# Teachers' Attitude towards Pre-service Training Programme in Implementing SUITS

## Dr. K. Parthasarathy
*(Former Chair- School of Education and Chair- School of Skill Development & Entrepreneurship)*
*Senior Professor of Lifelong Learning, Bharathidasan University, Tiruchirappalli, India*
## Ms. M. Monika
*Research Scholar, Department of Management Studies, Urumu Dhanalakshmi College, Kattur, Tiruchirappalli , India*
## Mr. S. Sasiraja
*Senior Programme Co-ordinator, IECD, Bharathidasan University, Khajamalai Campus, Tiruchirappalli, India*

## Abstract
*The implementation of innovative technologies in school is a complex process that requires an academic, technological, and systemic change in the school. This process will usually fail to meet the expectations and to create an unwanted problem. The teachers' attitudes play an essential role in the success or the failures of new technology implementation in the schools, the present study explores by analyzing the staff in-charges of SUITS training programme. Data collected through structured questionnaire in three point scale. Findings indicate a positive correlation in teachers' attitude towards pre-service training, and a positive correlation between teachers' attitude towards implementing new technology*

*Keywords: SUITS, Teacher's Attitudes, Pre-service training*

**a. Introduction:** Educational system has changed a lot in this era. The first step in implementing pre-service training programme in implementing new technology, this type of program involves assessing the needs of the school and those involved in it, mainly the teachers. Once the specific needs are determined, the next step is to make the needs as a reality. One way to achieve the cohesive is by providing the training programme. This training must be systematic, promoting collegial interaction and fostering teacher support system (Bernal & Torres; 1990). An Pre-service program is a professional training or staff development effort, where professionals are trained and discuss their work with others in their peer group. The teachers' attitude towards implementing new technology and their readiness to earn active partners are considered a critical factor. Similarly, resistance to implementing new technology is considered one of the main reasons for failure of processes that involve in organizations in general and in the educational systems in particular. In the

case of innovative technology implementation in schools, teachers' resistance to report by some studies to be the most important factor in the Pre-service training success. The field of education is ever growing and changing due to new ideas and protocols. One such idea that has been at the fore front of educational policy, where students are placed in regular classrooms with general education to receive instruction. Addition to new technology is designed as the best way to provide an opportunity for students to learn academic content and the computer education together without any difference in curriculum whether they are from Urban, Rural or Tribal, they are receiving the same level of new technologies. School will take to keep these students as active members in their school community and make efforts to meet their needs. The goal of SUITS is more than just having an information center located within the school environment but allowing for the opportunities for all the students without any dissimilarity. It provides students by training teachers with exceptional opportunities to receive classroom instruction with high expectations that are not only relevant but also give them a practical knowledge successfully. The SUITS syllabus is designed and implemented, with the help of the special pre-service training given to the school teachers that increase the knowledge and make the teachers updated with the new technology. SUITS ensure that the teachers are adapt, modify, and accommodate by providing teachers handbook and materials so that they can practice and educate the students without any hesitation. They are follow up by SUITS to know whether they are having any difficulty and doubts in the student's syllabus. Through this, SUITS seeks to improve the quality of school education system. So, through the training it covers improving the computer education.

**b. Literature Survey Krista Uibu, Age Salo, et al., (2017),** found that, a comparative perspective on teacher education that supports to clarify the differences and similarities between the beliefs and knowledge of school-based teacher educators and student teachers. More knowledge about teaching related beliefs held by school-based teacher educators is essential to promote innovation in teacher education and ensure effective school practice during teacher training. This study revealed that school-based teacher educators' training and suitability to administer student teachers require more attention from universities. Systemic mentor training, arranged by universities, is recommended for school-based teacher educators administering pre-service teachers' school practice.

   **Aswini, et al., (2016),** observed on the, influence of demographic characteristics of school teachers in skill development. The staff in-charges of the SUITS scheme of the study area have a strong positive opinion about the skill development training programme provided by IECD, Bharathidasan University. Hence, the statements show that, there is a positive influence about the training and through the training programme they have gathered many sources of information relevant to computer science. The feedback statements of the training programmes shows that the theoretical and practical training is very convenient and useful for the in-charge staffs and the schedule for the training programme is also conveniently allocated to them to learn through the objectives of the training.

**Jose Antonio Prieto Saborit, et al., (2016),** studied that the teachers' attitudes and perceptions related to the implementation of cooperative learning on influence of a training program in educational contexts. It influence was judged based on the teachers' knowledge area, age, gender, educational qualification and teaching experience. Play a part of 990 teachers from 60 schools. Results showed a positive attitude from the teachers, regardless of their subject area or educational stage. However, significant differences were found regarding age and teaching experience. Training has supported to be a powerful analyst of success for the implementation of cooperative learning in educational settings.

**Parthasarathy.K , et al., (2016),** reported that teacher's training enhances efficiency and develops a systematic way of knowledge and performing in teaching. Evaluation of effectiveness of training is the measurement of improvement in the teacher's skill, knowledge and interactive pattern within the foundation as a result of training programme. This measurement help to match the cost incurred in the design and implementation of training with the associated benefits. Thus, it indicates whether the program has been able to deliver its planned goals and objectives. Evaluation of training means assessment of the influence of training on trainee's behaviour and performance.

**Valentina Piwowar, et al., (2013),** evaluated the effectiveness of a training program for in-service secondary school teachers in classroom management. In a non-randomized pre-post-design, 19 teachers participated in a newly developed training (the intervention group) and 18 teachers participated in a control training (the control group). All participants reported better knowledge of classroom management after training. However, hypothesized positive effects on teachers' competencies and increased student engagement occurred only in the intervention group. These findings are supported by participants' reported high subjective validity of the training.

**c. Area of the study:** The principal author through Institute for Entrepreneurship and Career Development (IECD), Bharathidasan University has introduced many skill development programmes to school children during the past eight years. The SUITS (School-University- Industry- Tie up Scheme) was conceived and implemented by the principal author through IECD to develop the technical skills of primary and secondary school going children in Tamil Nadu. The present study deals with the skill development training programme for the 80 computer staff in-charges of SUITS in and around Erode region schools located in Tamil Nadu, India.

**d. Objectives of Study**
   * To find the demographic profile of the respondents in the study area
   * To analyze the association between age and their attitude of pre-service training programme of the respondents in the study area
   * To study the variance between work experience and their attitude of pre-service training programme of the respondents in the study area

**e. Hypotheses of the study**
   * There is no significant association between age of the respondents and their attitude towards pre-service training programme in learning of technology in the study area
   * There is no variance between work experience and their attitude towards pre-service training programme in learning of technology in the study area

**f. Research Methodology:** Research methodology is used to formulate hypotheses, data collection and develop the results. The SUITS is being implemented for school children in and around TamilNadu. More than 2 lakhs 88 thousand children from both primary and secondary schools were benefitted by this scheme in TamilNadu and Pondicherry during the past 8 (2009 - 2017) years. The present study deals with the pre-service training provided to the staff in-charges (computer science teachers) of SUITS. The structured questionnaire is framed with the help of 3 point scale. The data were collected from the respondents with a sample of 80 respondents in order to test and modify the research tool. The raw data collected was systematically coded, scored and tabulated by using statistical techniques with the support of SPSS (Statistical Package for Social Sciences). Research method of the present study is Census Method. In the present study percentage analysis is distributed, Pearson's chi-square test and ANOVA is used to find the association and variance between the dependent and independent variables of the respondents of the study area.

**g. Analysis and Findings of the Study:**
### Table-1: Demographic profile of the respondents

| Demographic Profile | Particulars | No. of respondents | Percentage |
|---|---|---|---|
| Age | 20 – 25 Years | 18 | 22.5 |
| | 26 – 30 Years | 42 | 52.5 |
| | 31 – 35 Years | 14 | 17.5 |
| | 36 Years & above | 6 | 7.5 |
| Educational Qualification | Under Graduate | 18 | 22.5 |
| | Post Graduate | 50 | 62.5 |
| | Above PG | 12 | 15.0 |
| School System | Primary | 3 | 3.8 |
| | Middle | 12 | 15.0 |
| | High School | 16 | 20.0 |
| | Higher Secondary School | 49 | 61.2 |
| Marital Status | Married | 45 | 56.3 |
| | Unmarried | 35 | 43.7 |
| Work Experience | 0 – 5 Years | 57 | 71.3 |
| | 6 – 10 Years | 20 | 25.0 |
| | 11 Years & Above | 3 | 3.8 |
| Monthly Income | Below Rs.5000/- | 3 | 3.8 |

| | | | |
|---|---|---|---|
| | Rs.5001/- to Rs.10000/- | 46 | 57.5 |
| | Rs.10001/- & above | 31 | 38.8 |
| Training Programme | Yes | 25 | 31.3 |
| | No | 55 | 68.8 |

✓ **Age:** Majority of the respondents i.e., 42 (52.5%) belong to age group of 26 to 30 years, 18 (22.5%) belong to 20 to 25 years, 14 (17.5%) belong to 31 to 35 years and 6 (7.5%) belong to 36 years and above category.

✓ **Educational Qualification:** Regarding educational background, 50 (62.5%) of the sample respondents belong to Post Graduate category, 18 (22.5%) belong to Under Graduate category and 12 (15.0%) belong to above Post Graduate category.

✓ **School System:** Majority of the respondents working in higher secondary school 49 (61.2%), 16 (20.0%) belong to high school category, 12 (15.0%) belong to middle school category and 3 (3.8%) belong to primary school category.

✓ **Marital Status:** Majority of the sample respondents taking part are belong to married category 45 (56.3%) and 35 (43.7%) belong to unmarried category.

✓ **Work Experience:** Majority 57 (71.3%) of the respondents are having 0 - 5 years work experience, 20 (25.0%) of the respondents are having 6 - 10 years work experience and 3 (3.8%) of the respondents work experience is 11 years and above.

✓ **Monthly Income:** The highest value 46 (57.5%) of the respondents draw monthly income between Rs.5,001/- to Rs.10000/- , 31 (38.8 %) of the respondents draw salary Rs.10,001/- and above, 3 (3.8%) of the respondents draw monthly income below Rs.5,000/- per month.

✓ **Training Programme:** The highest value 55 (68.8%) of the respondents first time attended the training programme and 25 (31.2%) of the respondent already attended the training programme.

**Table 2: Distribution of the respondents according to their Pre-service training programme for technology**

| Sl. No. | Statements on assessing Pre-service training programme | Excellent | Satisfactory | Not Satisfactory |
|---|---|---|---|---|
| 1 | Program designed and organized well | 57 (71.2%) | 23 (28.8%) | - |
| 2 | Planning according to teachers' need and passion | 48 (60.0%) | 30 (37.5%) | 2 (2.5%) |
| 3 | Lab facilities and presentations were adequate | 70 (87.5%) | 10 (12.5%) | - |
| 4 | Theoretical reasons were provided adequately | 33 (41.2%) | 45 (56.3%) | 2 (2.5%) |
| 5 | Resource Persons were actively involved | 56 (70.0%) | 24 (30.0%) | - |
| 6 | Theory and practical aspects | 44 | 36 | - |

| | | | | |
|---|---|---|---|---|
| | were inter related | (55.0%) | (45.0%) | |
| 7 | Contents were efficiently planned and developed | 38 (47.5%) | 41 (51.3%) | 1 (1.3%) |
| 8 | Duration of the training and time allocation were optimal | 25 (31.3%) | **48** **(60.0%)** | 7 (8.8%) |
| 9 | Training session length was adequate | 38 (47.5%) | 32 (40.0%) | **10** **(12.5%)** |
| 10 | Self-directed and participant-oriented to update recent information | 50 (62.5%) | 28 (35.0%) | 2 (2.5%) |
| 11 | Focused on developing advanced skills | 50 (62.5%) | 28 (35.0%) | 2 (2.5%) |
| 12 | Encouraged to share their experiences and suggestions | 56 (70.0%) | 22 (27.5%) | 2 (2.5%) |
| 13 | Goals and objectives were fulfilled | 42 (52.5%) | 36 (45.0%) | 2 (2.5%) |
| 14 | Training programme was informative | 60 (75.0%) | 19 (23.8%) | 1 (1.2%) |
| 15 | Received all the training materials | **71** **(88.8%)** | 8 (10.0%) | 1 (1.2%) |
| **Total** | | **Number of Respondents: 80 (100%)** | | **Percentage:** |

By analyzing the dependent variables on the training programme, table-2 shows the fifteen statements based on the teachers' attitude towards Pre-Service Training Programme in Implementing New Technology of the respondents in the study area.

It seems that 71.2% of the respondents are excellent the variable, 'Program designed and organized well' and 28.8% of them are satisfactory the same. 60% of the respondents are excellent the variable, 'Planning according to teachers' need and passion', 37.5% of them are satisfactory and 2.5% responding not satisfactory to the variable. 87.5% of the respondents are excellent the variable 'Lab facilities and presentations were adequate' and 12.5% of the respondents are satisfactory. 41.2% of the respondents are excellent the variable 'Theoretical reasons were provided adequately', 56.3% of the respondents are satisfactory and only 2.5% of them responding not satisfactory to the variable. 70% of the respondents are excellent the variable, 'Resource Persons were actively involved' and 30% responding satisfactory to the variable.

55% of the respondents are excellent the variable, 'Theory and practical aspects were inter related' and 45% of them are satisfactory the same. 47.5% of the respondents are excellent the variable, 'Contents were efficiently planned and developed', 51.3% of them are satisfactory and only 1.3% responding not satisfactory to the variable. 31.3% of the respondents are excellent the variable 'Duration of the training and time allocation were

optimal', 60% of the respondents are satisfactory and 8.8% of them responding not satisfactory to the variable. 47.5% of the respondents are excellent the variable 'Training session length was adequate', 40% of the respondents are satisfactory and 12.5% of them responding not satisfactory to the variable. 62.5% of the respondents are excellent the variable, 'Self-directed and participant-oriented to update recent information', 35% of the respondents are satisfactory and 2.5% responding not satisfactory to the variable.

62.5% of the respondents are excellent the variable, 'Focused on developing advanced skills', 35% of them are satisfactory the same and 2.5% responding not satisfactory to the variable. 70% of the respondents are excellent the variable, 'Encouraged to share their experiences and suggestions', 27.5% of them are satisfactory and only 2.5% responding not satisfactory to the variable. 52.5% of the respondents are excellent the variable 'Goals and objectives were fulfilled', 45% of the respondents is satisfactory and 2.5% of them responding not satisfactory to the variable. 75% of the respondents are excellent the variable 'Training programme was informative', 23.8% of the respondents are satisfactory and 1.2% of them responding not satisfactory to the variable. 88.8% of the respondents are excellent the variable, 'Received all the training materials', 10% of the respondents are satisfactory and 1.2% responding not satisfactory to the variable.

**Table-3: Reliability Statistics**

| Statements on pre-service training programme | Mean | Std. Deviation | Corrected Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---|---|---|---|---|
| Program designed and organized well | 2.71 | .455 | .429 | .914 |
| Planning according to teachers' need and passion | 2.58 | .546 | .664 | .913 |
| Lab facilities and presentations were adequate | 2.88 | .333 | .328 | .915 |
| Theoretical reasons were provided adequately | 2.39 | .539 | .511 | .914 |
| Resource Persons were actively involved | 2.70 | .461 | .413 | .914 |
| Theory and practical aspects were inter related | 2.55 | .501 | .425 | .914 |
| Contents were efficiently planned and developed | 2.46 | .526 | .615 | .913 |
| Duration of the training and time allocation were optimal | 2.23 | .595 | .461 | .914 |
| Training session length was adequate | 2.35 | .695 | .545 | .913 |

| | | | | |
|---|---|---|---|---|
| Self-directed and participant-oriented to update recent information | 2.60 | .542 | .623 | .913 |
| Focused on developing advanced skills | 2.60 | .542 | .607 | .913 |
| Encouraged to share their experiences and suggestions | 2.67 | .522 | .548 | .913 |
| Goals and objectives were fulfilled | 2.50 | .551 | .594 | .913 |
| Training programme was informative | 2.74 | .470 | .472 | .914 |
| Received all the training materials | 2.88 | .369 | .296 | .915 |

It should be noted that while a highest value for Cronbach's Alpha indicates a good internal consistency of the items in the scale. The Cronbach's Alpha of Teachers' Attitude and Perception towards Pre-Service Training Programme in Implementing New Technology is 0.913 to 9.15 which are excellent and most reliable to internal items consistency. Overall it was found that training programmes provides the valuable teaching and services to their perception through technology.

**Hypothesis-1:** There is no significant association between age of the respondents and their attitudes towards pre-service training programme in learning of technology in the study area

**Table 4: Chi-Square test showing the association among age and their attitudes towards pre-service training programme in learning of technology of the respondents**

| Evaluation of the Training Programme | $\chi^2$ Value | Sig. (2-Sided) |
|---|---|---|
| Program designed and organized well | 1.465 | .690 |
| Planning according to teachers' need and passion | 1.799 | .937 |
| Lab facilities and presentations were adequate | .762 | .859 |
| Theoretical reasons were provided adequately | 2.554 | .862 |
| Resource Persons were actively involved | .635 | .888 |
| Theory and practical aspects were inter related | .475 | .924 |
| Contents were efficiently planned and developed | 10.675 | .099 |
| Duration of the training and time | 7.462 | .280 |

| | | |
|---|---|---|
| allocation were optimal | | |
| Training session length was adequate | 7.058 | .316 |
| Self-directed and participant-oriented to update recent information | 5.752 | .451 |
| Focused on developing advanced skills | 4.704 | .582 |
| Encouraged to share their experiences and suggestions | 2.511 | .867 |
| Goals and objectives were fulfilled | 2.580 | .859 |
| Training programme was informative | 5.092 | .532 |
| Received all the training materials | 5.866 | .438 |

Table-4 shows that the $\chi 2$ value of the dependent variables are greater than the significant level, hence it is shows that there is no association among the age of the respondents and their attitude towards pre-service training programme in learning of technology in the study area. It indicates that the respondent's positive development in teaching learning method in school education. The overall opinion about implementing SUITS in the respective schools is highly satisfied among teachers. Hence the hypothesis-1 is accepted as **"there is no association among the age of the respondents and their attitude towards pre-service training programme in learning of technology in the study area"**.

**Hypothesis – 2:** There is no variance between work experience and their attitudes towards the training programme in learning of technology in the study area.

**Table-5: ANOVA showing the variance among the work experience and their attitudes towards the training programme in learning of technology of the respondents**

| Training Programme in Technology | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Program designed and organized well | Between Groups | .205 | 2 | .103 | .488 | .616 |
| | Within Groups | 16.182 | 77 | .210 | | |
| | Total | 16.388 | 79 | | | |
| Planning according to teachers' need and passion | Between Groups | 1.660 | 2 | .830 | 2.919 | .060 |
| | Within Groups | 21.890 | 77 | .284 | | |
| | Total | 23.550 | 79 | | | |
| Lab facilities and presentations were adequate | Between Groups | .504 | 2 | .252 | 2.355 | .102 |
| | Within Groups | 8.246 | 77 | .107 | | |
| | Total | 8.750 | 79 | | | |
| Theoretical reasons were provided adequately | Between Groups | .012 | 2 | .006 | .020 | .980 |
| | Within Groups | 22.975 | 77 | .298 | | |
| | Total | 22.987 | 79 | | | |
| Resource Persons were actively involved | Between Groups | .454 | 2 | .227 | 1.068 | .349 |
| | Within Groups | 16.346 | 77 | .212 | | |
| | Total | 16.800 | 79 | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Theory and practical aspects were inter related | Between Groups | .614 | 2 | .307 | 1.232 | |
| | Within Groups | 19.186 | 77 | .249 | | .297 |
| | Total | 19.800 | 79 | | | |
| Contents were efficiently planned and developed | Between Groups | .130 | 2 | .065 | .231 | |
| | Within Groups | 21.757 | 77 | .283 | | .794 |
| | Total | 21.888 | 79 | | | |
| Duration of the training and time allocation were optimal | Between Groups | .656 | 2 | .328 | .926 | |
| | Within Groups | 27.294 | 77 | .354 | | .401 |
| | Total | 27.950 | 79 | | | |
| Training session length was adequate | Between Groups | .491 | 2 | .246 | .502 | |
| | Within Groups | 37.709 | 77 | .490 | | .608 |
| | Total | 38.200 | 79 | | | |
| Self-directed and participant-oriented to update recent information | Between Groups | .439 | 2 | .219 | .742 | |
| | Within Groups | 22.761 | 77 | .296 | | .480 |
| | Total | 23.200 | 79 | | | |
| Focused on developing advanced skills | Between Groups | .320 | 2 | .160 | .539 | |
| | Within Groups | 22.880 | 77 | .297 | | .586 |
| | Total | 23.200 | 79 | | | |
| Encouraged to share their experiences and suggestions | Between Groups | .151 | 2 | .075 | .271 | |
| | Within Groups | 21.399 | 77 | .278 | | .763 |
| | Total | 21.550 | 79 | | | |
| Goals and objectives were fulfilled | Between Groups | .173 | 2 | .086 | .279 | |
| | Within Groups | 23.827 | 77 | .309 | | .757 |
| | Total | 24.000 | 79 | | | |
| Training programme was informative | Between Groups | .568 | 2 | .284 | 1.293 | |
| | Within Groups | 16.919 | 77 | .220 | | .280 |
| | Total | 17.487 | 79 | | | |
| Received all the training materials | Between Groups | .182 | 2 | .091 | .661 | |
| | Within Groups | 10.568 | 77 | .137 | | .519 |
| | Total | 10.750 | 79 | | | |

Table-5 shows that the significant level of the dependent variables of the study are greater than 0.05. Shows that there are no significant variance between the work experience and their attitude towards pre-service training programme in learning of technology. Hence the hypothesis-2 is accepted as **"there are no significant variance between the work experience and their attitude the training programme in learning of technology in the study area"**.

**h. Conclusion:** To conclude it can be said that data analysis showed that teachers' attitude towards pre-service training programme in implementing new technology that (68.8%) of the respondents first time attended the training programme and (31.2%) of the respondent already attended the training programme with interest to learn and also to implement it in their school. (88.8%) of the respondent said that they received all the training materials.

Even though there are no significant association between the teachers' attitudes according to their age and there are no variance between the teachers' attitudes according their years of experience, they are sufficient to success in positive attitude towards the implementation of new technology. The respondents are willing to learn more where they are request to extent one day in the training programme (8.8%) duration of the training and time allocation were optimal and (12.5%) the training session length was adequate were not satisfactory. These findings may contribute to research, reflect, discuss and decide the right way for a successfully implementing new technology in schools by providing pre-service training programme. This training programme helps to school teachers, to learn about technology through SUITS. To improve the training programme, suggestion and feedback are collect from the respondents, but the study viewed that most of the respondents told that the programme was excellent, so there is no need for changing the pre-service training programme.

## References:

1. **Anil Matkar., (2012),** Cronbach's Alpha Reliability Co-efficient for standard of customer services in Maharashtra State Co-operative Bank, ABHINAV National Monthly Refereed Journal of Research in Commerce & Management, Vol.1, Issue 3, pp.67-74.
2. **Aswini, P.M, Parthasarathy K. and Jayadurga R., (2016),** Skill Development: Influence of Demographic Characteristics of School Teachers in Tamil Nadu, International Journal of Engineering and Management research, Vol.6 No.6, pp. 273 – 278.
3. **George, D., & Mallery, P., (2003),** SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon.
4. **Jayalakshmi.S, Parthasarathy.K, and Aswini.P.M., (2017),** Is the Teachers Training will improve the Skill among Students: Fact or Tact?, International Education & Research Journal, Vol.3, Issue.1, pp.65-68
5. **Jose Antonio Prieto Saborit, Javier Fernandez - Rio, Jose Antonio Cecchini Estrada, Antonio Mendez - Gimenez, David Mendez Alonso., (2016),** Teachers' attitude and perception towards cooperative learning implementation: Influence of continuing training, Teaching and Teacher Education 59, pp. 438-445.
6. **Krista Uibu, Age Salo, Aino Ugaste, and  Helena Rasku-Puttonen., (2017),** Beliefs about teaching held by student teachers and school-based teacher educators, Teaching and Teacher Education 63 (2017) 396-404.
7. **Parthasarathy.K,  Aswini.P.M,  Monika.M and Sasiraja.S., (2016),** Impact of Training and Development Among Teachers on Computer Applications, International Journal of Management and Social Science Research Review, Vol-1, Issue – 29, pp. 114-120
8. **Parthasarathy.K, Shanmuga Priya.P.M, and Monika.M., (2016),** Effectiveness of Pre-Service Training Programme to School Teachers on Computer Science,

International Journal of Research in IT and Management (IJRIM), Vol. 6, Issue 11, pp. 120-131.

9.  **Parthasarathy.K, Shanmuga Priya.P.M, Monika.M and Vivekanandan.K., (2017),** Skill development: Study on the pre service training to school teachers on computer science, International Journal of Multidisciplinary Research and Development, Vol. 4; Issue 1, pp. No. 21-25.

10. **Valentina Piwowar, Felicitas Thiel, Diemut Ophardt., (2013),** Training in-service teachers' competencies in classroom management. A quasi-experimental study with teachers of secondary schools, Teaching and Teacher Education 30, pp.1-12.