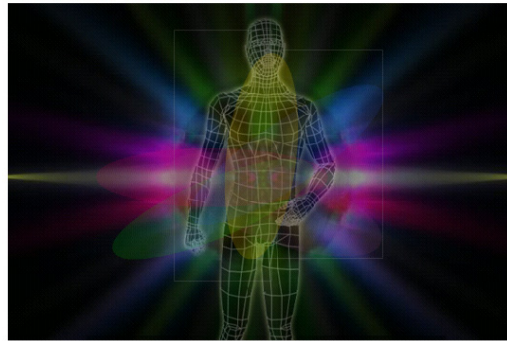


## Applications of Multimedia Technologies to Mental Health: Review



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### Search Strategy

The objective of this study is to quantitatively review the published literature covering the period from 1995 to 2005, to assess the current application possibilities of the different multimedia technologies to the mental health field.

- Covered 11 Literature Databases: ACM Digital Library, IEEE Xplore, MEDLINE, PsycINFO, PubMed, ProQuest, Science Direct, Web of Science, Emerald, Annual Reviews, Blackwell On line.
- Employed 22 single search terms and their boolean combinations with mental health keywords.
- Initial pool of 281 journal articles. Focused set of 233 studies.

## State of Art

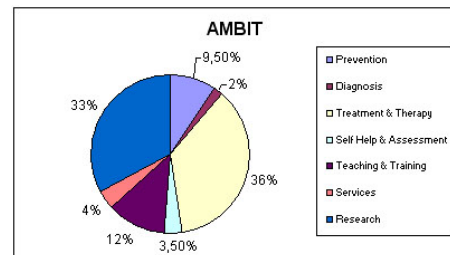
Multimedia Technologies: we refer all the ICTs that make use and combines different media.

- 1.- What kind of technology is used?  
*Including Input devices, display devices and media type*
- 2.- What is the purpose of the application?  
*Aims focused on: Evaluation of Effectiveness (does it work), efficacy (can it work) or comparison of both of them; to enhance, to bring support, to adress new items of research, to optimize, to innovate.*
- 3.- Who is the first beneficiary?  
*Clinical population / Proximity Population / Whole Population / Professional Population*

## Ambit

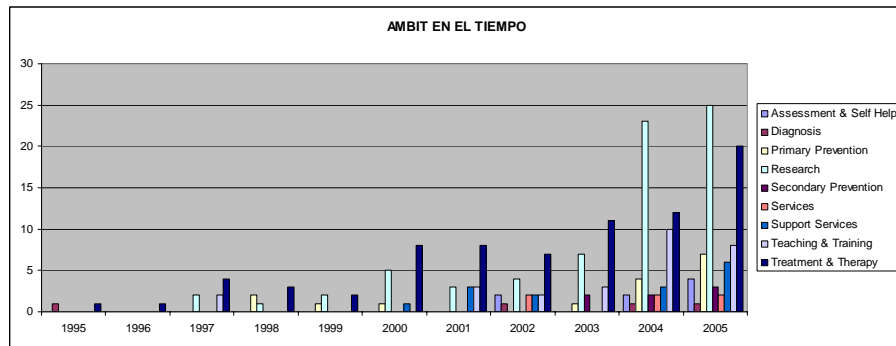
The impact of applications of multimedia technology on mental health

The applications of technologies on Treatment & Therapy report the highest level. Diagnosis reports the less ranges of applications.



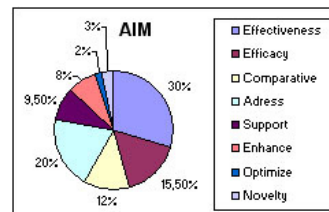
2. Research
3. Teaching & Training
4. Prevention
5. Services
6. Self help & Assessment

### Impact - Time



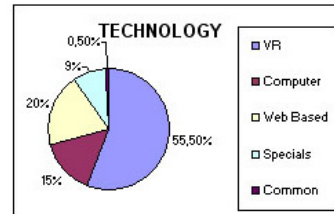
### Aim

The applications of multimedia technology have focused on 8 identified aims. Most of them evaluate the effectiveness and efficacy (33% and 15,5% respectively). A wide range made use of technology to compare types of displays or to address new findings (12% and 20% respectively). To provide support (15,5%). To enhance (8%). There is a lack of the applications that are use to optimize. Few applications report novelty (2%).



## Technology

The applications of multimedia technology reported by journal articles are: VR (55,5%), Computers (15%), Web based (20%). Special technology: includes Mixed Reality(MR), Augmented Reality(AR), Simulators, Environment Systems, Mobile Technology, Portable and Shared Systems, and Robots (9%).



## Discussion QoE

Challenge: to think about new forms of multimodal interaction that can achieve high quality of experience (QoE) (Alben, L. 1996)

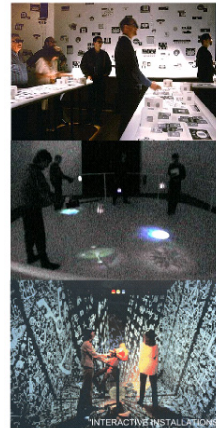


## Discussion Environments

We propose to take as a reference the different research works in the artistic context.

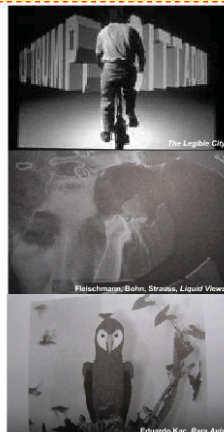
### “ENVIRONMENTS”

During the 1960s, a new generation of new methods and forms of expression called “environments” began. The environments mainly propose the rupture of the closed form of the object, the relation within contexts, the multiplicity and interrelation of elements or materials, and above all, there is an important interest in the role of the receptor, and the increase multimodal interaction



## Discussion Artist

Between 1991 and 1996, various artists developed works of art in which the observer performed an important role within it using metaphoric and symbolic devices.



**1991>The Legible City**  
utiliza una bicicleta como interfaz

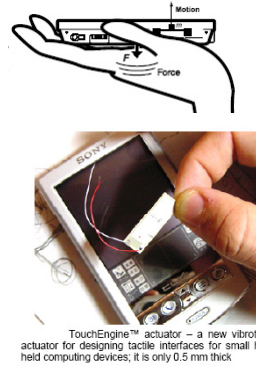
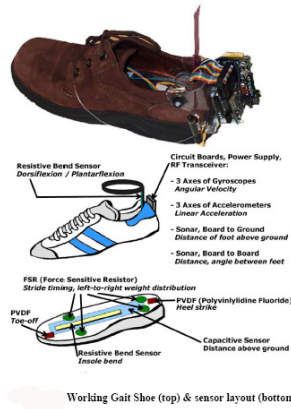
**1992 Interactive Plant Growing**  
Una interfaz viva: 5 plantas y una pantalla

**1993 Liquid Views**  
metáfora del espejo, interfaz de pantalla táctil y agua. Se confunden sensorialmente ambos contextos

**1996 Rara Avis**  
tele-robot en forma de pajarito conectado a Internet

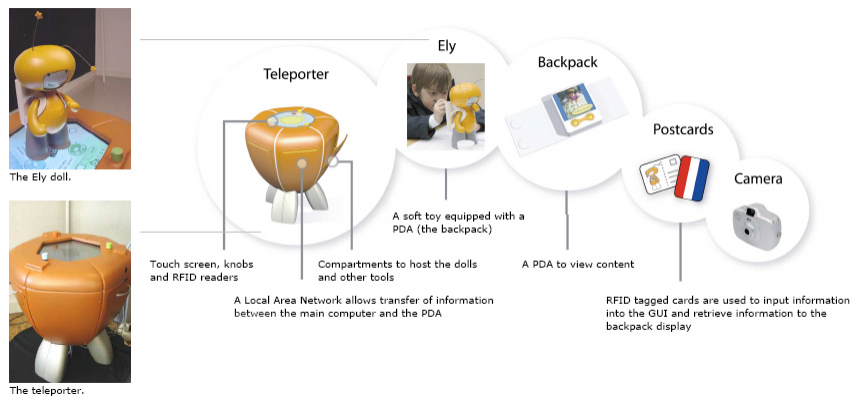
## Discussion Devices

### Magical interfaces, Musical Feedback, Handled Devices



## Discussion System

### Ely, The Explorer



### *Final Discussion*

**We have discussed the new challenge on applications of multimedia technologie to the mental health field, given special attention in those technologies with less applications.**

**The example projects identified in our state-of-the-art survey highlight a number of novelty points, as the use of interactive multimodal environments, advances in the areas of computer interfaces, intelligent systems, smart appliances, robots and portable and shared systems.**

**We have proposed some references on art as well as magical interfaces and feedback to enhance the evolution on future research with the purpose of maximizing the efficiency and to optimizing the QoE of mental health applications.**

### *Final Discussion*

**As we have seen, our results demonstrates a high concentration on the use of Virtual Reality technologies, but in the other side the “dispersal” of others applications of multimedia technologies on mental health field.**

**Most of them “unique cases” with high impact, like those whose refers only to usability, or those who refers only to effective design, others that refers only to high quality aesthetic, those whose propose “mutable-reusable” environments, and those who started to reach the optimization.**

**We think is time to get “IN ONE” all the dispersal points to enhance the evolution on future research with the purpose of maximizing the efficiency and to optimizing the QoE of mental health applications.**