Enhancing Female Students Decision-Making Competency through Problem solving Instructional Model

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Abstract

- •Design = Quasi-experimental, involving pre and posttests.
- Dependent variable = was students' scores in decision-making test
- independent variables = the instructional models and sex.
- •Population = 250 males and 230 females.
- •Treatment = The experimental (PSH model) Control (expository model) for twelve weeks.
- •Analysis technique = multiple regression, means and t-test.

•Result = Experimental group differed significantly [95,487(2, 479)= 95.487, p<0.05] in decisionmaking from the control group with a Beta value of .501 hence contributed more to the students' score on decision-making than sex (β = .140).

•Females benefitted more [t=4.429(2, 238)] from the PSH (Mean = 66.52; SD = 6.552) than males (mean =62.22; SD =8.433).

Introduction

Nigeria is a country with great human, natural and materials potentials.

•About half of the population consists of women.

•is in a search for individuals and ways to utilize her endowment to solve problems of poverty, unemployment, disease, corruption, insecurity and insurgence.

•There has been poor presence of females in decision-making positions due to certain barriers.

•Studies (Arijesuyi & Olufemi, 2012; Orasanu & Connelly, 1993) reported difference in the level, type of and severity of decision-making in males and females.

•This study investigates male and female science students' decision-making competence development after exposure to STS curriculum using the PSH instructional model.

Statement of the Problem

The classroom is the hub for fostering important national objectives and achieving goals.

 Secondary school students are at the threshold of making life decisions.

• Teaching science effectively at this level with instructional models that encourage the acquisition of decision-making correlate positively with success in life (Jacobson, et al., 2012; Bruine de Bruin et al., 2007; Fischhoff, 2008).

Research Hypotheses

•There is no significant effect of implementing STS curriculum using the PSH instructional model on students' decision- making competence.

•There is no significant difference in male and female students' decision making competence after an STS course using the PSH instructional model.

Design of the Study

Design : Quasi-experimental non randomized control group (pre and posttests).

dependent variable: Students' scores in decision-making test

independent variables: instructional models (Problem solving heuristics PSH and expository models) and sex.

Method of the Study

Population: 480 students consisting of 250 males (112 experimental and 138 in control group) and 230 females (128 i experimental and 102 in control group). Treatment : Experimental = PSH instructional model

control = expository instructional model Duration = Twelve weeks (Two hours per week). Pretest was administered to all groups Teaching package: Experimental group was presented with some science related everyday issues on combustion, pollution, predation, vaccination, diseases, health and living, climate change, food production and preservation, energy production, conversion and use; population and control, family planning and abortion, terrorism and mass destruction, and bio modification of foods.

Students were encouraged to generate some useful suggestions for resolving problems associated with these issues.

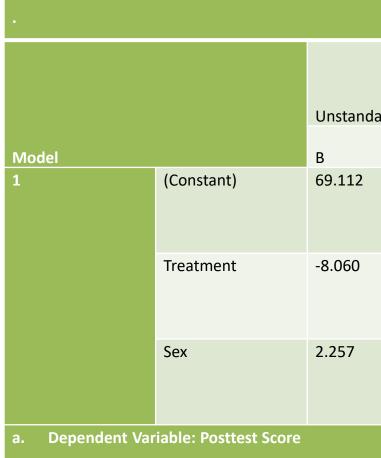
Decision-making test Instrument : (DMAT) (Umoren, 1991)

Result

A summary of the result of the regression analysis is presented in Tables 1 and 2 below.

lodel	Sum of Squares	df	Mean Square	F	Sig.
Regression	8877.967	2	4438.983	95.487	.000 ^b
Residual	22174.681	477	46.488		
Total	31052.648	479			

Table 2 : Coefficients of treatment and sex on students' Decision-making competence development



ANOVA from the regression analysis

Experimental group differed significantly

[F(2, 477) = 95.487, p < .05] with R² of .286 in the Decision – making competence from the control group.

Beta value of .501 . Treatment contributed more to the students' score on decision making than sex (β = .140). This implies that the PSH produced a stronger effect on the subjects' decision-making development than sex. The null hypothesis 1 which states that there is no significant effect of implementing STS curriculum using the PSH instructional model on students' decision-making competence was rejected.

ardized Co	oefficients	Standardized Coefficients	t	Sig
	Std. Error	Beta		
	1.424		48.545	.00 0
	.626	501	-12.873	.00 0
	.627	.140	3.601	.00 0

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Means, SD and t-test summaries based on sex

Table 3 : mean and standard deviation of male and female students performance in decision- making test

Sex		Ν	Mean	Std. Deviation	Std. Error Mean
Posttest Score	Male	112	62.22	8.433	.797
	Female	128	66.52	6.557	.580

t-test of significance of the difference in male and female students' performance in decision-making at posttest.

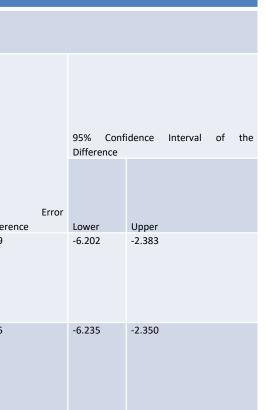
		Levene's Test				ision-making at post		
		of Variances		t-test for Equali	ty of Means			
Posttest Score	Equal variances	F 10.290	Sig. .002	t -4.429	df 238	Sig. (2-tailed) .000	Mean Difference -4.292	Std. Diffe
	assumed							
	Equal variances not assumed			-4.356	208.503	.000	-4.292	.985

Conclusion

t-value (t=4.429 (2, 238) for PSH has higher mean and SD (66,52, SD = 6.552) > (Mean = 62.22)SD = 8.43) for the expository model. Females made higher gains in decision-making than males Recommendation/implication for policy

PSH is gender friendly and supports the acquisition of decision-making competencies in both sexes. It should be used in science teaching to enhance gender equity and better science learning outcome Use of exposition should be minimized in science teaching.

Train teachers on the use of PSH in science teaching.



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