The use of ICT in school management and its influence on the teaching-learning activity

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The Implementation of the Internet in the Spanish Education System

- Identify the teachers’ pedagogical and professional uses of ICT
- Reinforcing teamwork and participation proceedings in the institutions
- Analyse the students’ use of ICT
- Identify how ICT may contribute to the improvement of educational practices

ICT = Information and Communication Technology
Objective

To analyze the use of ICT in administrative activities in primary and high schools in Spain
Methods: project

- Empirical research using face-to-face questionnaires
  Heads, Teachers, Students

- Representative Sample of 17,575 subjects (heads, teachers and students) of 809 centres

- Field Work: March - September 2007

Project web page:
http://www.uoc.edu/in3/integracion_internet educacion escolar
Methods: Heads’ questionnaire

Three Face-face questionnaires were applied: Heads, Teachers, Students

Heads’ questionnaire

A. Personal data
B. Knowledge and experience on use of ICT
C. Use of ICT out of the centre
D. ...
E. ...
F. ...
G. ...
H. ...
I. ...
J. ...
K. ...

L. Centre's use of ICT in the administrative tasks
M. ...

1. Administrative tasks
2. Economical Management
3. Scheduling of the centre’s tasks
4. Teacher’s team working
5. Teacher’s training
6. Communication
7. Communitarian participation
8. Collaboration with families (parents)
9. Collaboration with external institutions
10. Collaboration with other centres
11. Data management
Graphic 1. Type of use of ICT among administrative staff
Methods: variables

1. Dependent variable

   a. Factor construction based on the 11 items
   b. Groups: Low use: < 1 SD; Middle use: => 1 SD <= 1 SD; High use: > 1 SD

2. Independent variables

   Organizational variables
   - Centre type
   - Centre size
   - City size
   - Degree of ICT development

   Individual variables
   - Head' age
   - Head' gender
   - Length of Use of Internet
   - Internet training during the last three years
The final factor analysis (L3, L4, L5, L6, L7, L8, L9, L10) explained 60.2% of variability and Cronbach’s Alpha=0.906

Categorical Variable

Low use = 107 (16%)
Middle use = 446 (67%)
High use = 114 (17%)

Total = 667 (100%)
Methods: statistical analyses

Bivariate analysis according with the type of variables

CROSS-TABLES (factor -the 3 groups vs. Independent variables)

a. Pearson Chi square test (p≤0.05)
b. Cramer's V test (0-1 distribution)
c. Adjusted and normalized residuals (± 1.9 are considered as a significant magnitude)
## Results

**Table 2. Use of ICT by type of centre**

<table>
<thead>
<tr>
<th>Type of centre</th>
<th>Low use</th>
<th>Middle use</th>
<th>High use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public (primary) (n=336)</td>
<td>17%</td>
<td>62%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>RES = 1.1</td>
<td>RES = -3.1</td>
<td>RES = 2.8</td>
</tr>
<tr>
<td>Public (high school) (n=130)</td>
<td>12%</td>
<td>76%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>RES = -1.3</td>
<td>RES = 2.5</td>
<td>RES = -1.9</td>
</tr>
<tr>
<td>Private (n=117)</td>
<td>16%</td>
<td>71%</td>
<td>13%</td>
</tr>
<tr>
<td></td>
<td>RES = -1</td>
<td>RES = 1.3</td>
<td>RES = -1.5</td>
</tr>
</tbody>
</table>

Chi 2 Pearson, $p = 0.02$; Cramer's $V = 0.099$

RES= residuals
## Results

**Table 3. Use of ICT by city size**

<table>
<thead>
<tr>
<th>City Size (people)</th>
<th>Low use</th>
<th>Middle use</th>
<th>High use</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;10,000 (n=156)</td>
<td>21%</td>
<td>56%</td>
<td>23%</td>
</tr>
<tr>
<td></td>
<td>RES = 1.7</td>
<td>RES = -3.2</td>
<td>RES = 2.3</td>
</tr>
<tr>
<td>10,001-50,000 (n=180)</td>
<td>16%</td>
<td>67%</td>
<td>17%</td>
</tr>
<tr>
<td></td>
<td>RES = 0</td>
<td>RES = 0</td>
<td>RES = 0.1</td>
</tr>
<tr>
<td>50,001-100,000 (n=69)</td>
<td>22%</td>
<td>59%</td>
<td>19%</td>
</tr>
<tr>
<td></td>
<td>RES = 1.4</td>
<td>RES = -1.4</td>
<td>RES = 0.4</td>
</tr>
<tr>
<td>100,001-500,000 (n=181)</td>
<td>12%</td>
<td>73%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>RES = 1.7</td>
<td>RES = 3.5</td>
<td>RES = -2.8</td>
</tr>
<tr>
<td>&gt;500,001 (n=81)</td>
<td>11%</td>
<td>70%</td>
<td>18%</td>
</tr>
<tr>
<td></td>
<td>RES = -1.3</td>
<td>RES= 0.7</td>
<td>RES= 0.4</td>
</tr>
</tbody>
</table>

Chi 2 Pearson, \( p = 0.008 \), V Cramer \( p=0, 124 \)

RES = residuals
# Results

**Table 4.** Use of ICT by degree of ICT development

<table>
<thead>
<tr>
<th></th>
<th>Low use</th>
<th>Middle Use</th>
<th>High use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor development of ICT (n=155)</td>
<td>16%</td>
<td>69%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>RES= 0.2</td>
<td>RES= 0.5</td>
<td>RES= -0.8</td>
</tr>
<tr>
<td>Good perspectives in the use of ICT (n=305)</td>
<td>14%</td>
<td>71%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>RES= -1.0</td>
<td>RES= 1.8</td>
<td>RES= -1.2</td>
</tr>
<tr>
<td>Initiating the use of ICT (n=97)</td>
<td>24%</td>
<td>68%</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>RES= 2.4</td>
<td>RES= 0.2</td>
<td>RES= -2.5</td>
</tr>
<tr>
<td>Positive attitude toward the ICT and its use (n=89)</td>
<td>11%</td>
<td>52%</td>
<td>37%</td>
</tr>
<tr>
<td></td>
<td>RES= -1.2</td>
<td>RES= -3.4</td>
<td>RES= 5.4</td>
</tr>
</tbody>
</table>

21 centres were missed in this variable (3.1% of the sample)

Chi 2 Pearson, p Value < 0.001 V Cramer= 0.167

RES=residuals
# Results

**Table 5. Use of ICT by the head's gender**

<table>
<thead>
<tr>
<th>Head’s gender</th>
<th>Low use</th>
<th>Middle use</th>
<th>High use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male (n=405)</td>
<td>15%</td>
<td>71%</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>RES= -1.5</td>
<td>RES= 2.8</td>
<td>RES= -2.0</td>
</tr>
<tr>
<td>Female (n=253)</td>
<td>19%</td>
<td>60%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>RES= 1.5</td>
<td>RES= -2.8</td>
<td>RES= 2.0</td>
</tr>
</tbody>
</table>

9 centres were missed in this variable (1.3% of the sample)

Chi 2 Pearson, p Value = 0.02, Cramer V=0.108

RES=residuals
Table 6. Use of ICT by internet training during the last three years

<table>
<thead>
<tr>
<th>Internet training during the last three years</th>
<th>Low use</th>
<th>Middle use</th>
<th>High use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16%</td>
<td>63%</td>
<td>22%</td>
</tr>
<tr>
<td>RES= -0.4</td>
<td>RES= -3.1</td>
<td>RES= 4.3</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>17%</td>
<td>74%</td>
<td>9%</td>
</tr>
<tr>
<td>RES= 0.4</td>
<td>RES= 3.1</td>
<td>RES= -4.3</td>
<td></td>
</tr>
</tbody>
</table>

3 centres were missed in this variable (0.4% of the sample)
Chi 2 Pearson, p Value = 0.02 Cramer V = 0.081
RES=residuals
No statistical significant relation was observed between

The centre’s size,

The age of the head,

The length of Internet connection and use
Results

- Primary schools trend to have a high use of ICT
- The smallest cities trend to have a high use of ICT
- A positive attitude toward the ICT and its use is associate with a high use of ICT
- The women heads trend to develop a higher use of ICT
- The training in the use of Internet was also associated with a higher use of ICT.
Conclusions

- The most of the centers trend to have a frequent use of ICT

- There is a lack of use of ICT among the teachers, particularly in the communication activities with other teachers and other professionals.

- Very few school heads use ICT to let the centre know by others or to establish collaborations with other centres.
Future prospective

• Our results suggest that having Internet connection in the School does not predict the use of ICT.

• The inclusion of any training activities in the use of ICT could encourage the school managers in its use.

• The promotion of the use of ICT must involve both the administrative and teaching-learning activities in schools.
THANK YOU!

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