Social impact assessment of a living wall installed in a hospital

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E-evaluate some of the ‘intangible benefits’:

- Media impact
- Hospital users’ attitude towards the living wall
• In general, Spanish do not value plants

<table>
<thead>
<tr>
<th>Country</th>
<th>Consumption (€/pp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>40</td>
</tr>
<tr>
<td>Netherlands</td>
<td>60-65</td>
</tr>
<tr>
<td>Belgium</td>
<td>60-65</td>
</tr>
<tr>
<td>Germany</td>
<td>48</td>
</tr>
<tr>
<td>France</td>
<td>43</td>
</tr>
<tr>
<td>Spain</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: Eurostat 2004
• This relates to the number of LW installed
• Spain → much less than in UK
• Public vs. private investment
What should we tell the private sector to encourage the use of LW?
Known benefits

- Air quality improvement
- Impact on thermal performance of buildings
- Noise isolation
- Favouring biodiversity
- Aesthetic effect

Not so known…

**Intangible benefits**

- Social impact
- Psicological
- Marketing

**ARE THEY ENOUGH?**
Marketing

Lafayette Galeries of Jean Nouvel (Patrick Blanc, 2008)

http://www.verticalgardenpatrickblanc.com/
Marketing

Advertising slogans using Living Walls
Clients attitude towards greening the space

Environmentally conscious

Branding

http://www.scotscapelivingwalls.net
Clients attitude towards greening the space

http://www.terapiaurbana.es/
Clients attitude towards greening the space

http://www.terapiaurbana.es/
Clients attitude towards greening the space

What about a private hospital?

✓ Offering a view of an environmentally friendly healthcare company?
✓ Just introducing an aesthetically pleasant element?
✓ Psychological benefit from passive involvement with nature, relying on the visual amenity (Ö zgüner & Kendle, 2006)
✓ Relieve stress and pain (Vincent et al., 2010)
The case study

• **Location:** Quirón Sagrado Corazón Hospital (Seville, Spain)
The case study

- **Location**: Quirón Sagrado Corazón Hospital (Seville, Spain)
- Insalled in August 2012
The living wall

• **Design:** Inspired in Burle Marx “Suspended Garden”
  
  • Area: aprox. 40 m² (17 m long by 2.2 m high)
  • 1400 plants, 40 species

Living wall design process: (a) adaptation of the original image to the living wall size; (b) transposition of the landscape design to planting pattern; (c) actual result

http://www.terapiaurbana.es/
• The living wall system

• Fytotextil: 1 x 1 m modules of cloth (three layers) with pockets

• Plants with rootball (coconut peat) inserted in pockets
• Installation process
• The result
Methodology

• Media coverage (2012-2015):
  • Appearances in newspapers
  • Radio and television
  • Internet: youtube, facebook, blogs

❖ Valuation based on:
  • Target audience
  • Length of the article, video, interview...
  • Media importance (national wide, regional...)
  • Official prices of advertisements
La construcción de la ciudad avanza
Methodology

• Users’ perception:
  
  ❖ 350 questionnaires to hospital personnel and visitors
  
  • Face-to-face interviews during May-June 2015
  
  • 22 questions
Methodology

• **Users’ perception:**
  - **350** questionnaires to hospital personnel and visitors
    - Descriptors (age, gender, occupation, etc.)
    - General questions about attitude towards plants and green spaces
    - Specific questions about the LW and its effect on the survey respondents
    - ‘Contingent valuation’ questions: willingness to pay, how much should the hospital invest on the LW?
Results

• **Media impact analysis**
  
  • 30 appearances in 23 newspapers
  • Radio: 2 interviews
  • Television: 3 reports in a regional channel and 1 in national TV (accumulating more than 10 minutes)
  • Youtube: more than 4200 viewers
  • Facebook: 373 likes, 256 shares
  • 407 tweets

❖ Estimation of the investment in the LW:
  
  • Installation costs
  • Operation & maintenance costs during 15 years

RECOVERED 5.2 TIMES THE INVESTMENT
Results

- **Users’ perception:** the sample

Distribution of the 350 questionnaires:

**Gender and age**

<table>
<thead>
<tr>
<th>AGE RANGE</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 35</td>
<td>18.57</td>
<td>10.29</td>
</tr>
<tr>
<td>35-45</td>
<td>16</td>
<td>10.86</td>
</tr>
<tr>
<td>46-60</td>
<td>16</td>
<td>13.43</td>
</tr>
<tr>
<td>&gt; 60</td>
<td>7.43</td>
<td>4.86</td>
</tr>
<tr>
<td>No answer</td>
<td>1.14</td>
<td>0.86</td>
</tr>
</tbody>
</table>
Results

• **Users’ perception:** the sample

Distribution of the 350 questionnaires:

- **Occupation**
  - Student: 11.5%
  - Worker: 68.9%
  - Unemployed: 10.1%
  - Retired: 9.5%

- **Type of user**
  - Worker: 19.1%
  - Patient: 16.5%
  - Visitant: 45.1%
  - Other: 19.4%

- **Frequency of visiting the hospital**
  - Never: 4%
  - Sometimes: 19%
  - Several times a month: 33%
  - Several times a week: 28%
  - Daily: 6.9%

- **Interested in gardening**
  - Not at all: 4%
  - Little: 16%
  - Somewhat: 28%
  - Quite: 33%
  - Very: 19%
Results

- **Users’ perception:** the outcomes

### Question: LW, can they improve the psychological welfare? (% responses)

<table>
<thead>
<tr>
<th>Response</th>
<th>Did not hear about LW before</th>
<th>Knew about LW before</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly disagree</td>
<td>1.14</td>
<td>1.71</td>
</tr>
<tr>
<td>Disagree</td>
<td>0.29</td>
<td>0.28</td>
</tr>
<tr>
<td>Indifferent</td>
<td>7.14</td>
<td>6</td>
</tr>
<tr>
<td>Agree</td>
<td>20.29</td>
<td>28.29</td>
</tr>
<tr>
<td>Highly agree</td>
<td>9.14</td>
<td>24.86</td>
</tr>
<tr>
<td>DK/NO</td>
<td>0.57</td>
<td>0</td>
</tr>
</tbody>
</table>

38.6% of respondents did not know about LW.
Results

• Users’ perception: the outcomes

Emotions or reactions inspired being near plants

- Alergy: 2%
- Filth: 1%
- Welfare: 16%
- Serenity: 14%
- Happiness: 1%
- None: 32%

83.4 showed positive reactions

LW may have a therapeutic effect contributing to improve health

- Highly disagree: 4%
- Disagree: 6%
- Indifferent: 17%
- Agree: 36%
- Highly agree: 37%
More than 50% of hospital workers quite value the presence of plants

• Users’ perception: the outcomes

LW have the same effects over those than perceive it than conventional gardens

Do you value the presence of plants in your working place?

53% of respondents think a LW have an equivalent effect to conventional gardens
Results

• **Users’ perception:** the outcomes

What would you like to view from the hospital's hall?

- **Trees:** 29%
- **Bare wall:** 7%
- **LW:** 3%
- **Urban art:** 1%
- **Fountain:** 1%
- **Landscaped courtyard:** 3%
- **DK/NO:** 56%

More than 90% of respondents would use vegetation
Results

• **Users’ perception:** the outcomes

> It is adequate to invest on constructing a LW at the hospital

- **Highly disagree**
- **Disagree**
- **Indifferent**
- **Agree**
- **Highly agree**
- **DK/NO**

- 2% highly disagree
- 1% disagree
- 0% indifferent
- 37% agree
- 50% highly agree
Results

**Users’ perception: the outcomes**

How much should the hospital annually spend on LW and plants?

- Nothing: 23%
- 0-100 €: 23%
- 100-1000 €: 34%
- 1000-10.000 €: 14%
- More than 10.000 €: 6%
- DK/NO: 2%  

How much would you be eager to pay monthly to increase/improve green areas close to you?

- Nothing: 23%
- 0-10 €: 23%
- 10-50 €: 14%
- 5-10 €: 14%
- >10 €: 6%
- DK/NO: 1%
Conclusions

1. Generally, people think there should be investments on green areas but they are not willing to pay for it.

2. Although not much importance is given to gardening, plants provide positive feelings and reactions and they are appreciated in different environments such as a hospital.

3. Many people have not heard about living walls before, but when they see one, their reaction seems to be positive.
Conclusions

4. Most of the hospital users think that having a living wall there is psychologically beneficial and contributes to improve health. Therefore they totally agree with the investment made by the hospital.

5. Most hospital users prefer to have a living wall in the hospital over other options (green or not)

6. High cost recovery ratio (investment vs. returns in publicity) BUT no such impact is expected for every LW installation → in this case the media impact was significant but the novelty of the news and the wide diffusion played an important role.
Acknowledgements:

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Research group AGR-268

Urban greening & biosystems engineering

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Thank you for your attention

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