

# A ... O ... N ... S ... : T ... R ... C ...

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## Ab•rac

Abstract text containing multiple lines of faint, illegible characters and symbols, possibly representing a corrupted or low-resolution scan of the article's abstract.

A A' 5 63% , 2006)

14. A ( 14 2006)

C 1- 14 3.4

(2009)

(65%)

(2010)

B

( ) 9 10.

66%

B

( ) 10, A

: A

?

( , 2007) 15- ( )  
40

(1)

A ( , 2011);  
( , 2012).

(2)

2008; ( , 2007);  
( , 2011). (2006)

?

1.1. Background

A ( , 2007);  
( , 2008),

( , 2010; , 2011) B  
( , 2009; , 2011)

( , 2007), ( 2003;

A  
C ( 2011) , 2010, ( 2003; , 2007).  
12.

10,

A

, 2007; ( 2011).  
(2008)

A

(

|  |  |
|--|--|
| <p>(2010)</p> <p>A B (2007)</p> <p>( )</p> <p>(2011).</p>  | <p>(2008).</p> <p><b>2. Methodology</b></p> <p><b>2.1. Sampling</b></p> <p>230 15 16</p> <p>1- 9</p> <p>10</p>                       |
| <p>(2010)</p> <p>A</p> <p>C (2012)</p> <p>C</p> <p>" (2011)</p> <p>A</p> <p>(B 2006;</p> <p>2008; A 2008 A A</p> | <p><b>2.2. Data collection</b></p> <p>A (2007)</p> <p>( )</p> <p>(2006).</p> <p>(2005, 2008).</p> <p>(2007)</p> <p>1. A</p> <p>A</p> |
| <p>(2010)</p> <p>A</p> <p>C (2012)</p> <p>C</p> <p>" (2011)</p> <p>A</p> <p>(B 2006;</p> <p>2008; A 2008 A A</p> | <p><b>2.3. Limitations of survey instruments</b></p> <p>A</p>  |

Table 1. Nature of Science Constructs/Subscales

|   | D & |
|---|-----|
| C | C   |
| C | C   |

(B  
2010;  
, 2010;  
A  
2010;  
, 2011).

(  
, 2001;  
2003). A  
B  
, 2003),

2.4. Data analysis

A  
1  
5  
A  
(C  
, 2007).  
, 1993). A

(B  
2008;  
2008)  
(  
2010;  
A  
-C  
, 2011).

3. Results

121  
2011.  
109  
A  
9 10 A

3.1. Significant results from pre- to post-visit surveys

B  
B  
C  
C  
2.  
3.

Table 2. Significant Results from Paired Samples Test

|   |   | Pre-visit |           | Post-visit |           | t       | df     | Sig. |      |
|---|---|-----------|-----------|------------|-----------|---------|--------|------|------|
|   |   | Mean      | Std. Dev. | Mean       | Std. Dev. |         |        |      |      |
| 1 | C | -.17341   | .80170    | .06095     | -.29372   | -.05310 | -2.845 | 172  | .005 |
| 2 | C | -.09483   | .56287    | .04267     | -.17905   | -.01060 | -2.222 | 173  | .028 |
| 3 | C | .09691    | .56256    | .04217     | .01370    | .18012  | 2.298  | 177  | .023 |

Table 3. Significant Results from Related-Samples Wilcoxon Signed Rank Test

|   | $Z$ | $p$   | $S$ | $D$ |
|---|-----|-------|-----|-----|
| 1 | C   | 0.007 |     |     |
| 2 | C   | 0.024 |     |     |
| 3 | C   | 0.021 |     |     |

... (3), 95% ... A ... .1 ... ( =3.33,  $S$   $\neq$  0.68) ... =3.07,  $S$   $\neq$  0.56; (210) = -3.07,  $Z$  = .002 ...  $Z$  = .002. ... ( =3.41,  $S$   $\neq$  0.71) ... =3.14,  $S$   $\neq$  0.55; (178) = -2.99,  $Z$  = .003 ; ...  $Z$  = .002.

3.2. Attitudes to Science

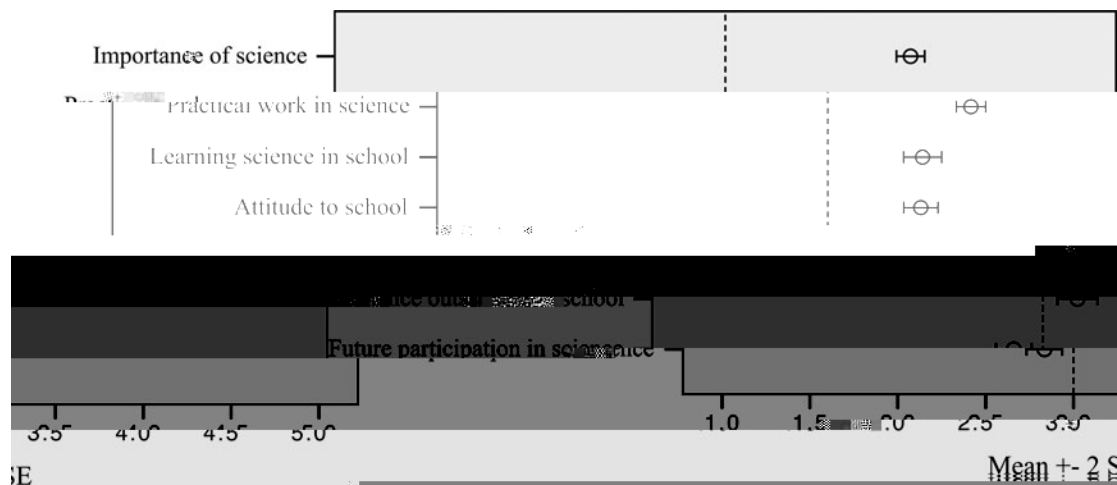
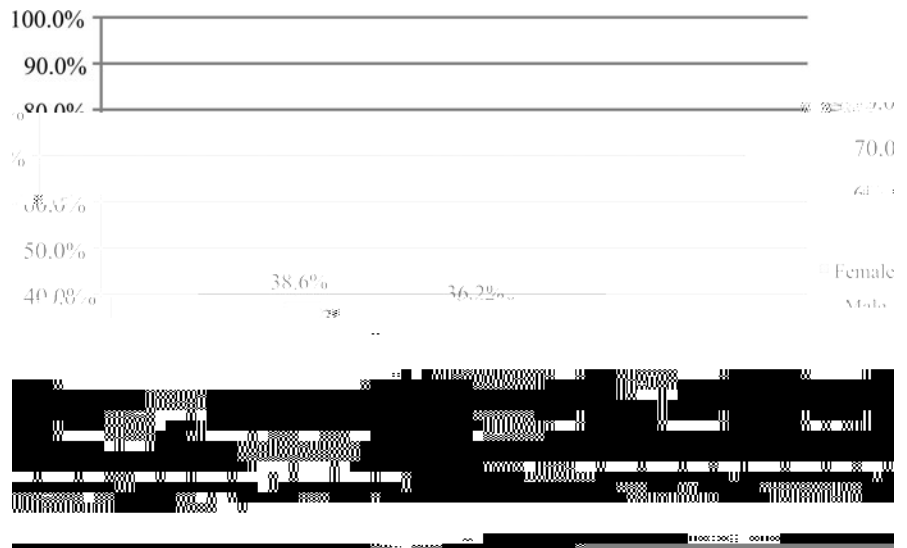


FIG. 1. ... A ... =1 ... ) ; 2 ( ) ; 3 ( ) ; 4 ( ) ; 5 ( ) .



FIG. 4.



... B ... ( =0.13).

4. Discussion

... 1%. ... 64.4% ... 63.4% ... ( ... , 2005; ... , 2010).

... A ... 4, ... 16.8% ... 95% ... ( =0.37), ... ( ... , 2010).

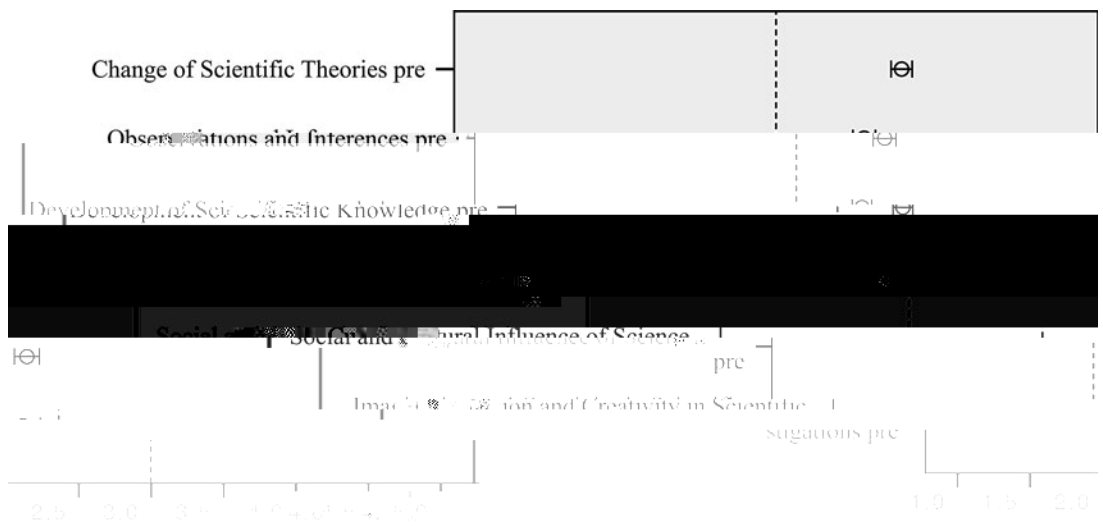


FIG. 5.

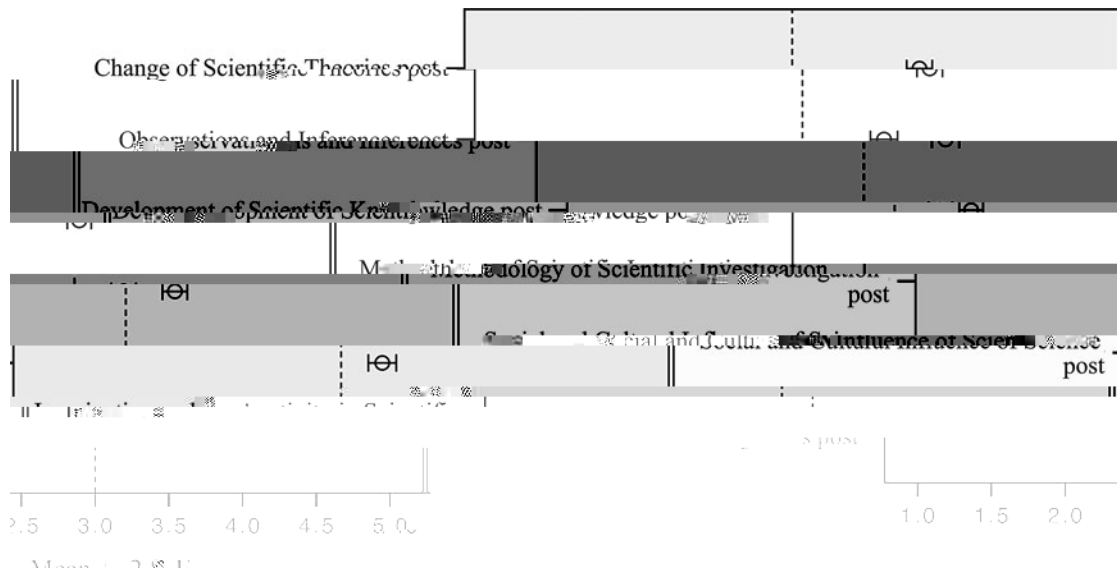


FIG. 6.

... A ... 15% ... D<sub>1</sub> ... D<sub>2</sub> ... 45.2% ... (40.4%) ... 48.9% ... ( ... 4) ... 30% ... B ... ( ... 8, 57% ... ( ... )

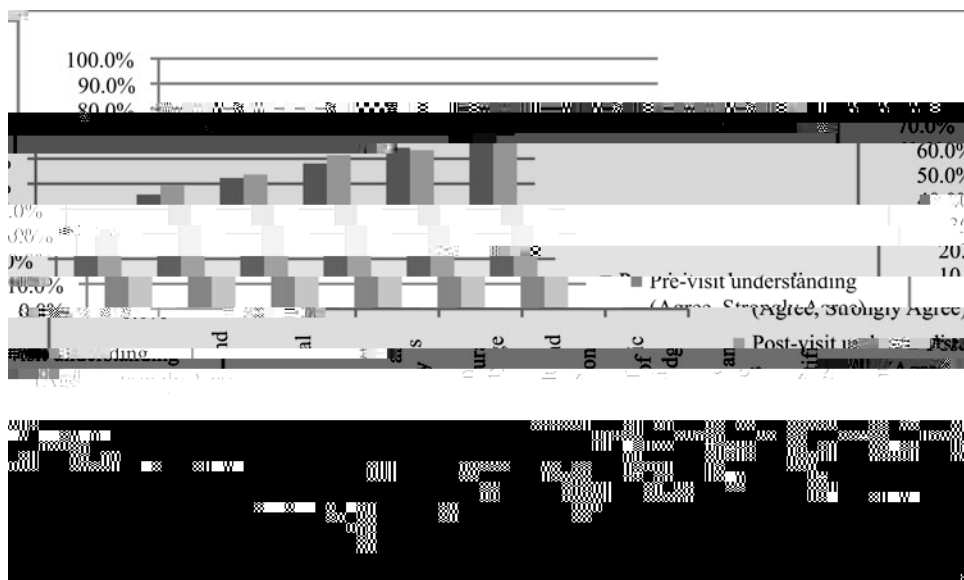


FIG. 7.





2006; 2007; 2010).

**Acknowledgments**

A A B A C A C C C

**Author Disclosures of Potential Conflicts of Interest**

**Abbreviations**

**References**

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B A. (2007) 44:800-814.

B (2006) 28:1373-1388.

C (2007) 3:106-116.

C (2006) 15:463-494.

C, C-C, C, C. (2011) 95:961-999.

(2009) &

B (2010)

C, A, C, A, C (2011)

1:9-13. A, A. (2011)

A, C (2010) 53:949-961.

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(2011) A ?

1 23; .10.1007/ 11165-011-9230-9. (2007) C

43:1-37. B (2007) 29:871-893.

(2003) A 24:65-80.

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(2005) ( ):

(2006) ( ):

CA. (2008) A

9(1), A 1. (2008)

30:793 805. (2006)

28:591 613. (2010)

D A A A A (2009)

A. (2011)

32:669 685. (2011)

95:877 907. A. C, B. C. (2010) A

32:653 667. (2008)

17:226 235. C. (2010) C

9:45 54. C. (2012)

A C.A. (2008) C

(2006)

C 2 5. (2003)

? A 40:692 720. B. (2003) C

88:879 903. A. A. (2008)

C. (2006)

C 6 11. A. (2011) C

C. (2006)

2:435 445. C. (2006)

C. (2007)

C 1 17. (2008)

30:727 771. (2001) A

22:127 160. B. (2010)

14(2). C. (2010)

C, A. (2006)

312:1143 1145. (2006)

(2011)

(2007)

51, A C A C (2008)

C (2011)

C C 2011 2012. A (2012)

A C B. (2009)

18:95 118. B. (1993)

34:390 400. ?

A

@