoudaki, Tickle & Sekules, 2003). If these are to develop worthwhile educational programmes, they should also draw on the work being done in the Social and Experimental Sciences. The approach to heritage in these various contexts takes widely different perspectives in terms of conceptualisation, ends, contents and methodological approaches to teaching and dissemination in both formal and informal education (Fontal, 2003; Martin, 2004; Phillips, Finkelstein, & Wever-Frerichs, 2007).

This paper aims to provide a broad picture of the representations that teachers and heritage administrators have of heritage, its teaching and dissemination, and how the initial training each receives might influence their subsequent professional development in this respect. It forms part of two larger studies into Heritage Education[1] in Spain. This particular case seeks to answer the research question: What conceptions of heritage – in its different senses of conceptualisation, utility, knowledge, value and contextualisation – are held by the various identifiable professionals responsible for its teaching and dissemination? The paper thus hopes to contribute to our understanding of heritage teaching, in the belief that formal contexts (schools and colleges) and non-formal ones

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(institutions for heritage dissemination) perform complementary tasks in this respect through the promotion of scientific literacy and citizenship training.

The starting point of our working hypothesis is the observation that heritage education in schools and museums tends to follow a traditional approach, characterised by a conception of heritage which is monumentalist, discipline-bound, unidirectional and academic. The main reason for this situation lies with the initial training that both primary teachers and curators receive, which is not the most suitable for developing educational practices consistent with a kind of heritage teaching which rewards a symbolic, identity-oriented, interdisciplinary and critical conception. Indeed, the very nature of pre-service training with respect to heritage education can become a barrier to subsequent professional development.

2. THEORETICAL FRAMEWORK

The relationship between society and heritage is currently undergoing a reconfiguration. There are, for example, heightened expectations and interest on the part of the general public when they visit protected natural areas and their respective interpretation centres, museums and science-based exhibitions. Also indicative is the trend for upgrading old-style science museums into modern interactive science centres. And to these can be added temporary exhibitions featuring prestigious artists or exploring specific topics, and the increase in self-guided trails taking in points of interest around town or the country. All these examples indicate the growing role of heritage in society. It has become a basic component of cultural tourism and leisure activities in the developed world, and serves a dual educational function formally and non-formally of promoting cultural diversity and advancing technological awareness,

two areas which, whilst enjoying their own means of expression, share a common ground (Heyd, 2005; Tunney, 2004).

In view of this revitalization and re-evaluation of heritage, we set out below the theoretical considerations on which this study is based:

a) *Conceptions*. Conceptions have been a significant area of research into education, with numerous studies in the Experimental Sciences (Da-Silva et al, 2007; Gallagher, 1991; Gilbert, 1992; Porlán, Martín del Pozo & Martín, 2002; Prawat, 1992; Taylor, 2006) and Social Education (Armento, 1996; Evans, 1993; Fuentes, 2004; García Pérez, 2002; Haeussler Bohan & Davis, 1998; Pagès, 1996; Quinland, 1999; Seixas & Clark, 2004; Thornton, 1991; Voss, Wiley & Kennet, 2004). With respect to heritage, however, such studies are scarce and tend to be limited to the educational sphere, and particularly to traditional disciplines, as the predominantly Social Science oriented collection edited by Smith (2007) illustrates. There are few studies, too, from a comprehensive perspective (Lowenthal, 2005; Olwig, 2005), and fewer still which tackle methodological questions concerning heritage at primary and secondary levels (Bennet, Sandore, & Pianfetti, 2002; Fontal, 2003; González & Pagés, 2005; Hernández Cardona, 2003; Tutiaux-Guillon, 2003) or museums (Falk, 2004; Poria, Reichel, & Biran, 2006). An exception is Cuenca's (2004) study into the conceptions of trainee teachers, which conceptualises heritage in terms of a systemic, comprehensive and complex perspective.

b) *The concept of heritage*. The concept of heritage has gone from referring to artistic works, buildings, and archaeological remains (the so-called historical-artistic heritage), to encompass objects, environments and phenomena (tangible and intangible heritage) which are the result of both human activity, whether artistic, scientific, technological, economic or social, and the interaction of humans with nature (Cuenca,

2003). The term “heritage” itself does not distinguish between cultural and natural manifestations, and it likewise includes science and technology. In society at large, heritage has undergone a kind of rebranding, from being considered a means of reinforcing nationalistic values, and the provenance of scholars, specialists and researchers, to being revalued as an instrument of development at multiple levels - personal, social, economic, cultural and environmental.

In order to define the concept of heritage, we draw on the holistic approach taken by Prats (1997), the systemic view of Bertalanffy (1968) as applied to the case of heritage by Mattozi (2001), and the anthropological, temporal, social and critical perspectives of heritage debated by Moreno (1999), Lowenthal (1985), Sibony (1998), Foccroulle (1995) and Ashworth & Howard (1999), respectively. Our understanding of heritage comprises all artefacts and natural phenomena which, by virtue of their geo-history, aesthetics and, on occasion, uniqueness, become socially sanctioned reference points construing identity. They represent key cultural manifestations from the past and present, and are basic sources of social knowledge through their interpretation from a holistic perspective (Cuenca, 2004).

Our perspective is a systemic, comprehensive and complex one, in which the referents of heritage should be understood within interlinked sociocultural systems, holistically comprised of various manifestations: historical, artistic, ethnological, scientific-technological and environmental. Their meaning and value increase when each object is linked with others in relations of synchrony, diachrony, genesis, derivation, analogy and difference. These systemic dimensions of heritage and the processes of comprehension of the respective systems (Mattozzi, 2001), lead to a fuller understanding of the diverse societies, past and present, which produced them, and the construction of social identity and cultural symbols. Heritage phenomena are, then, a

vital source of socio-historical knowledge (Freedman, 1992), and must be studied in their temporal, spatial, social and functional context in terms of the value they represented in the past and what they represent today.

c) *Teaching heritage* is not an end in itself, but should rather be integrated into the curriculum alongside the overall aims of citizenship in general and the Social and Experimental Sciences in particular. Key heritage referents can be used to promote critical thinking about the world around us, independently of any ultimate objectives regarding the conservation and appreciation of heritage, or the knowledge to be gained from studying such examples and the procedures for researching them, which should never be confused with the ultimate goals of the educational process.

Hence, within the field of the Experimental Sciences, we favour well-founded educational initiatives aimed at achieving scientific literacy for all, and promoting attitudes of respect for cultural, geological and biological diversity. For this reason, we consider scientific literacy a tool for development in the widest sense of the word, as a resource for aiding understanding between peoples, and a starting point for establishing relations between global and local environmental problems (Edwards et al, 2004), incorporating the portmanteau concept of "glocality" (Gil & Vilches, 2004) as another path of development for the initiatives we support (Estepa, Wamba & Jiménez Pérez, 2005).

d) With respect to the *dissemination of heritage*, especially in museums concerned with what is termed natural heritage and scientific-technological heritage, there has been a shift away from the traditional paradigm of exhibits in glass cases (selected from collections built up for scientific research) to interactive multi-sensorial exhibitions, which can be found in the more recent science museums and which need not actually include any authentic artefacts, relying instead on the use - and in some cases abuse – of the latest technology to achieve their effect (Correa & de Pablos, 2009; Falk &

Storksdieck, 2005; Scazzosi, 2004). This interactive tendency is beginning to spread beyond the historical and arts based museums. It features personalised itineraries and employs technology to present the particular item of heritage in question in an appropriate, if virtual, context vis-a-vis its physical and socio-cultural impact, in some cases resulting in the museum environment becoming a kind of research laboratory for social, historical and cultural experimentation (Serrat, 2005).

This project recognises three levels of development in participants' thinking about conceptual and educational aspects of heritage. These follow a hypothesis of development[2] from reductive to complex in respect of interpretative capability and/or systematisation regarding its components, recognising increasing degrees of complexity and depth in the treatment of heritage education. To construct the gradient, we considered the different levels of teachers' and administrators' reflection regarding professional development. We took two basic aspects of pedagogic content knowledge as reference points for development: knowledge of heritage and knowledge of heritage education. Thus, the initial level of the gradient, which we have called 'reductionist', was defined by simpler, more static and acritical conceptualisations of heritage and its teaching-learning, whilst the intermediate ('applied') and ultimate ('integrated') levels were characterised by conceptualisations of an increasingly investigative, complex, critical and constructivist nature, and were considered more desirable in that they superseded the limitations of previous levels (Cuenca, 2003).

Specifically, at the reductionist level the notion of heritage covers a limited number of grandiose and prestigious items, and their educational treatment is divided by type across the subjects without any interrelation between them. The incorporation of heritage into the curriculum is sporadic, and its methodological treatment takes

[2] Porlán & Rivero (1998) establishes a hypothesis of development of teachers' professional knowledge as a frame of reference for trainers (or in our case, researchers), allowing them to understand a scenario and intervene appropriately.

traditional forms such as lectures. Likewise, conceptual and attitudinal content is given primacy, and the overall aim of heritage teaching is regarded as exclusively academic, with little consideration of the issues regarding conservation.

The applied level involves a more complex conceptualisation of heritage and its teaching, taking into consideration aesthetic and historical criteria. At this level, heritage is incorporated into lesson planning as an area for study in its own right or as a resource for other relevant topics. Activities include visits, experiences and simulations and greater attention is given to questions of analysis and, on occasion, to heritage conservation. There is a tendency to set practical objectives which link heritage teaching to everyday life.

The integrated level within our hypothesis of progression, the most desirable level, conceptualises heritage from what we term a symbolic-identitary perspective, that is, as a cultural feature of society and a factor in understanding other civilisations from the past and present. The approach to heritage is interdisciplinary and holistic. In terms of education, heritage is considered objective, content and specific resource, facilitating a more comprehensive, meaningful and motivating vision of teaching. It is based on constructivist principles characterised by a social and investigative mode of teaching in which conceptual, procedural and attitudinal contents are fully integrated. The ultimate aim of heritage teaching tends to be the development of critical thinking, and the appreciation and conservation of heritage as something which confers identity and unifies cultures.

In previous studies (Estepa, Cuenca & Ávila, 2006; Estepa, Ávila & Ferreras, 2008) this progression is structured in terms of practical professional problems facing teachers and heritage administrators, as a means of accessing the conceptions which these professionals might have in this respect, the development of these, and the

obstacles which they might find in developing a heritage education programme. Here, the aim is to explore the conceptions of primary teachers, secondary teachers and heritage administrators regarding heritage and its teaching, to identify their level of development and to detect potential obstacles to the development of their professional knowledge.

3. METHODOLOGICAL FRAMEWORK

The study is of a mixed design, applicable to a variety of educational contexts (Johnson & Onwuegbuzie, 2004). On the one hand, it takes a quantitative, non-experimental paradigm, applying statistical and correlational methods to uncover latent relationships between variables. This facilitates the development of explicative theories of a post-hoc type in a natural context. On the other hand, the qualitative paradigm leads us to the interpretation of the phenomena and the understanding of the relationships (similarities and differences) between variables.

The lack of studies into this area, in conjunction with human and time constraints, led us to employ a questionnaire (see appendix) for data collection, following methodologically related studies, such as those by Ávila (2001) and Cuenca (2004), and drawing on various studies into the methodology of educational research (Walker, 1997; Wiersma, 2000).

The responses to the items in the questionnaire were considered as declared conceptions, and were analysed, in part, in a previous study (Estepa, Ávila & Ruiz, 2007). A characteristic problem in this type of research, and a major factor to be taken into account when interpreting the results, is that in most cases, the information supplied by the respondents represents more what they think they should answer than their true opinions or conceptions. Such “false responses” are not usually intentional, but are

rather attributable to a desire to provide a response consistent with their theoretical beliefs (Bromme, 1988). This is what Galindo (1997) calls *declared knowledge* and Carrillo, Coriat and Oliveira (1999) refer to as *simulated knowledge*. In order to offset this effect we adopted various strategies: the questionnaire was anonymous; its completion was on a purely voluntary basis and was devoid of any supervisory element; its design favoured open responses aimed at capturing the thoughts of the respondents more directly, and it avoided leading questions.

3.1. Description of the sample

The study was conducted within the geographical triangle described by Huelva-Seville-Cadiz (Spain), an area that was understood to enjoy a high degree of cultural homogeneity and so could provide coherent and significant results. The study comprised 66 primary schools and 36 secondary schools. Given the employment peculiarities of the Spanish education system, which sees a large turnover of staff each year, the questionnaires were directed to long-serving teachers in both instances. In the case of the secondary schools, this was most easily achieved by targeting the departmental heads of the specialist areas (Geography and History, Biology and Geology, and Physics and Chemistry). A total of 174 questionnaires were sent out, although because of difficulties with the process of distributing, checking progress and personally collecting questionnaires, the final number of respondents came out at 126 across the two levels (table 1).

A sample of visitor centres comprising all official museums, visitor centres and archives in the three provinces[3] was also included, and the questionnaire sent to those

[3] As listed in the Registry of Museums in Andalusia, the Andalusian Network of Visitor Centres at Historical Sites and the Andalusian Archive System, of the Department of Culture in the Andalusian Regional Government (Junta de Andalucia). Also included were the interpretation centres registered with the Andalusian Network of Protected Natural Areas

responsible for the areas of dissemination. This gave a total of 48 cases, although only 33 completed the questionnaire (table 1).

3.2. Data collection and analysis

The questionnaire consisted of twelve questions, the form and content of which were subject to minor variations according to the two professional groups it targeted – teachers and administrators – and the province they lived in. Six of the questions were open-ended and the other six used Lickert scales.

Question content was determined according to a system of categories, with three categories and eight sub-categories (variables) which in turn would be used to analyse the information (Estepa, Cuenca & Ávila, 2006) (table 2).

The questionnaire used in this study drew on those used by Ávila (2001) and Cuenca (2004), with adaptations appropriate to the specific objectives of this study. Two rating systems were used for validating the questionnaire: evaluation by a panel of experts in the fields of teaching and promoting heritage, and a poll of participants meeting the same defining characteristics as the analytical sample and working in centres that had not been selected to form part of the research[4].

The data obtained by means of the questionnaire were transferred to an observation template matching the category system. This second order research tool codified the variables into ascending numerical values, according to the complexity of the levels. Analysis using SPSS (version 14.0) provided general descriptive statistics along with graphs for each of the variables and a bivariate correlation matrix for the subsequent interpretation of the overall findings. Nevertheless, the present study focuses exclusively on characterising the influence of the variables and establishing their

[4] The panel of experts was composed of academics with a background of research into the area, university professors and lecturers of recognised expertise in the field, curators of major heritage institutions in the region, and primary and secondary teachers with long experience of classroom innovation and research.

importance and interactions, in such a way that it is possible to draw up a catalogue of conceptions with respect to the teaching and promotion of heritage.

An exploratory multivariate factor analysis was also performed, which helped us to make hypotheses about interactions between variables. The statistical treatment was concluded with a confirmatory factor analysis to contrast the results, experimentally determining the key variables operating in the system (Hair et al, 2005). The extraction of main components method was used, employing an orthogonal Varimax rotation from a correlation matrix, to which were applied the indexes which allowed us to determine the reliability of the process and the possible existence of correlations implied by the factor extraction. For this purpose, the sphericity of Bartlett and the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) were used.

For extracting the factors which account for the system, only those with a autovalue > 1 and accounting for more than 70% of the variance were taken into consideration, as demanded by the literature for this type of study (Catena, Ramos & Trujillo, 2003) (table 3).

4. DISCUSSION OF THE DATA

4.1. Analysis of the exploratory graph

With respect to the first variable (Table 4), *perspective on heritage*, we can see that a significant majority (47.2%) fell into the historical perspective, followed by the symbolic-identitary perspective, with a 22.6% share of the sample. At the other end of the scale, the least represented view was the monumentalist, at just 3.1%.

It is worth noting that figures for the historical and symbolic-identitary perspectives together accounted for 69.81% of the sample, which represents a view of heritage very close to that which we consider desirable for the hypothesis of development. Despite

this, the applied level, comprising the aesthetic and historical perspective, clearly predominated, with 52.5%, over the other two levels of development (17.6% and 22.6% for the reductionist and integrated levels respectively).

Regarding the second variable (table 5), *types of heritage*, the most representative was ethnological heritage (30.2%), though its share was only slightly larger that of natural-historical-artistic heritage (29.6%), and not much greater than the most desirable conception, holistic heritage (23.9%). On the other hand, the conception with least significance was that of scientific-technological heritage (7.5%).

According to the data, the majority of the participants were located at the applied level of our gradient of progression, with the categories of ethnological heritage and scientific-technological heritage together accounting for 37.7%, although the reductionist and integrated levels of development of the hypothesis were very close with 29.6% and 23.9% respectively. Hence, heritage typology was fairly evenly spread across the sample, without there being any evident predominance of one conception over the others, as in the previous variable.

The third variable (table 6) in the analysis, *the role of heritage in educational and dissemination programmes*, returned significant percentages for two levels, that of the use of heritage as a teaching resource (40.3%) and that of its occasional use (35.8%). By contrast, the lowest percentage (7.5%) corresponded to no interest in heritage teaching and dissemination. Nevertheless, the conception which we consider desirable, the full integration of heritage into educational programmes, showed a similar figure (10.1%), with no Physics and Chemistry teachers ascribing to it.

The fourth variable (table 7), *the role of providers and beneficiaries in heritage education and dissemination*, was clearly halfway between the reductionist and applied levels within our hypothesis of development, with the first level representing one-way

communication and the second reciprocal. Just how far these conceptions are from the desirable integrated level can be appreciated by its share of just 13.2%.

In the fifth variable (table 8), *integration of contents*, almost half the respondents (46.5%) claimed minimal integration of contents, a third (33.3%) basic integration and less than 10% complex integration, showing a marked predominance of the reductionist level.

With regard to the sixth variable (table 9), *objectives of heritage education and dissemination*, practical-conservational ends returned the highest percentage (45.3%), corresponding to the applied level in the hypothesis of development. Here, we can note substantial differences with the other two levels: 27% in the case of promoting critical thinking (integrated level) and 17% in that of academic purposes (reductionist level).

The variable *identity* (table 10) was found to be dominated by a pre-eminently social conception, accounting for 50.8% of the sample, and corresponding to the applied level. The other two levels lagged some way behind this figure, with a large number of respondents writing ‘don’t know’ or not answering (23%). Another 23% of respondents founded their conception of identity on individual experience (reductionist level), while just 3.2% admitted multiple experiences and cultures (integrated level).

Finally, in the variable *heritage typology and identity* (table 11), the vast majority of the sample (60.4%) were placed at the applied level by the hypothesis, by virtue of having historical and artistic conception of heritage. The reductionist level an ethnological and natural conception (24.5%), and the integrated, a holistic conception, (6.3%), lag some way behind.

In order to better interpret these results, we should first consider other relevant data, which concern the treatment of heritage in the initial training of the groups, and which also derive from the original questionnaire. Thus, 73.1% of the Geography and History

teachers stated they had covered heritage themes in the course of their initial training. At the opposite extreme, only 5% of the Physics and Chemistry teachers asserted the same, whilst 70% stated that they had received no exposure at all. Between these two, the Biology and Geology teachers and the Primary teachers returned 47.8% and 31.1% respectively. In the case of the heritage administrators, one might reasonably expect there to be a greater degree of specialisation with regard to heritage in their initial training, but only 39.4% affirmed this to be the case, the same percentage that stated they had received none. Nevertheless, it should be noted that this group had received significant in-service training with respect to heritage matters in the course of their professional development (table 12). This additional information complements the variables we analysed and provides relevant data which we will summarise in the conclusions.

4.2. Analysis of the correlations

Using the bivariate correlation matrix presented in table 13, we can observe a number of relations between the variables, which suggest various inferences about the participating groups. Two significant groups of relations emerge from the matrix, one with a degree of significance of 99%, and another with 95%. These were subjected to a factorial analysis, using the KMO measure of sampling adequacy and the test of sphericity of Barlett, with results of 0.719 & 426.3 respectively, where results above 0.6 in the former and 300 in the latter are satisfactory values. Bearing in mind that for the sample size (157), the correlations are significant upwards of r = 0.4, we have considered solely those with a coefficient above 0.5 so as to focus on the most significant results.

Taking the variables in the order in the system of categories (table 2), we can first note the correlations between *perspectives on heritage* and *types of heritage* with a value of 0.542. This allows us to affirm that the plurality of the respondents have a historical or symbolic-identitary view of heritage, corresponding to an ethological and holistic conception (Figure 1). On the other hand, a significant relation between the historical and symbolic-identitary perspectives and the natural-historical-artistic heritage type can also be noted, with the primary teachers and the Geography and History teachers predominating in this instance.

These two are the variables with greatest weight in the second factor of the factorial analysis, along with the variable 'identity', some way behind, as can be seen in table 14. We have denominated this factor 'conceptual vision of heritage'. It accounts for 20.6% of the system variance as against 71.4% of the total variance (table 3). Bearing in mind the foregoing descriptive analysis, it is the primary and Geography and History teachers who are the most influential in the above correlations.

With respect to the variables *the role of heritage in programmes of education and dissemination*, *the role of providers and beneficiaries in heritage education and dissemination* and *integration of subject matter*, they are found to have the highest degree of correlation amongst themselves within the complete set (table 13). It is these three variables that predominate in the first factor (table 14), that is, the factor with the greatest explanatory power in the system, accounting for 23.7% of the variance. This factor is denominated 'relations between teaching and dissemination'. If we consider these alongside the first two variables noted above (second factor), their combined explanatory power accounts for the greater part of the system variance, some 44.25% as against 71.4% total variance (table 3).

After an exhaustive analysis of pairs of variables, these high rates of correlation can be understood in the light of the fact that the majority of the respondents consider heritage resources highly appropriate to educational programmes. These same respondents likewise align themselves with the conceptions of either one-way or reciprocal communication (Figure 2), in the same way that they think in terms of simple or zero integration of subject matter (Figure 3). When these conclusions are combined with the previous descriptive analysis, it is the primary teachers and the heritage administrators who most feature in this respect, whilst in both cases it is the teachers of Physics and Chemistry who are least represented. On the other hand, the teachers of History and Geography stand out with respect to full integration of heritage and a view of multidirectional communication, although this is not the option with highest frequency in the group.

The similarity between the groups of primary teachers and administrators is maintained, albeit to a lesser extent, in the next variable – *objectives of heritage education and dissemination* – where both exhibit a practical-conservationist vision. Hence, although the applied level in our hypothesis of development is the most frequent across the groups, this variable does not show any notable correlation in any of the factors. This finding can be explained as a variation without any relation to either the groups or the other variables. We can note just one correlation of little significance with the variables *scales of identity* and *specialisation and qualifications*, which confirms the above. These two variables constitute the third factor which can be called "cultural identity", accounting for 15.8% of the variance, a figure which indicates their relative importance to the overall system. These data are possibly the consequence of the high percentage of respondents who failed to answer, but they provide us with an important partial view of the social conception of identity, with which the group of primary

teachers deeply identifies itself, along with the group of Geography and History teachers. The other groups are dispersed among the set of levels and are little represented in the multi-identity option.

The fourth factor, with least weight in the system variance, some 11.3%, which we denominate “geographical location”, is where the variable *province of the sample* appears, being the only one which is represented in this factor, thus indicating its independence from the other variables, as was to be expected in this study.

5. CONCLUSIONS

The results of the research process presented here makes us reconsider the connections between teachers and heritage administrators, both in their initial training and their professional development, with certain barriers being detected that prevent their work from being what we can consider desirable as defined above.

Starting with an initial general characterisation of the sample, we can note that the province where the participants worked was not a significant factor, and that the training received by each of the different groups was far more indicative. Bearing in mind the overall results, a traditional view of heritage predominates, characterised by a historicist, and, to a certain extent, reductionist perspective on the part of both the primary teachers and administrators, as was considered in the research hypothesis. By contrast, the Geography and History teachers generally have a wider and more integrated view. The other two groups are split across the different categories, without any noteworthy finding amongst the results for various reasons, amongst others, the high degree of abstention amongst the Physics and Chemistry teachers, suggesting a lack of interest in heritage education.

With respect to the results of the factorial analysis, we can note, on the one hand, the high correlation between the variables relating to the concept of heritage and its typological representation, and on the other, a significant correlation between the variables making up the second analytical category (heritage teaching models).

The barriers that we have detected have been classified into three types: those that we can denominate epistemological, that is, concerning the knowledge and understanding of the subjects related to heritage and its procedures; methodological, relating to strategies and resources employed in the processes of teaching and communicating heritage; and teleological, referring to the meaning, value and ends of heritage education.

The traditional view held by the primary teachers and administrators can be accounted for, in the first instance, by the scant training in questions of heritage which these groups receive. Additionally, the latter undergo highly specialised training which encourages heritage to be viewed in terms of subject divisions. Both situations see the creation of conceptual barriers which prevent them reaching a holistic level in their perspective of heritage. This is not the case with the Geography and History teachers as the very nature of their profession considers social and historical questions in a more generic way.

In this respect, we should note the contrast between the professional work of the teachers and administrators in the sphere of heritage education. We saw that the primary teachers had problems with understanding the concept of heritage and its associated procedures, aspects which represent a significant barrier to dealing with the subject in class. By contrast, the secondary teachers, fundamentally those of Geography and History, and Biology and Geology, enjoy an epistemological and conceptual training on

heritage knowledge, but on the other hand, show methodological problems in respect of working with the subject with their students.

Finally, the administrators, with a very similar initial training to that of the secondary teachers, have a high specialisation with respect to the concept of heritage (acquired during their inservice training), but lack the methodological training to work with the school public, some of them even going so far as to state that their professional work is not related to such tasks, but rather dealt purely with conservation and research issues (a teleological difficulty).

Other studies have obtained similar results along the same lines, such as that conducted in France by Loison (2006), which highlight several types of problems faced by heritage education programmes: epistemological, didactic, pedagogic and material. Elsewhere, research into initial teacher training at both primary and secondary level, focus on these kinds of problems (Cuenca, 2004), which could be the root of the difficulties which practising teachers encounter when it comes to working on heritage in their classes, as other studies highlight (Ávila, 2001; Cohen, 2003).

Such questions of initial training also concern the work of Stearns, Seixas & Wineburg (2000) and Adler (2008), pointing out the need for teacher training and possible ways to approach and research the training for and the teaching of this area. In like fashion, a report presented to the American Educational Research Association indicates that for teacher training to be successful it is vital to establish strong links between the university and school, directed specifically towards formative programmes. Equally, methodological strategies for teacher training should be centred on case studies and the use of portfolio, both of proven effectiveness in influencing changes in teachers' conceptions, knowledge and attitudes (Cochran-Smith & Zeichner, 2005).

We also concur with Cohen's (2003) study in France and Canada regarding the need to lay the foundations of a training that establishes links with museums and like institutions, allowing the conceptualisation of heritage along with strategies for the application of this sphere of work to teaching, within teacher training programmes. It is equally vital that the training which administrators receive is not limited exclusively to questions of heritage and its conceptualisation, as happens in the majority of cases, but that this training also concerns issues relating to the social value of heritage, its strategies for dissemination, and its participation in citizenship education in the broadest sense.

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APPENDIX
QUESTIONNAIRE ON HERITAGE TEACHING & DISSEMINATION

Place of birth: _____

Current place of residence: _____

Main place of residence during last 15 years: _____

Age:
less than 20 years □ 21-30 years □ 31-40 years □ 41-50 years □ more than 51 years □
Sex: Male □ Female □
Professional training:

- Qualification: _____
- Other qualifications or courses related to heritage: _____

Professional experience (specialist area and nº of years): _____

Current place of work and position held: _____

During your initial training do you recall having covered any material related to heritage? Give details.

1. Put a cross (X) beside the items below which you consider heritage:

X	Teachers	Administrators	Reason for response
	The 'Sierra de Aracena'/ The 'Sierra Norte de Sevilla'/ The 'Pinsapar de Grazalema'	The 'Sierra de Aracena'/ The 'Sierra Norte de Sevilla'/ The 'Pinsapar de Grazalema'	
	Niebla Castle/ Seville City Walls/ Cadiz Fortifications	A vineyard	
	The Guggenheim Museum in Bilbao	The Guggenheim Museum in Bilbao	
	Holy Week	Seville/ Huelva/Cadiz port	
	A steam iron	A steam iron	
	Urban populations of nesting birds	Urban populations of nesting birds	
	The Riotinto Mining Park	The Riotinto Mining Park	

2. From the following items to be found in the Doñana National Park, indicate whether you consider them examples of heritage or not. Give reasons for your answers.

Y/N	Items	Reason for answer
	Marshland huts	

	Flora and fauna (Iberian lynx, purple gallinule, broom crowberry, “aviaries” etc.)	
	The dunes	
	The coastal watchtowers	
	Charcoal burners	
	Tools for gathering pine cones	
	All the above are examples of heritage	

3. Do you consider there to be anything in common between the examples of heritage you have indicated above? Please state.
4. What is heritage in your opinion?

5. Do you use examples of heritage in your teaching? / To what extent do you participate in dissemination activities at your place of work?

Teachers
□ Never
□ Rarely
□ Sometimes
□ Nearly always
□ Always

Administrators
□ My institution does not organise dissemination activities
□ I am not interested in dissemination activities
□ I do not participate because my duties prevent me
□ I occasionally participate
□ I frequently collaborate in organising activities
□ My main responsibility at the institution is disseminating heritage

6. Provide examples of class activities in which you include or might include heritage. / What types of dissemination activities take place at your place of work?
7. Give a detailed description of one such activity, indicating the roles of teacher and students. / Give a detailed description of one such activity and indicate the target participants.
8. Give examples of some heritage-related topics from your subject area. / Do you organise special activities for school visits at your centre? Give examples.
9. How significant for you is the teaching / dissemination of heritage topics? Rank each of the answers below from 1 (least significant) to 6 (most significant)

	To provide scientific and social knowledge.
	To engage the socio-natural environment appropriately.
	To increase awareness of the conservation of natural and cultural monuments.
	To learn about, make critical judgements about, and respect the scientific-cultural features identifying different cultures.
	To provide knowledge of the development of the socio-natural environment.
	To enable citizens to be critical of, and to participate in, society.
	Other (please specify):

10. How would you include heritage topics in the subjects you teach? Rank each answer below from 1 (least relevant) to 7 (most relevant). / Indicate the role of those involved in heritage dissemination in your centre by ranking each option below.

	Visits to heritage sites (museums, mining locations, natural reserves, etc) including guides to provide information.
	Organised activities in which students consider a heritage item in order to garner socio-natural information, with a subsequent class debate.
	Slide-shows with commentary by the students.
	Teacher presentations.
	Showing a video.
	Simulations and decision-making activities on heritage-based problems.
	Workshops involving traditional skills and crafts.
	Other (please specify):

11. Make a list of five heritage items that you identify with. Explain your choices.
12. Rank the heritage items below on a scale of 1 (least significant) to 8 (most significant) as they appear to you.

	The ‘El Rocío’ festivities
	The Roman remains at Itálica
	The Spanish fir
	The Mezquita in Córdoba
	The Doñana National Park
	The Carambolo Treasury
	Holy Week
	‘Las Meninas’ by Velázquez

Tables:

		Frequency	Percentage	Valid percentage	Cumulative percentage
Teachers	Primary Teachers	49	30,8	30,8	30,8
	Geography & History Teachers	28	17,6	17,6	48,4
	Biology & Geology Teachers	27	17,0	17,0	65,4
	Physics & Chemistry. Teachers	22	13,8	13,8	79,2
Administrators	Museums	20	12,6	12,6	91,8
	Archives	4	2,5	2,5	94,3
	Visitor Centres at Historical Sites	2	1,3	1,3	95,6
	Visitor Centres at Protected Natural Areas	7	4,4	4,4	100,0
	Total	159	100,0	100,0	

Table 1. Breakdown of the study sample

Categories	Variable	Indicators	Descriptors
Category I: Concepts and typology of heritage	1. Perspectives on heritage	Fetishistic-extremist perspective	Irrational admiration, becoming an amulet, cult or magical object. Scarcity, rareness, singularity and chrematistic value
		Monumentalistic perspective	Grandiosity (spectacular and large scale). Renowned prestige
		Aesthetic perspective	Natural, artistic and stylistic beauty
		Historical perspective	Dating from beyond at least three generations
		Symbolic-identitary perspective	Symbolic artefacts characterising a society
	2. Heritage types	Natural–historical–artistic heritage	Environmental artefacts. Archaeological items and documents. Examples of different stylistic movements. Associated landscapes
		Ethnological heritage	Traditional and significant artefacts responsible for social change. Associated landscapes
		Scientific–technological heritage	Objects and instruments contributing to the repository of scientific knowledge. Technological and industrial items triggering socio-economic change. Associated buildings and landscapes
		Holistic heritage	Comprehensive and inclusive consideration of all the above items
Category II: Model of heritage teaching	3. Role of heritage in educational programmes	Of no socio-educational interest	heritage teaching Heritage teaching and dissemination not considered of interest
		Occasional use	Isolated and decontextualised activities, unrelated to the curricular design
		Teaching resource	Source of information for working on and understanding the socio-environmental context
		Full integration	Meaningful inclusion in all elements of the curriculum
	4. Role of providers and beneficiaries in heritage education	One-way communication	No interaction between providers and beneficiaries. Passive behaviour of beneficiaries
		Reciprocal communication	One-to-one interaction between provider and beneficiary. Active behaviour of beneficiaries
		Multidirectional communication	Multiple interactions. Everybody able to adopt role of provider and beneficiary
	5. Integration of contents	No integration	One area - concepts, procedures, or attitudes (following Spanish syllabus specifications) – is given predominance over others.
		Basic integration	Two areas – concepts/procedures, concepts/attitudes, or procedures/attitudes – are given predominance.
		Complex integration	The three areas - concepts, procedures and attitudes (following Spanish syllabus specifications) – are integrated in equal measure.
	6. Aims of heritage education and dissemination	Academicist aims	Knowledge of culturally oriented facts and information, illustrated and/or focused on anecdotal aspects
		Practical-conservationist aims	Economic and/or sentimental value in daily life. Obsessive conservation of all artefacts considered heritage
		Critical aims	Preparing citizens committed to sustainable development, who value and respect heritage artefacts of great symbolic value to the constitution of identities
Category III: Heritage and identity	7. Identity scales	Individual	A symbolic and identitary value is accorded exclusively to closely familiar heritage items and those of which the individual has personal experience.
		Social	In addition to the above, symbolic and identitary value is accorded to heritage items relating to the indiviual's own culture.
		Poliidentity	In addition to the above, symbolic and identitary value is accorded to heritage items beyond the individual's own culture.
	8. Heritage typology and identity	Ethnological	The individual identifies with meaningful and traditional elements and associated landscapes.
		Natural	The individual identifies with environmental elements.
		Historical	The individual identifies with archaeological and archival elements.
		Artistic	The individual identifies with work of different stylistic movements.
		Holistic	The individual identifies with elements across a diverse range of manifestations of heritage.

Table 2. System of categories for information analysis (Estepa, Cuenca & Ávila, 2006)

Component	Initial values			Sum of saturations to the rotation squared		
	Total	% of the variance	Cumulative%	Total	% of the variance	Accumulated%
1	3.316	33.163	33.163	2.369	23.690	23.690
2	1.474	14.743	47.906	2.056	20.560	44.250
3	1.282	12.815	60.721	1.586	15,859	60.108
4	1.070	10.701	71.422	1.131	11.314	71.422
5	0.676	6.755	78.177			
6	0.599	5.993	84.170			
7	0.474	4.745	88.915			
8	0.442	4.416	93.331			
9	0.368	3.676	97.007			
10	0.299	2.993	100.000			

Extraction method: Principal component analysis.

Table 3. Variance of the components of the system

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	12	7.5	7.5	7.5
Fetishistic perspective	23	14.5	14.5	22.0
Monumentalistic perspective	5	3.1	3.1	25.2
Aesthetic perspective	8	5.0	5.0	30.2
Historical perspective	75	47.2	47.2	77.4
Symbolic-identitary perspective	36	22.6	22.6	100.0
Total	159	100.0	100.0	

Table 4. Perspectives on heritage.

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	14	8.8	8.8	8.8
Natural–historical–artistic heritage	47	29.6	29.6	38.4
Ethnological heritage	48	30.2	30.2	68.6
Scientific–technological heritage	12	7.5	7.5	76.1
Holisitic heritage	38	23.9	23.9	100.0
Total	159	100.0	100.0	

Table 5. Types of heritage.

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	10	6.3	6.3	6.3
Of no socio-educational interest	12	7.5	7.5	13.8
Occasional use	57	35.8	35.8	49.7
Teaching resource	64	40.3	40.3	89.9
Full integration	16	10.1	10.1	100.0
Total	159	100.0	100.0	

Table 6. The role of heritage in educational and dissemination programmes

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	12	7.5	7.5	7.5
One-way communication	63	39.6	39.6	47.2
Reciprocal communication	63	39.6	39.6	86.8
Multidirectional communication	21	13.2	13.2	100.0
Total	159	100.0	100.0	

Table 7. The role of providers and beneficiaries in heritage education and dissemination

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	19	11.9	11.9	11.9
No integration	74	46.5	46.5	58.5
Basic integration	53	33.3	33.3	91.8
Complex integration	13	8.2	8.2	100.0
Total	159	100.0	100.0	

Table 8. integration of contents

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	17	10.7	10.7	10.7
Academicist aims	27	17.0	17.0	27.7
Practical-conservationist aims	72	45.3	45.3	73.0
Practical-critical aims	43	27.0	27.0	100.0
Total	159	100.0	100.0	

Table 9. Objectives of heritage education and dissemination

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	29	18,2	18,2	18,2
Individual	29	18,2	18,2	36,5
Social	64	40,3	40,3	76,7
Poliidentity	4	2,5	2,5	79,2
No response (administrators)	33	20,8	20,8	100,0
Total	159	100,0	100,0	

Table 10. Identity Scales

	Frequency	Percentage	Valid percentage	Cumulative percentage
Don't know / No response	14	8.8	8.8	8.8
Ethnological	14	8.8	8.8	17.6
Natural	25	15.7	15.7	33.3
Historical	71	44.7	44.7	78.0
Artistic	25	15.7	15.7	93.7
Holistic	10	6.3	6.3	100.0
Total	159	100.0	100.0	

Table 11. Heritage typology and identity

Initial training in heritage		Respondents according to profession							
		Don't know / No response	Primary teachers	Secondary teachers Phys/Chem	Secondary teachers Bio/Geo	Secondary teachers Geo/Hist	Educationa-ilsts	Admin.-strators	Total
Don't know / no response	Nº of respondents	7	13	5	5	6	1	7	44
	Nº as % of total in group	87.5%	28.9%	25.0%	21.7%	23.1%	25.0%	21.2%	27.7%
No	Nº of respondents	1	18	14	7	1	1	13	55
	Nº as % of total in group	12.5%	40.0%	70.0%	30.4%	3.8%	25.0%	39.4%	34.6%
Yes	Nº of respondents	0	14	1	11	19	2	13	60
	Nº as % of total in group	0.0%	31.1%	5.0%	47.8%	73.1%	50.0%	39.4%	37.7%
Total	Nº of respondents	8	45	20	23	26	4	33	159
	Total % by group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 12. Initial heritage training according to professional groups of respondents

	A	B	C	D	E	F	G	H
A. Perspectives on heritage	1							
B. Role of heritage in education and dissemination programmes	0.261	1						
C. Integration of subject matter	0.175	0.543**	1					
D. Scales of identity	0.198	0.293	0.323	1				
E. Heritage typology and identity	0.399	0.302	0.365	0.376	1			
F. Types of heritage	0.542**	0.349	0.202	0.203	0.349	1		
G. Role of providers and beneficiaries in the teaching and dissemination of heritage	0.200	0.508**	0.582**	0.134	0.319	0.200	1	
H. Objectives of heritage education and dissemination	0.342	0.437	0.313	0.201	0.361	0.297	0.331	1

Table 13. Bivariate correlations matrix between the variables

	Components			
	1	2	3	4
Perspectives on heritage		**0.851**		
Types of heritage	0.116	**0.802**		
Role of heritage in education and dissemination programmes	0.**758**	0.282		
The role of providers and beneficiaries in heritage education and dissemination	0.**832**			
Integration of subject matter	0.**830**		0.252	
Objectives of heritage education and dissemination	0.427	0.483		-0.460
Scales of identity	0.242	0.222	**0.805**	
Heritage typology and identity	0.377	0.**548**	0.265	0.171
Province of the sample		0.106		0.**933**
Specialisation and qualification	-0.107		0.**887**	-0.100

Table 14. Components of Rotated Matrix

Figures:

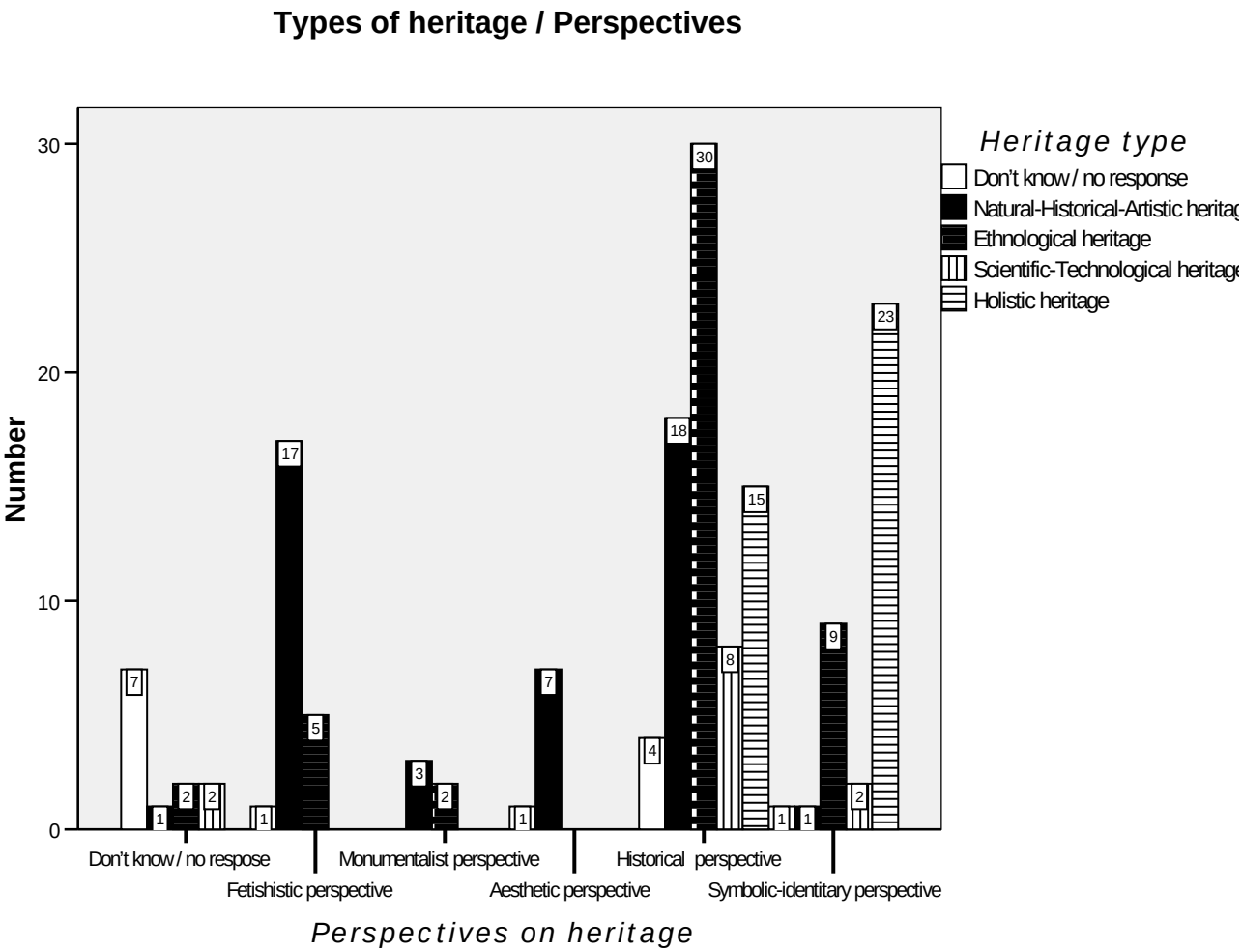

Figure 1. Relation between perspectives on heritage and types of heritage

Role of heritage in educational progs. / Role of providers and beneficiaries

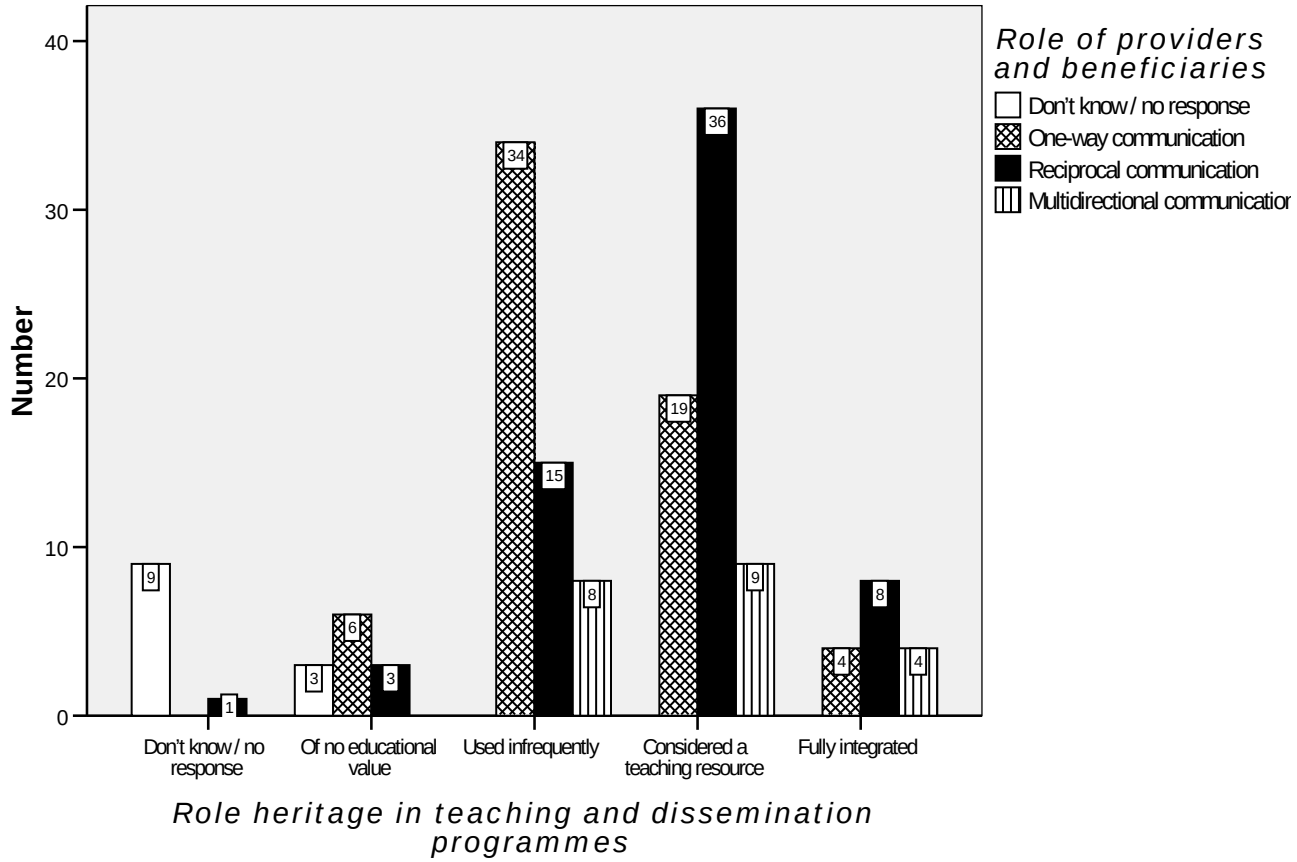

Figure 2. Relation between role of heritage and providers/beneficiaries

Roles of providers and beneficiaries / Integration of subject matter

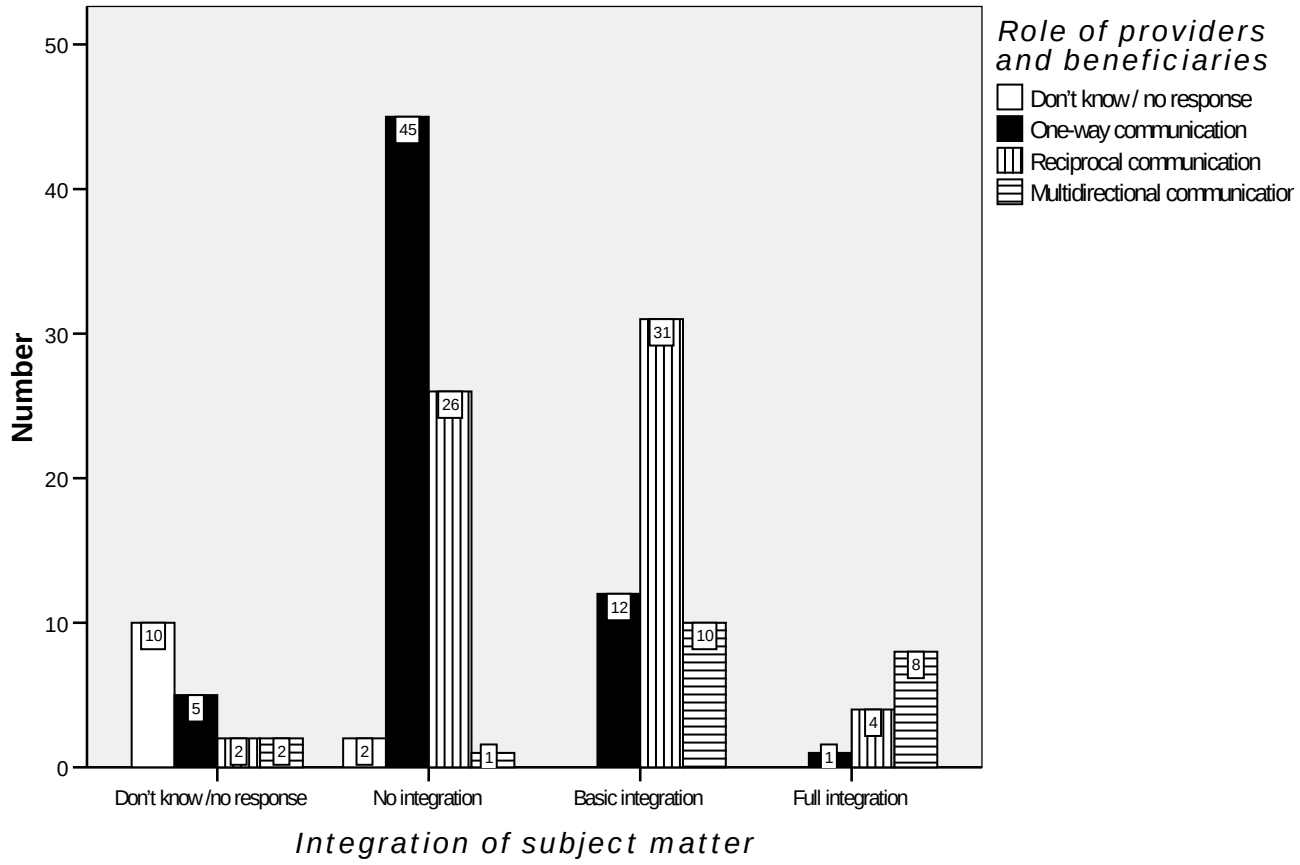

Figure 3. Relation between role of providers/beneficiaries and integration of subject matter