Catalina Naumis-Peña – Universidad Nacional Autónoma de México, México
Hugo Alberto Guadarrama-Sánchez – Universidad Nacional Autónoma de México, México
Luis Enrique Sánchez-Rodríguez – Universidad Nacional Autónoma de México, México
Rosa de Guadalupe Hernández-Villeda – University of Copenhagen, Denmark

Terminological Relations of a Thesaurus for University Cultural Infrastructure Terms

Abstract:
The objective of this work is to define the terminological relations of the University’s cultural infrastructure with the purpose of developing a thesaurus, in Spanish, that contributes to the thematic organization of a database. This will be used for a better communication and understanding among organizers of cultural activities in a university environment. In order to achieve this project, we used a descriptive method integrating techniques of observation. We completed interviews and analyzed the existing literature by using the factual records as instruments. Different worksheets and a questionnaire were also used to obtain a domain consisting essentially of cultural spaces such as auditoriums, libraries, cinemas, esplanades, outdoor forums, museums, concert halls, conference rooms, audiovisual projection rooms, multipurpose rooms, dance halls, music halls and theaters, in addition to their relationship with technical resources and areas and attributes. Thus, obtaining an arborescent structure for the development of a thesaurus destined for the university environment.

1.0 Introduction
The purpose of this study is to define the terminological relationships on a university cultural infrastructure, in order to develop a thesaurus, in Spanish, that contributes to the thematic organization of an information system. The thesaurus will be used to achieve a better understanding and communication among the organizers of different cultural activities in a university environment of large dimensions — one that has many campuses in a same country or even in others (Universidad Nacional Autónoma de México. UNAM)

The organization of cultural activities in the university implies an acquaintance with the spaces, the location and the technological resources that each enclosure possesses. In this way, deciding the correct place to carry out the diverse activities becomes easier. However, this paper focuses on solving this communicative gap through organized and representative terms. The comprehension of the field of action and the elements that characterize it implies an intellectual effort that requires an in-depth study of conceptualization though terms that represent and directly interrelates them.

University cultural spaces are of two types: professional spaces for a given activity or multipurpose spaces. The acts to perform in the venues are, but not limited to, presentation of plays, concerts, dance shows, screening of films or videos, university protocol events such as awards, conferences, seminars, with each of these actions including different supporting elements.

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Thus, in the communication between the various university users of cultural spaces it is essential to use the terminological designations that are understandable, both for organizers, and the participants in the diverse acts in order to avoid the errors that human communication can cause. “The purpose of a thesaurus is to guide the indexer and the search engine to select the same preferred terms or combine the preferred terms to represent an assigned theme” (ISO 2011, 12).

The concept of indexing language to represent documents in databases is used in Information Science, not only to index documents but also to structure the database (Fugmann 1992).

2.0 Methodology

To develop the thesaurus a combination of different methods was used: description (scouting) of the spaces and their infrastructure, interviews with decision makers and technicians, design and testing of the questionnaire, analysis of terminology in interviews, content analysis in literature on cultural venues, comparison of the terms in specialized thesauri in the topics. All this was done to gain acknowledge of the domain in which a thesaurus operates; “thesaurus was on the agenda, but the design was to be based on the results of the domain study” (Likke 2001, 774).

2.1 Art & Architecture Thesaurus (Getty Research Institute)

The consultation of thesauri related to the subject before undertaking the construction of a thesaurus is mandatory. In the case study on cultural venues, the most representative is the Art & Architecture Thesaurus (AAT) of the Getty Research Institute. This thesaurus has a published translation in Spanish; however, we observed that the approach is centered in the Anglo-Saxon context with hierarchical and faceted terms related to art, architecture and other material cultures, associated concepts, periods and activities, etc. Both the hierarchies used and the terminological approach are not focused on a university environment, where the thesaurus operates from, since the AAT reflects terms linked to the arts, the entertainment and shows corresponding to a wider cultural spectrum.

The relations in AAT are wide and confusing for the communicative situation that we are trying to solve with the thesaurus that we are building. This thesaurus can then be a contribution to transliterate Anglo-Saxon terms in an Ibero-American context.

“The need for the definition of an international “glossary” for architectural heritage and by extension, for cultural heritage has arose. This need has originated from the fact that there are various methodologies regarding heritage documentation. Various vocabularies and thesauri are used in the field of conservation, while the variety of “uniqueness” of each cultural artefact turns its categorization into a difficult endeavor. In addition, not only spatial information needs to be standardized, but also the related metadata. Multilingualism, the translation of terms and the existence of many local words for the description of the same object, are the most important challenges when structuring vocabularies. Therefore, the attempt to describe an object with terms understandable to every culture and the adoption of a common “linguistic ground” meets a number of difficulties” (Maietti 2018, 107).

The purpose of the thesaurus to be developed, unlike Paul Getty's thesaurus, is to group and organize the terms that describe cultural spaces, technical resources, areas and attributes as the main categories from which other ramifications are derived. These necessities make unbeatable differences not only in the main categorization, but in the terms that represent the concepts in a university cultural environment that does not include mass entertainment, for example, at a cultural level.
In this way, the differences and needs in the terminological structure must be remedied from different disciplinary contributions since a single approach is not enough to explain social, natural, economic and cultural phenomena. Hence, it is necessary to broaden the horizon with conceptual elements representative of the interests in indexing and information retrieval (Hjørland 2002a). “It is really important to know the most important information sources in one or more domain at a rather detailed level. It has a strong relevance for practical information work” (Hjørland 2002b, 425).

2.2 Definition of the University Cultural Infrastructure

Because the purpose of this thesaurus is to organize the terminology of an information system, the next step was to define and understand the concept that would properly name the information system that was developed. After studying and analyzing the scope of operation, University Cultural Infrastructure was chosen.

Infrastructure can be understood, in a general aspect, as the set of properties and resources that some individual, company, or institution has. Nonetheless, there are certain definitions from institutions and initiatives involved in national cultural development, in the Anglo-Saxon world.

For the government authorities in London, cultural infrastructure is the grouping of creative work sites, performing arts rehearsal spaces, music recording studios, film and television studios (Khan 2019). While the national organization dedicated to cultural development in Canada, considers that cultural infrastructure is comprised of resources and spaces built specifically or adapted for use. Examples of the spaces that are part of the cultural infrastructure are the performing arts centers, galleries and museums. (CCNC Special Editions 2009).

Being that for the Australian government the cultural infrastructure is considered as the buildings built or acquired to create, share and enjoy the artistic and cultural activities, such as theaters, galleries, museums, libraries, archives, community rooms, cinemas, public art and spaces for outdoor events. (Create New South Wales 2020)

From the information presented above, it can be deduced that, in Anglo-Saxon countries, cultural infrastructure refers specifically to movable and immovable property that are conserved, acquired or adapted for performing arts such as dramatic performances, music and dance, such activities are carried out —— usually in dance halls, concert halls, auditoriums, theaters, galleries and museums. In a university environment the cultural infrastructure also includes other types of spaces that are used to carry out activities related to the academic life.

For the purposes of this work, the University Cultural Infrastructure (ICU) is defined as all those cultural spaces where artistic and cultural activities such as dance, theatrical performances, film projections, conferences, concerts, art shows, etc. are held and where technical resources —— movable goods; the set of tools, instruments and artifacts used to perform cultural activities—— are required. These resources can be specialized and used for various events.

2.3 Exploration of spaces and resources

A first approach to the domain that would comprise the database and the terminology used was defined by observing the cultural enclosures and their components, supported by the resulting interviews. We classified the types of spaces based on the resources that
characterize them and we used an initial terminology compared to the definitions in specialized works such as glossaries, dictionaries, encyclopedias, controlled vocabularies, university academic works, videos, and images. The plans of the university units were also consulted to obtain different data. Thus, we selected and discarded the consulted works and the digital contents based on the level of description of the distinct entities and also on their compatibility with the ICU.

We developed a questionnaire to interview the authorities and managers of university spaces, that was first tested in certain representative venues. Additionally, we compared it to other questionnaires applied in cultural information systems of other national and foreign institutions. Based on this, we visited the university units in Mexico City and in Mexico’s different states where diverse facilities are owned. This questionnaire was also sent to dependencies abroad in order to also include them in the information system.

As a result of the combination of the descriptive and exploratory methods and their application to the definitions of the existing enclosures, we carried out a terminological integration to form a specialized vocabulary. This allowed for a first categorization, typifying the cultural spaces to develop the domain trees in separate groups: auditorium, library, cinema, esplanade, outdoor forum, museum, concert hall, conference room, audiovisual projection room, multipurpose room, dance hall, music room, theater.

2.4 The ICU domain trees

After having reviewed and selected the ICU domain terminology, domain trees were designed for each cultural enclosure. This allowed us to identifying the differences and similarities between the elements that compose the different spaces. The first venue analyzed was the theater, essentially a cultural space par excellence, therefore, it was the starting point to determine the terminology of the rest of the cultural spaces that were similar, such as the auditorium, the cinema, the concert halls, the halls of conferences, etc. These different enclosures have components and elements in common (room, armchairs, hallways, etc.) the differences lie in the architectural design and the alterations in scale, in addition to the activities that are carried out in these cultural spaces.

Although the university’s cultural spaces include enclosures and multipurpose sites to develop the activities, it is necessary to distinguish each of them both for their particular characteristics and their technical resources. This is achieved through visiting and being acquainted with the distinct enclosures, observing their characteristics and properties based on the terminology that represents each one of them. Some terms are usually specific to an area; in that case these terms become the qualities that clearly distinguish some areas from the rest.

An arborescent structure should avoid, as much as possible, the repetition of words and denominations. Consequently, two cultural spaces should not be in the same field or level since each one is different for its attributes and for the activities that are carried out in them.

Domain trees must be based on facts and documents that prove the existence of the terminology; however, there is subjectivity bias in the interpretation of the contents and the lexicons. “The pragmatic approach to classification through meaningful units of knowledge must be based on recognition of the obvious truth that any single unit may be meaningful in any number of different relationships depending on the immediate purpose. Thus, it is the external relations, the environment, of the concept that are all-
important in the act of classifying... Relationship is not a universal, but a specific fact unique to the things related, and just as these relations reveal the nature of relata, so the relata determine the character of the relationship. (Shera 1951, 83-84)

Shera’s statement is perhaps the argument that justifies the need to elaborate a special thesaurus to demonstrate the reason why a pragmatic classification highlights the necessary properties of a concept, in a specific information system. The relations that are developed for an information system are disimilar from those that stand out for another system whose objectives are different. (Kwaśnik 2019)

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Figure 1 Comparison between the domain trees of the audience spaces in a theater and an auditorium. Most of the similarities between the terms that name the spaces were found in their public areas. Thus, it became evident that we could not simply classify the spaces based on their type of enclosures, rather we had to begin to classify them based on the different relationships with the areas into which they are divided.²

On the one hand, in the case of outdoor spaces, such as open-air forums and esplanades, we identified that these have only very few elements that support the realization of the cultural activities. In this way, despite being open places they must have a specific category that identifies them. Hence, it is important to categorize their elements in order to link them with the technical resources that support outdoor presentations, such as concerts, fairs, exhibitions, festivals, etc.

On the other hand, there are spaces that are part of larger architectural ensembles. For example, museums, in their architectural program, can include, in addition to exhibition spaces, a library and even an auditorium. In this sense, to repeat the arborescent structure of a museum’s auditorium or library would be redundant.

² There are certain terms used in Spanish that do not have a clear equivalence in English; there are not definitions or names for specific parts of auditoriums and theaters.
The close relations that keep within them a set of the different cultural spaces, more importantly, keep the similarities between the elements that compose them and the resources that are integrated in them. These diverse elements showed that there was a necessity to organize the general arborescent system in a different way. That is to say, the organization did not have to be based on the different existing cultural spaces of the University. We had to relate them in such a way that the characteristics and resources, of each of the spaces, would be distinguished through the sum of what they do and do not possess in their exteriors and interiors.

The main categories should have the conceptual capacity to characterize the spaces by their similarities and differences without repeating the component elements of each space, because this would also be useful when programming, for example: an auditorium that has external communication on stage, such as theaters. By including this auditorium related to an area outside of the stage, it shows the ability to introduce elements into the auditorium that can make it function as a theater. It was necessary to create a simple categorization that highlighted the common elements in different spaces that worked to bring programming possibilities together and did not repeat the common characteristics in each space.

Additionally, having developed an arborescent structure for each cultural space allowed us to understand its composition and elements to establish the appropriate connections between the different categories, classes, and subclasses, in order to create a level of integration in the terminology. For this purpose, a conceptual universe was created. This includes three categories: A) Cultural spaces, B) Technical resources and C) Areas and attributes within the domain of the ICU. Some of these elements are closely connected depending on whether they are linked according to their degree of affinity.

Figure 2. Conceptual universe of the thesaurus of the ICU and its three main categories.
3.0 Discussion and results

Each category contains an arborescent structure (which includes related elements) that is associated with other thematic ramifications, but without losing its own hierarchical composition. In this sense, associations are the way in which the terms of each category are intertwined. In this sense, the related terms (RT) can cover the relationship “from many to many” elements to connect them to the categories and they also cover the relations “from one to many” to link the associations that are shared in more than one term. Specific terms, however, (ST) with a “one-to-one” principle are also necessary, according to the type of link between space, resources, areas, and attributes.

The category of cultural spaces (A) is integrated by all those places where cultural activities are programmed and carried out. Subject to this category are the classes and subclasses that describe the architectural elements that are understood as the fixed spaces physically delimited within a general area or space and within the components of the architectural elements; this can be fixed or semi-fixed and support the realization of the main activity, depending on the space in question. Below, we present a diagram of the connections or associations of the main three categories. We specifically highlight the Cultural Spaces because they are the ones that have both the areas and the places where technical resources are used.

![Diagram of connections and associations between categories]

Figure 3. Relations between the general elements of each category
3.1 Evaluation

Once the proposal was developed and inserted into the software, the related and hierarchical descriptors were obtained. The indexes created with the help of the software were handed to the Cultural Diffusion Coordination of the UNAM which is directly responsible for evaluation of the information system. After their evaluation, with the help of their observations, the thesaurus’ final validation will proceed. As for the synonymy relations and the meanings of the descriptors, they were incorporated in some cases necessarily to present the structure in a simpler way to the evaluators who would be in charge of the operation of the information system.

“The relationship of intersection refers to the relationship that the meaning of one word intersects with the meaning of the other word to a certain extent. In this case, the two words are at the same level. There is no upper term, nor lower term, which is the case in the previous relationship. Accurately speaking, most semantic synonyms are also in this relationship. The difference between intersected semantic synonyms and intersected contextual synonyms lies in the fact that the intersected part of semantic synonyms is the whole part of one meaning of the synonymous words, whereas the intersected part of contextual synonyms is only a part of one meaning of the synonymous words” (Zeng 2007, 35).

Although the categories are grouped according to their common elements, through intersection, the relationships that are created to give functionality to the thesaurus can reflect a greater sense of complexity as is the case with the synonyms of the domain. Since in an abstract sense, they share the same level despite the order of preference by the community. Synonyms, then, were not included in this first stage because the activity organizers can express their preferences without feeling influenced by other contexts.

“As mentioned above, a core problem in IR is the adequate“mental modeling" of subject literatures. What categories and concepts are we talking about? In interacting with subject literatures, users are interacting among other things with

1. Different kinds of knowledge fields with different social and cognitive organization.
2. Different languages for special purposes (LSP)
3. Different kinds of research methods
4. Different kinds of, among other things, primary, secondary and tertiary documents
5. Different patterns of cognitive authority.

Although in this paper we only present the hierarchical and associative relationships, in the thesaurus, which is already elaborated, there is a more complete version that includes synonymy relationships, the meaning of the terms, and the scope notes that define the meanings of the terms in the field of operation. Through the university body in charge of Cultural Diffusion, composed of specialists in the field responsible for the enclosures, technicians are being consulted to validate and obtain a quality intellectual product, capable of responding to the needs of the communities concerned.

4.0 Conclusions

The three main categories in which the terminological relationships of the University Cultural Infrastructure are organized were achieved after several conceptual approaches, particularly, after confronting and comparing the domain trees of the different facilities registered in the university environment.

The initial categories for organizing the thesaurus were the types of venues that the university noticed, after trying to relate them to each other, were not adequate. We understood that this was because the types of venues have similar characteristics and that
are not of help for their definition. The enclosures are better defined through the areas and the attributes that are related to them.

Domain trees are useful for starting to develop hierarchical relationships between terms; however, the thesaurus must present an integrating tree development that is not the sum of each domain tree.

Thesauri are specific structures in an area of operation because their conformation supposes facilitating, understanding, and communication by studying and reflecting the terms used by the community for which they are intended. They also reflect the characteristics that are of interest to highlight to fulfill the system's objectives.

The relationships around significant knowledge units are of a pragmatic classification; this is crucial to determine when structuring a thesaurus to give clarity to an information system.

The utility of the University Cultural Infrastructure Thesaurus is operative to organize the information system on university events, taking advantage of the spaces and resources that are available. Its conformation was a collaborative intellectual work to solve the communicative situation; we did this by conceptualizing and relating the characteristics of the environment where the information system operates.

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