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Attitude of B.Ed Teacher Teachers towards the Importance of Educational Cognitive Science in Teaching

Bindhu.N.N[1], A.Jahitha Begum[2]

[1]Assistant Professor, SNDP Yogam Training College, Adimali, Idukki, Kerala, India **(**Research Scholar, Gandhigram Rural Institute-Deemed to be University, Gandhigram)

[2]Professor, Department of Education, Gandhigram Rural Institute- Deemed to be University, Gandhigram, Dindgul, Tamil Nadu, India

A B S T R A C T

The study was designed to determine the effect of Educational cognitive Science orientation among B.Ed teacher trainees by assessing their attitude towards the importance of Educational cognitive Science in teaching. Control and Experimental group post design was adopted for the study. A sample of 50 control and 50 experimental group participants were selected by simple random sampling. The experimental group was subjected to Educational Cognitive Science orientation for a period 7 weeks. No treatment was given to control group. Educational Cognitive Science Module and Educational Cognitive Science Attitude scale used as a tool for collecting data. Both descriptive and inferential statics used for data analysis. The emerged results were, there is significant difference between experimental group and control group in attitude towards Educational Cognitive Science with respect to Malayalam and Physical science subject. There is no significant difference between experimental group and control group in the attitude towards Educational Cognitive Science in other subjects such as English, Natural Science, Mathematics, and Social Science among the B.Ed teacher trainees.

Keywords: *Educational Cognitive Science(ECS)*

INTRODUCTION

Cognitive Science is a multidisciplinary field studies mind, cognition and its process. Cognition means knowing external world through perception, changing preferences, understanding and applying .Advances in cognitive researches contributed innovative teaching methods which may nurture every child 's intellectual and emotional potential (UNSCO, 2019). Brain plasticity, emotional regulation, attention, prediction, nutrition, quality of sleep, and error correction are the important elements of learning, Cognitive Science into Education signifies the need for having sound knowledge base about cognition, its theories and principles. Knowledge of cognitive science, gives a strong idea about brain, its organization, structure and function, and offers a clear understanding of complex phenomena such as -memory, attention, thinking, reasoning, learning and consciousness. In short, Cognitive science is about cognition. According to McNamara(2004), to understand the theories and principles of learning, memory, knowledge acquisition, language, comprehension ,communication and social interactions in real settings particularly in messy classrooms may help to realize thelimitations, problems of cognitive theories and the parameters of cognitive principles. Educational cognitive science is an application of cognitive theories, principles and testing theories in the classroom/real world settings (McNamara, 2006).

NEED AND SIGNIFICANCE OF THE STUDY

The modern teacher's role has been changed as per the demands of the changing environment. Our contemporary society demands the enhancement of quality in Teacher education. The quality of teacher depends on the teacher education programme she/he received, where the future teachers are molded and produced. This urges the need for enhancing the quality of teachers; B.Ed trainees to meet the dynamic challenges exist in this technology driven era. This can be remedied by applying or linking cognitive science to teacher education to certain extent. It provides opportunity for prospective teachers to acquire a sound knowledge base about cognition, its theories and principles, which has strong impact in real classroom settings. Here the researcher has intended to train prospective teachers, to better understand cognition, its theories and principles by developing a syllabus that incorporates brain, mind and behavior which can act as the most important base to understand the way the individuals vary in their processing of information. Teachers must be aware of all these variations. Thus, the prospective teacher's attitude towards the importance of Educational cognitive Science has been studied. Cognitive science studies develop

a deeper understanding of how individuals learn, interpret and process information and eventually develop mastery (Weidman, J & Baker, K., 2015). This kind of knowledge will prepare teachers to understand, accept one's own behaviours and others. Only such teachers can relate theoretical insight to practice and improve teaching skills and teacher preparation (B.Ed. course) programme.

LITERATURE REVIEW

Anderson (2009) emphasizes that the cognitive and neural sciences offer a new opportunity for teacher educators to prepare prospective teachers to create effective human learning in their classrooms. Teachers who possess knowledge about neurocognition; can succeed in their profession and handle students' individual needs (Papadatou-Pastou et al., 2017). To become an effective teacher, it is important to have the awareness about the functions of the brain (Sasikumar et al., 2016). Teachers' awareness about the nervous system of the brain helps them to comprehend their students' behavior, learning preferences, perceptions. This knowledge grounds enable teachers to adopt brain compatible teaching strategies. Cognitive functions are brain-based skills related with the mechanisms of how we perceive remember, pay attention, think and solve problems etc (Jiawei Zhang (2019).Lyons, & Languis, 2001 :Sasikumar, Fathima & Mohan (2016).Ramganesh.E & Hariharan.C,(2020**)** emphasized more researches needed in this area, to find out the effect of Educational cognitive science program on the performance of student teachers. .Based on the above reviews, the present study intended to find out the effect of Educational cognitive science orientation and the attitude towards ECS among the B.Ed teacher trainees.

OBJECTIVES OF THE STUDY

1. To find out the attitude of B.Ed teacher trainees towards the importance of Educational cognitive Science in teaching
2. To find out the attitude of B.Ed teacher trainees towards the importance of Educational cognitive Science in teaching with respect to subjects English,Malayalam,Mathematics,NaturalSciesical Science and Social Science.

HYPOTHESES OF THE STUDY

1. There is no significant difference between experimental group and control group in the attitude towards the importance of educational cognitive science in teaching among B.Ed teacher trainees.
2. There is no significant difference between experimental group and control group in the attitude towards the importance of educational cognitive science in teaching among B.Ed teacher trainees with respect to subjects English,Malayalam,Mathematics,NaturalSciesical Science and Social Science.

METHODS

Experimental method with control and Experimental group posttest design adopted. The experimental group chosen for the present study consists of 50 B. Ed teacher trainees (n=50) enrolled in the first year from SNDP Yogam Training College, Adimali, Idukki district. The control group consists of 50 B. Ed teacher trainees (n=50) enrolled in the first year from (SreeNarayana College of Teacher Education, Muvattupua. They were assigned by using simple random sampling technique. The Experimental and Control groups were equivalent with respect to their educational qualification, gender, age, management and time of presence in colleges.The experimental group was subjected to Educational Cognitive Science orientation for a period 7 weeks. No treatment was given to control group. Educational Cognitive Science Module and Educational Cognitive Science Attitude scale used as a tool for collecting data.

TOOLS USED

The following tools were used for the study

- Educational Cognitive Science Module(ECS)
- Educational Cognitive Science Attitude Scale (ECSAS)

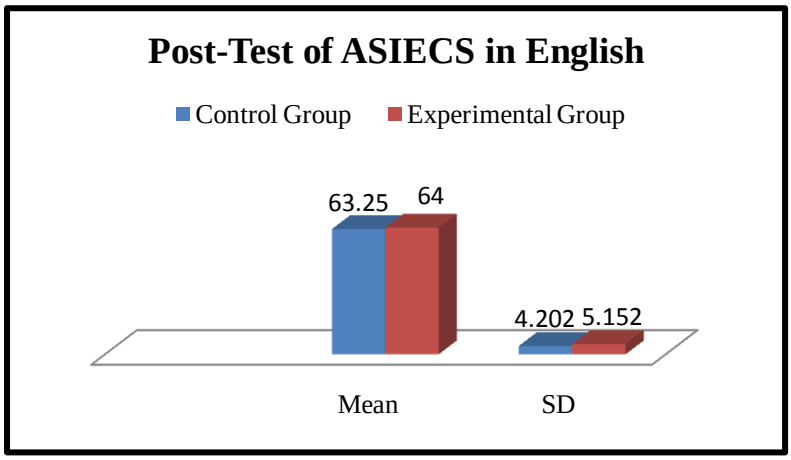
After orientation, administered ECSAS for both experimental and control group. The ECS Attitude Scale (ECSAS) was used to rate the students in Post-test to ascertain that whether the ECS orientation, influence the participants attitude towards the importance of ECS. It is a three-point scale with three options which are agree, to certain extent , disagree and the scale consists of 25 statements.

DISCUSSION

Table 1 Independent Sample 't' test for significant difference between Control and Experimental Group in the Attitude Towards the Importance of Educational Cognitive Science (ASIECS) in the Post-Test among B.Ed Teacher Trainees of English subject

Participants	**Post-Test of ASIECS in English**			**'t' value**	**'p' value**
	Sample (N)	**Mean**	**SD**		
Control Group	50 (12)	63.25	4.202	.502	.625
Experimental Group	50 (13)	64.00	5.152		

Results of Independent Sample‘t’ test results indicate that there is no significant difference between the Control (*M* = 63.25, *SD* = 4.202) and Experimental Group (*M* = 64.00,*SD*=5.152),*t*(0.502), *p*=0.625 in attitude towards Educational Cognitive Science. Hence, the null hypothesis is accepted.

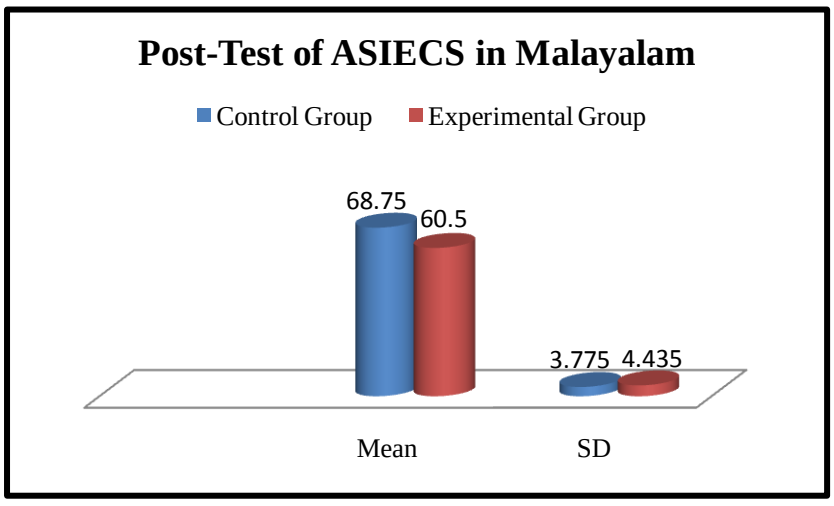


Findings: There is no significant difference between experimental group and control group in the attitude towards the importance of educational cognitive science with respect to English.

Table 2 Independent Sample ‘t’ test for significant difference between Control and Experimental Group in Attitude Towards the Importance of Educational Cognitive Science (ASIECS) in the Post-Test among B.Ed Teacher Trainees of Malayalam subject

Participants	**Post-Test of ASIECS in Malayalam**			**‘t’ value**	**‘p’ value**
	Sample (N)	**Mean**	**SD**		
Control Group	50 (7)	68.75	3.775	13.1	.001
Experimental Group	50 (4)	60.50	4.435		

Results of Independent Sample ‘t’ test results indicate that there is no significant difference between the Control (*M* = 68.75, *SD* = 3.775) and Experimental Group (*M* = 60.50,*SD*=4.435),*t*(13.1), *p*=0.001in their attitude towards Educational Cognitive Science.Hence, the null hypothesis is rejected.

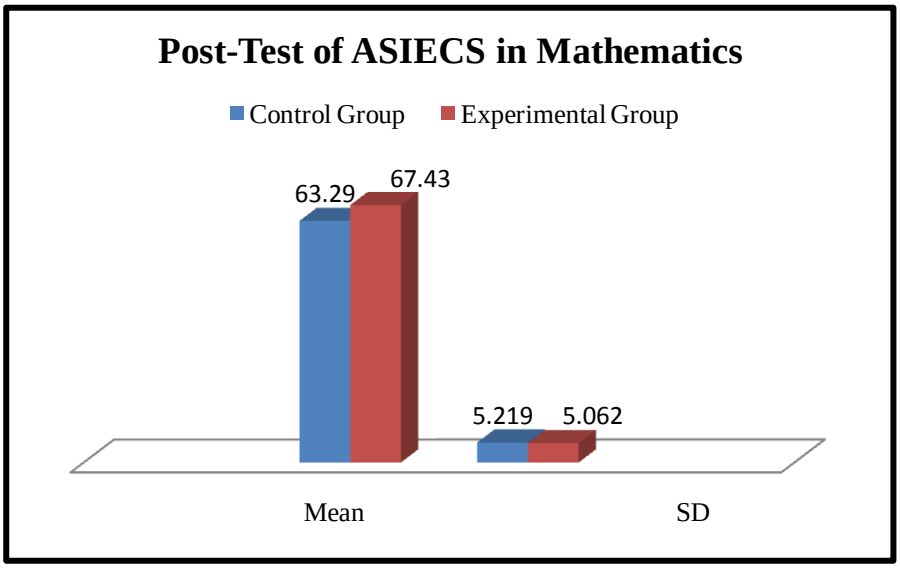


Findings: There is significant difference between experimental group and control group in the attitude towards Educational Cognitive Science with respect to Malayalam subject.

Table 3 Independent Sample 't' test for significant difference between Control and Experimental Group in Attitude Towards the Importance of Educational Cognitive Science (ASIECS) in the Post-Test among B.Ed Teacher Trainees of Mathematics subject

Participants	Post-Test of ASIECS in Mathematics			't' value	'p' value
	Sample (N)	Mean	SD		
Control Group	50 (7)	63.29	5.219	1.41	.207
Experimental Group	50 (10)	67.43	5.062		

Results of Independent Sample 't' test results indicate that there is no significant difference between the Control (M = 63.29, SD = 5.219) and Experimental Group (M = 67.43,SD=5.062),t(1.41), p=0.207in their attitude towards Educational Cognitive Science.
Hence the null hypothesis is accepted.

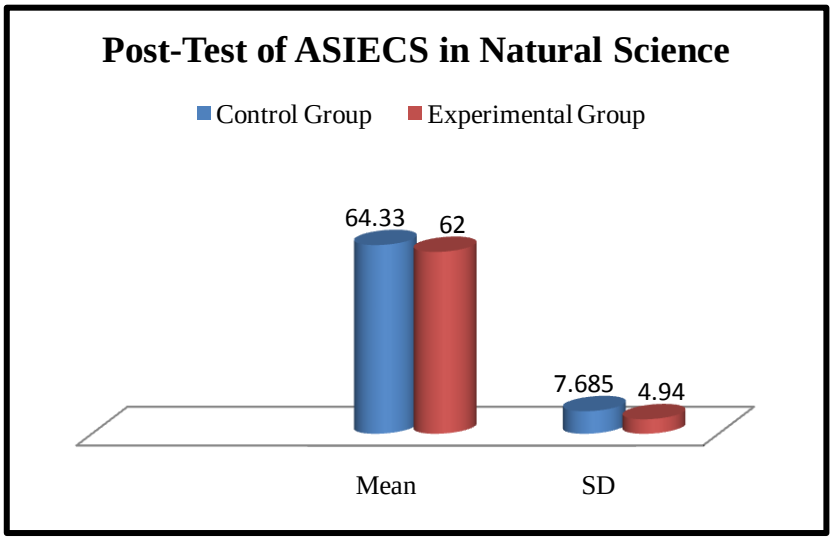


Findings: There is no significant difference between experimental group and control group in the attitude towards Educational Cognitive Science with respect to Mathematics subject.

Table 4 Independent Sample 't' test for significant difference between Control and Experimental Group in Attitude Towards the Importance of Educational Cognitive Science (ASIECS) in the Post-Test among B.Ed Teacher Trainees of Natural Science subject

Participants	Post-Test of ASIECS in Natural Science			't' value	'p' value
	Sample (N)	Mean	SD		
Control Group	50 (8)	64.33	7.685	.994	.366
Experimental Group	50 (6)	62.00	4.940		

Results of Independent Sample 't' test results indicate that there is no significant difference between the Control (M = 64.33, SD = 7.685) and Experimental Group (M = 62.00,SD=4.940),t(0.994), p=0.366 in the attitude towards Educational Cognitive Science. Hence, the null hypothesis is accepted.

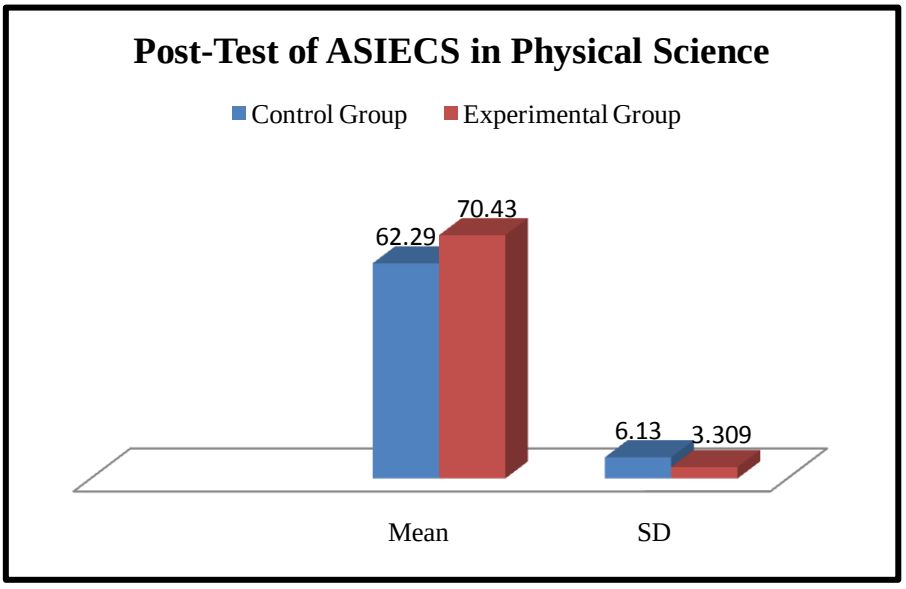


Findings: There is no significant difference between experimental group and control group in their attitude towards Cognitive Science with respect to Natural Science subject.

Table 5 Independent Sample 't' test for significant difference between Control and Experimental Group in Attitude Towards the Importance of Educational Cognitive Science (ASIECS)) in the Post-Test among B.Ed Teacher Trainees of Physical Science subject

Participants	**Post-Test of ASIECS in Physical Science**			**'t' value**	**'p' value**
	Sample (N)	**Mean**	**SD**		
Control Group	50 (7)	62.29	6.130	3.67	.010
Experimental Group	50 (15)	70.43	3.309		

Results of Independent Sample 't' test results indicate that there is no significant difference between the Control (M = 62.29, SD = 6.130) and Experimental Group (M = 70.43,SD=3.309),t(3.67), p=0.010in the attitude towards Educational Cognitive Science. Hence, the null hypothesis is rejected

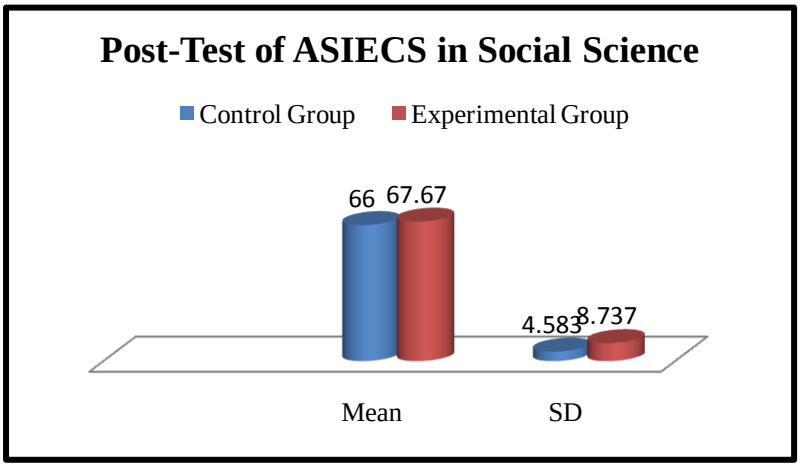


Findings: There is significant difference between experimental group and control group in their attitude towards Educational Cognitive Science with respect to Physical Science subject.

Table 6 Independent Sample 't' test for significant difference between Control and Experimental Group in Attitude Towards the Importance of Educational Cognitive Science (ASIECS) in the Post-Test among in the Post-Test among B.Ed Teacher Trainees of Social Science subject

Participants	Post-Test of ASIECS in Social Science			't' value	'p' value
	Sample (N)	Mean	SD		
Control Group	50 (8)	66.00	4.583	.508	.662
Experimental Group	50 (3)	67.67	8.737		

Results of Independent Sample't' test results indicate that there is no significant difference between the Control (M = 66.00, SD = 4.583) and Experimental Group (M = 67.67, SD=8.737),t(0.508), p=0.662 in attitude towards constructive pedagogy. Hence, the null hypothesis is accepted.



Findings: There is no significant difference between experimental group and control group in their attitude towards Educational Cognitive Science with respect to Social Science subject.

RESULT

Attitudes play a central role in connecting our daily thoughts, emotions, and behavioral processes, which built on earlier experience and help people to make sense of their environment. Both the experimental group do not differ in their attitude towards Educational Cognitive Science and also with respect to subjects such as English, Mathematics, Natural Science and Social Science.. But the B.Ed teacher trainees from Malayalam and Physical science students differ in their attitude towards Educational cognitive Science.(ECS). This shows a positive relation between ECS and Attitude of B.Ed teacher trainees.

CONCLUSION

The findings of this study have shown that Educational Cognitive Science orientation is found effective in providing the knowledge on basic concepts of ECS and it has significant influence on the attitude B.Ed teacher trainees .

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REFERENCES

[1] Talkhabi M. (2012) Foundations of cognitive education: Issues and opportunities.Procedia - Social and Behavioral Sciences 32 (2012) 385 – 390.

[2] Weidman J, Baker K.(2015) The Cognitive Science of Learning: Concepts and Strategies for the Educator and Learner.Anesth

Analg.121(6):1586-99. doi: 10.1213/ANE.0000000000000890.

[3] McNamara, D. S. (2006). Bringing cognitive science into education, and back again: The value of interdisciplinary research. *Cognitive Science, 30*(4), 605-608.

[4] Lyons, C. A., &Languis, M. L. (2001). Cognitive science and teacher education. Theory into Practice, XXIV (2), 127-142.

[5] Richland, L. E., Bjork, R. A., Finley, J. R., & Linn, M. C. (2005). Linking cognitive science to education : Generation and interleaving effects. In B. G. Bara, L. Barsalou, & M. Bucciarelli (Eds.), *Proceedings of the twenty-seventh annual conference of the Cognitive Science Society* .p. 1850-1855.

[6] McNamara, D. S. (2006). Bringing cognitive science into education, and back again: The value of interdisciplinary research. *Cognitive Science, 30*(4), 605-608.

[7] McBride, H.E.A., & Pomeroy, M. (2009).From theory to practice: Introducing neuroscience in to a teacher education programme.

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