

A study of Information Communication Technology (ICT) and its relation with professional Development of Secondary School Teachers

Mrs. Sarvesh¹ & Prof. Ajay Kumar Yadav²

¹Research Scholar & Assistant Professor, Ch. Charan Singh PG College, Heneora, Etawah (U.P.)

²Professor, Department of Teacher education, Ch. Charan Singh PG College, Heneora, Etawah (U.P.)

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Abstract

This study is undertaken to find out the relationship between information communication technology (ICT) and professional development of secondary school teachers of Lucknow District. In order to select the sample of the study, stratified random sampling technique was used. Sample size of the study was 400 secondary school teachers. Descriptive survey research method and correlational method were employed to study the problem. Data was collected using standardized tools of the variables of the study. Findings of the study revealed that information communication technology (ICT) has a significant and positive relation with professional development of secondary school teachers. Most of the teachers proposed improvement in their professional development by using ICT devices in to classroom teaching. And teachers' ICT skills and competency motivate them to adapt new pedagogical practices in their classroom teaching.

Key words: *Information communication technology (ICT), professional development, secondary school teachers, teaching learning process.*

Introduction

Nowadays, ICT uses in education has a great significance to make teaching learning process more effective. It becomes essential to change instructional approaches in technological era to improve student' learning and achievements. According to Mayer (2009) the use of multimedia presentations, such as videos and interactive simulations, can improve student engagement and comprehensiveness of thinking. It embodies a holistic approach aimed at leveraging digital tools to engage students, facilitate personalized learning experiences, and foster critical thinking skills. Moreover, technology enabled pedagogical strategies promote active participation and problem solving, create active learning environment and contribute to student' success. Means et al. (2013) found in your study that teachers who used ICT tools into their pedagogical instructions reported more student engagement, higher order thinking skills, and improved communication and collaboration among students. Use of ICT in classroom teaching make teaching more interesting and effective. In addition to, it is helpful to enhance teacher's performance and professional development. A study by Ertmer (2005) examined the impact of ICT on teachers' professional development and found that teachers who effectively integrated technology into their classroom teaching reported increased self-efficacy, more motivation, and improved instructional practices. However, the successful integration of ICTs depends on the attitude and digital competency of secondary school teachers. Therefore, it is expected to teachers to use ICT tools into their classroom teaching in modern education system (Demissie, et al.2022).

Information and communication technology (ICT) has brought revolutionary changes to enhance professional development of teachers. Today, several ICT based instructional devices like computers, smart phones, laptops, tablets, LCD, multimedia and projectors are used in classrooms for making more effective and productive to teaching and learning process (Gulzar Ahmed et el (2016). When considering the relationship of ICT with professional development of teachers, it tends to focus on whether and to what extend ICT can affect professional development. According to the research conducted by the British educational

communication and technology agency (2000). There is evidence of statistically positive co relation between ICT and professional development.

Professional development includes different capacities as pedagogical skills, leadership qualities, self-upgrading motivation and technical skills using audio visual aids for the effective teaching. Teachers' Professional development is the process of continuous learning acquiring and enhancing the skills, knowledge, and competencies necessary for each teacher to excel in their teaching professional roles. It is a continuous learning that aims to improve Teachers' effectiveness, expertise, and overall performance in the workplace. So, this study is undertaken to see the effect of ICT on professional development of secondary school teachers.

1.1 Statement of the Problem:

“A study of information communication technology (ICT) and its relation with professional development of secondary school teachers.”

1.2 Objectives of the Study:

1. To study information & communication technology (ICT) uses of male and female of secondary school teachers.
2. To study the professional development of male and female of secondary school teachers.
3. To study the relationship between information & communication technology (ICT) uses and professional development of secondary school teachers.

1.3 Hypothesis of the Study:

Ho1. There is no significant difference between the mean scores of information & communication technology (ICT) uses of male and female of secondary school teachers.

Ho2. There is no significant difference between the mean scores of professional development of male and female of secondary school teachers.

H3. There is no significant correlation between information & communication technology (ICT) uses and professional development of secondary school teachers.

1.4 Variables of the Study:

Variables in the present study are as follows:

Independent Variable	Information & Communication Technology (ICT)
Dependent Variable	Professional Development

1.5 Research Method:

In this study, the researcher used descriptive survey method and correlational research method. Check & Schutt (2012) described survey as “a collection of information from a sample of individuals through their responses to questions.” Campbell and Stanley (1963) who describe correlational research as "the systematic investigation of relationships among two or more variables, without any experimental manipulation of those variables.”

1.6 Population and Sample of the Study:

The population of the study consisted all secondary school teachers of Lucknow district (UP). The researcher selected secondary schools from Lucknow district by using systematic random sampling method. Sample consists 400 teachers from selected secondary schools.

1.7 Tools and Data Collection Techniques:

In the present study, the following research tools were used for collecting the data:

- ❖ Information and Communication Technologies (ICT) competency scale Dr. Manmohan Gupta.
- ❖ Teacher's Professional Development Scale by Yodida Butia.

1.8 Statistical Techniques of Data analysis:

To see the significant difference between the mean scores t-test was applied. Product moment correlation was used to see the relation between information communication technology (ICT) and professional development.

1.9 Data Analysis and Interpretation:

Results of the study have been presented in objective wise table- 1 to table- 3.

H₀ 1: There is no significant difference between the mean scores of information communication technology (ICT) uses of male and female of secondary school teachers.

Table 1.

Gender-wise Statistics preview of ICT scores of secondary school teachers

Gender	N	Mean	S. D	df	t-value	P value	Remarks
Male	200	107.09	10.28	398	1.82	P(.068)>0.05	Not Significant at .05 level of significance
Female	200	109.21	12.83				

By the observation of the table no.2, it can be seen that t- value is 1.82, which is not significant at 0.05 level of significance with the degree of freedom 398. It indicates that the mean scores of ICT uses of male and female secondary school teachers not differ significantly. Thus, the null hypothesis that “there is no significant difference between the mean scores of ICT uses of male and female secondary school teachers” is accepted. Therefore, it may be said that male and female secondary school teachers were found to have the same of level of information communication technology (ICT) uses.

H₀2. There is no significant difference between professional development of male and female secondary school teachers.

Table 2.

Gender wise statistics preview of professional development scores of secondary school teachers

Gender	N	Mean	S. D	df	t-value	P value	Remarks
Male	200	188.83	33.61	398	.607	P(.54)> 0.05	Not Significant at .05 level of significance
Female	200	186.80	33.47				

By the observation of table 2, it can be seen that t- value is 0.607, which is not significant at 0.05 level of significance with the degree of freedom 398. It indicates that the mean scores of professional development of male and female secondary school teachers not differ significantly. Thus, the null hypothesis that “there is no significant difference between the mean scores of professional development of male and female secondary school teachers” is accepted. Therefore, it may be said that male and female secondary school teachers were found to have the same level of professional development.

H₀ 3: There is a no significant co-relation between information communication technology (ICT) uses and professional development of secondary school teachers.

Table:3

Correlation between ICT and professional development of secondary school teachers.

Variable	N	M	S. D	'r'- value	Remarks
ICT	400	10.815	11.66	.173**	Significant at the 0.01 level of significance
Professional Development	400	187.81	33.52		

****.** Correlation is significant at the 0.01 level (2-tailed).

From the above table no.3, it can be seen that the coefficient correlation of information communication technology (ICT) uses and professional development of secondary school teachers is 0.173 which is significant at 0.01 level of significance. It indicates that there is a positive and significant correlation between ICT uses and professional development of secondary school teachers. Thus, the null hypothesis is rejected. Further, the percentage of commonness between information communication technology (ICT) uses and professional development of secondary school teachers is 2.992% which is positive. Therefore, it may be said that there is a positive correlation between the two variables.

1.10 Findings and Discussion of study:

Finding 1: According to the table no. 1 there is not found any significant difference between the ICT uses of male and female of secondary school teachers. So, it is obvious that both have the same level of ICT uses. Therefore, it can be said that male and female teachers of secondary schools both are aware about ICT facilities available in their college. They are equally interested using ICT devices for their teaching purpose to enhance the learning experience of their students and making their teaching more effective and interesting. Some studies support the findings of the present study such as- Wael Sh. Basri, and Feras M. Almadani (2017) the adoption of ICT is very high among university students but female students have more adoption of ICT than that of the male counterparts.

Finding 2: According to the table no.2 there is not found any significant difference between the professional development of male and female secondary school teachers. So, it is obvious that both have the high level of professional development. Therefore, it can be said that male and female teachers of secondary schools both have the high awareness about the professional development which are needed for the professional growth for the teachers being a good teacher. They are equally aware about the necessary components of professional development as knowledge of subject content and pedagogy, competencies in teaching and motivating the students, social and emotional intelligence, commitment and accountability of morality, punctuality as a teacher, leadership and personal effectiveness as working with others and taking an initiative, self-upgrading & extended reading includes attending seminars, refresher courses, reading journals, reference books and

books related to the subjects, using computer for teaching learning purpose, developing technical skills using audio visual aids for the effective teaching. So that they can upgrade their teaching practices for the better learning of the students.

Finding 3: According to the table no.3 there is found a positive and significant correlation between information communication technology (ICT) uses and professional development of secondary school teachers. This means that teachers having higher level of ICT uses possess higher level of professional development. It may be because those teachers who use ICTs in their pedagogical practices are more developed professionally. They are more aware about their professional growth. And ICT plays the role of the main determinant for continuous professional development of teachers.

Many past studies have supported this view that ICT has positive effects to enhance professional development of teachers (Gulzar Ahmed, Muhammad Arshad, 2019). Through professional development teachers acquire life-long learning and good ICT skills incorporated into a new pedagogical approach (Meenu Malik and Nikhat Yasmin Shafeeq 2016). Mautadin, Girish (2020) ICT training had a very positive impact on the performance of teachers' duties and professional development of the secondary school educators in Mauritius. Sharma (2021), mentioned to which extent technology has affected teaching methods, the perspectives of teachers about the use of technology in the classroom teaching, and the growth of their professional development.

1.11 Conclusion:

The findings of the study provide significant insights about the relationship between ICT and professional development among secondary school teachers. The correlational analysis shows positive and significant relationship between ICT and professional development among secondary school teachers. It indicates that ICT affects professional development in a large extent. So, it is expected to school managements and educational agencies provide all required ICT facilities in the schools. And organize some training sessions for the teachers to reskills and update their knowledge regarding ICT devices.

1.12 Educational Implication:

The findings of the study suggest that enhancing ICT uses in classroom teaching among secondary school teachers is essential for enhancing the professional development of teachers. The study recommends that educational institutions should organize ICT based professional development programs to train the teachers about ICT tools for education purpose. Teachers should be provided with adequate and serviceable ICT gadgets for teaching and learning processes. Teachers' needs and aspirations should be aligned with curriculum and education policies to increase the effectiveness of teachers. This ultimately, benefiting the students' learning outcomes and creating better learning experiences.

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