

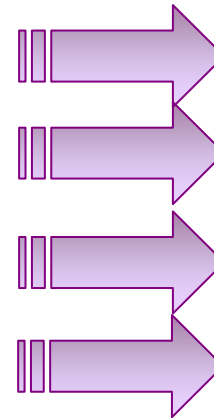
# Motivational training tool to promote healthy lifestyles using Virtual Reality

PRESENTER Prof. MT Arredondo  
AUTHOR Fernandez, N. et al.

CYBERTHERAPY  
Basel, June 6-10th 2005

# The problem...

- Chronic diseases are responsible for 60% of global deaths and 45% of global disease.
- They are the major cause of death and disability worldwide.
- A few, largely preventable, risk factors:
  - high cholesterol,
  - high blood pressure,
  - obesity,
  - smoking
  - and alcohol.

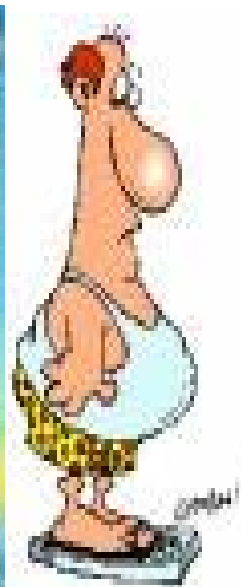


**Diabetes 4,1% = 1,8 M**

**CVD 12% (adults) = 33 M**

**Hypertension 21% = 58 M**

**Stroke = 2,4% = 6,6 M**



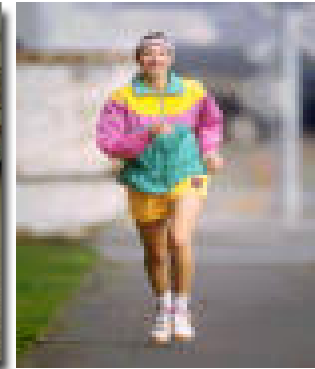
# The trend....

- **PERSONALISE**: European and USA health systems will provide personalised information:
  - empower the user to take decisions
  - manage own health (UK, NL, eEurope, HealthyPeople USA)
- **TRAIN**: technically to use the device and the system
- **MOTIVATE**: to incorporate system in the daily life of the user



# The strategy...

- The strategy to heal diseases needs to include training, encouraging, motivating and providing support
- Our work contributes to solve this by using the best possible strategy: **prevention** and **support to the individual**, through education.
- Our aim is to create a tool that trains, motivates and enhances users adherence to healthy habits.



# The solution...

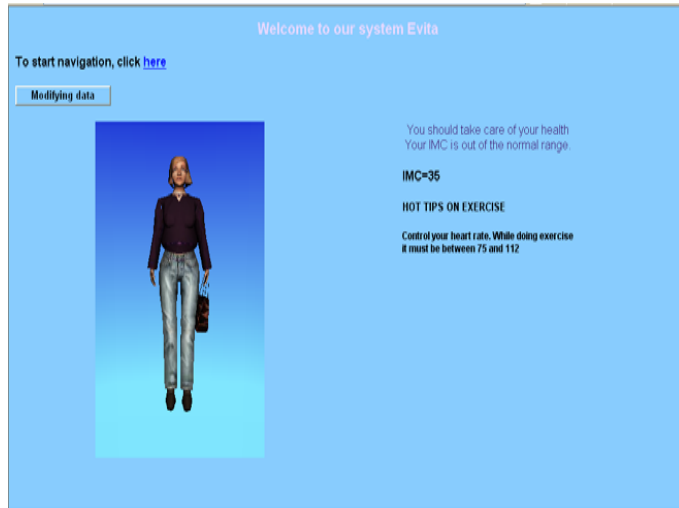
- A mobile tool based on virtual 3D technologies for the Internet
  - Provides personalised information and services for the users mobile daily scenarios
  - Assists the users in managing their own health by providing support ubiquitously
  - Motivates the user to incorporate the tool to his/her daily life
  - Monitors the improvement and encourages the user to adhere to healthy lifestyles



# How it works...

- The user fills in some questionnaires providing details about health status, statistical, motivation
- The system creates a profile
- The system searches for the best possible information to provide
- The system displays information in “virtual worlds” that suits the individual’s health status, preferences, motivation
- It is possible to track the user progress, compliance, adherence, etc...

# The user...



### REGISTRY FORM

**Statistical data:**

Level of experience using computers:  
☐ Low ☐ Medium ☐ High

Please, enter your profession:

Date of birth:  
Day:  Month:  Year:

Gender:  
☐ Female ☐ Male

Are you or could you be pregnant?  
☐ Yes ☐ No

Please, enter your weight in kilograms:

Please, enter your height in centimetres:

Are you a smoker?  
☐ Smoker ☐ Non smoker

How many cigarettes do you smoke?  
☐ Less than a packet a day  
☐ More than a packet a day

**Nutritional data:**

What meals do you eat daily?  
☐ Breakfast  
☐ Lunch  
☐ Afternoon snack  
☐ Dinner

Are you a vegetarian?  
☐ Vegetarian  
☐ Ovo-lacto-vegetarian  
☐ No

Do you have any restrictions with food?  
☐ Religious  
☐ Allergic  
☐ Intolerance  
☐ No

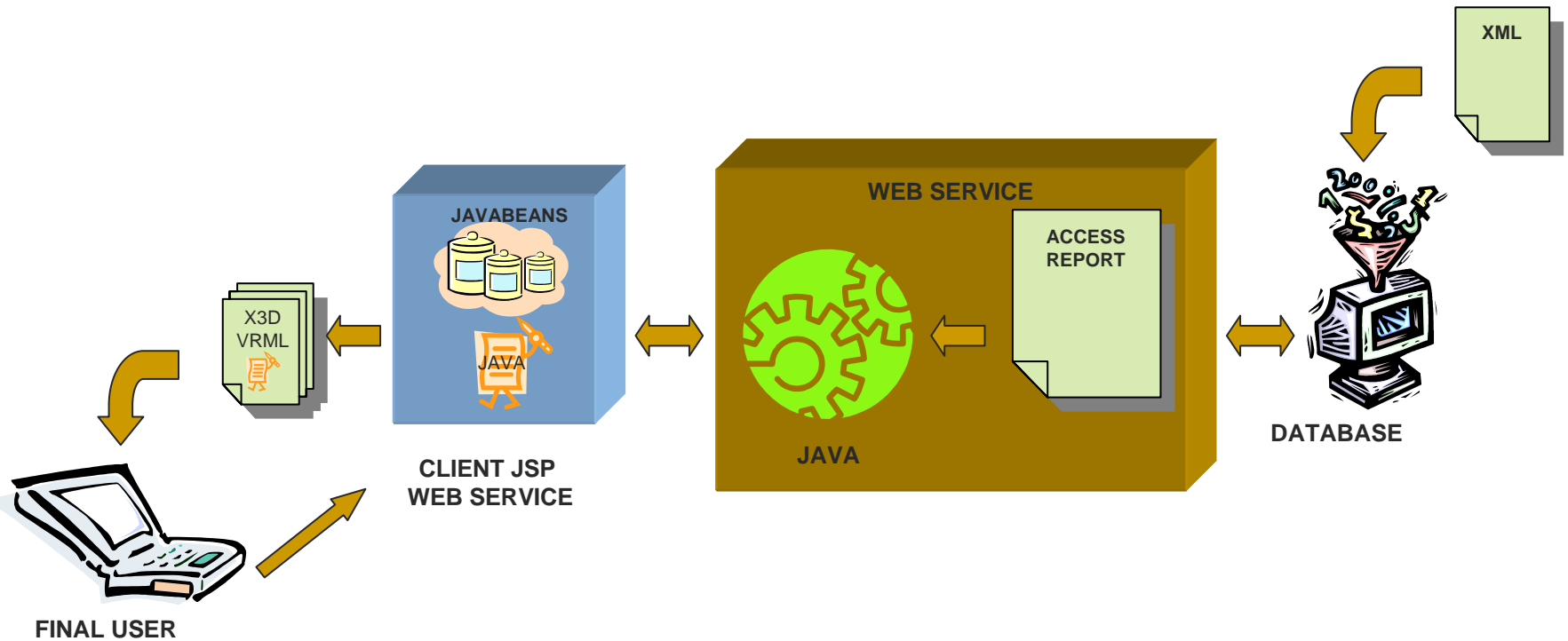
What food do you have intolerance to?

Do you eat out?  
☐ Yes ☐ No

How often do you eat out?  
☐ Once a week ☐ At weekends  
☐ Twice a week ☐ Everyday



# How it works...



Plug-in Cortona

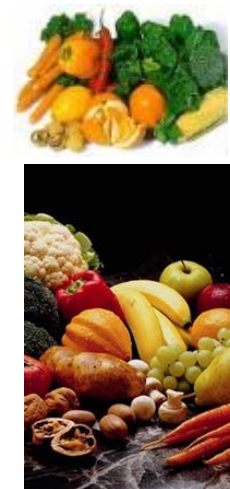
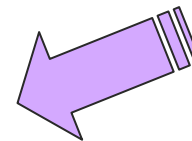
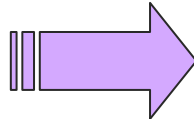


# How it works...

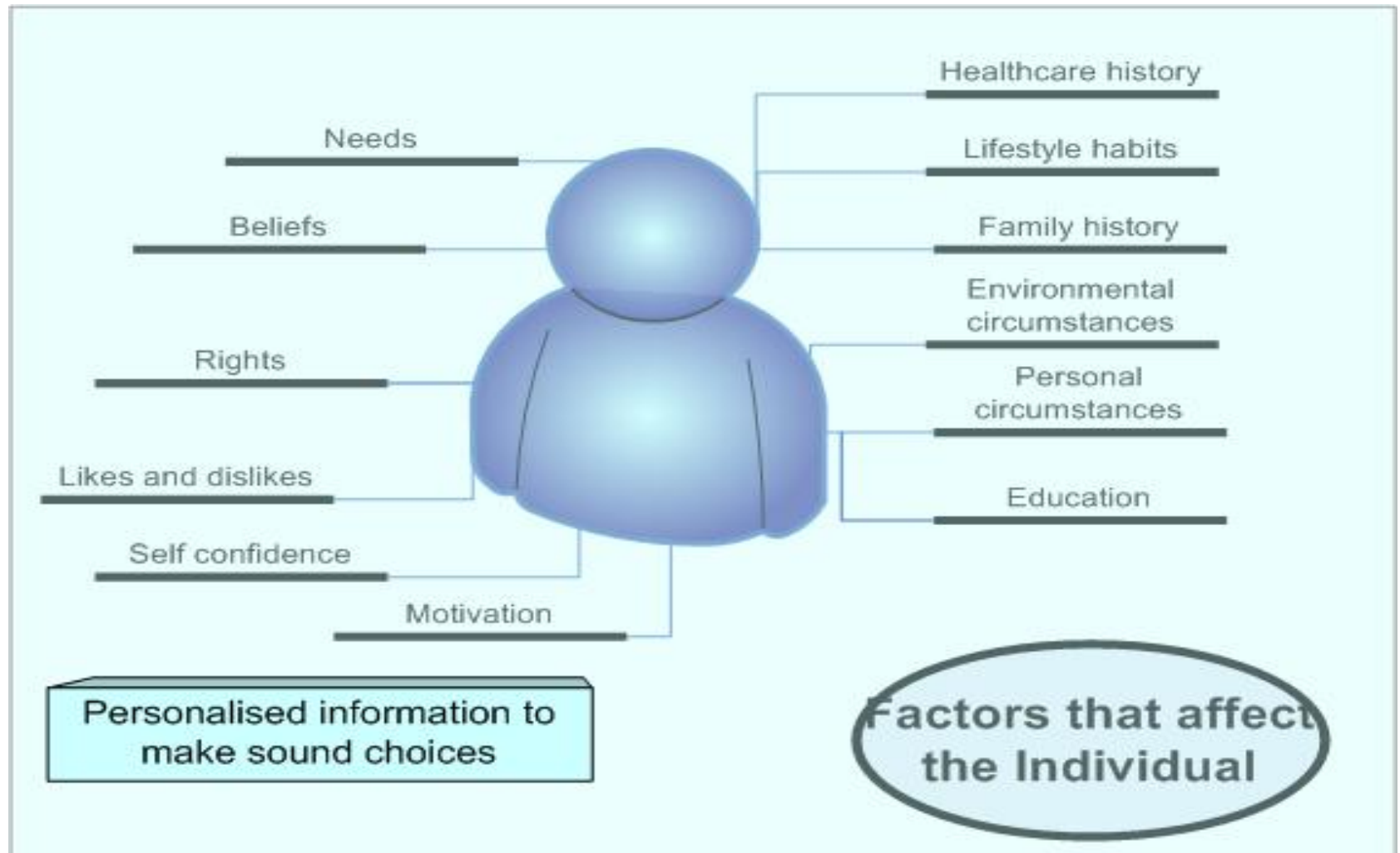
- There are four stages clearly defined:
  - **Profiling.** Defines a user profile and discover the motivational state the user is in according to the “States of Change” methodology.
  - **Storage.** Scenarios and profiles models are stored in a native database to be personalised accordingly
  - **Management.** Involves the activities that maintain the static information in the system.
  - **Personalisation.** Selection of the best possible information. (Cont. in next slide).

# Personalisation

- To present different information (links, articles, recipes, sport videos, etc.) to each user profile.
- To adapt the manner the information is delivered depending on the user motivation state.
- Only **relevant information** in the **appropriate mode** (direct, indirect, soft, etc.) is delivered through **scenarios personalised** accordingly.



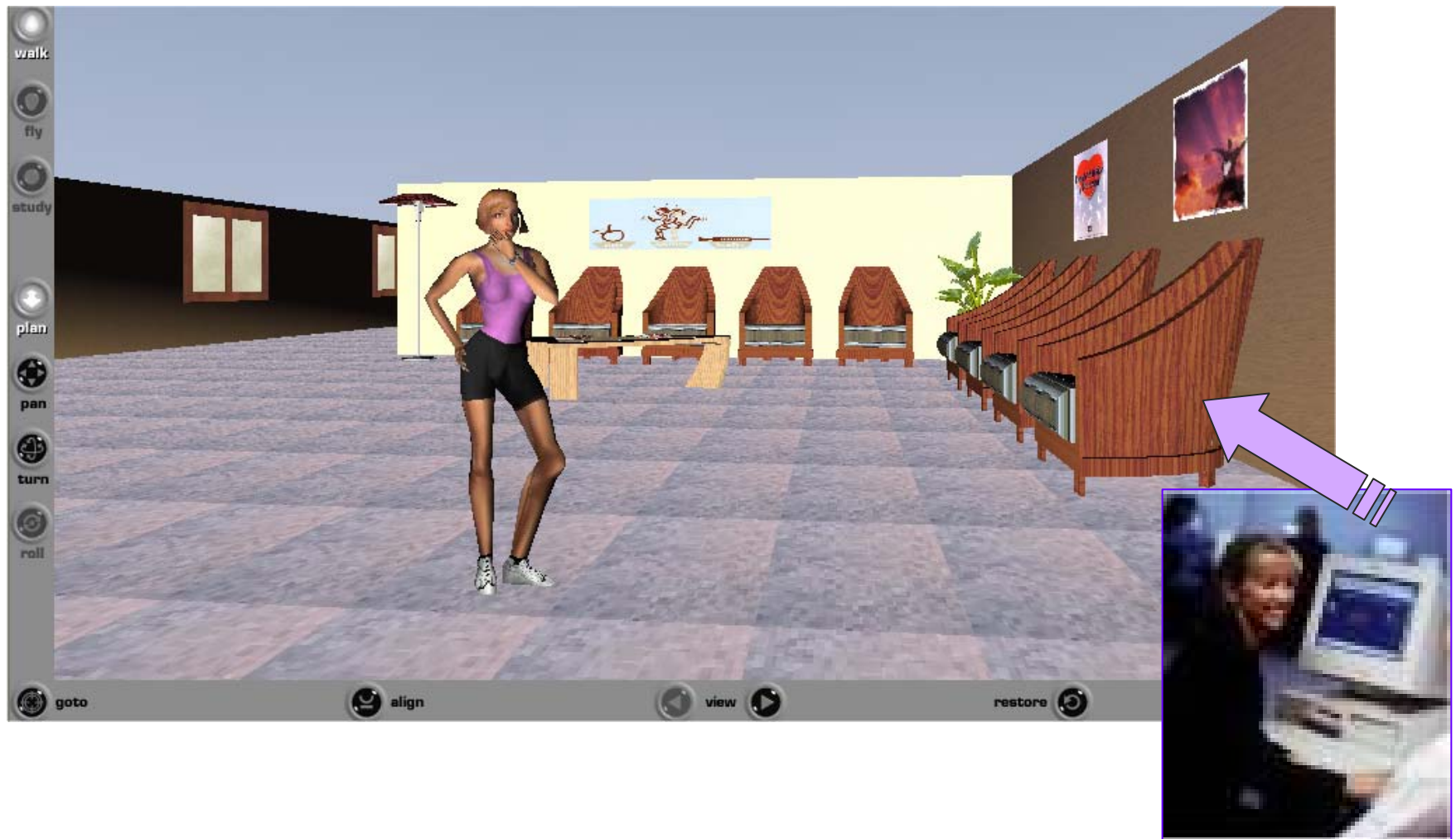
# User Dimensions



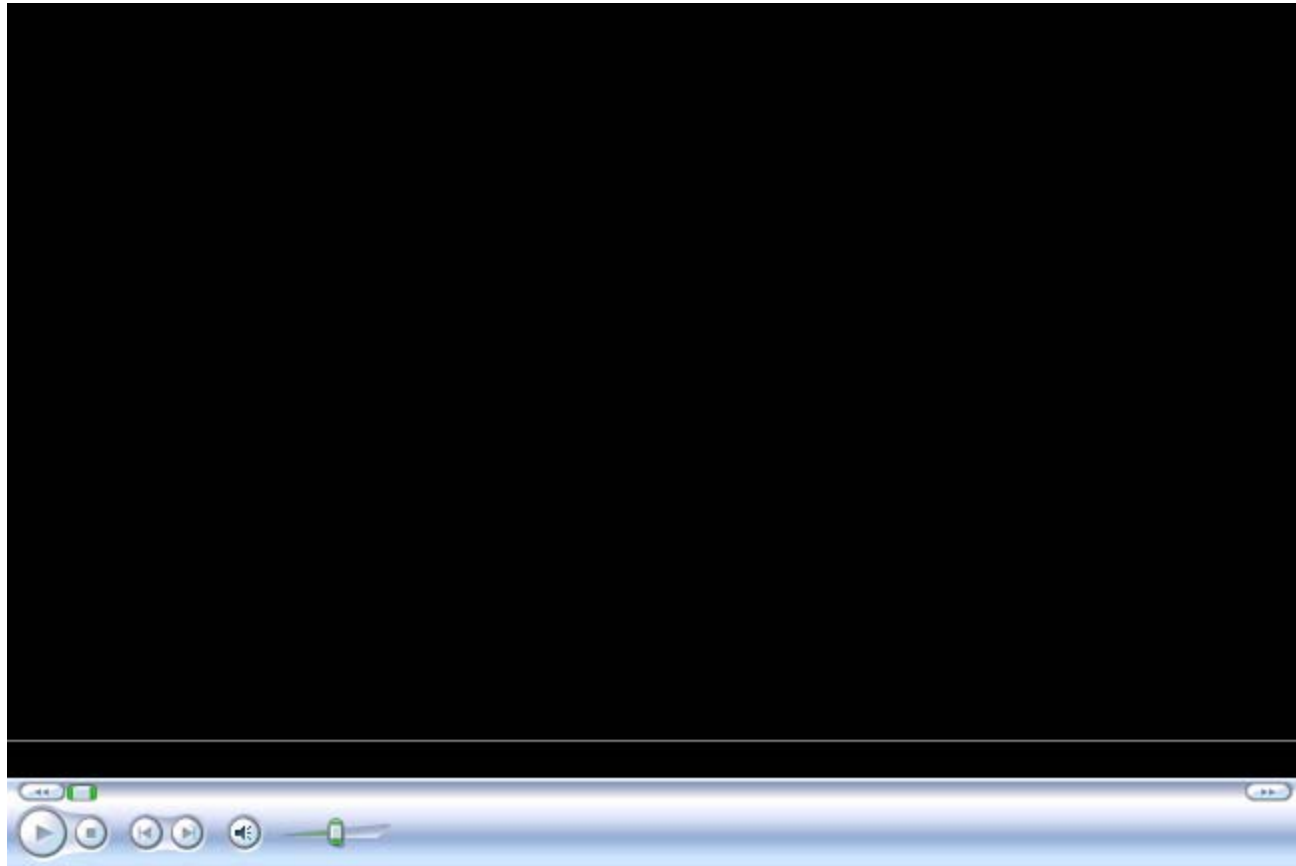
# Use Case: a diabetic male



# Use Case: a sportswoman



# Use Case: a sportswoman

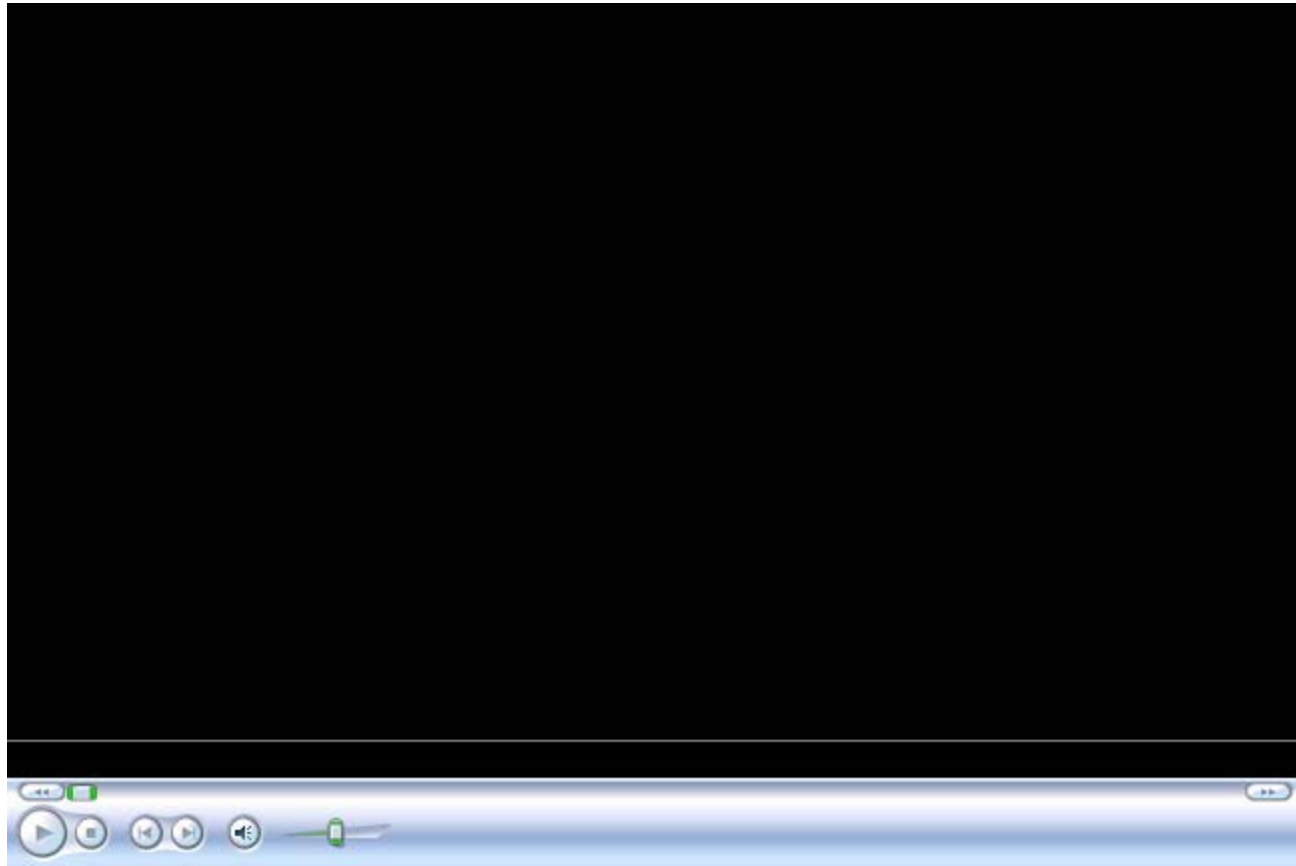




# A game: Learning the Nutritional Pyramid

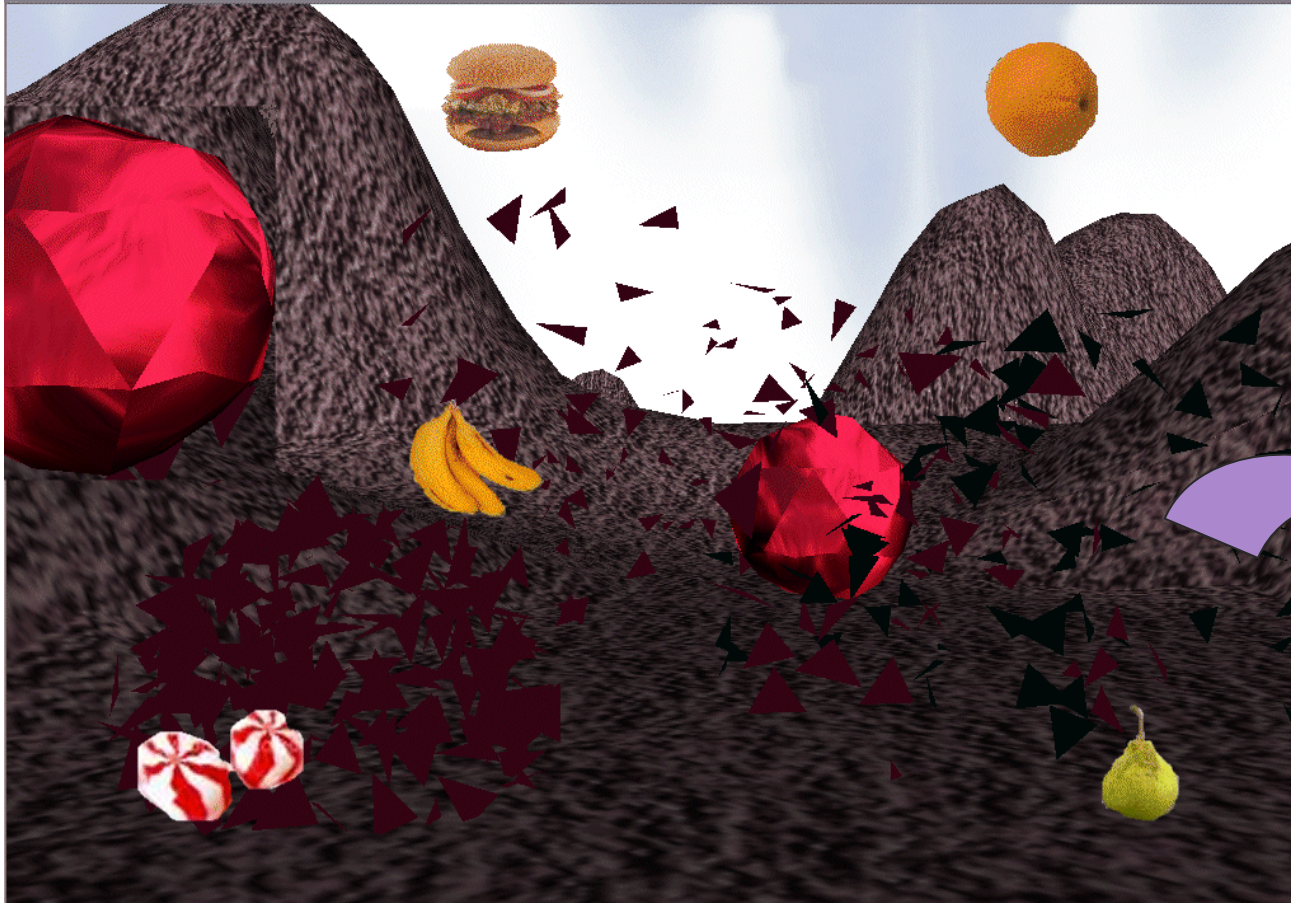


# A game: Learning the Nutritional Pyramid





# A children's scenario: learning to eat



# PDA scenario



Plug In : Pocket Cortona



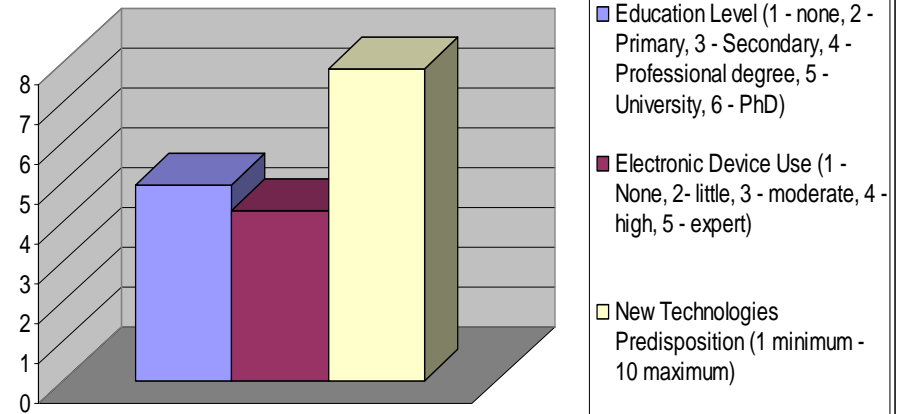
# Survey...

- The survey measures:
  - The **appropriateness** of Virtual Reality as an interface
  - The **usability** of the global tool
  - The **correctness and quality** of the information shown at each scenario
  - The **adaptability** of the contents to personal circumstances
  - The **degree** to which it is an **educational tool**
- Also, statistical data are collected (age, job, IT skills).

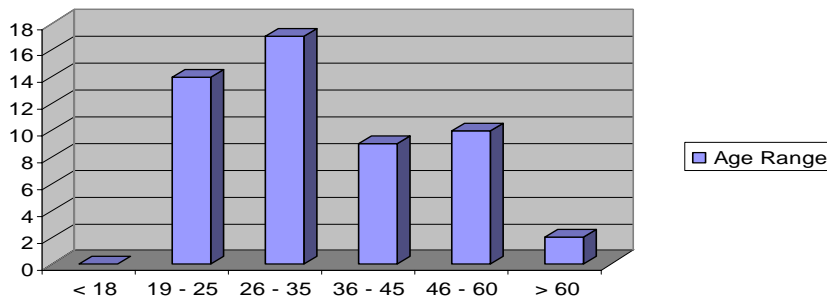
# Survey sample

- The sample is formed by 52 citizens and covers people from a large range of ages (18, >60), different occupations (technical, medical and other) and technical and non-technical users.

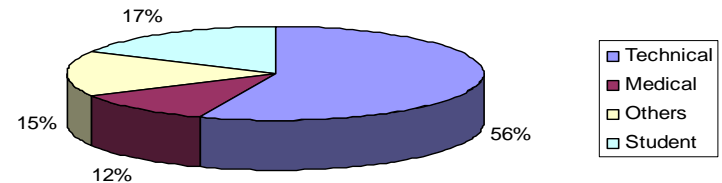
Education Level and use of new Technologies



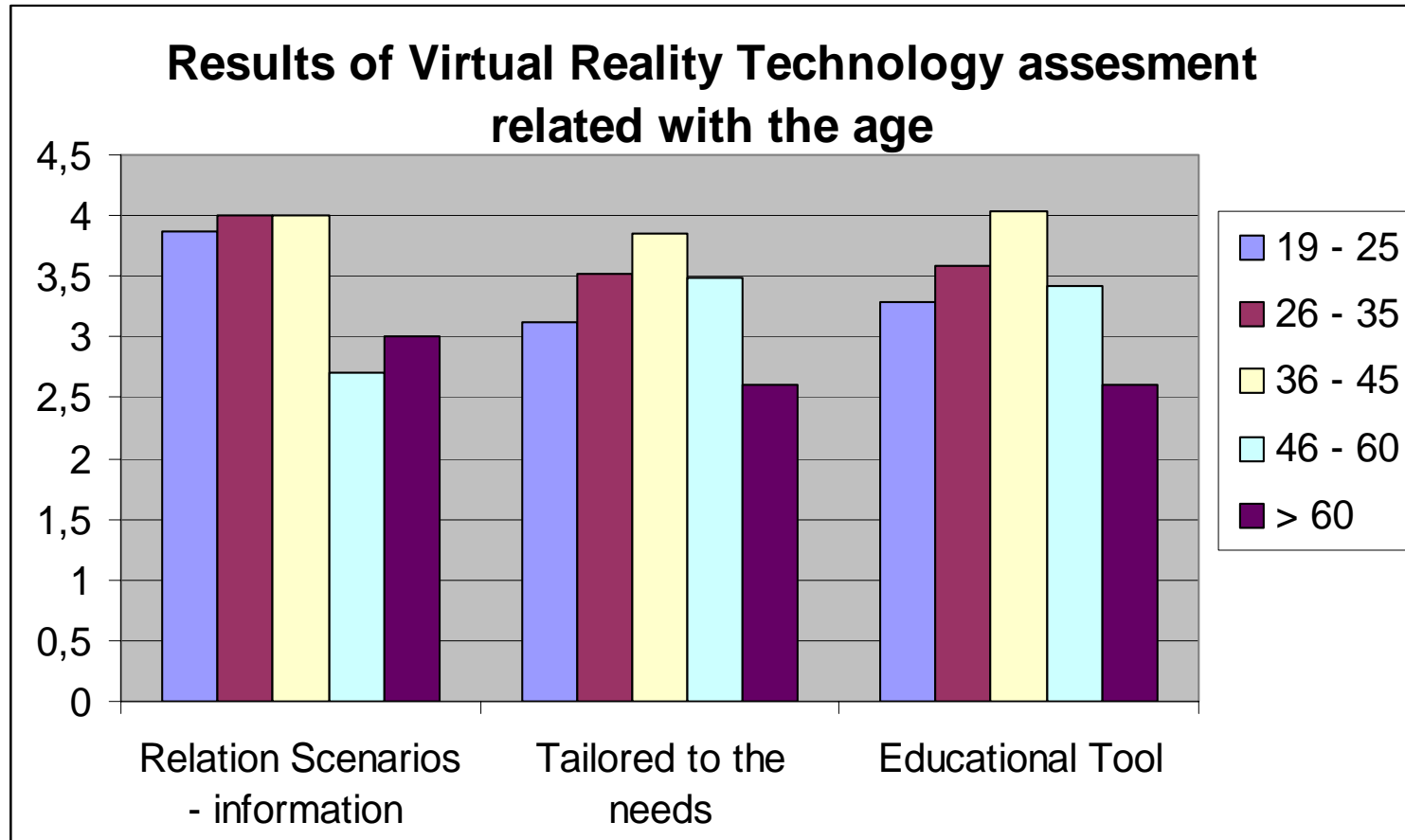
Number of people in each age range



Profession / Number of people

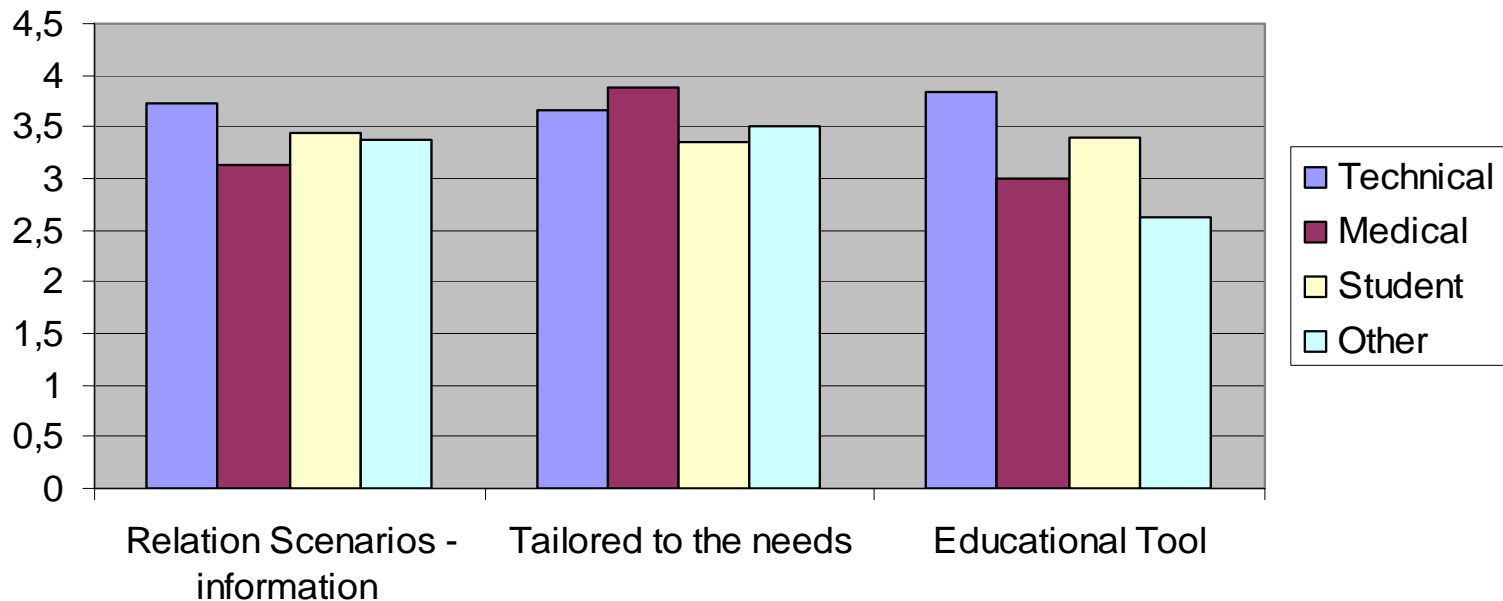


# Survey Results: the tool...



# Survey Results: the tool...

**Result of Virtual Reality technology assesment  
related with the profession**



# Conclusions of the survey

- The application is **highly valued** in the three dimensions considered (relation scenarios-information, tailored information and being an educational tool) in the whole range of ages and professions.



# Conclusions

- Virtual Reality application developed and integrated in an e-learning system offering personalised information.
- Access to quality and trusted information
- Motivational feature to make users feel the importance of taking control of their own self-care.



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