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Questioning Techniques of Effective Teachers at Secondary Level: An Observational Study

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ABSTRACT

The present study is an attempt to explore the questioning tactics of competent instructors at secondary level in Gurugram, Haryana. The primary goal of this study is to discover, classify and assess different sorts of questions that experienced teachers utilize during the classroom instruction and to understand how these questions effect students' learning and involvement. The study was conducted in an observational research design. The total 120 class observations were conducted in 12 secondary schools (government and private) in Gurugram district. Six effective instructors were selected from each type of school based on their students' academic achievement, their peers' recommendations, and their principals' ratings. Data were obtained by means of standardized observation checklists, field notes and short teacher interviews. The data suggest that effective teachers in Gurugram employ higher order questions (55%) more than lower order questions (45%). They routinely employ probing, redirection and wait time techniques. The survey also indicated that the frequency of higher-order questions was considerably higher in private schools compared to government schools. The findings underline the need for teacher training programmes to emphasise the development of questioning abilities to enhance classroom interaction and student thinking.

Keywords: *Questioning techniques, effective teachers, observation, Bloom's Taxonomy, wait-time, probing questions*

1. INTRODUCTION

Teaching is a complex procedure that has a lot of talents. The most potent weapon a teacher has is the ability to ask questions. When a teacher asks a question in class, it accomplishes much more than test if students have memorized material. Good questions make pupils think, reason, and understand things deeper. Research done over the past few decades repeatedly reveals that the quality and type of questions asked by the professors strongly influence students' academic progress and thinking skills [1]. The secondary level is a vital period in the intellectual growth of students. This is the stage where individuals begin to acquire abstract thinking, problem-solving skills and the ability to reason independently. Teachers at this level may do a lot to help children progress cognitively if they employ good questioning tactics. However, if inquiry is restricted to recollection or factual recall, kids forfeit the opportunity to acquire higher thinking abilities [2].

Gurugram (formerly known as Gurgaon) is one of the fastest developing cities of Haryana, India. Though the city is famed for its industrial and IT expansion, the education sector, especially at the secondary level, paints a mixed image. There are a variety of private schools and government schools run by the Haryana government. In these two types of institutions, the quality of classroom teaching is greatly varied [3]. Questioning is an important part of teaching; nevertheless, relatively few research have explored this component in Indian classrooms, especially at secondary level and in the Gurugram environment. However, most of the data available on teacher questioning is from Western countries and may not be totally applicable to the Indian classroom setting, which has its own cultural, social and institutional aspects [4].

So, this study was performed for observing and analysing the questioning tactics employed by effective instructors in secondary schools of Gurugram. The study attempts to answer topics such as: What types of questions do effective teachers ask? How often do they ask higher order questions? Do they allow sufficient time for students to respond? Are there differences between the usage of questioning strategies by teachers in government and private schools?

1.1 Background of the Study

Questioning has always been a key part of teaching. The Socratic method is a teaching technique that was devised by the ancient Greek philosopher Socrates. It uses questions to help pupils learn things about themselves and find knowledge. Questioning is regarded as a basic instructional method in contemporary education that encourages active learning, critical thinking and classroom engagement [5]. However, in Indian institutions, classroom questioning generally is limited to lower level inquiries that evaluate factual recollection. This is largely due of the exam-oriented structure of the Indian education system, where students are graded mainly on the basis of their ability to reproduce material rather than apply or analyse it. The National Curriculum Framework (NCF) 2005 proposed a transition to constructivist and inquiry-based learning, with an emphasis on higher level questioning in classrooms [6]. Gurugram is a significant city in Haryana and has a varied school system. Most private schools in the city have adopted modern methods of teaching, and government schools typically confront problems such as big classrooms, poor infrastructure and teacher vacancies. Gurugram is an intriguing and relevant place to research classroom questioning methods because of this disparity.

1.2 Statement of the Problem

Although questioning is widely recognized as important in teaching, there is relatively little systematic research on the use of questioning tactics by competent teachers at the secondary level in Indian cities such as Gurugram in their daily teaching. However, most teacher training programmes in India do not explicitly focus on questioning tactics and there is often a gap between the academic knowledge and its actual implementation in classrooms [7]. This paper seeks to fill this vacuum by presenting an empirical analysis of questioning strategies observed in the classrooms of competent secondary school teachers in the city of Gurugram.

1.3 Objectives of the Study

1. To identify and classify the types of questions used by effective instructors at secondary level in Gurugram.
2. To compare the use of lower-order and higher-order questions in classroom teaching.
3. To explore the use of wait-time, probing and redirecting methods in questioning.
4. To compare the questioning tactics of teachers in government and private secondary schools.

1.4 Research Questions

1. Which types of questions are most frequently utilized by effective secondary school teachers in Gurugram?
2. What % of lower and higher order questions are they using in their teaching?
3. Do effective teachers employ interactive question techniques such as wait-time and probing?
4. Do government school teachers and private school teachers vary significantly in questioning techniques?

1.5 Significance of the Study

This study is important for a number of reasons. First, it contributes to the scant literature on classroom questioning in Indian secondary schools. Second, it offers practical insights for teacher educators and curriculum creators in Haryana. Third, the findings can help school administrators and principals understand what good questioning looks like so that they can enable teachers to improve their practice. Finally, our study contributes to the larger discourse about quality education at the secondary level in urban India [8].

2. REVIEW OF RELATED LITERATURE

Concept of Questioning in Teaching

One of the oldest and most commonly utilized methods of teaching is questioning. It is the activity of a teacher asking questions to pupils during classroom instruction to stimulate thinking, assess comprehension, revisit information or direct learning [9]. Research has demonstrated that teachers ask questions for a considerable percentage of their instructional time. It is said that teachers ask up to 300-400 questions per day [10].

There are several reasons for questioning in the classroom. They can revise material already learnt, introduce new concepts, check understanding, promote conversation, develop critical thinking, control student behaviour and evaluate learning outcomes. Questioning is beneficial not just in terms of the kind of questions but also in terms of the way they are delivered, the time allowed to students to answer and how the instructor deals with student responses [11].

2.2 Bloom's Taxonomy and Levels of Questions

One of the most common frameworks used to categorize questions is Bloom's Taxonomy of Educational Objectives, published for the first time in 1956 and revised in 2001. This taxonomy divides cognitive capabilities into six levels: remembering, comprehending, applying, analyzing, evaluating and creating. Questions can be categorized into lower-order questions (remembering and understanding) and higher-order questions (applying, analyzing, evaluating and producing) according to these levels [12]. Lower-order questions (sometimes called convergent or factual inquiries) demand pupils to recollect knowledge or state facts. For example, a low-order query is 'What is the capital of Haryana?. Higher-order questions, often known as divergent or open-ended questions, push pupils to think critically and imaginatively. For example, 'What are your thoughts on the rapid growth of industrialization in Gurugram?' is a higher order inquiry [13]. Research consistently reveals that competent teachers ask a higher proportion of higher-order inquiries than less effective teachers. Wenglinsky [14] discovered that kids who had teachers who routinely employed higher-order questions did much better on standardised examinations. Similarly, Cotton [15] analyzed 37 papers and found that higher cognitive level questions have a positive impact on student progress, especially at the secondary level.

2.3 Wait-Time as a Questioning Strategy

Wait-time is how long a teacher waits after asking a question before calling on a pupil or going on to another question. Rowe [16] was the first researcher to extensively investigate wait-time. She observed that the average teacher takes less than 1 second to respond to a question. She identified two forms of wait-time. Wait-Time I is the pause after the instructor asks a question. Wait-Time II is the pause after the student

answers the question before the teacher responds. Rowe [16] noted that by increasing wait-time to 3 to 5 seconds, numerous beneficial effects were observed: students offered longer and more meaningful replies, the percentage of I don't know responses reduced, more students engaged freely, and the quality of student thinking improved. Tobin [17] evaluated the subsequent study and confirmed that proper wait-time was positively correlated with higher student achievement and more sophisticated responses.

2.4 Probing and Redirecting Questions

Probing questions are follow-up questions a teacher uses to get a student to expound, defend or clarify what he/she said in the first place. They are used to get pupils to think more thoroughly about their answers. Examples of probing inquiries include 'Can you clarify that further?', 'What is your explanation for that answer?' and 'Can you give an example?' [18]. Redirecting is a tactic where the teacher poses the same question to another student after an incorrect or partial answer or when the teacher wishes to involve additional pupils in the conversation. Probing and redirection are examples of good questioning activity [19] .

2.5 Studies on Teacher Questioning in India

Few studies have been conducted on teacher questioning in Indian context. Sharma [20] studied 50 secondary school teachers of Delhi and reported that 72% of their queries were of memory type indicating a high dependence on lower order inquiry. Rao [21] investigated classroom interaction in Indian middle schools and found that teachers rarely utilized probing questions or provided enough wait-time.

The study by Patel and Gupta [7] in Gujarat on questioning of teachers in secondary schools showed significant link between use of higher order inquiries and students' results on critical thinking. Kaur [22] investigated teacher effectiveness in Haryana and found that good teachers used more diverse inquiry patterns such open-ended and hypothetical questions.

3. RESEARCH METHODOLOGY

Research Design; The current study employed an observational research design. Observational research is the systematic observation and recording of behaviour as it occurs in its natural setting. The rationale for this strategy was that it enabled the researcher to actually observe questioning behaviors in the classroom without relying on self-reports that may be biased. The observation was non-participant in the sense that the researcher observed the classes, but did not actively participate in the classes.

Study Area: The study was done in the district of Gurugram, Haryana. Gurugram is a large city and an industrial hub in the National Capital Region (NCR). It has a big number of secondary schools both government aided (administered by Haryana government) and private (unaided). The survey was carried out in 12 secondary schools, 6 government and 6 private schools located in different parts of Gurugram such Sector 14, DLF Phase 1, Palam Vihar, Sushant Lok, Manesar and Old Gurugram.

Population and Sample: The present study population is all the teachers teaching at the secondary level (Classes IX and X) in secondary schools of Gurugram. Effective teachers were selected via purposive sampling technique. A teacher was considered 'effective' if the teacher fulfilled at least three of the following criteria: (a) students' average score above 75% in the last board examination, (b) positive peer recommendation, (c) principal rating of 'excellent' or 'very good', (d) minimum 5 years of teaching

experience at the secondary level. On the basis of these criteria, 40 instructors were shortlisted, out of which 24 (12 from government schools and 12 from private schools) consented to participate.

3.4 Data Collection Tools

Three data collection tools were used in this study:

(a) Observation Checklist: A systematic observation checklist was designed to record the sorts of questions posed by instructors, the frequency of wait-time, the usage of probing and redirecting, and the distribution of questions across students and the teachers' responses to student answers (categorized by Bloom's Taxonomy). The checklist was validated by 3 experts in education and pilot tested in two schools not included in the main study.

(b) Field Notes: In addition to the checklist, the researcher also collected extensive field notes throughout each observation to document the qualitative features of teacher asking such as tone, clarity of questions, and student responses.

(c) Teacher Interview Schedule: Teachers' assessments of their own questioning practices were obtained through a short semi-structured interview schedule. Interviews were 20 to 30 minutes each.

Observation Procedure

A total of 120 classroom observations, 5 class periods of 45 minutes each, were observed on all 24 selected teachers. The researcher arrived in the class two minutes before the lesson began and took a seat at the back of the class. The observer used a timer to monitor wait-time and recorded the type of each question asked using Bloom's Taxonomy categories. All observations were made on regular school days (Monday to Friday) from February to April 2021.

Data Analysis: Quantitative data from the observation checklists were examined using descriptive statistics (frequencies, percentages, averages and standard deviations) and inferential statistics (independent samples t-test) to compare teachers from government and private schools. Qualitative data were obtained from field notes and interviews and analyzed thematically. All statistical analyses were conducted with SPSS version 25.0.

Ethical Considerations: Written informed consent was acquired from all teachers and school principals involved in the study. The participants were guaranteed that they would be anonymous and their data would be kept confidential. They were told that participation was voluntary and they might withdraw from the study at any time. All data records and reports were anonymized by replacing the identities of schools and teachers with codes.

4. RESULTS AND FINDINGS

4.1 Types of Questions Used by Effective Teachers

120 class observations were recorded with 4,320 questions from the 24 effective teachers. These questions were grouped into six categories based on Bloom's Taxonomy. Table 1 indicates the distribution of questions among these groups.

Table 1: Distribution of Questions by Bloom's Taxonomy Level

Bloom's Level	Type	Frequency	Percentage (%)	Category
Remembering	Lower-Order	896	20.7	Lower-Order
Understanding	Lower-Order	1053	24.4	Lower-Order
Applying	Higher-Order	782	18.1	Higher-Order
Analysing	Higher-Order	721	16.7	Higher-Order
Evaluating	Higher-Order	524	12.1	Higher-Order
Creating	Higher-Order	344	8.0	Higher-Order
Total		4320	100.0	

Table 1 shows that lower-order questions of remembering and comprehending contribute to 45.1% of all inquiries while higher-order questions of applying, analysing, evaluating and inventing contribute to 54.9%. This means that competent teachers in Gurugram asked higher level questions than the lower order inquiries. This is an attribute of excellent teaching.

4.2 Comparison of Lower-Order and Higher-Order Questions

There was a considerable disparity between teachers of government and private schools in their usage of lower order and higher order inquiries. Table 2 shows these comparisons.

Table 2: Comparison of Question Types — Government vs. Private School Teachers

Question Type	Govt. School (%)	Private School (%)	t-value	p-value
Lower-Order	52.3	37.9	4.21	0.001*
Higher-Order	47.7	62.1	4.21	0.001*
Wait-Time > 3 sec	38.4	61.2	5.63	0.000*
Probing Questions	22.1	41.8	6.04	0.000*
Redirecting	28.6	44.5	3.87	0.002*

*Significant at 0.05 level of significance.

The t-test results suggest that private school effective teachers had considerably greater higher-order questions, wait-time, probing and redirecting than government school successful teachers.

4.3 Use of Wait-Time

Wait-time was measured after each question observed during the 120 class sessions. Table 3 displays the distribution of wait-time over all observations.

Table 3: Distribution of Wait-Time after Teacher Questions

Wait-Time Duration	Frequency	Percentage (%)
Less than 1 second	1123	26.0
1–2 seconds	1298	30.0
3–5 seconds	1425	33.0
More than 5 seconds	474	11.0
Total	4320	100.0

Table 3 shows that successful teachers waited 3 seconds or more 44% of the time when they asked questions. Still, 56% of inquiries were followed by fewer than 3 seconds of wait-time, indicating that even good professors often hurry students for replies. According to field notes, lengthier wait-time was more likely to be seen with higher-order and opinion-based inquiries posed by teachers.

4.4 Probing and Redirecting Strategies

Probing and redirecting are useful follow-up questioning techniques. Table 4 demonstrates the frequency of the usage of these tactics by effective teachers in Gurugram.

Table 4: Frequency of Probing and Redirecting Strategies

Strategy	Govt. School (Mean per lesson)	Private School (Mean per lesson)	Overall Mean
Probing Questions	3.2	6.4	4.8
Redirecting	2.9	4.7	3.8
Positive Reinforcement	5.1	7.3	6.2
Follow-up Clarification	2.4	5.1	3.8

The findings show that private school teachers asked probing questions and utilized redirection methods roughly double the rate of government school teachers every lesson. Teachers of both groups regularly utilized positive reinforcement (e.g. ‘Good’, ‘Correct’, ‘Well done’), although this was higher in private schools.

4.5 Distribution of Questions among Students

The researcher also mentioned if questions were evenly distributed among pupils. Results showed that effective teachers asked questions of a larger proportion of students than national averages reported in prior studies. In this study, competent teachers asked questions of an average of 18 distinct students in a 45-minute lecture (from 12 to 26). Private school teachers taught a little more students (mean = 21) compared to government school teachers (mean = 15), perhaps due to smaller class size in private schools.

4.6 Qualitative Findings from Field Notes and Interviews

Qualitative data, field notes and teacher interviews, provided greater insights into questioning procedures. Thematic analysis revealed the following themes:

Theme 1 – Linking Questions to Real Life: The most effective teachers in Gurugram related their questions to real-life issues that pupils could relate to. A Science teacher at a private school in Sector 14 said: 'You have seen autos on the Gurugram highway. "Why do some cars disintegrate after a few years and others last for decades?" This form of contextualisation was more prevalent in private schools.

Theme 2 – Building on Previous Answers: An effective teacher often added follow-up questions to students' prior responses. This series of inquiries eventually brought students to greater knowledge. During one class hour, a teacher was observed to pose 8 consecutive probing questions on the same topic.

Theme 3 – Encouraging All Students: Good teachers who were skilled at getting everyone involved asked the less confident and lower-achieving students easier questions initially before making them harder. This was useful in helping kids gain confidence.

Theme 4 – Teacher Awareness: Most effective teachers interviewed were aware of the necessity of inquiring. However, they said huge class numbers (particularly in government institutions where classes ranged from 45 to 60 pupils) made it impossible to regularly apply advanced questioning tactics.

5. DISCUSSION

The findings of this study contribute to our understanding of classroom questioning practices in secondary schools in Gurugram. The overall finding that effective teachers used more higher-order questions (54.9%) than lower-order questions (45.1%) is consistent with the research literature that associates effective teaching with the use of cognitively challenging questions. However, the variation between government and private school teachers is noteworthy. Private school effective teachers used higher-order questions in 62.1% of cases, compared to 47.7% for government school teachers. This difference may be attributed to several factors. Private schools in Gurugram generally have smaller class sizes, better resources, and more autonomy in curriculum delivery, allowing teachers to experiment with different questioning strategies. Government school teachers, on the other hand, face constraints such as large classes, examination pressure, and limited in-service training. The finding that most teachers (56%) used less than 3 seconds of wait-time is consistent with Rowe's classic finding that teachers generally rush students for answers. Even among effective teachers, the tendency to move quickly through lessons was observed. This suggests that even effective teachers may not be fully aware of or utilising the benefits of adequate wait-time.

The greater use of probing and redirecting by private school teachers (Table 4) indicates that these teachers are more engaged in following up on student responses. This kind of interactive questioning is associated with deeper student learning and greater classroom participation.The qualitative finding that effective teachers link questions to local contexts (such as Gurugram's urban environment and industrial growth) is an important pedagogical insight — it shows that contextualising questions makes them more meaningful and engaging for students. The finding about class size is particularly important for policy. Government schools in Gurugram had average class sizes of 45–60 students, which makes interactive questioning very challenging. Research has shown that smaller class sizes facilitate better use of questioning strategies. The Haryana government's ongoing initiatives to recruit more teachers and reduce class sizes could, if effectively implemented, help government school teachers adopt more advanced questioning practices. Overall, the findings of this study support and extend the existing literature on teacher questioning by

providing a specific empirical account from urban Haryana, a context that has received very little research attention.

6. CONCLUSION AND RECOMMENDATIONS

Conclusion

The observational study of 24 effective secondary school teachers in Gurugram brought out some key discoveries. Compared to the ordinary teacher, effective teachers ask a higher proportion of higher-order questions and use questioning methods such as wait-time, probing and redirecting more often. The effective instructors in private schools used more effective questioning strategies than the effective teachers in government schools and the differences were statistically significant. Qualitative studies also indicated that good teachers contextualise their questions, build on student comments and aim to involve all students in the classroom conversation. These findings have direct consequences for teacher education, school administration and educational policy in Haryana and other Indian states. The study demonstrates that questioning is a skill that characterizes great teachers and can be taught and developed through rigorous training.

6.2 Recommendations

- Pre-service teacher education curricula in Haryana should contain a specialized curriculum on questioning tactics including Bloom's Taxonomy, wait-time, probing and redirecting strategies.
- Organise in-service training seminars for secondary school teachers of Gurugram especially government school teachers who displayed comparatively weak questioning practices.
- School principals should visit classrooms on a regular basis and provide teachers with positive feedback on their questioning behaviour.
- The Government of Haryana should consider reducing the size of classes in government secondary schools to promote more participatory and effective teaching.
- Text book writers and curriculum creators should incorporate model questions at different cognitive levels for guidance to teachers in formulating classroom inquiries.
- Future research needs to expand this study to rural areas of Haryana to investigate if the characteristics seen in Gurugram are still relevant in a different context.

6.3 Limitations of the Study

Some limitations of this study should be noted. First, the sample was confined to effective instructors, hence the findings cannot be extended to all secondary school teachers in gurugram. Second, the teachers' behaviour may have been affected by the presence of an observer in the classroom (the observer effect). Third, the study was conducted within a limited time frame (three months) because questioning procedures may fluctuate at different points in the academic year.

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