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Perceptions of secondary school teachers on classroom communication and integration of ICT (information and communication technologies)

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Abstract

The present study aims to determine secondary school teachers' perceptions of classroom communication and the integration of ICT (Information and Communication Technologies) in secondary school classrooms in Sircilla Rajanna district, Telangana, India. This is a descriptive research study in which 300 teachers were selected through simple random sampling from 36 secondary schools. The data was collected by administering the perception scale, which was analyzed using descriptive statistics. The results indicate that secondary school teachers' perceptions of the integration of ICT into classroom communication are moderate. The female teachers' perceptions were slightly higher than those of male teachers regarding classroom communication and ICT integration. Teachers across different subjects perceive classroom communication and ICT integration at the same level, and they noticed no difference in their perceptions.

Keywords: Secondary School Teachers, Integration of ICT in Classroom Communication and Perceptions.

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1. INTRODUCTION

In the 21st century, it is expected that perceptions of classroom communication and the integration of ICT will shape how teachers deliver quality education. Today because of the advancement of perceptions in the society there are many ICT tools are readily available for the purpose of teaching in secondary school classrooms like audio-videoconferencing, computer based teaching, Google classrooms, virtual classroom software for online teaching, podcasts (enhancement, fiction, video, live podcasts and podcast novels), smart boards, wiki grade blogs, interactive whiteboards, digital projectors, mobile phones, social media, and digital content. It has become an essential and indispensable aid for classroom communication. It can provide an effective and flexible way to improve secondary school teachers' training programs and promote professional development among secondary school teachers. In the present scenario, ICT is used not only for delivering lessons but also for implementing and assessing the teaching and learning process in classrooms. Integration of ICT devices includes computer-based technologies, digital imaging, the internet, file servers, data storage devices, network infrastructure, desktops, laptops, and broadcasting technologies, namely radio, television, and telephone, which are used as instructional tools by secondary school teachers in secondary classrooms.

Therefore, there is a growing demand for educational institutions to integrate ICT perceptions with classroom communication. In this context, the present paper focuses on secondary school teachers' perceptions of classroom communication and integration of ICT. In the present study, the researcher used a simple random sampling technique to select 300 secondary school teachers, with equal representation from "ICT facilities schools" and "non-availability of ICT facilities schools". The specific objectives of the study are:

1. To study the perceptions of secondary school teachers towards the integration of ICT in classroom communication with respect to gender, age, teaching experience, educational qualifications, and subject of teaching, let us consider the following research question:

1. Perceptions of secondary school teachers have influenced the practice of teaching strategies.

Review of Related Literature

Valentina Arkorful and Kwaku Anhwere Barfi (2021) examined "the integration of information and communication technology in teaching in girls' senior high schools in Ghana". The researcher studied two objectives. The first objective examined "the extent to which the attitude of teachers influences the integration of ICT in teaching," and the second objective examined "the gender differences in the integration of ICT in senior high schools". A descriptive survey design and quantitative approach were adopted for the study. The findings revealed that teachers' attitudes had a significant positive relationship with ICT integration and concluded that there was no significant difference in gender acceptance of ICT integration in teaching.

Mailizar, Mailizar; Fan, Lianghuo (2020) investigated "Indonesian Teachers' Knowledge of ICT and the Use of ICT in Secondary Mathematics Teaching". The study employed a quantitative, cross-sectional survey method. It was conducted in one of Indonesia's provinces, where data were collected from 341 secondary mathematics teachers via a questionnaire survey. The researcher found that, "to a large extent, Indonesian secondary mathematics teachers have a largely inadequate knowledge of ICT and knowledge of ICT use in teaching." Abdullah Alenezi (2019) studied "a teacher's perspective of ICT integration in Saudi Secondary Schools". The researcher found that experienced teachers need to reconsider their ICT-related efforts, given limited access to ICT tools, as it is mandatory for all teaching staff to use them at times. Those schools are not properly funded to satisfy teachers' needs for ICT tools. The collected data indicates that the mandatory use of ICT impedes further development toward widespread ICT integration because both administrators and teachers rely on additional instructions and fail to implement collectively developed initiatives across school settings.

Kibinkiri Eric Len (2018) investigated "classroom communication techniques: a tool for pupils' participation in the learning process across the curriculum". The researcher's overall analysis of observations

and interviews on classroom communication techniques and pupils' participation in the learning process indicates that teachers use a range of non-verbal, written, and verbal communication in their classrooms.

2. METHOD AND MATERIALS

The descriptive survey methodology was adopted in this study. The population consisted of all schools with ICT facilities and non-schools with ICT facilities, as well as secondary schools where teachers from Rajanna Sircilla district, Telangana state, are working. The sample was drawn from thirty-six randomly selected government secondary schools with and without ICT facilities. The researcher used a simple random sampling technique and selected 300 respondents: 150 secondary school teachers from schools with ICT facilities and 150 from non-schools with ICT facilities.

The research instrument used for collection of data was "perceptions rating scale" on classroom communication and integration of ICT, which have four dimensions, dimension 1 was on productivity ICT tools, which contains 10 items, dimension 2 was on online communication and collaboration, which contains 10 items, dimension 3 was on the usage of ICT applications, which contains 15 items and dimension 4 was on ICT infrastructure, which contains 15 items each generated to answer the research question of the study. The reliability and validity of the study were measured through "Cronbach's alpha," which was adopted, and a value of 0.951 was obtained. The data was analyzed by using "descriptive statistics" such as "percentage", "mean", "standard deviation", and "inferential statistics like t-Test and F ratio were also used to draw the results.

Ethical Considerations

The research process followed key ethical principles in social science. Official approval was obtained from educational authorities and school administrations before the study. Teachers were informed about the research's aim and scope before data collection. Participation was voluntary. Completing the questionnaire indicated informed consent. No identifying information was collected, and all responses were kept confidential. Data were used only for research and not shared with third parties. Participants could decline or discontinue without obligation. The study respected participants' rights, privacy, and integrity.

3. RESULTS

Objective 1: The results on teachers' perceptions of classroom communication and the integration of ICT across different demographic variables are addressed.

Table 1

Comparison of Mean Scores of Teachers' Perceptions on Classroom Communication and Integration of ICT (Gender Wise)

Gender	N	Mean	SD	95% Confidence Interval for Mean
Male	193	172.36	31.785	168.11 To 176.45
Female	107	168.35	31.545	161.43 To 174.49
Total	**300**	**170.93**	**31.706**	**25.77 To 27.40**

Note: N (No. of Respondents), SD (Standard Deviation)

Table 1 presents the scores for male and female teachers' perceptions of classroom communication and ICT integration. The total sample mean of teachers' perceptions was 170.93 with SD 31.706, which is also within the limits of the 95 percent confidence interval. The obtained mean scores of male teachers were 172.36 with SD 31.785, and female teachers were 168.35 with SD 31.545. This shows that male teachers' mean score was slightly higher than that of female teachers.

Therefore, it can be considered that "the mean scores of male teachers' perceptions were slightly higher (172.36) than female teachers' (25.168) perceptions on classroom communication and integration of ICT".

Table 2

Levels of Teachers' Perceptions on Classroom Communication and Integration of ICT (Gender Wise)

Gender	High	Moderate	Low	Total
Male	65 (21.7%)	105 (35%)	23 (7.7%)	193 (64.3%)
Female	33 (11%)	61 (35%)	13 (4.3%)	107 (35.7%)
Total	**98 (32.7%)**	**166 (55.3%)**	**36 (12%)**	**300 (100%)**

Table 2 presents perceptions of the integration of ICT and classroom communication among "male" and "female" teachers. It shows that, out of 300 teachers, the majority (166, 55.3%) have moderate perceptions of classroom communication and the integration of ICT, followed by 98 (32.7%) with high perceptions and 36 (12%) with low perceptions. The table also indicates that the majority (105, 35%) of male teachers had moderate-level perceptions, followed by (65, 21.7%) and (23, 7.7%) male teachers with low-level perceptions regarding the integration of ICT and classroom communication. Whereas (65, 21.7%) male teachers and (33, 11%) female teachers had high-level perceptions of usage on the integration of ICT and classroom communication.

So, it may be concluded that most male teachers (105, 35%) had moderate level perceptions, followed by (65, 21.7%) male teachers who had high-level perceptions, and (61, 35%) of female teachers had moderate level perceptions on classroom communication and integration of ICT.

Further, to examine whether there are any significant differences in teachers' perceptions between male and female teachers. The data were subjected to the "Independent Sample t-Test".

Table 3

Independent Sample T-Test

Teachers' Perceptions on Classroom Communication and Integration of ICT (Gender Wise)

Source of Variation	Levene's Test for Equality of Variances		t-Test for Equality of Means		
	F	Sig	t	df	Sig. (2-tailed)
Equal Variances Assumed	.530	.467*	1.050	298	.294
Equal variances not assumed			1.053	220.368	.294

*Not significant at 0.05 levels

The result of the "Independent Samples Test" in Table 3 indicates that there are no significant differences between male and female teachers' perceptions of classroom communication and the integration of ICT at the 0.05 level ($t = 1.050$, $p > 0.05$). It means that male and female teachers do not differ significantly in their perceptions of classroom communication and the integration of ICT; all male and female teachers who participated in the study seem to have the same level of perceptions regarding the integration of ICT and classroom communication.

Therefore, it can be concluded that gender has no significant influence on teachers' perceptions of classroom communication and integration of ICT. These findings confirm the study's research question, which states that male and female teachers' perceptions will influence the practice of teaching-learning strategies for integrating ICT and classroom communication.

Table 4

Comparison of Mean Scores of Teachers' Perceptions on Classroom Communication and Integration of ICT Working in Schools with ICT Facilities and Non-ICT Facilities (Age Wise)

Age Group	N	Mean	SD	95% Confidence Interval for Mean
22-30 Years	2	184	9.899	95.05 To 272.94
31-40 Years	57	178.63	28.198	171.14 To 186.11
41-50 Years	133	171.02	30.635	165.76 To 176.22
51-58 Years	108	166.52	34.349	159.97 To 173.08
Total	**300**	**170.93**	**31.706**	**167.33 To 174.53**

Note: N (No. of Respondents), SD (Standard Deviation)

Table 4 presents a comparison of teachers' perceptions across age groups. It shows that the total mean score of secondary school teachers' perceptions is 170.93 with SD 31.706, which is also within the 95 percent confidence interval. The mean score (184 with SD 9.899) of the 22-30 age group was slightly higher when compared to other age categories in the study; the mean score of the 31-40 age group was 178.63 with SD 28.198, and the mean scores of the 41-50 age groups were 171.02 with SD 30.635. Whereas the mean score of teachers' perceptions of the 51-58 years age group was found slightly lower, 166.52, with SD 34.39, when compared to other age groups.

On the whole, it was found that the mean scores of the teachers' perceptions between the age of 22-30 years have slightly more than the other age groups because the perceptions of teachers mean score of this group more elevated (184) than the rest of other age categories, i.e.31-40 years, 41-50 years and 51-58 years (Mean: 178.63.00, 171.02, and 166.52) respectively.

Table 5

Level of Teachers' Perceptions on Classroom Communication and Integration of ICT (Age-wise)

Age Group	High	Moderate	Low	Total
22-30 Years	1(0.3%)	1(0.3%)	00	2(0.7%)
31-40 Years	21 (7%)	33(11%)	3(1%)	57(19%)
41-50 Years	40 (13.3%)	77 (25.7%)	16(5.3%)	133(44.3%)
51-58 Years	36 (12%)	55(18.3%)	17(5.7%)	108(36%)
Total	**98(32.7%)**	**166(55.3%)**	**36(12%)**	**300 (100%)**

Table 5 reveals teachers' perceptions of classroom communication and the integration of ICT across different age groups. It shows that out of 300 teachers, the majority (166, 55.3%) have moderate perceptions of classroom communication and the integration of ICT, followed by (98, 32.7%) with high perceptions, and (36, 12%) with low perceptions. It is also indicated in the table that the majority of teachers (77, 25.7%) from the 41-50 years age group had moderate level perceptions, followed by (40, 13.3%) from 41-50 years age group, who had high-level perceptions, and (17, 5.7%) from the same age group, who had low-level perceptions.

So, it may be concluded that the majority of teachers (77, 25.7%) from 41-50 years age group were having moderate level perceptions, followed by (40, 13.3%) high-level perceptions and (17, 5.7%) from the same age group were having low-level perceptions on classroom communication and integration of ICT when compare to other three age group teachers .i.e.22-30. 31-40, 51-58 years.

Furthermore, to investigate whether there is any significant difference among teachers coming from different age groups' perceptions, the data were constrained to "One-way Analysis of Variance (ANOVA)".

Table 6

Analysis Of Variance

Teachers' Perceptions on Classroom Communication and Integration of ICT (Age-wise)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5816.685	3	1938.895	1.947	.122*
Within Groups	294763.112	296	995.821		
Total	**300579.797**	**299**			

*Not significant at 0.05 levels

The ANOVA findings in Table 6 indicate that the F value (1.947) is not significant at the 0.05 level ($F=1.947$, $p > 0.05$); this suggests that there is no significant difference among unequal age groups. Teachers across age groups do not differ significantly in their perceptions of classroom communication and the integration of ICT; all teachers seem to have the same level of perceptions.

Therefore, it can be concluded that "the age has no significant influence on teachers' perceptions of classroom communication and integration of ICT". The result of this study confirms the research question, which states that teachers across age groups will not differ in their perceptions of the practice of teaching-learning strategies in classroom communication and the integration of ICT.

Table 7

Comparison of Mean Scores of Teachers' Perceptions on Classroom Communication and Integration of ICT Working in Schools with ICT Facilities and Non-ICT Facilities (Teaching Experience Wise)

Years of Teaching Experience	N	Mean	SD	95% Confidence Interval for Mean
Up to 10 Yrs	21	172.23	30.925	158.16 To 186.31
11-20 Yrs	141	172.03	31.169	166.84 To 177.22
21-30 Yrs	128	169.64	32.598	163.94 To 175.35
31-35 Yrs	10	169.20	33.379	145.32 To 193.07
Total	**300**	**170.93**	**31.70**	**167.33 To 174.53**

Table 7 presents a comparison of mean scores for perceptions of teachers with varying experience. It indicates that the exhaustive mean scores for perceptions of teachers are 170.93 with a SD of 31.70, which is also within the 95% confidence interval. The mean scores (172.23 with SD 30.925) of teachers having experience up to 10 years were above when compared to other experience teachers, followed by teaching experience i.e., 11-20 and teachers' perceptions score having 21-30 was 172.03 with SD 31.169, 169.64 with SD 32.598 respectively, whereas the mean scores of 31-35 years of teaching experience teachers were found lower 169.20 with SD 33.379 when compared with other experience group respondents in the study.

On the whole, it was found that the mean score of the teachers of up to 10 years of teaching experience was higher (172.23 and SD 30.925) when compared among the four group teachers, i.e., 11-20 years, 21-30 years, and 31-35 years (172.03, 169.64, 169.20) respectively.

Table 8

Level of Teachers' Perceptions on Classroom Communication and Integration of ICT (Teaching Experience Wise)

Teaching Experience	High	Moderate	Low	Total
Up to 10 Years	6 (2%)	13 (4.3%)	2 (.7%)	21 (7%)
11-20 Years	48 (16%)	78 (26%)	15 (5%)	141 (47%)

21-30 Years	39 (13%)	71 (23.7%)	18 (6%)	128 (42.7%)
31-35 Years	5 (1.7%)	4 (1.3%)	1 (.3%)	10 (3.3%)
Total	**98 (32.7%)**	**166 (55.3%)**	**36 (12%)**	**300 (100%)**

Table 8 reveals teachers' perceptions of classroom communication and the integration of ICT across different years of teaching experience. It shows that out of 300 teachers, the majority (166, 55.3%) of teachers have a moderate level of perception on classroom communication and integration of ICT, followed by (98, 32.7%) of teachers having a high-level perception, and (36, 12%) teachers have a low-level perception. It is also shown in the table that the majority of teachers (78, 26%) from teaching experience i.e., 11-20 years were having a moderate level of perceptions, followed by (48, 16%) teachers from the same years of teaching experience were high level of perception and (18, 6%) majority of the teachers from 21-30 years of teaching experience were having low-level of perception about the integration of ICT in classroom communication.

So, it may be concluded that the majority of teachers (76, 28%) from 11-20 years of teaching experience were having a moderate level of perception, followed by (48, 16%) of teachers' from the same years of teaching experience teachers were high level of perceptions and (18, 6%) from 21-30 years of teaching experience were having low levels of perceptions on the integration of ICT in classroom communication.

Further to probe whether there is any significant difference in perceptions of teachers having various years of teaching experience among them, the data were subjected to "One-way Analysis of Variance (ANOVA)".

Table 9

Analysis of Variance

Teachers' Perception Scores on Classroom Communication and Integration of ICT (Teaching Experience Wise)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	448.385	3	149.462	0.147	0.931*
Within Groups	300131.412	296	1013.957		
Total	**300578.797**	**299**			

*Not significant at 0.05 levels

The ANOVA results indicate that the F value (0.147) is insignificant at the 0.05 level (F=.147, p>0.05); this confirms that there is no significant difference in the teaching experience of teachers' perceptions of the integration of ICT in classroom communication. With varied teaching experience, teachers do not differ significantly in their perceptions of the integration of ICT in classroom communication; overall, they seem to have the same level of perceptions regarding ICT integration in classroom communication.

Therefore, it can be concluded that having teaching experience does not have a significant influence on teachers' perceptions of the integration of ICT in classroom communication. The result of this study confirms the research question, which states that teachers with different years of teaching experience will not differ in their perceptions of the integration of ICT in classroom communication.

Table 10

Comparison of Mean Scores of Teachers' Perceptions on Classroom Communication and Integration of ICT Working in Schools with ICT Facilities and Non-ICT Facilities (Educational Qualification Wise)

Educational Qualifications	N	Mean	SD	95% Confidence Interval for Mean		
Graduation with B. Ed	66	162.71	30.617	155.18	To	170.23
PG with B. Ed	212	172.43	32.37	168.05	To	176.82

PG with M. Ed	22	181.13	23.13	170.87	To	191.39
Total	**300**	**170.93**	**31.70**	**167.33**	**To**	**174.53**

Note: N (No. of Respondents), SD (Standard Deviation)

Table 10 presents the mean scores of teachers' perceptions of classroom communication and the integration of ICT, by educational qualifications. The total sample mean of teachers' perception is 170.93 with SD 31.70, which is also within the 95% confidence intervals. The mean scores among teachers with PG and M. Ed qualifications were higher (181.13, SD 23.13) than those for other educational qualification categories of teachers in the study. For PG with B. Ed, the mean score is 172.43 with SD 32.37, and for teachers' educational qualifications with Graduation and B. Ed, the mean score is 162.71 with SD 30.617. Whereas the mean score for teachers' perceptions of educational qualification (Graduation with B. Ed) was lower at 162.71 (SD 30.617) than for other educational qualification categories.

On the whole, it was found that the mean scores of the teachers having PG with M. Ed educational qualification were higher (181.13 and SD 23.13) when compared with different educational qualification categories of teachers, i.e., Graduation with B. Ed and PG with B. Ed educational qualification (Mean 162.71 with SD 30.617, 172.43 with SD 32.37) respectively.

Table 11

Level of Teachers' Perceptions on Classroom Communication and Integration of ICT (Educational Qualification Wise)

Educational Qualification	High	Moderate	Low	Total
Graduation with B. Ed	12 (4%)	44 (14.7%)	10 (3.3%)	66 (22%)
PG with B. Ed	73 (24.3%)	114 (38%)	25 (8.3%)	212 (70.7%)
PG with M. Ed	13(4.3%)	8 (2.7%)	1 (0.3%)	22 (7.3%)
Total	**98 (32.7%)**	**166 (55.3%)**	**36 (12%)**	**300 (100%)**

Table 11 presents teachers' perceptions regarding classroom communication and the integration of ICT, by educational qualifications. Of the 300 teachers, the majority (166, 55.3%) have moderate perceptions, followed by (98, 32.7%) with high perceptions and (36, 12.7%) with low perceptions. The majority of teachers (114, 38%) with B. Ed educational qualification had moderate perceptions, followed by (72, 24.3%) with the same educational qualification having high perceptions, and (25, 8.3%) with the same educational qualification also having high perceptions. Few of the teachers (1, 0.3%) with PG and M. Ed had low perceptions, and the teachers (8, 2.7%) with PG and M. Ed had moderate perceptions.

So, it may be concluded that the majority of teachers (114, 38%) from PG with B. Ed educational qualification were having moderate perceptions, followed by (72, 24.3%) teachers from same educational qualification were high perceptions and (25, 8.3%) also the same educational qualification were having low perceptions on classroom communication and integration of ICT when compare to other two categories i.e. graduation with B. Ed and PG with M. Ed educational qualification.

Further to examine whether there is any significant difference among teachers having different educational qualifications in perceptions, the data were subjected to "One-way Analysis of Variance (ANOVA)".

Table 12

Analysis of Variance

Teachers' Perceptions Scores on Classroom Communication and Integration of ICT (Educational Qualifications)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7231.473	2	3615.736	3.661	.027*
Within Groups	293348.324	297	987.705		

Total	**300579.797**	**299**

*Not significant at 0.05 levels

The result of ANOVA in Table: The result of ANOVA in Table 12 reveals that the F value (3.661) is found to be insignificant at the 0.05 level (F=3.661, p>0.05); this data indicates that there is no significant difference among other educational qualifications in terms of perceptions of teachers.achers.t educational qualifications do not significantly influence perceptions on the integration of ICT in classroom communication; all the teachers involved in the study seem to have the same level of perceptions on the practice of teaching-learning strategies.

Therefore, it can be concluded that educational qualifications have no significant influence on teachers' perceptions of classroom communication and the integration of ICT. The result of this study confirms the research question, which states that teachers with different educational qualifications will not affect their perceptions of ICT integration in classroom communication.

Table 13

Comparison of Mean Scores of Teachers' Perceptions on Classroom Communication and Integration of ICT Working in Schools with ICT Facilities and Non-ICT Facilities (Teaching Subject Wise)

Teaching Subject	N	Mean	SD	95% Confidence Interval for Mean
Mathematics	64	172.73	31.319	164.91 To 180.55
Physical Science	36	176.80	27.076	167.64 To 185.96
Biological Science	48	163.66	31.200	154.60 To 172.72
Social Studies	40	176.60	26.880	168 To 185.19
English	40	176.97	37.323	165.03 To 188.91
Telugu	42	167.28	32.817	157.05 To 177.51
Hindi	30	161.20	32.470	149.07 To 173. 32
Total	**300**	**170.93**	**31.706**	**167.33 To 174.53**

Note: N (No. of Respondents), SD (Standard Deviation)

Table 13 presents the mean scores for teachers' perceptions of having different subject teachers. It indicates that the total sample means scores of teachers' perception are 170.93 with SD 31.706, which is also within the 95 percent confidence intervals. The mean scores of English teachers were higher (176.97, SD 37.323) than those of other subject teachers, whereas the mean scores of Hindi teachers were lower (161.20, SD 32.470) than those of other subject teachers. Whereas the mean score of Hindi teachers was found to be lower at 161.20 (SD = 32.470) compared to other teaching subject teachers. it was found that the English teaching subject teachers mean scores were higher (176.97 with SD 37.323) when compared among different teaching subject teachers i.e., Physical Science, Social Studies, Mathematics, Telugu, Biological Science and Hindi teachers (Mean176.80 with SD 26.880, 176.60 with SD 26.880, 172.73 with SD 31.319, 167.28 with SD 32.817, 163.66 with SD 31.200 and 161.20 with SD 32.470) respectively.

Table 14

Level of Teachers' Perceptions on Classroom Communication and Integration of ICT (Teaching Subject Wise)

Teaching Subject	High	Moderate	Low	Total
Mathematics	26(8.7%)	31(10.3%)	7 (2.3%)	64 (21.3%)
Physical Science	13 4.3%)	20 (6.7%)	3(1%)	36 (12%)
Biological Science	13(4.3%)	26 (8.7%)	9 (3%)	48 (16%)
Social Studies	15 (5%)	23 (7.7%)	2 (0.7%)	40 (13.3%)
English	16 (5.3%)	20 (6.7%)	4 (1.3%)	40 (13.3%)
Telugu	8 (2.7%)	29 (9.7%)	5 (1.7%)	42 (14%)
Hindi	7 (2.3%)	17 (5.7%)	6 (2%)	30 (10%)
Total	**98 (32.7%)**	**166 (55.3%)**	**36 (12%)**	**300 (100%)**

Table 14 reveals teachers' perceptions of classroom communication and the integration of ICT across different teaching subjects. Of the 300 teachers, the majority (166, 55.3%) have moderate perceptions,

followed by 98 (32.7%) with high perceptions and 36 (12%) with low perceptions. Most Mathematics teaching subject teachers (31, 10.3%) had moderate perceptions, followed by Mathematics teaching subject teachers (26, 8.7%) with high perceptions, and Physical Science teaching subject teachers (3, 1%) with low perceptions regarding classroom communication and the integration of ICT.

So, it may be concluded that the majority of teachers (31, 10.3%) from Mathematics teaching subject teachers were having moderate perceptions followed by (26, 8.7%) teachers from Mathematics were high perceptions and (3, 1%) Physical Science teaching subject teachers were having low perceptions on classroom communication and integration of ICT when compared to other teaching subject teachers i.e. graduation with B. Ed and PG with M. Ed educational qualification.

Further to examine whether there is any significant difference among teachers having different teaching subjects in perceptions, the data were subjected to "One-way Analysis of Variance (ANOVA)".

Table 15

Analysis of Variance

Teachers' Perceptions Scores on Classroom Communication and Integration of ICT (Teaching Subject)

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10129.060	6	1688.177	1.703	.120*
Within Groups	290450.736	293	991.299		
Total	**300579.797**	**299**			

*Not significant at 0.05 levels

The ANOVA results in Table 15 indicate that the F value (1.703) is insignificant at the 0.05 level (F=1.703, p>.120). This suggests that there is no significant difference among teachers in perceptions of classroom communication and the integration of ICT across different teaching subjects. It means that different subject-teaching teachers do not significantly influence their perceptions of classroom communication and the integration of ICT; all the teaching subject teachers who participated in the study seem to have the same level of perceptions.

Therefore, it can be concluded that teachers in different teaching subjects have no significant influence on teachers' perceptions of classroom communication and the integration of ICT. The result of this study confirms the research question, which states that teachers with different teaching subjects do not influence their perceptions of the practice of integrating ICT into classroom communication.

4. CONCLUSION

The teachers' mean score was slightly higher (172.36) than that of female teachers (168.35) on classroom communication and ICT integration in secondary classrooms. Most male teachers (35%) had moderate perceptions. The observed differences in perceptions of male and female teachers were not statistically significant. Male and female teachers do not differ significantly in terms of their perceptions. In this study, gender does not significantly influence teachers' perceptions; both "male" and "female" teachers participating in the study appear to have the same level of perceptions. The results of this study confirm the research question, which states that perceptions of male and female teachers have influenced the practice of teaching-learning strategies in classroom communication and the integration of ICT. Consistent with Ahiatrogh & Adane (2011), younger and male teachers were more curious and interested in the use and application of ICT in teaching and learning; on the other hand, older and female teachers showed less interest in their use and application in education.

The mean score for teachers aged 22-30 is slightly higher than the other age groups because this group's mean score (184) was higher than those of the other age groups. Most teachers (23.3%) in the 41-50 years age group had moderate perceptions of classroom communication and the integration of ICT, compared with teachers in other age groups. Although the observed differences in mean scores of teachers who participated in the study across age groups were statistically insignificant, teachers from different age groups

did not differ significantly in their perceptions of classroom communication. Age has no significant influence on teachers' perceptions of the integration of ICT and classroom communication; all the selected teachers in the study seem to have the same level of perceptions regarding the practice of teaching-learning strategies. The result of this study confirms the research question, which states that teachers across age groups will not differ in their perceptions of the integration of ICT in classroom communication.

The mean score for perceptions of teachers with up to 10 years of teaching experience was higher (172.23) than that of teachers with other teaching experience in the current study. Most teachers (76, 28%) with 11-20 years of teaching experience had moderate perceptions of the integration of ICT and classroom communication in practice. On the other hand, the mean score for perceptions of teachers with up to 10 years of experience was higher than that of teachers with other teaching experience in the study. More specifically Fanai and Chhangate (2016) search out those teachers who have more experience in teaching their attitude is positive Msila (2015) identified that "the younger teachers were more tolerant of the changes than their older counterparts who found the introduction of ICT daunting, the study's conclusions illustrate that the success of digital technology in classrooms will depend more on teacher competence as well as positive attitudes towards ICT". Yet, the observed differences in perceptions mean that the scores of teachers who participated in the study with different teaching experiences were found to be statistically insignificant; teachers with different teaching experiences do not differ significantly in their perceptions regarding the practice of modern teaching-learning strategies in classroom communication. The different teaching experiences of teachers do not significantly influence teachers' perceptions; all the selected teachers in the study seem to have the same level of perceptions on the practice of teaching learning strategies. The result of this study confirms the research question of the study, which states that teachers with different teaching experiences will not differ in their perceptions towards practicing modern teaching and learning strategies.

The mean scores for teachers with PG and M. Ed educational qualifications were higher (181.13 and SD 23.13) than those for other educational qualification categories of teachers in the study. Most teachers (114, 38%) have moderate-level perceptions towards teaching-learning strategies. From another point of view, the perceptions mean scores of teachers having educational qualifications (PG with M. Ed) were higher than those of teachers with other educational qualifications in their study.

Yet, the observed differences in perceptions mean that the scores of teachers with different educational qualifications were not statistically significant; teachers with different educational qualifications do not differ significantly in their perceptions of classroom communication and the integration of ICT. Teachers with different educational qualifications do not have a significant influence on teachers' perceptions of modern teaching-learning strategies; the fully selected samples in the study seem to have the same perceptions of classroom communication and the integration of ICT. The result of this study confirms the research question, which states that teachers with different educational qualifications will not differ in their perceptions of the integration of ICT in classroom communication. The English teaching subject teachers' mean scores were higher (176.77) than those of other teaching subject teachers in this study. His study. The mean scores of English teaching subject teachers were higher (176.97) than those of other teaching subject teachers' perceptions on classroom communication and integration of ICT in secondary school classrooms. Although the observed differences in perceptions of teachers' mean scores in the study from different teaching subject teachers were found statistically insignificant, samples from different teaching subject teachers do not differ significantly in terms of their perceptions on classroom communication and integration of ICT in the secondary teaching learning process. Various teaching subject teachers have no significant influence on teachers' perceptions of classroom communication and the integration of ICT; all the selected teachers in the study seem to have the same level of perceptions regarding classroom communication and the integration of ICT. The result of this study confirms the research question, which states that teachers across different teaching subjects will not differ in their perceptions of the integration of ICT in classroom communication.

Teachers' perceptions of classroom communication and the integration of ICT: both male and female teachers who participated in the study seem to have the same level of perceptions. The study infers that

teachers across age groups do not influence their perceptions of the integration of ICT in classroom communication. Teachers working in schools with ICT facilities have better perceptions of classroom communication and the integration of ICT. Irrespective of their teaching subject, teachers have slightly better perceptions than teachers of other subjects.

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