

# The Usage and Applications of Computers by the Secondary School Teachers in Relation to Selected Variables

**Dr.Raghu Ananthula**

*Scholar, Department of Education (UCOE),  
Kakatiya University, Warangal, T.S*

**Prof. Maheder Reddy Sarsani**

*Chair person, BOS, Department of Education (UCOE),  
Kakatiya University, Warangal, T.S*

## ABSTRACT

*Computers find a wide variety of applications in different spheres of life. Computer programs can be excellent motivators for learning rote facts and processes. The effective use of technology in teaching encourages a move away from the teacher-centered approach. The study was intended to find out the usage and application of the computers by the teachers in relation to their gender, age, qualifications, teaching subject and experience, management of the school and location of the school. The investigator has selected 'Normative Survey Method'. The sample of 320 teachers was selected from 80 schools by using stratified random sampling technique. The researchers have developed a tool with 53 items to find out the Usage and Applications of Computers (UAC) by the teachers at secondary level. The reliability and validity were established to the tool. The study revealed that the gender, location, academic and professional qualifications of Secondary School Teachers have no influence on usage and applications of computers but age, teaching experience, management of the school and subject taught by teachers have influence.*

**Keywords:** *Usage and application of computers, tool-UAC, Secondary School Teachers.*

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## Introduction

Computers have changed the way we work, be it any profession. Therefore, it is only natural that the role of computers in education has been given a lot of importance in recent years. Computers play a vital role in every field. Computers find a wide variety of applications in different spheres of life. With an increase in their widespread use and their ever-so-increasing popularity, computer education has become the need of the day. Most educators agree that computer programs can be excellent motivators for learning rote facts and processes. They give variety and add special effects to drill and practice. They often allow for individualization of level and rate of presentation, so children can proceed with appropriate challenges to sustain motivation and encourage mastery.

Computer technology has a deep impact on the education sector. Imparting education has become easier and much more interesting than before. The effective use of technology in teaching encourages a move away from the teacher-centered approach. Computers contribute to education as: Aids in learning and instruction in the class room, as a tool in research on human cognition. Those with knowledge of computers are considered trainable for many kinds of jobs.

Using a computer, one can remain connected to the world through the Internet. The Internet allows people from around the world to share knowledge, ideas, and experiences in any field. E-mail is a method of communication used globally, between friends, colleagues, business partners, and so on. Computers are used in running schools and colleges, during the admission procedures, storing of official and student records. They are also used in syllabus planning, decision making, controlling, assisting instructions and simulations.

Computers are helpful in directing aptitude tests and achievement tests at the time of entrance exams (Max Bellamy, 2011). Computer literacy is a requirement for the teachers to prepare students for today's world. Computers

are a great tool for teaching-learning. Both teachers and students benefit from the use of computer technology. Actual Usage of Computers among secondary school teachers are at the moderate levels (Naresh Kumar, Rose & D' Silva, 2008). In view of the above, the investigation is needed to find the usage and application of the teachers at secondary level.

Mohapatra&Mohapatra (2011) explored that proper use of technology can enhance students' achievement in biology and encourage wide ranging educational research on approaches to teaching scientific topics. Bhalla (2013) investigated that the teachers were using computers for restricted time duration and for performing limited number of tasks, accordingly, teachers seemed not to have sufficiently integrated computers across the curriculum. They often used computers to plan their teaching, to update their knowledge, to prepare additional instructional material. They sometimes used computers for their small classroom presentations, preparing test papers; for students' creative work, assignments, simulations, games.

Ocak (2008) studied that the gender difference exists between science teachers' integration of computer applications as an instructional tool. The students with high achievement level showed better results than those with low achievement level when taught through computer-assisted instruction. Ruthven (2004) study revealed that found that the successful use of computer-based tools and resources in the core subjects of English, Mathematics and Science at secondary school level. Seden (2004) found that no difference between the attitudes of students and teachers towards computers and the use of computers in language instruction in general. The results suggested that training of students and teachers and an effective curriculum in order to use computer technology in educational settings are required.

### Objectives of the study

To find out the usage and application of the computers by the teachers in relation to their gender, age, qualifications, teaching subject, teaching experience, management of the school and location of the school.

### Hypothesis of the study:

1. There will be no influence of gender on usage and application of computers by the teachers at secondary level.
2. There will be no influence of locality on usage and application of computers by the teachers at secondary level.
3. There will be no influence of academic qualifications on usage and application of computers by the teachers at secondary level.
4. There will be no influence of professional qualifications on usage and application of computers by the teachers at secondary level.
5. There will be no influence of age on usage and application of computers by the teachers at secondary level.
6. There will be no influence of teaching experience on usage and application of computers by the teachers at secondary level.
7. There will be no influence of management of the school on usage and application of computers by the teachers at secondary level.
8. There will be no influence of subject taught on usage and application of computers by the teachers at secondary level.

### Methodology

**Method:** There are different methods in the process of Educational Research, in view of nature and purpose of research problem. The investigator has selected a suitable research method called 'Normative Survey Method' for the present study.

**Sample:** The sample of 320 teachers were selected from 80 schools with different school subject background belong to three districts such as Nalgonda, Khammam and Warangal of Telangana State by using stratified random sampling technique. The sample was divided into two major strata i.e. Rural teachers (N=160) and Urban Teachers (N=160). Again these strata were divided into sub-strata i.e., Government Success school teachers (N=40), Government non-Success school teachers (N=40) and Private school teachers (N=80). Further, these sub-

strata were divided into different subject teachers i.e. Language Teachers (N=20), Mathematics Teachers (N=20), Science Teachers (N=20), Social Studies Teachers (N=20).

### Tool:

The researchers have developed a preliminary draft of tool with 63 items to find out the Usage and Applications of Computers (UAC) by the teachers at secondary level, which includes different types of applications such as Word Processing, Desktop Publishing, Spread Sheet Applications, Data Base Applications, Presentation Applications and Communication & Internet applications.

The preliminary draft of UAC was piloted with 120 teachers. In order to find the discriminative power and usefulness of statements chosen for the scale the  $\chi^2$  (Chi-Square) value for each of the statements were calculated. The items those  $\chi^2$  (Chi-Square) values less than 5.99 at 0.05 level, 9.21 at 0.01 level for  $df = 2$  were discarded. On the basis of this process, out of 63 items 10 items were discarded and 53 items were retained in the final form. Each item in the final form anchored with three point scale i.e. Never, Often and Always to indicate the level of usage and application of computers. The number of items extracted from different types of applications are given in the table-A.

Table-A: Shows the type of applications and number of items included in UAC.

S. No	Type of application software	Number of items
1	Word Processing	12
2	Desk top Publishing	06
3	Spread Sheet Applications	08
4	Database applications	07
5	Presentation applications	03
6	Communication & internet applications	17
<b>Total</b>		<b>53</b>

### Scoring Procedure:

The tool-UAC consists of 53 items, finalized after item analysis. The responses to this scale weightages given as 1 = Never, 2 = Often and 3 = Always for all items. The maximum score was 159 and the minimum score was 53. After summation of the individual weightages of teachers, the mean scores and standard deviations were calculated.

### Data collection procedure:

The researcher has personally visited the schools with prior permission, to collect the required data from the teachers. The researcher has explained the objectives and purpose of the study to all the respondents. All the teachers were given booklet of UAC. Special instructions were given orally to them before the start of making the test and filling up the questionnaire. The doubts were clarified when they had aroused at the time of administrating the tool. A special care has been taken by the researcher to elicit the data from the respondents.

### Reliability and validity of the tool-UAC:

The reliability of UAC was tested by employing various methods of reliability. All the coefficients are found to be statistically significant at 0.01 level of confidence. Hence, the tool is reliable on the basis of high co-efficient of correlations.

Table -B: Shows the Reliability co-efficient of the UAC

S. No	Type of Reliability	Co-efficient of correlation	Magnitude of Reliability
1	Test-Retest method	0.93	0.96 **

2	Split-half Method(Equal parts)	0.87	0.91 **
3	Split-half Method(Odd-Even)	0.88	0.92 **
4	Kuder Recherdson-20 formula	0.94 **	

\*\* Significant at 0.01 level

The item-wise frequencies and  $\chi^2$ - values of UAC for the whole sample (N = 320) were calculated. This analysis is made to get complete picture of the responses of agreement or disagreement with item and to establish the item validity (discrimination) by using the  $\chi^2$ - values. All the  $\chi^2$ - values for 53 items are either significant at 0.05 or 0.01 level, which indicate the item validity.

### Data analysis and interpretations:

#### 1. Teachers' Usage and Applications of the Computers in relation to gender, location, academic and professional qualifications.

Influence of gender, location, academic and professional qualifications of the teachers on applications and usage of the computers by the teachers at secondary level is presented as shown in the Table-1.

Table- 1

S. No.	Variable	Category	N	Mean	S.D	t – value
1	Gender	Male	232	98.62	32.31	0.28#
		Female	88	97.49	29.27	
2	Location	Rural	160	96.78	32.70	0.872#
		Urban	160	99.84	30.20	
3	Academic Qualifications	UG	183	99.78	31.68	0.96#
		PG	137	96.35	31.19	
4	Professional qualifications	B. Ed	266	97.26	30.56	1.32#
		M. Ed	54	103.46	35.46	

#Not significant

The table- 1 shows the Mean, Standard Deviation (SD) and , t-values of Gender, location, academic and professional qualifications of teachers on applications and usage of the computers at secondary level. The t-value for gender is 0.28, which is not significant. Hence, the formulated null hypothesis has been accepted. It can be concluded that the gender of Secondary School Teachers has no influence on usage & applications of computers.

Similarly, the t-values for location, academic and professional qualifications of teachers on applications and usage of the computers at secondary level are found to be 0.87, 0.96 and 1.32 respectively. All the t-values indicate the non- significance even at 0.05 level. Hence, the formulated null hypotheses have been accepted. It can be concluded that the location, academic and professional qualifications of Secondary School Teachers have no influence on usage and applications of computers.

#### 2. Teachers' Usage and Applications of the Computers Vs age, teaching experience, management of the school and subject taught.

Influence of age, teaching experience, management of the school and teaching subject of the teacher on frequency of applications and usage of the computers by the Teachers at secondary level is presented in the table-2

Table –2

S. No.	Variable	Category	N	Mean	S.D	F- ratio
1	Age	Below 27years	50	119.04	31.48	19.16**
		Between 28–43yrs	214	97.36	29.72	
		44 years and above	56	83.43	28.62	
2	Teaching	Below 3 years	78	110.06	28.78	10.34**

	Experience	4years – 16 years	207	96.41	31.84	
		17 years and above	35	83.34	26.52	
3	Management of the school	SUCCESS schools	80	92.28	27.28	29.85**
		Non-SUCCESS schools	80	80.70	25.09	
		Private school	160	110.13	31.45	
4	Subject taught	Languages	80	96.49	29.97	4.9*
		Mathematics	80	107.51	32.17	
		Science	80	100.13	29.98	
		Social-studies	80	89.11	31.43	

\*\* Significant @0.01 level\*. Significant @0.05 level

The Table -2 shows the Mean, Standard Deviation (SD) and, F-ratios of age, teaching experience, management of the school and teaching subject of teachers on applications and usage of the computers at secondary level. All the F-ratios of age, teaching experience, academic and professional qualifications of teachers are found to be 19.16, 10.34, 29.85 and 4.9 respectively, indicates significant at either 0.01 or 0.05 level. Hence, the formulated null hypotheses have been rejected. Therefore, there is a significant difference among the different categories belongs to age, teaching experience, management of the school and teaching subject of teachers.

Further, analyses to find out the mean differences among the different age groups shows that age group below 27 years possess the high usage and application of computers than their counter parts between 28-43 years and 44 years and above. Similarly, the usage and application of computers by the teachers of experience below 3 years, private school, mathematics is high than their counter parts.

The results indicate that age, teaching experience, management of the school and subject taught by teachers have influence on usage and applications of computers at secondary level.

### Discussion:

The study reveals that no significant difference was found in usage and applications of computers in relation to the teachers' gender, locality, academic qualifications and professional qualifications, but the differences were found in their age, management of the school, subject taught, and teaching experience. The teachers whose age is below 27 years with below 3 years teaching experience, working in private schools, teaching mathematics are mostly using and applying computers compared to their counterparts. The teachers above 27 years of age with experience more than 3 years, non-success school teachers, teachers of science, social studies and language who have low level of usage and applications of computers, need to upgrade their computer usage and practice various computer software applications.

Lack of computer training often results in high anxiety about computer use in the classroom. The high levels of anxiety can lead to negative attitudes about computers and eventually negatively influence the use of computers in the learning process (Koochang, 1987). So that, the schools should take measures to train/ orient the teachers periodically on applications and usage of computers.

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