

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

C 1-

B

B

A

?

, 2006)

63%

14. A (2006)

14

14 3.4

A

(2009)

(65%)

(2010)

() 9 10.

66%

() 10, A

(1)

(2)

?

() 15-

40

(, 2007)

(, 2011);

A (, 2012).

(, 2007; (2006)

2008; , 2011).

1.1. Background

A

C (2011) , 2010, 12.

10,

A , 2007; (2008)

A (

A (, 2007; , 2008),

(2003;

(, 2007),

(2003; , 2007).

(

(2010) ... (2007) ... (2011). ... (2010) ... (2012) ... (2011) ... (2006; 2008; 2010). A 2008 A A

(2008).
2. Methodology
2.1. Sampling
 230 15 16
 10 1- 9
2.2. Data collection
 A (2007) ... (2006). ... (2005, 2008). (2007)
 A
 1. A
 A
2.3. Limitations of survey instruments
 A

Table 1. Nature of Science Constructs/Subscales

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. Deviation	Mean	Std. Deviation				
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% ... A1 ... (=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

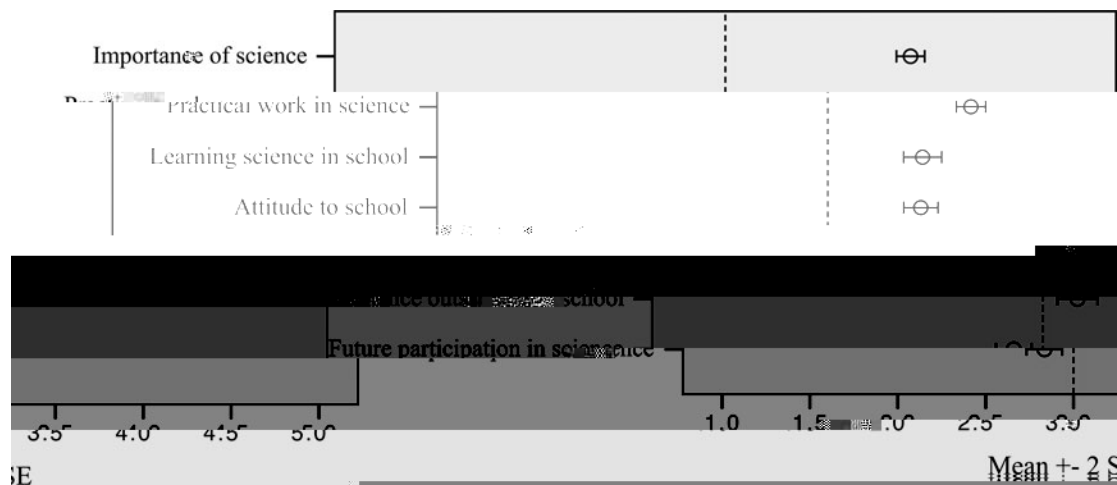


FIG. 1. ... A ... =1 ...) ; 2 () ; 3 () ; 4 () ; 5 () .

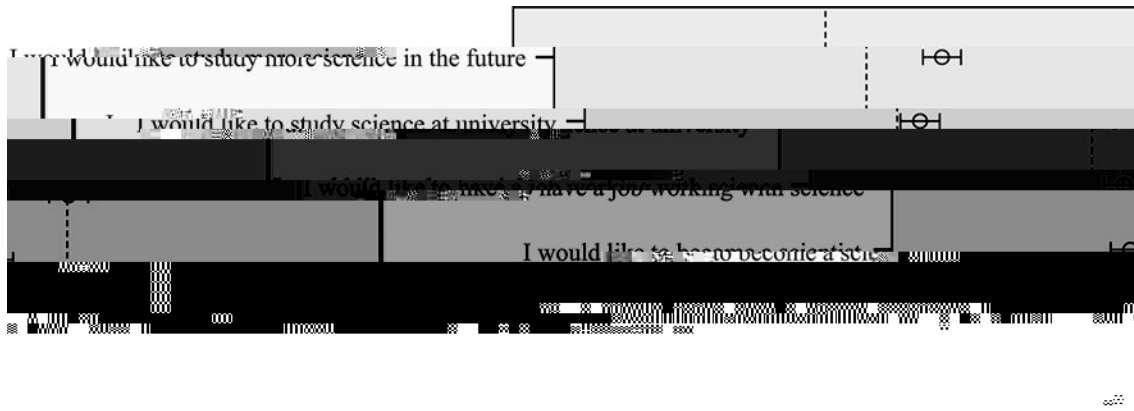


FIG. 2.

... (.4).

3.3. Becoming a scientist

... (.3).

... (.3).

... (.3).

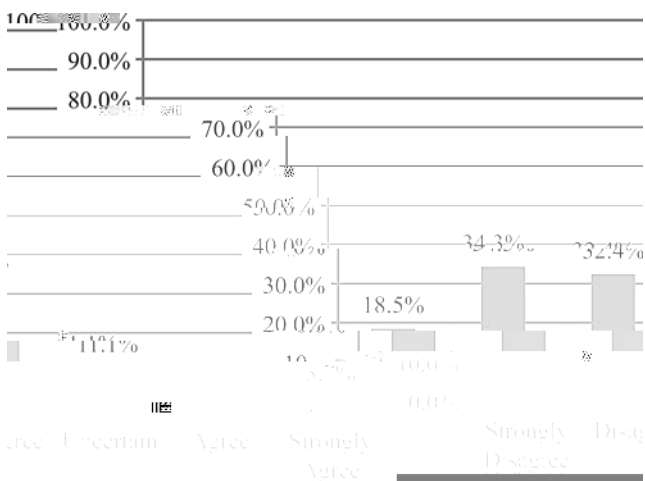


FIG. 3.

... 11.4% (.4).

3.4. Nature of Science understandings

... (.5).

... (.5).

... (.5).

... (.5).

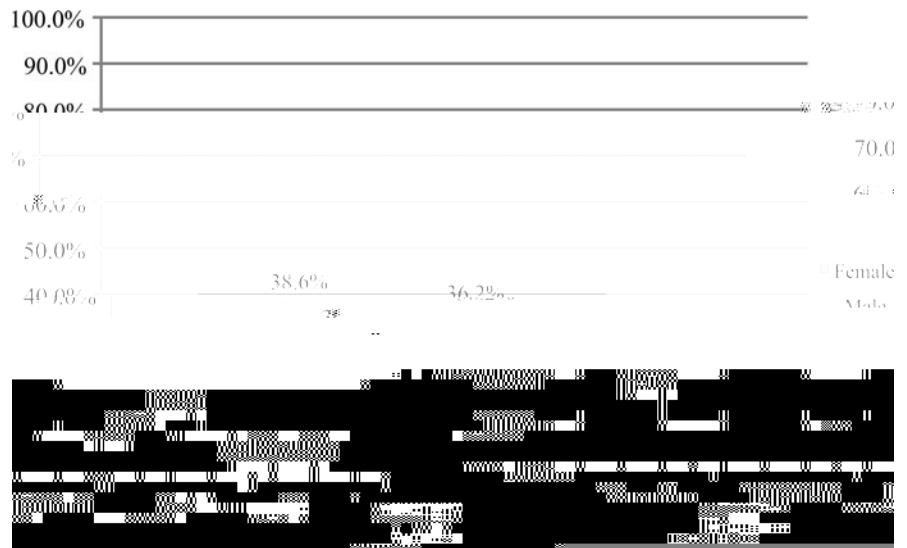
... (.5).

... (.5).

... (.5).

... (.5).

FIG. 4.



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

4. Discussion

... 1%. ... 64.4% ... 63.4% ...

... (... , 2005; ... , 2010).

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

... 16.8% ... (... , 2010).

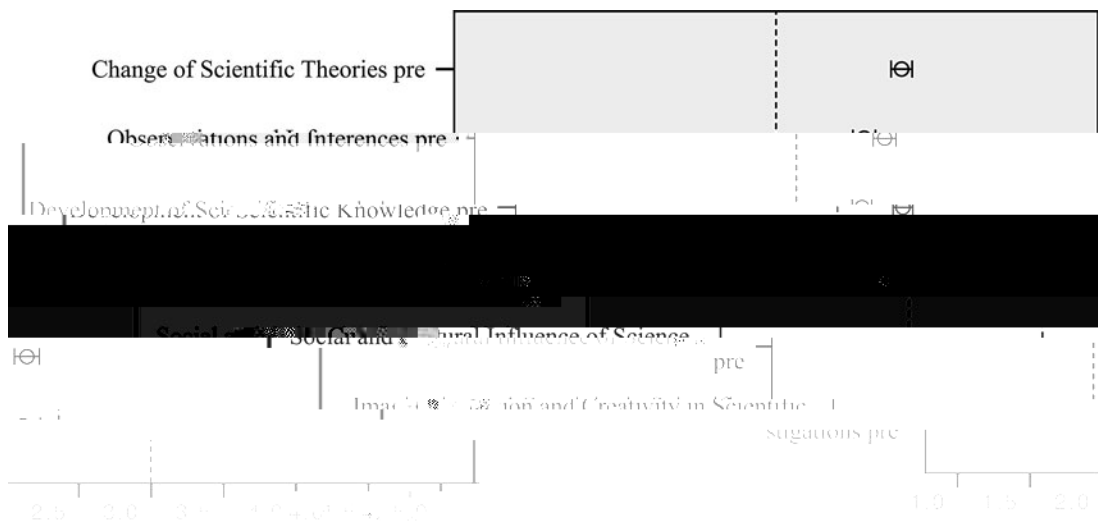


FIG. 5.

Table 4. Linear Regression Coefficients of Subscale Constructs with “I Would Like to Become a Scientist”

Subscale Construct	2007		2008		F
	β	σ	β	σ	
C	.460	.096	.371	4.800	.000
A	.156	.078	.132	2.003	.047

C (2007), $\beta = .460$, $\sigma = .096$, $F(1, 100) = 4.800$, $p < .001$), and A (2007), $\beta = .156$, $\sigma = .078$, $F(1, 100) = 2.003$, $p = .047$), and C (2008), $\beta = .371$, $\sigma = .096$, $F(1, 100) = 4.800$, $p < .001$), and A (2008), $\beta = .132$, $\sigma = .078$, $F(1, 100) = 2.003$, $p = .047$).

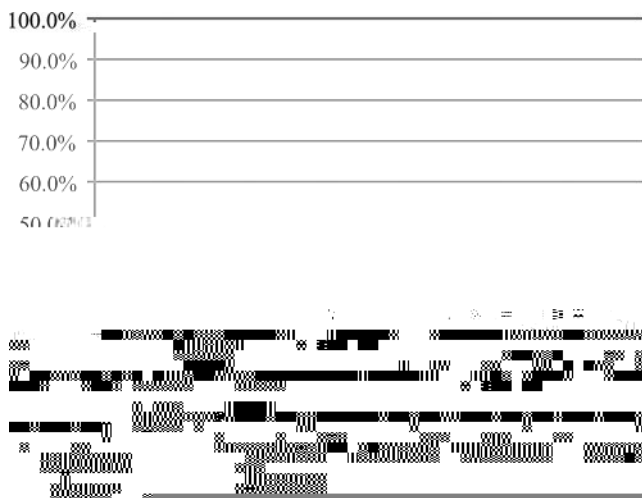


FIG. 8. ...

(2007), $\beta = .460$, $\sigma = .096$, $F(1, 100) = 4.800$, $p < .001$), and A (2007), $\beta = .156$, $\sigma = .078$, $F(1, 100) = 2.003$, $p = .047$), and C (2008), $\beta = .371$, $\sigma = .096$, $F(1, 100) = 4.800$, $p < .001$), and A (2008), $\beta = .132$, $\sigma = .078$, $F(1, 100) = 2.003$, $p = .047$).

2008

19.5%

5. Conclusion

A

2006; 2007; 2010).

Acknowledgments

A
A
A
C A B
B
A C
C
C

Author Disclosures of Potential Conflicts of Interest

Abbreviations

References

A (2010) ?
47:564-582.
B (2008) 30:
1075-1093.
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
C. A -C (2011)
1:9-13.
A, A (2011)
C, A
A (2010)
53:949-961.
(2011)
68:1-6.
(2005)
23:41-57.
(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.
(2007)
831-879.
(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. (2010) A

32:653 667. (2008)

17:226 235. (2010) C

9:45 54. (2012)

A C.A. (2008) C

(2006)

C 2 5. (2003)

? A 40:692 720. (2003) C

88:879 903. (2008)

C. (2006)

C 6 11. (2011) C

C. (2006)

34:390 400. (2007)

1 17. (2008)

30:727 771. (2001) A

22:127 160. (2010)

14(2). (2010)

C, A, (2006)

312:1143 1145. (2006)

(2011)

(2007)

51, A C (2008)

C C A (2011)

C C 2011 2012. (2012)

A A C B. (2009)

18:95 118. (1993)

@