EFFECT OF SITUATED LEARNING MODEL ON CRITICAL PROBLEM SOLVING SKILLS AMONG HIGHER SECONDARY PUPILS

By

DOROTHY D' SOUZA A. C. * CLARE A. C. **

* Research Scholar, St. Ann's College of Education (Autonomous), Mangalore, Karnataka, India.
** Principal, St. Ann's College of Education (Autonomous), Mangalore, Karnataka, India.

Date Received: 22/04/2018 Date Revised: 16/07/2018 Date Accepted: 12/10/2018

ABSTRACT

Situated Learning takes place in the social and physical context within which it will be used. In this model, the pupil is "situated" in the learning experience and knowledge acquisition becomes a part of their learning activity. From their experiences pupils "construct" their own knowledge in various learning situations. The success of situated learning experiences depends upon social interaction and kinesthetic activity. Critical Problem Solving Skill is an intellectual process wherein one skillfully conceptualizes, applies, analyses, synthesises, and evaluates knowledge that was constructed through observation, experience, reflection, reasoning, and communication in order to solve a problem. The present study revealed that Situated Learning Model is significantly more effective than Conventional Method with respect to levels of Intelligence of Secondary School pupils and levels of Intelligence have significant effect in enhancing Critical Problem Solving Skills among pupils of Higher Secondary School.

Keywords: Situated Learning Model, Critical Problem Solving Skills, Achievement, Intellectual Levels.

INTRODUCTION

Situated Learning is a learning theory that emphasizes and promotes real and authentic learning. In a situated learning environment, learning of skills and knowledge occur in contexts that reflect how that knowledge is gained and applied in everyday situations. What is learnt cannot be separated from the context in which it is learnt or applied; rather it becomes an integral part of what is learnt. Situations are said to co-produce knowledge through collaboration and activity because learning and cognition are fundamentally situated. They are like two faces of the same coin.

Exponents of Situated Learning claim that human actions are dependent on the context in which they occur. This has been evident in the theoretical origins of Gibson's theory of affordances and Vygotsky's socio-cultural and social learning theories. Gibson proposes that the environment in which one interacts consists of various affordances, which in turn provide cues that are necessary for perception and becomes a direct consequence of the properties of the environment. Vygotsky further suggests that social interaction plays a major role in the development of cognition. He states that 'every function in the child's cultural development appears twice: first, on the social level, and later on the individual level; first between people (inter-psychological) and then inside the child (intra-psychological)' (Moll, 2014; Vincini, 2003). Furthermore, Vygotsky's sociocultural theory contends that an individual's cognitive development cannot be understood without referring to the social environment in which the individual is situated.

Situated Learning emphasizes the importance of learning in real-life contexts, whereby knowledge is constructed by embedding the subject matter in the experiences of the learner and by creating the opportunity for the learner to interact in real life situations (McLellan, 1996). Thus the knowledge constructed or formed engages the learner in solving authentic, complex, non-routine problems, which

they would likely to encounter. Classroom learning is very different from a real or natural learning environment. Natural learning environment provides a real context, authentic tasks, and the ability for students and teachers to share a common frame of reference. The knowledge that is being constructed is often viewed as a tool to accomplish the tasks and the learner sees it as a valuable knowledge that can be applied to new situations.

1. Critical Problem Solving Skills

Krulik and Rudnick (1987) define "Problem Solving as the means by which an individual use previously acquired knowledge, skills, and understanding to satisfy the demands of an unfamiliar situation (Carson, 2007). The student must synthesize what he or she has learnt, and apply it to new and different situation". Critical Problem Solving Skill is an intellectual process wherein one skillfully conceptualizes, applies, analyses, synthesises, and evaluates knowledge that was constructed through observation, experience, reflection, reasoning, and communication in order to solve a problem. Angelo (1995) defines Critical Problem Solving Skill as the intentional application of rational, higher order thinking skills, such as analysis, synthesis, problem recognition and problem solving, inference, and evaluation".

In the present study, Critical Problem Solving Skills in a classroom situation has been presented. Following are the steps of Critical Problem Solving Skills.

1.1 Step 1: Problem Identification

The first task is to determine if a problem exists and then one needs to identify exactly what it is. One requires weighing the pros and cons of a problem and then clearly defining and stating it. This is an indication of highly developed intelligence. In this step, the individual masters the skill of problem recognition.

1.2 Step 2: Analysis of the Problem

In this stage, one looks at the problem from a variety of perspectives and in different angles. Is it solvable? Is it real or perceived? Here exploration, gathering information, and analysis of the problem occupies important place.

1.3 Step 3: Structuring Arguments

Clarification of arguments is done in this stage. One locates ambiguity and vagueness in arguments and propositions. Structures systematically the arguments which have been gathered from various sources. It also involves gaining a deeper understanding of the problem. In this process, the critical thinker infers, hypothises, predicts, and tests hypotheses.

1.4 Step 4: Decision Making

The fourth step consists of deriving possible solutions. Critical thinkers weigh the evidence and arguments that they have gathered. Supporting data, logic, and evidence increase the weight of an argument. Data is carefully analysed and different possible solutions are tried and then the best one is chosen for implementation. This is the most complex part of the problem solving process since one need to look at each potential solution and carefully analyse it. The critical thinker masters at this step the skill of evaluation, synthesizing, and problem solving.

2. Review of Related Literature

While reviewing the related literature, the researcher found certain studies which revealed the importance of Situated Learning Model in the field of education. They are as follows, Clair Taylor has provided a qualitative case study to understood how realistic this Situated Learning Model and concepts of communities of practice and legitimate peripheral participation are in relation to learning on a work-based Foundation Degree (Taylor, 2014). Hossainy, Zare, Hormozi, Shaghaghi, and Kareh (2012) proposed a study that showed situated learning increased academic achievement and motivation in comparison to lecture-based learning and served as a good method in instructional programmes. Robert Zheng's (2010) study focused on the effects of situated learning on students' knowledge acquisition by investigating the influence of individual differences in learning (Zheng, 2010). The study revealed the differences between traditional and situated learning; identified the interaction between individual differences and instructional condition that influenced learners' learning outcome and showed crucial relationships among the variables in Situated Learning Model (Harrigton & Oliver, 2000).

Wismath, Orr, and Good (2014) explicitly conducted research with the objective of developing students'

problem-solving, critical-thinking, and metacognitive skills. They argued that the metacognitive reflection demonstrated by students in this course is valid evidence of their learning of essential problem-solving and critical-thinking skills. Synder and Synder (2008) in their article discussed that, actively engaging students in project-based or collaborative activities can encourage students' critical thinking development if instructors model the thinking process, use effective questioning techniques and guide students critical thinking processes.

Adamcik Hurley, and Erramoospe (1996) have made a study on Students' Critical Thinking and Problem Solving Abilities'. Findings revealed similarities among students in temperament, learning styles, information – processing modes, problem solving strategies, and critical thinking strengths. Brod (2011) studied the effects of thinking skills training on high school students accounting problem solving ability. They concluded that multiple motivations increased opportunities for students to acquire problem solving skills.

From the above mentioned studies, it is clear that Metacognitive reflection demonstrated by students in this course is a valid evidence of their learning of essential problem-solving and critical-thinking skills (Wismath et al., 2014) and actively engaging students in project-based or collaborative activities can encourage students' critical thinking development (Synder & Synder, 2008).

3. Need and Significance of the Study

Situated learning is concerned with how learning occurs every day. It is not a recommendation that teaching be "situated" or "relevant". It is a theory about the nature of human knowledge, claiming that knowledge is dynamically constructed as we conceive of what is happening to us, talk, and move (Clancey, 1995; Lave, 2013). In the situated learning approach, knowledge and skills that are applied in the contexts reflect how knowledge is constructed and applied in everyday situations. This theory conceives learning as a sociocultural phenomenon rather than the action of individual gathering information from a decontextualized body of knowledge (Krishner & Whitson, 1997). Co-operative and participative teaching methods are used as the means of acquiring knowledge. Knowledge is created through the interactions of the learner with others and the environment. Subject matter thus emerges through the collaborative actions between the environment and the learning community.

Situated Learning accentuates higher-order critical thinking processes rather than mere acquisition of facts. Knowledge thus constructed through learner's daily experiences becomes the means to engage in reflective thinking (Isatesen, 2017). Application rather than retention becomes the mark of a successful instructional encounter. Thus learning becomes a process of reflecting, interpreting, and negotiating meaning among the learners.

Keeping in mind the advantages of this method, the researcher designed an instructional package, in which learners were engaged in discussion, simulated group activities, and articulation-reflection, verbalizing knowledge gained, and comparing problem-solving approaches with that of experts. Moreover, the investigator wanted to find out how Situated Learning Model promotes and enhances Critical Problem Solving Skills and hence this research.

4. Statement of Problem

A study on the effect of Situated Learning Model, levels of intelligence and their interaction on developing Critical Problem Solving Skills among pupils of Higher Secondary Schools by taking Pre-Achievement as Covariate among pupils of higher secondary schools of Dakshina Kannada.

5. Operational Definition

Situated Learning Model is an instructional approach where pupils are more inclined to learn by actively participating in the learning experience. It is essentially a matter of creating meaning from one's learning experiences of daily living in a real life contexts. In the present study, it is an instructional package designed by the investigator, in which learners were engaged in group discussion, simulated group activities, and articulation, reflection, verbalizing knowledge gained that is constructed and comparing problem-solving approaches with that of experts.

Critical Problem Solving Skill is an intellectual process wherein one skillfully conceptualizes, applies, analyses, synthesises, and evaluates knowledge that was

constructed through observation, experience, reflection, reasoning, and communication in order to solve a problem. In the present study, Critical Problem Solving Skill means the intentional application of rational, higher order thinking skills, such as problem recognition analysis, synthesis, and decision making in a classroom situation.

6. Objective

To study the effect of Situated Learning Model, levels of Intelligence and their interaction on developing Critical Problem Solving Skills among pupils of Higher Secondary Schools by taking Pre- Achievement as Covariate.

7. Hypothesis

H_0: There is no significant difference in the effect of Situated Learning Model on critical problem solving skills pre-achievement as covariate.

H_1: There is no significant difference in the effect of levels of Intelligence on critical problem solving skills.

H_2: There is no significant difference in the interaction effect of Situated Learning Model, levels of Intelligence on critical problem solving skills with pre-achievement as covariate.

8. Methodology

The present study is an experimental study undertaken to study the effect of Situated Learning Model, levels of intelligence, and their interaction on achievement in Political Science among pupils of Higher Secondary School. Population consisted of all the students of higher secondary school of Mangaluru taluk. The sample of the study included 64 students from higher secondary school. The random sampling method was employed to select the sample. An instructional package was designed by the investigator to test the effect of Situated Learning Model on achievement in Political Science. The data was analysed by applying descriptive statistics like mean and Standard Deviation and Inferential statistics ANCOVA and 'F' ratio were used and the level of significance was fixed at 0.05.

9. Tools used in the Study

The data related to variables of the study was collected by administering following tools.

- A test on critical problem solving skill constructed by the investigator.
- A test on achievement in Political Science constructed by the investigator on the topics selected for experimental study from the Political Science textbook of class XI of Karnataka State syllabus.
- Intelligence test – Raven's Progressive Matrices' constructed and standardized by J. C. Raven.
- Instructional Material in Political Science by the researcher based on Situated Learning Model, on selected units from class XI Political Science textbook of Karnataka State for the experimental study.

Description of tools constructed by the investigator and the standardized tools are given in the following section.

9.1 A Test on Critical Problem Solving Skill

In order to measure the critical problem solving skill, the researcher constructed a test which involved eight problems. Since the investigator identified four components of Critical Problem Solving Skill, two problems each for each component were given. Problem or Puzzling incidents were selected from areas, such as women's issues, environmental issues, economic, political, and issues related to climate change. A brief description about these above mentioned areas were given and three questions each were given in the form of multiple choice types, total score was 24. It was validated by the experts, item analysis was done and the tool was finalized.

9.2 Achievement Test

The effectiveness of Situated Learning Model was measured by administering achievement test in Political Science. The test was a multiple choice type, consisting of 60 items from the Political Science textbook of class IX of Karnataka State Board. Item analysis was carried out to eliminate the inconsistency in test items and the Split- Half Method was employed to find out the reliability.

9.3 Instructional Package on Situated Learning Model

The investigator developed an instructional package based on the theory of Situated Learning Model and the other in Conventional Method. For this, the researcher selected the content from Political Science textbook of class IX of Higher Secondary School of Karnataka State Board.

10. Analysis and Interpretation of the Data

The objective was to study the effect of Situated Learning

Model, levels of Intelligence, and their interaction on developing Critical Problem Solving Skills with Pre-Achievement as Covariate among pupils of Higher Secondary School by taking Pre-Achievement as Covariate. To test this objective, the three null hypothesis were formed.

10.1 Analysis of Co-Variance of Scores on Situated Learning Model

The two factors in the analysis of data were: Factor A: Instructional Methods and two levels were Situated Learning Model and Conventional Method; Factor B: Three levels of Intelligence – above average, average, and below average. The scores obtained by the Above Average, Average, and Below Average pupils is based on Intelligence test from Experimental and Control groups on Critical Problem Solving Skills were subjected to analysis of ANCOVA. The two factors in the analysis of this objective are Instructional Methods, levels of intelligence, and their main and interaction effects were found out and given in Table 1.

10.2 Main Effect of Situated Learning Model on Critical Problem Solving Skills

From Table 1, 'F' ratio 2.9 ($P<0.05$) for different Instructional Methods are significantly greater than the theoretical value 4.01 for Degrees of Freedom 1, 57 at 0.05 level of significance. Hence the null hypothesis "There is no significant effect of Situated Learning Model on Critical Problem Solving Skills among pupils of Higher Secondary School by taking Pre- Achievement as Covariate" is rejected and the alternate hypothesis "There is significant effect of Situated Learning Model on Critical Problem Solving Skills among pupils of Higher Secondary School by taking Pre- Achievement as Covariate" is accepted.

In order to determine the effectiveness of Instructional methods on Critical Problem Solving Skills, the adjusted mean and Standard Deviation were computed. The details of the same are given in Table 2.

10.3 Main Effect of Levels of Intelligence on Critical Problem Solving Skills

From Table 1, 'F' ratio 7.36 ($P<0.05$) for levels of intelligence is significantly higher than the theoretical value 3.16 for Degrees of freedom 2, 57 at 0.05 level of significance. Hence the null hypothesis "There is no significant effect of levels of Intelligence on Critical Problem Solving Skills among pupils of Higher Secondary School by taking Pre-Achievement as Covariate" is rejected and the alternate hypothesis "There is significant effect of situated learning model on critical problem solving skills among pupils of Higher Secondary School by taking Pre-achievement as Covariate" is accepted.

In order to determine the effect of levels of intelligence on critical problem solving skills, the adjusted Mean and Standard Deviation were computed. The details are presented in Table 3.

From Table 3, it is observed that,

- The adjusted means of the scores on above average level of intelligence is significantly higher than the pupils of average intelligence.
- The adjusted means of the scores on critical problem solving skills of pupils of average intelligence level is significantly higher than the pupils of below average intelligence level.
- The adjusted means of the scores on levels of intelligence of above average intelligence level is significantly higher than the pupils of below average intelligence level.

From the above findings, it can be concluded that the intelligence level has significant effect on Situated Learning Model among pupils of Higher Secondary schools.

Sources of Variation	df	SS	MS	'F' Ratio	'P' Value	Results
Instructional Methods 'A'	1	33.21	33.21	2.9	0.094	Significant at 0.05 level
Levels of Intelligence 'B'	2	168.28	84.14	7.36	0.0014	Significant at 0.05 level
AXB	2	21.84	10.92	0.95	0.3928	Not significant at 0.05 level
Error	57	652.04	11.44			

Table 1. Summary of 2x3 Factorial Design ANCOVA on the Effect of Instructional Methods, Levels of Intelligence, and their Interaction on Achievement in Political Science

Instructional Methods	Mean	Adjusted Mean	SD
Situated Learning Model	9.375	9.3643	3.06
Conventional Method	7.9063	7.9169	2.81

Table 2. Adjusted Mean Scores of Instructional Methods with respect to Critical Problem Solving Skills

Levels of Intelligence	Means	Adjusted Means
Above Average	10.8992	3.30
Average	7.9787	2.82
Below Average	5.8805	2.42

Table 3. Adjusted Mean Scores of Critical Problem Solving Skills with respect to Levels of Intelligence

10.4 Interaction Effect of Instructional Methods and Intelligence Levels on Critical Problem Solving Skills

From Table 1, 'F' ratio 0.95 ($p>0.05$) for interaction of Instructional Methods and Level of Intelligence on Critical Problem Solving Skills is significantly lower than the theoretical value 3.16 for Degrees of Freedom 2, 57 at 0.05 level of significance. Therefore, the null hypothesis "There is no significant interaction effect of situated learning model and levels of Intelligence on critical problem solving skills with Pre-Achievement as Co-variate" is accepted.

Since the 'F' ratio for interaction between Instructional methods and Levels of Intelligence is not statistically significant, it is suggested not to go for further analysis of data. Hence, it can be concluded that when the Instructional Methods and Levels of Intelligence were combined there was no inconsistency in enhancing critical problem solving skills.

10.5 Graphical Representation of Interaction Effect on Levels of Intelligence with respect to Critical Problem Solving Skills

To visualize the interaction effect of Instructional Methods and Levels of Intelligence, a graphical representation of mean scores of above average, average, and below average students with respect to Critical Problem Solving Skills are given in Table 4.

Table 4 indicates the difference of 22.196 effect size of Situated Learning Model which is higher than the conventional method from the total mean score. Hence there is significant mean difference between Situated Learning Model and Conventional Method.

From Figure 1 and Table 4, it is observed that,

- There is no interaction effect of Instructional Methods and Levels of Intelligence in enhancing critical problem solving skills among pupils of Higher Secondary School.
- Situated Learning Model is more effective than Conventional Methods in case of above average and average level of Intelligence.
- Situated Learning Model is more effective on above average intelligent pupils.

From the above findings it can be concluded that Situated Learning has significant effect in enhancing critical problem solving skills among pupils of Higher Secondary School.

11. Major Findings

- The two Instructional Methods – Situated Learning Model and Conventional Method differed in their effects on critical problem solving skills among pupils of Higher Secondary School.
- Situated Learning Model is significantly more effective

Levels of Achievement/ Instructional Methods	Mean Scores		
	Above Average	Average	Below Average
Situated Learning Model	33.8954	29.8521	11.976
Conventional Method	22.196	21.5471	14.7016
Total	56.0914	51.3992	26.6776

Table 4. Mean Scores of Levels of Intelligence

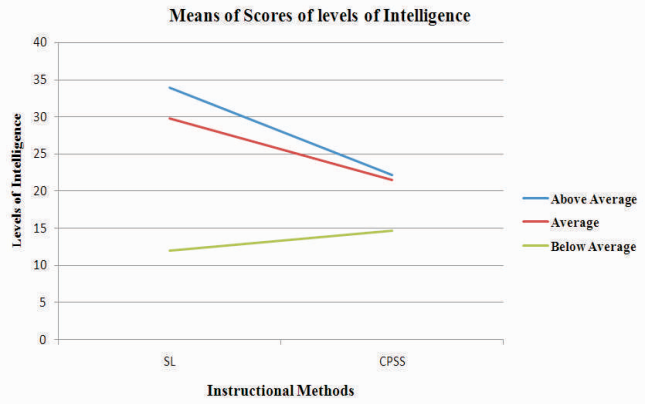

Figure 1. Interaction of Instructional Methods and Levels of Intelligence on Critical Problem Solving Skills of Pupils of Higher Secondary School

than Conventional Method with respect to levels of Intelligence of Secondary School pupils after partially out rule the effect of Pre-achievement.

- Levels of Intelligence have significant effect in enhancing critical problem solving skills among pupils of Higher Secondary School.
- Interaction effect of Instructional Methods and levels of Intelligence has no significant effect on critical problem solving skills among pupils of Higher Secondary School.

12. Educational Implications

- Teachers should be encouraged to design instruction in a way that can help transfer of learning in various situations for pupils with various levels of intelligence.
- Teachers should try to contextualize the learning of knowledge and skills by replicating the environment in which it is to be applied.
- In this era of information explosion and other rapid technological changes, pupils need to be trained to find and effectively apply critical problem solving skills to the complex academic problems.
- Pupils should be taught through Co-operative Learning Strategies, putting students in group learning situations is the best way to foster critical problem solving skills.
- Teaching strategies, such as case study, discussion method, reciprocal peer questioning, dialogues both spontaneous, and group dialogue needs to be fostered to help pupils to promote critical problem solving skills.

13. Future Scope of the Study

The study could be extended to other subjects of Secondary School and a larger sample could be chosen for better results and generalisation.

Conclusion

Situated Learning theory has the descriptive and prescriptive power in the classroom situation. Its flexible and inclusive nature allows one to integrate useful principles of sociocultural learning and cognitivism, since it accounts for the interactions pertinent to learning. It makes the important specification that information becomes knowledge only in context. When such platforms are presented for the learner it in a way enhances their critical problem solving skills. These are essential for a well-rounded productive thinker. Critical thinkers tend to benefit more as situated Learning model provides scope for generating possible solutions in order to find the best one. Hence, these skills need to be fostered among students in schools.

References

[1]. Adamcik, B., Hurley, S., & Erramouspe, J. (1996). Assessment of pharmacy students' critical-thinking and problem-solving abilities. *American Journal of Pharmaceutical Education,* 60(3), 256-264.

[2]. Angelo, T. A. (1995). *Walker Centre for Teaching and Learning.* Retrieved from https://www.utc.edu/walker-center-teaching-learning/teaching-resources/ct-ps.php

[3]. Brad, A. (2011). A study of the problem solving activity in high school students: Strategies and self-regulated learning. *Acta Didactica Napocensia,* 4(1), 21-30.

[4]. Carson, J. (2007). A problem with problem solving: Teaching thinking without teaching knowledge. *The Mathematics Educator,* 17(2). 7-14. Retrieved from https://files.eric.ed.gov/fulltext/EJ841561.pdf

[5]. Clancey, W. J. (1995). A tutorial on situated learning. *Proceedings of the International Conference on Computers and Education* (pp. 49-70), Self, J. (Ed.) Charlottesville, VA: AACE. Retrieved from http://cogprints.org/323/1/139.htm

[6]. Harrigton, J., & Oliver, R. (2000). *Critical Characteristics of Situated Learning: Implications for the Instructional Design of Multimedia.* Retrieved from http://www.ascilite.org/conferences/melbourne95/smtu/papers/herrington.pdf

[7]. Hossainy, F. N., Zare, H., Hormozi, M., Shaghaghi, F., & Kaveh, M. H. (2012). Designing and implementing a situated learning program and determining its impact on the students' motivation and learning. *Turkish Online Journal of Distance Education,* 13(2), 36-47.

[8]. Isakesen, G. S. (2017). The Creative Problem Solving. *The Thinking Mind.*

[9]. Kirschner, D., & Whitson, J. A. (1997). *Situated Cognition: Social, Semiotic, and Psychological Perspectives.* Lawrence Erlbaum Associates.

[10]. Krulik, S., & Rudnick, J. A. (1987). *Problem solving: A Handbook for Teachers.* Allyn and Bacon, Inc., Retrieved from https://www.researchgate.net/publication/234664516_Problem_Solving_A_Handbook_for_Teachers_Second_Edition

[11]. Lave, J. (2013). *Situated Learning.* Retrieved from http://www.instructionaldesign.org/theories/situated-learning.html

[12]. McLellan, H. (1996). Situated Learning - Multiple Perspectives. *Educational Technology.*

[13]. Moll, L. C. (2014). *Learning Theories.* Retrieved from https://www.learning-theories.com/vygotskys-social-learning-theory.html

[14]. Snyder, L. G., & Snyder, M. J. (2008). Teaching critical thinking and problem solving skills. *The Journal of Research in Business Education,* 50(2), 90-99.

[15]. Taylor, C. (2014). Situated learning in practice: Teaching assistants engaged with a work-based foundation degree in England. *Journal of Vocational Education & Training,* 66(4), 506-517.

[16]. Vincini, P. (2003). Inovations in Learning. *Academic Technology at Tufts.* Retrieved from http://sites.tufts.edu/ets/files/2012/12/newsletter_feb_20031.pdf

[17]. Wismath, S., Orr, D., & Good, B. (2014). Metacognition: Student reflections on problem solving. *Journal on Excellence in College Teaching,* 25(2), 69-90.

ABOUT THE AUTHORS

Sr. Dorothy D' Souza A. C. is currently pursuing her doctoral studies under the guidance of Dr. Sr. Clare A.C., Principal at St. Ann's College of Education (Autonomous), Mangalore, Karnataka, India. She is currently working as a Lecturer at St. Ann's College of Education (Autonomous), Mangaluru, Karnataka, India. She holds Master's Degree in Education and History and Archeology. She has published several research papers in National and International Journals of repute.

Dr. Sr. Clare A. C. is currently the Principal and Research Guide at St. Ann's College of Education (Autonomous), Mangalore, Karnataka, India. She has 28 years of professional experience. She is specialised in teaching the Undergraduate (B.Ed) and Postgraduate (M.Ed) Courses. She has authored a book on 'Integrated Approach to Value Education Classroom strategies' in 1992. She is the member of Academic Bodies and a Resource Person for a number of Conferences, Workshops, Orientation Programmes, and Seminars. She is the recipient of awards, such as 'Young Researchers Award', Best Ph.D thesis Award', and 'Best Teacher Award 2009'. Dr. Sr. Clare A.C. has attended a number of Conferences, Workshops, and Seminars and also undertaken and coordinated various research projects. Her additional academic work includes Preparation of Self Instructional Material on Audio-Visual Education for M.Ed. Course; Self Instructional Material on Human Rights Education for M.A. in Education; Preparation of Test Items for B.Ed., Common Entrance Test for Common Admission Cell and Preparation of an article for Vishwakosha in Kannada for Karnataka State Open University, Mysuru, 2010. She has assessed 24 autonomous colleges in India as NAAC Peer Team Member and reviewed four colleges as a member of Autonomy Review Committee.