



## Effect of CAI on Self-Esteem of Higher Primary Students

Mohammad Reza Irvani & Hadi Delfechresh

Department of Social Work, Islamic Azad University, Khomeinishahr Branch, IRAN  
Education Deputy of Higher Educational Center of Applied Sciences Technology, IRAN

### Abstract

The purpose of this study was to determine the effect instructional media (computer – assisted instruction (CAI) vs. traditional textbook) on self-esteem of students during taught science by CAI software package in science subject. The effect of gender on self-esteem was also investigated. This study employed a pre-test – post-test in experimental and control group, experimental research design with a sample of 200 students of 8 standard of higher primary school (middle) (100 males and 100 females) of Ahwaz city in Iran. Students had registered for 3 days in week (9 weeks and 25 sessions) computer console that accompanied the teaching science by CAI software package in science subject and had been randomly assigned to the control and experiment group. The experimental group (treatment) used a CAI method to teach science subject and the control group used the traditional teaching method. The coopersmith self-esteem inventory was the instrument administered during this study to measure students' self-esteem change. In this study pre-achievement scores in science in previous semester have been obtained as co-variables. A Mean, Standard Deviation, ANCOVA, t' test, were employed to determine: 1) Experimental group (treatment) versus control group self-esteem difference; and 2) Male versus female self-esteem difference. The mean and standard deviation scores in pre-test and post-test in experimental group after treatment were more than mean and standard deviation scores in pre-test and post-test in control group. And result from an ANCOVA analysis include data on the post-test science achievement scores for the experimental and control groups after using the Pre-achievement sores in science in previous semester and non verbal intelligence (SPM) as co-variables. Data indicated that the gain scores of students in the experimental group were significantly higher than the control group. The analyzed of the 't' test value of gain score between boys and girls has showed that there is no significant difference between boys and girls of VIII standard students in self-esteem as learners scores after use of CAI.

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### Effect of CAI on Self-Esteem of Higher Primary Students

Shindler identified the fundamental traits with which self-esteem has been found to correlate, which fall into three categories; one's sense of self-efficacy, one's sense of locus of control, one's sense of belonging and acceptance. According to Bandura (1993), strong personal efficacy beliefs enhance motivation and performance. A student's beliefs and attitudes regarding control over personal successes and failures are vitally important concepts to consider when studying one's actions and performance; a person's locus of control manifests great influence in directing and motivating behavior. Lefcourt (1982) said that it is apparent that locus of control plays a mediating role in determining whether persons become involved in the pursuit of achievement. A sense of belonging and acceptance is essential to a young person's mental health and ability to trust and take risks (Inderbitzen and Clark, 1986). Sarokon (1986) stressed that where an environment exists with emotional support and a minimum of destructive criticism, students feel empowered to take risks, express themselves and persist in the face of difficulty.

Several investigators have noted that involvement in computer-assisted learning (CAI) may result in the improvement of students' self-esteem (Robertson et al, 1987). Several possible reasons why the computer may have positive effects on students' feelings about themselves have been suggested. Mastery of subject



matter content and development of computer literacy may be potential sources of positive affective development (Brown, 1986; Dalton and Hannafin, 1984), capability of the computer to accommodate individual learner differences (Menis et al, 1980), high quality cognitive feedback about poor performance (Bruning et al., (1995), the non-judgmental/neutral and consistent reinforcement offered by the computer is an optimal reward situation; and that freedom from embarrassment, disapproval and diminished status often accompanying a mistake in the classroom is reduced by the privacy of the CAI learning situation. The specific hypotheses to be tested were as follows:

1. The experimental group is significantly higher than the control group in self-esteem as learners scores among VIII standard students after use of CAI based software package.
2. There is no significant difference between boys and girls of VIII standard students in self-esteem as learners scores after use of CAI.

## Method

### Participants

In this study 8 standard students (Boys and Girls) were selected for exposure to the CAI software package in Science subject. Before and after teaching students in science subject, the Self-Esteem Inventory had given but in the control group students had taught by traditional method which was teacher, class and chalk, blackboard, but the experimental group had taught by CAI software package. In order to study the effectiveness of the developed CAI two types of research design were utilized. Two groups, control group and experimental group randomly selected for boys' school design and two groups Pre-test in Self-Esteem and Post-test in Self-Esteem in control group and experimental group for girls' school design. The pre-achievement scores in science of students in pervious semester and non verbal intelligence test scores (SPM) have obtained as co-variates for this research study.

The educational software in science subject was referred to a software program which was included an explanation of all contents of science subject textbook with animation, description of examples and answer all practical questions, self – evaluation for each part of textbook at the end, questions samples for final exam at the end of the textbook and some entertainment in forms of game, conversation, story and drill. This was noticed to be known that the educational software was used in this study had been created in association with ministry of education in Iran and all higher primary schools (middle) are using this software to teach science along with teaching teacher in the classroom. Ministry of education and no one before has used it for its research and firmly has approved by educational technology experts has created this software. The software has created on usual standard to produce educational software. In this study self–esteem as learners referred to student's belief to his ability and capability to learn science subject. This was revealed by use of score obtained on coopersmith self- esteem inventory (CSEI).

### Results

Table 1 indicates that the mean score of the post-test in science achievement of the experimental group was 17.04 and that of the control group was 16.45 (respectively), so it indicated that the mean scores of post-test in experiment group is more higher than post-test of control group. Also, Table 2 the result from an ANCOVA analysis include data on the post-test science achievement scores for the experimental and control groups after using the Pre-achievement scores in science in previous semester and non verbal intelligence (SPM) as co-variates. Data indicated that the gain scores of students in the experimental group were significantly higher than the control group  $F(1, 196) = 21.486. p < 0.01$ .

**Table 1** Mean and Std. Deviation scores in self-esteem as learners of students in experimental group before and after treatment

Group	Mean	Std. Deviation	N
Experimental	41.43	4.33	100
Control	40.27	4.33	100
Total	40.85	4.36	200



**Table 2** Self-esteem as learners result from ANCOVA –Control and experimental

Source of variation	sum of squares	df	Mean square	F	Sig.
PRESCORE	19.241	1	19.241	1.179	.279
RPM	179.910	1	179.910	11.021	.001
GROUP	131.214	1	131.214	8.038	.005
Error	3199.496	196	16.324		
Total	337526.000	200			
Corrected Total	3781.500	199			

It is evident from the above table that the value of ( 't' .617,  $p < .539$  ) is not significant at 0.05 significance. So there is no significant difference between boys and girls of VIII standard students in self-esteem as learners scores after use of CAI. So the hypothesis (H2) is accepted.

**Table 3** 't' value for the CAI software package in experimental group on Self-Esteem

	t-test for Equality of Means			
	t	df	Sig. (2-tailed)	Mean Difference
Self-Esteem	.617	98	.539	.5400

No significance at 0.05

## Discussion

### Differences between experimental and control group in term of Self-Esteem

The self-esteem scores of students were significant difference in experimental group after treatment and it indicates that CAI software package has firmly effect on self-esteem of students to face by science subject and understanding it, although each of two groups has got increasing scores in self-esteem but self-esteem scores of students in experimental group after treatment have shown much more higher than self-esteem scores of students in control group which it may means that the same teacher in science subject has effect equally on students in two groups. But anyhow CAI has affected its effectiveness on self-esteem of students

### Differences between boys and girls in term of Self-Esteem in experimental group after treatment

The results have shown that there is no significant difference between girls and boys in term of self-esteem after treatment and it indicates that both have got higher scores in self-esteem which it means that the CAI software package in science subject has equally affected on boys and girls and the gender factor does not have its effectiveness on self-esteem of students.

## Conclusion

As it declared in this research study, Self-Esteem and its traits, has an important role in successfulness and dropping out of each student. Some traits of self-esteem such as belonging and acceptance is essential to persons mental health and Bandura (1993) identified that self-efficacy which is one of traits of self-esteem has effect on enhancing the motivation and performance of each person. Also the results which gained by applying the CAI in teaching science subject to the students shown that CAI teaching method has effect on Self-Esteem of students and all results in the above tables firmly confirmed that self-esteem of students has increased after treatment and when students (boys and girls) are in this kind of educational environment, they will enhance their self-esteem sense.



### References

- Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist*, 28, pp. 117-148.
- Coopersmith, s. (1967). *The Antecedents of Self-Esteem*, New York: W. H. Freeman. Reprinted by permission of W. H. Freeman and Company.
- Inderbitzen, H. M. and Clark, M. L. (1986). The Relationship between Adolescent Loneliness and Perceptions of Controllability and Stability. Paper presented at the Annual Meeting of the Southeastern Psychological Association, Orlando, Fl. April.
- Lefcourt, H. M. (1982). *Locus of control: Current trends in theory and research* (2<sup>nd</sup> ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Shindler, J. V. Creating a Psychology of Success in the Classroom: Enhancing Academic Achievement by Systematically Promoting Student Self-esteem [online]. Available from: <http://www.oswego.edu/shindler/self-es.htm> [Accessed 29 April 2000]