

Research Article

# Differential perception of teachers' effectiveness in the use of instructional technology

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Instructional technology, Teachers' effectiveness, Differential perception

**SUMMARY :** Instructional technology can be defined as a system of thoughts and processes which helps in optimizing the way curriculum is taught in the classrooms. Its effective use by the teachers would require them to understand its various dimensions *viz.*, design and development of instructional methods which include setting instructional objectives, implementation of the instructional strategy, management of classroom teaching and evaluation of what has been taught and understood by the students. In the present study, teachers' effectiveness in the use of instructional technology was assessed with respect to its use in classroom teaching covering four dimensions- design and development of instructional materials or methods, implementation of instructional strategy, classroom teaching management and evaluation, teachers self- evaluation and student evaluation were used to find out the teaching effectiveness of the teachers. The study was conducted at the College of Agriculture (Jorhat) and the Biswanath College of Agriculture (Sonitpur) under Assam Agricultural University with a view to measure the effectiveness of teachers in their use of instructional technology in classroom teaching. Both teachers and students of these colleges were the respondents and selected by using a proportionate random sampling design. A total of 70 teachers and 130 students were selected for the study. The data were collected by administering structured questionnaires. The percentage, frequency, mean, standard deviation, co-efficient of variation, Chi-square test, Pearson's product moment co-efficient of correlation, multiple regression and 'z' test of significance for difference of two means, were used in statistical analysis and interpreting the data.

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## **BACKGROUND AND OBJECTIVES**

Teaching deals with communicating and dissemination of information and this comes under the purview of instructional technology which includes the teachers' role in designing, developing, utilization and management of processes and resources for learning. The emerging challenges in the field of classroom teaching has led to the development of instructional technology which is presently a growing field of study whereby technology is used as a mean to solve educational challenges both in the classroom as well as distance learning environments. Despite its importance in teaching,

teachers engaged in the teaching process have often tended to neglect the use of the technology available to them or at times are not up to date with such advances in teaching process.

Instructional technology can be defined as a system of thoughts and processes which helps in optimizing the way curriculum is taught in the classrooms. Its effective use by the teachers would require them to understand its various dimensions *viz.*, design and development of instructional methods which include setting instructional objectives, implementation of the instructional strategy, management of classroom teaching and evaluation of what has been taught and understood by the students. The quality of

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agricultural education that is provided depends ultimately on the quality of the people who provide it. Thereby evaluation of teachers' performance and their effectiveness in using the "instructional technology" becomes rather significant especially when it comes to understanding and identifying the strengths and weaknesses of the present system. Evaluation also brings about a sense of accountability among the teachers in terms of agricultural education especially when the study conducted by Sinha and Verma (1977) pointed that the 'knowledge of agricultural graduates is very theoretical and they lacked practical insights.' Though the onus may not entirely lie in the hands of the teacher but it is worth studying whether this has been caused by the failure on the part of the teachers in the effective use of "instructional technology" in classroom situations. Self-evaluation by the teachers offers an opportunity to improve their teaching performance, identifying their in-service training needs and especially develop the communication effectiveness when it comes to formal classroom teaching. Students' appraisal of their teachers' effectiveness gives an opportunity for them to be evaluators as they are one of the major stakeholders in the agricultural education field. The students' evaluation of teachers' teaching effectiveness also helps to augment the ratings obtained from teachers' self-evaluation and help to draw a clear picture of the teachers' teaching effectiveness. With Appling *et al.* (2001) stating that, by drawing on three or more different source of evidence, the strengths of each source can be compensated for weakness of the other sources, thereby converging on a decision about teaching effectiveness that is more accurate than one based on any single source. In order to find out to what extent the teachers are aware of the instructional technology and how effective they are using it in developing course content and curriculum with a comparison of what their students have to say in this regard, the present study was conducted with the following objectives :

- To study teachers' effectiveness in use of instructional technology as perceived by them.
- To study teachers' effectiveness in use of instructional technology as perceived by students.
- To study the perceptual regarding teachers' effectiveness

## RESOURCES AND METHODS

The study was conducted in the two Colleges of

**Table 1 : Distribution of teachers' effectiveness as perceived by them**

Categories	Score range	Teachers (n=70)	
		Frequency	Percentage
Low	<138	12	17.14
Medium	138-160	46	65.71
High	>160	12	17.14

Agriculture in Jorhat and Biswanath Chariali under Assam Agricultural University with a sample size of 70 teachers and 130 students. The respondents were selected by following proportionate random sampling technique. After consulting various available literature and the teachers of Assam Agricultural University, a number of items relevant to the area under study were collected, screened, edited and then properly worded. Further these items were put to judges rating to see their suitability and relevance. The items which were judged as most important or important were included and the rest were rejected. The total selected items under teaching effectiveness in use of instructional technology were 34. These items were included under four different dimensions- Design and development of instructional materials/methods, implementation of instructional strategy, classroom teaching management and evaluation. The respondents were asked to indicate their perception regarding each effectiveness items on a five point continuum ranging from most frequently performed, frequently performed, sometimes performed, rarely performed and never performed with scores ranging from 5 to 1, respectively. The total score given by each teacher and student indicates the level of effectiveness in terms of performance by that particular teacher. Data for the present study were collected by using a pretested questionnaire. The ratings given by the teachers and students were further analyzed to find out if there was any significant perceptual difference between what teachers and students reported. Perceptual difference was also found out for each item on the list. This was done by employing the z-test to compute the test statistic 'z' at 5 per cent probability level.

## OBSERVATIONS AND ANALYSIS

Teachers self- evaluation and student evaluation were used to find out the effectiveness of the teachers. Findings of both the methods are discussed in the following sub heads:

### Teachers effectiveness as perceived by them:

The frequency and percentage distribution of teachers according to the level of teachers' effectiveness in the use of instructional technology as perceived by the teachers themselves are presented in the Table 1.

Table 1 reveals that majority (65.71%) of the teachers had medium level of effectiveness in the use of instructional technology. Distribution of teachers' in the low and high level of effectiveness was the same (17.14%). It is also of concern

**Table 2 : Distribution of teachers' effectiveness as perceived by students**

Categories	Score range	Students (n=130)	
		Frequency	Percentage
Low	<113	21	16.15
Medium	113-143	85	65.38
High	>143	24	18.46

**Table 3 : Z-test of significance for differential perceptual regarding teachers' effectiveness**

Perceived teachers effectiveness	Mean		Sample variance		Z value
	Teachers	Students	Teachers	Students	
	148.75	128.12	126.36	215.83	11.08**

\*\* indicate significance of value at P=0.05

that 17.14 per cent respondent's effectiveness is low.

### Teachers effectiveness as perceived by students:

The frequency and percentage distribution of teachers according to the level of teachers' effectiveness in the use of instructional technology as perceived by the students are presented in Table 2.

Data presented in Table 2 reveal that majority (65.38%) of the students perceived that teachers' effectiveness in the use of instructional technology was at the medium category followed by 18.46 per cent high and 16.15 per cent low teaching effectiveness.

### Differential perception regarding teachers effectiveness:

Table 3 depicts the mean scores of both teachers (148.75) and students (128.12) along with their sample variances and the z value (11.08\*\*). It reveals that in terms of perception of teachers' effectiveness in the use of instructional technology, there was significant difference in what teachers and student reported. This means that there is perceptual difference between teachers and students regarding teachers' effectiveness.

These findings are similar to the findings of the studies conducted by Feldman (1989), Centra (2005) and Baslow and Montgomery (2006).

### Item wise differential perceptual regarding teachers effectiveness:

A perusal of the data presented in Table 4 indicate that out of the 34 items included in the various dimensions of instructional technology, significant differences were seen in 32 items as z value in all these items were significant. Thus, it is established that there was perceptual difference between teachers and students regarding teachers' effectiveness in use of instructional technology. Perceptual difference is not seen only in the statement which deals with 'instruction being based on the adopted curriculum of the University' and the 'periodic review of whether students have submitted their assignments on time'. This may be due to the fact that both the teachers

and student agree that all the instructions are only based on the adopted curriculum of the University which is true as the teacher do tend to stick to whatever curriculum is given by the University and also that the students are satisfied with the frequency of reviews that the teachers offer when it comes to whether the students have submitted their assignments on time.

### Conclusion:

A majority of the teachers' (65.71%) and students (65.38%) had medium range in the perception of teachers' effectiveness in the use of instructional technology. A significant difference in perception of the teachers' effectiveness in use of instructional technology by the teachers and students was found. Item wise analysis of perceptual differences revealed differences in the perception in most items except for two items viz., instructions being based on adopted curriculum of the university and periodic review of whether the students have submitted their assignments on time. In order to reduce the perceptual difference existing between students and teachers, suggestion from students should also be incorporated whenever possible. To enhance effectiveness of teachers, motivational and inspirational activities which can increase participation of teachers and students must be arranged. A teachers' training centre for refresher training courses should be established at Assam Agricultural University headquarters in order to conduct regular training programmes for teachers both in recent advances in agricultural science as well as teaching method. A teachers' training centre for refresher training courses should be established at Assam Agricultural University headquarters in order to conduct regular training programmes for teachers both in recent advances in agricultural science as well as teaching method. Efforts must be directed towards updating the textbooks and journals in the library. Curriculum must be more practical oriented and allow teachers to have a say in the selection and development of the curriculum. Capacity enhancement of teachers through national and international exposure trainings and visit

**Table 4 : Z-test of significance for perceptual gap in teachers' effectiveness item wise**

Sr. No.	Statements	Mean		Sample variance		Z value
		Teachers	Students	Teachers	Students	
<b>Design and development of instructional materials or methods</b>						
1.	Instructions based on adopted curriculum of the university.	4.5	4.32	0.31	0.63	1.90
2.	Develops instructional objectives.	4.17	3.81	0.52	0.74	3.10**
3.	Lessons developed according to the instructional objectives.	4.5	4.06	0.34	0.78	4.19**
4.	Develops the contents.	4.37	3.9	0.55	0.67	4.10**
5.	Sequences the contents.	4.44	3.84	0.39	0.90	5.31**
6.	Teaching methods determined based on the subject matter.	4.32	3.99	0.48	0.96	2.80**
7.	Develop teaching aids to increase students' retention.	4.21	3.42	0.57	0.86	6.54**
8.	Group works/ practical planned as per syllabus.	4.60	4.28	0.27	0.77	3.17**
9.	Homework/assignments related to the subject matter are developed.	4.52	3.99	0.48	0.89	4.56**
10.	Study materials are developed for students' use.	4.32	3.92	0.45	0.78	3.62**
<b>Implementation of instructional strategy</b>						
1.	Instructional objectives and activities are introduced prior to each classroom session.	4.14	3.54	0.51	1.16	4.67**
2.	Instructional activities are started with a review of previous session.	4.12	3.32	0.57	1.01	6.36**
3.	Materials, supplies and equipments are ready before the start of each session.	4.25	3.42	0.51	1.43	6.14**
4.	Demonstrate accurate concepts and current knowledge in subject field	4.50	3.80	0.34	0.83	6.50**
5.	Using different teaching methods in classroom teaching.	4.14	3.25	0.58	1.21	6.67**
6.	Use of simple language in delivery of instruction.	4.68	4.35	0.21	0.47	4.02**
7.	Provides relevant examples to illustrate concepts and skills.	4.45	3.80	0.36	0.94	5.79**
8.	Discusses and summarizes main points of each lesson just studied.	4.30	3.32	0.44	1.08	8.04**
9.	Apply recent technological aids to facilitate an effective classroom teaching.	4.24	3.53	0.36	1.38	5.60**
<b>Classroom teaching management</b>						
1.	Maintains discipline in the classroom.	4.72	4.38	0.22	0.70	3.68**
2.	Possess skills in handling teaching aids operation.	4.31	3.76	0.39	0.67	5.24**
3.	Support students in developing productive work habits.	4.17	3.60	0.60	1.04	4.35**
4.	Creates interest in the classroom.	4.40	3.50	0.33	0.71	8.89**
5.	Encourages to ask questions.	4.55	3.68	0.30	0.97	7.99**
6.	Encourage students to look at problems in new ways and find ways to solve problems.	4.15	3.20	0.48	1.11	7.64**
7.	Encourages students to express ideas clearly and accurately.	4.38	3.53	0.38	0.99	7.38**
8.	Provides humour and remediation at certain intervals to remove anxiety.	3.88	2.99	0.65	1.07	6.72**
9.	Enjoys working with students in the classroom.	4.38	3.44	0.32	0.86	8.81**
10.	Available to help as and when required by students.	4.71	4.05	0.20	1.10	6.16**
<b>Evaluation</b>						
1.	Follow university recommended grading policies and regulations.	4.82	4.49	0.14	0.54	4.29**
2.	Monitor and evaluate students' progress and attendance.	4.48	4.23	0.54	0.79	2.16**
3.	Periodic review of whether students have submitted their assignments on time.	4.38	4.25	0.35	0.71	1.28
4.	Provide feedback on students' performance.	4.17	3.51	0.37	1.04	5.66**
5.	Time to time questioning to evaluate what has been understood.	4.34	3.51	0.37	1.01	7.22**

\*\* indicate significance of value at P=0.05

should also be promoted.

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