

The Amparo Museum Experience

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The Amparo Museum is the pioneering institution worldwide in the use of interactive systems designed to serve the public. The system was installed as a support tool for the Museum's Collection of Prehispanic Art, of which 175 representative works were chosen (from the 4530 objects in the collection), to be included on the original (CDi), Compact Disc Interactive.

Thirty-two units were placed throughout the seven galleries of the prehispanic exhibition areas, with the exception of the special room where the most spectacular works are displayed. Some of the objects from this room were included in the disc, to illustrate a particular topic, but fundamentally to facilitate knowledge by its users.

The applied CDi technology has attracted many visitors since the very day the Museum was inaugurated in 1991. It was discovered that a very large segment of the public that initially visited the Museum during the first stage, came specifically for the application, and not its content. They were engineers who wanted to see, firsthand, in their own country, the actual application of a technology they were only familiar with in theory, that is until the Amparo Museum pioneered its use. It is worth mentioning that even today, in 1995, an uninterrupted stream of visitors continues to be detected as coming to the Museum just to see the applied technology. Curiously enough, that group of the public has expanded to not only include engineers, but also students of Industrial Technological Options who come to the Museum for the purpose of utilizing the CDi and exploring its possible applications. An interesting comment was made by a professor of precisely one of those groups who had come to the Museum in May, of 1995. Responding to the inquiry: "What was the principal reason for your visit to the Amparo Museum today?" . . .

The professor answered: "Basically to see the application of this technology, even though I finally left convinced of its content". This comment allows us to embrace the hypothesis that the use of CDi's favors the transmission of knowledge, and thereby is seen as a didactic tool with wide horizons.

Of those who visit the Museum, there is another group who come for the multilingual disc. Offered in Spanish, English, French, German, and Japanese, they consult the disc to hear its content in other languages in order to increase their knowledge, familiarize themselves with the pronunciation, or simply test their level of auditory comprehension in other languages (to use the system inside the museum you need earphones).

An analysis was made of the numerous freely written comments left in the Amparo Museum's Visitors Registry during the months of October and November of 1992. Eliminating that which did not directly allude to the CDi system, the following remarks were offered:

- "The televisions are a great idea!" . . . Which implies that the system is being identified with something already known: the television; this reinforces the hypothesis that learning is always associated with something familiar or already known.
- "Put interactive stands in the Colonial Section" . . . Which suggests that they like them because they feel they are useful and would be helpful in the other areas of the Museum as well.
- "Put benches in front of the monitors so that one can consult them more extensively" . . . This comment reinforces the CDi's wide variety of effective support within the Museum, being that in the library the CDi System is consulted individually .
- "What a shame, the objects that I was most interested in weren't in the computer!" . . . This remark suggests to us that we need to include as many objects as possible in these support systems while alerting the user to the fact that the selection is somewhat limited.
- "Unfortunately, on the day of free admission, the children are constantly playing with the systems." . . . This remark alludes to one of CDi's main characteristics, that it principally attracts children and adolescents, which results in being ideal for starting them on the path of learning and absorbing the contents of the disc, which in this case, is Mesoamerican Art.
- "There's limited access to the screens, and you're frequently stuck listening to the other person's selection." . . . This commentary allows us to postulate that the CDi is optimized through individual use.
- "Keep it free!" . . . This comment is a product of our dependence on a paternalistic State, the transformation of which is causing great social consequences. It also refers to one of the limitations of CDi use: its cost. In this sense, The Amparo Museum has offered the CDi, "Centro Comercial La Victoria", to the public, free-of-cost. We'll discuss the results of this CDi and the public's reaction to it, further on.
- "The additional information in the computer could be more extensive." . . . This recommendation suggests the possibility of offering various levels of information. For example, a first level could be designed for the general public; a second level for those who are a bit more curious; and a third level for specialists.

A survey was done in June of 1995, to quantify the numbers and habits of the CDi users in each room. The results were as follows:

- 60% of those who visit the Museum use the system.
- The number of overall users is greater than the number of earphones rented, and that sharing earphones is a common practice.
- Users can consult the monitors stationed throughout 7 exhibition rooms. The greatest amount of use was registered in rooms 1, 2, and with a decrease starting in room number 4. Room number 5 showed a 55.4% drop in usage; this coincides with the fact that there is only one monitor in that room, and which is why the relation between users and the number of monitors is clearly perceived as an important factor. The number of users increased in the 6th and 7th rooms.
- The largest segment of CDi users are children and young adults; 70% are between the ages of 8 and 21.

In June of 1995, the Amparo Museum developed a preliminary study on what educational objectives were actually achieved through the application of CDi technology in the Museum. What we will do here is present you with the central parts of the survey and the results that were obtained.

1. In order to scientifically study the results obtained by using the CDi, a sample group of 2nd, 3rd, and 5th grade Elementary students from a public school were chosen because of their characteristics: they were all middle-class and young. The school was asked to provide three groups, which would further be divided into three subgroups, thereby achieving a homogeneous model that demonstrated:

- The same scholastic background.
- That had gone through the same teaching / learning process.
- And who belonged to the same social economic group.

A special test was designed for each grade based on the concepts and levels of complexity that were contained in the final exams for the closing of the 94-95 scholastic cycle, as established by the State's Secretary of Public Education for the 001 School District, in the city of Puebla.

2. Application Conditions:

Each grade level was divided into three subgroups. Each subgroup was then brought into the Museum's Auditorium at a different time, presented with the program they were to follow, and motivated to pay attention to what they were about to do because it was considered as part of the school's activities. It was selected room 4th which deals with the Preclassic Period .

3. Without any guidance whatsoever, the first subgroup, denominated G1, was left to their own curiosity ; the only indication given being the limits of the room itself.

4. The accompanying adults only responded to questions presented by the children in a direct manner, for example: What's this? . . . What's this for? . . .What's this called? etc.

5. A different approach was followed with the second subgroup, denominated G2: Showing the children how to operate the CDi monitor, the members of this subgroup consulted the CDi whenever they wanted to; the adults responded to direct questions, and encouraged the children to utilize the CDi to resolve doubts or obtain more information.

6. With the third subgroup, G3, the process was as follows: The subgroup was gathered into the Museum's Auditorium where a person presented them to the CDi technology and went through the contents corresponding to the 4th exhibition room of the prehispanic section; consulting both the introduction to the room and the objects from which the test was elaborated. Information on other objects not included in the room were also explored; this stimulated the children to locate the objects that were studied through the CDi. All questions were resolved in the exhibition room itself.

7. Reuniting the entire Group in the Auditorium, the children were asked to take an exam that was elaborated with a degree of difficulty established by the school authorities. Upon finishing the test, they were explained that it didn't have to do with passing or failing, that they were actually testing the use of the CDi. technology .

8. With the results of the tests, an attempt was made to measure the impact of the applied technology in the teaching learning process through the results of their knowledge of what they had just seen

9. Comparative results by Group and Subgroup were established by using a scale of 1 to 10.

10. The results were as follows:

- Second Grade Students: Group G1 obtained an average of 7. G2 reached 8. and G3 scored as high as 9.7.
- Third grade Students: Group G1 had a 6.6 average; G2 managed 7. and G3 reached an 8.5.;
- Fifth grade Students: Group G1 obtained a 6. G2 improved to 8. and G3 dropped to 8.3.
- Overall Averages by Subgroups: Group G1, which did not receive any type of technological support or orientation by their professors, scored 6.7 as an average. The second group, G2, which did utilize the technology, rose to an 8.0 average; and the third group, G3, which both utilized the technology and had human support, ascended to an 8.8 average.

11. Analysis of the Results.

The quantitative results of the study indicate to us that:

- Groups from Elementary Schools which go through the Amparo Museum's Prehispanic Section without the aid of the CDi, achieve a lower level of theoretical knowledge than either those who go through it by just consulting the technology, or those who go through with technology and the support of a person who serves as a guide in accomplishing the established goals.
- Even though CDi language isn't for 2nd graders, they did, nonetheless, obtain better scores than their 3rd and 5th grade counterparts, which could mean that, due to the active development interests at their age, they questioned more and paid greater attention to the instructions of their guides.
- While the results clearly indicate that the human factor is important for taking full advantage of the CDi, the average attained by the G2, 5th gradesubgroup, the highest of all, confirms the hypothesis that technology is an effective didactic instrument.

12. Based on the General Scoring Table, the following general observations can be made:

- The human-technological factor offers greater results in the teaching/learning process.
- The simple use of technology alone, helps to obtain good results in the teaching/learning process.
- Elementary school children who visited the Amparo Museum without the didactic support of the CDi and the human factor, showed less satisfactory results.
- In terms of the learning process (logic, observation, understanding and knowledge), the results show that CDi favors greater development in elementary school.

Twenty-one teachers who visited the Amparo Museum were interviewed in order to find out their opinions about utilizing the CDi as a didactic resource. We obtained from their answers:

- That 100% of them considered it useful as an educational tool at all levels.
- They felt that interaction with the CDi was very beneficial.
- They mentioned as limitations or weaknesses; that the system can only be used individually or by small groups.
- That the high cost is prohibitive, and

- A minority of them pointed out that it has limited flexibility because of its fixed structure.

Taking advantage of the experience obtained through its own CDi use, the Amparo Museum collaborated on a new disc: "Centro Comercial La Victoria", a history of the principal market for commercial interaction in the City of Puebla, from its founding until the year 1994, the date in which it was reinaugurated; remodeled and dedicated to a new form of marketing: department stores, or shopping mall.

This disc has been made available to the public for their own enjoyment, free-of-charge, through two booths that are highly frequented during the center's business hours. It offers the user the opportunity to consult information concerning various places within the Historical Center of the City of Puebla, including the Shopping Mall. It has also a 20 question trivia game which has become the main attraction for the children and adolescents who consult it.

By observing the public's behavior with the CDi, we can conclude the following:

They consult it because it is attractive.

It's free and has a touch-screen.

2/3's of the users first play the trivia game and later consult the information that is offered. This reinforces that playing awakens interests.

The average time of consultation is 15 minutes.

It is always consulted in pairs.

The users consult it more than once in 70% of the cases.

90% of the users are between 11 and 25 years old.

When waiting to consult the monitor, users stay in a place nearby.

The socioeconomic level of its users is low.

In summary, the Amparo Museum's experience allows us to point out that:

- The CDi is an excellent museum support tool.
- The User Public is predominately young.
- The adults who consult it are motivated by its technology and consider it a great educational tool.
- The use of technology interests people in its content.
- We have scientifically proven that the learning process in Elementary students notably improves with CDi use.

- Interactive games are a very strong motivation for fomenting interest in the CDi's content, and favor the acquisition of new knowledge.
- Cost, has been singled out as it's main limitation.
- It is fundamentally used by individuals or couples, in other words, in an intimate fashion.
- In order to serve a greater audience, the disc should have various levels of information.

With the experience of how effectively applied technology contributes to the dissemination of art, the Museum used it again to create an CDi dedicated to two internationally renowned, 20th century, Mexican artists: Frida Kahlo and Diego Rivera. The disc allows the user to learn about the lives and part of the body of work of these painters. It includes a game section with various options and is multilingual. Initial results that can be mentioned are:

- It has proven to be excellent for learning about the works which are in galleries. Each painting is presented over a colored background that is harmonious with the work. This results in an improved perception and favors contemplation.

The CDi is seen as a unique instrument in Art Education because it promotes the knowledge and appreciation of works of art that would otherwise have limited exposure. In Mexico, we are innovating "Museum Science" by incorporating the interactive system into the task of preserving and transmitting our cultural legacy through the Amparo Museum. We have also stimulated local culture by rescuing the city's history and presenting it to the public, free-of-charge, through the CDi "Centro Comercial La Victoria". It's a known fact that no one can love what they don't know. The appreciation of subsequent generations for their city will grow thanks to this applied technology which allows us to combine the present, past, and future. We have realized the task of presenting the lives and works of two Mexican artists, wherein not only their art is displayed, but also their unwavering commitment to their ideals in life.

We share our findings with the belief that by so doing, we will facilitate the difficult, yet rewarding, journey of other institutions that are on the path to offering a constructive testimony to children and youths that counteracts, in part, the bellicose culture that surrounds them.