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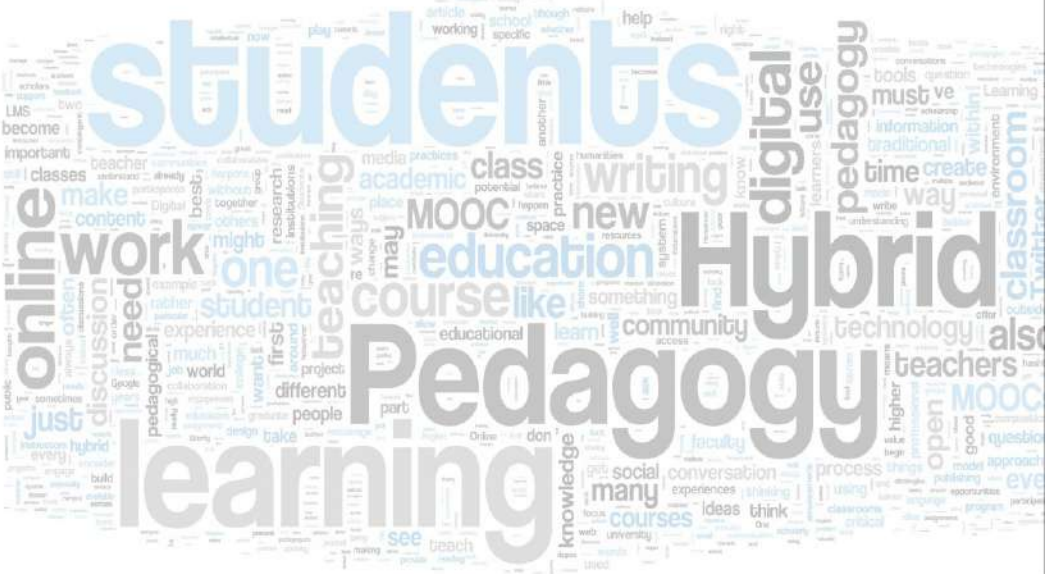
of Action Research in Education

Volume-2



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Preface

This journal is a unique model dsigned to promote attitude of research in the education system which is on a steep decline. In order to make it simple and doable, action research has been introduced that allows the researcher to see their efforts to fruition almost immediately in comparison with formal research.

We intend to develop a platform for the students, teachers, educational enthusiasts and research scholars to carryout extensive action research in their daily lives and resolve the challenges faced during their teaching- learning process.

MFERD Journal of Innovative Learning encourages the teaching fraternity to adopt action research on innovative learning methods to understand which method works best in their scenario to ensure no child is left behind. This when shared with educational institutions would benefit the students, teachers and the schools alike with latest findings and best practices.

Grateful acknowledgment is here made to those who helped in the development of this journal. This work would not have reached its present form without their invaluable help. The abstracts and reports in this publication present a brief overview of the innovative action research undertaken by the teachers and mentors from different parts of the country. Full research papers are available online on www.mferd.org

For further insights or help in implementing the research presented here, you are requested to communicate directly with the authors through email.

We wish you greater success in making your schools a research laboratory for upbringing responsible global citizens.

Place : Hyderabad **-Editor**

Date : 17-12-2021

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Introduction

We are living in times of automation and digitization impacting every walk of our life. Since the last two decades, advancements in technology, changes in demographical structures and globalization has led to unprecedented progress and development in all of the domains from communication to health care industry and even much more. Put simply, there has been huge transformations resulting in the evolvement of digital societies, cultural transformations overhaul of the traditional patterns of production and thus pushing the boundaries further.

With the scenario of the progress and development in many spheres of life, the nature of work is constantly reshaping the world creating a demand for newer employability skills, complex problem-solving skills, team work adaptability and much more. Thus, the future demand and requirement in every industry is unpredictable.

Therefore, there is a need for an overhaul of our Education system as well; as it bears the torch of the responsibility of producing creative, skillful, moral and responsible individuals. The gradual incremental reforms cannot fully cater to the demands of the present and the ever evolving future. Still, we are obsessed with the same conventional approach of teaching i.e., one-size-fits-all delivery model with emphasis on teaching and not on learning. Our classrooms are still driven by the syllabus and exams without any room for the learners to exercise their creative potential for exploring and inventing, learn at their own pace and in accordance to their natural talent . The conventional practices are still driving the entire education system where students are seen as mere recipients of information from the teachers who act as transmittals.

The real essence of teaching in schools is to make students **LEARN, LIVE** and **LEAD**. But this essence has been completely lost and it is being observed that complete focus is placed on syllabus completion and preparation for exams. Now it's high time to shift our focus from teaching to learning; from exam driven curriculum to learning to live curriculum. This requires a paradigm shift and the complete arsenal of our system has to be revamped.

Therefore, in order that the students **LEARN,** a teacher has to **Innovate** shifting the focus from teaching to learning. And for the students to **LIVE**, a teacher has to **Intervene** and for them to **LEAD**, a teacher has to **Inspire**. Thus, preparing students to ace in everything that they do.

In this purview, the R&D wing of MFERD has come forward to uplift the standards of education. Sensing the need for transformation, MFERD has taken an initiative to bring innovations into our classrooms and promote our teachers as researchers by creating a culture of performing classroom based Action Research.

This era is regarded as an information age and the teacher's role is no more a mere source of knowledge. A teacher has to be an innovator, a facilitator and a guide creating conducive learning environment. In light of the aforementioned there is an urgent need for a 360^0 shift. So, we request the school managements to promote and support the same in your schools and be the champions of the change that we wish to see in the world.

-Editor

A Complete Guide to Action Research

At some point, teachers come across some form of problem that they would like to address in their classrooms. Some teachers will rely on traditional ways to solve these problems while some others will seek out the advice of experts or colleagues to try and address the challenges. On the contrary, good educators will conduct their own investigations *(research)* to identify and solve problems *(taking action)* while analyzing information about their class and the learning environment.

When something goes wrong with your lessons or your teaching practice becomes ineffective or students do not exhibit the expected behavioural changes, what do you do? If you think about what you are doing and want to make a change you are doing Action Research!

Action Research is a research initiated to solve an immediate problem that integrates research, action, and analysis. Action entails the development and implementation of a plan or strategy to address the focus of the research. Research entails building a knowledge base to understand the effectiveness of the action or plan being considered. Put simply, action research can be viewed as a form of disciplined inquiry utilized by teachers to better understand student learning and teacher effectiveness.

Why Action Research?

- Seeing students grow is probably the greatest joy educators can experience. When teachers have convincing evidence that their work has made a real difference in their students' lives, the countless hours and endless efforts of teaching seem worthwhile.

- There are two thrusts in conducting action research: one is concerned with practical problem solving in real-time classroom situations for improving teaching and learning practice.
- It gives educators new opportunities to reflect on and assess their teaching; to explore and test new ideas, methods, and material; to assess how effective the new approaches were; to share feedback with fellow team members; and to make decisions about which new approaches to include in the team, curriculum, instruction, and assessment plans.
- The idea behind integrating classroom-based action research into the culture and mindset of a school is that educators can investigate *their* own practice as a systematic means of discovering what works — and might not work — for *their* students and in *their* classrooms.
- Developing the culture of Action Research into our classrooms help us integrate the 'art of teaching' with the 'science of teaching.'

How Action Research ?

THE ACTION RESEARCH PROCESS

Action research is a powerful tool for teachers as they investigate, asses, and refine their teaching practices. It doesn't, however, have to be an onerous process that overwhelms an already overstretched teacher. Action research can be as simple as spending five to ten minutes at the end of each school day recording one's own observations about the day. These observations can be then revisited and reflected in every few weeks. The goal is to identify the problem in the classroom or teaching method through reflection. In turn, the reflections should lead to the development of new strategies and solutions to bring about changes in classroom.

Teachers must use action research in a way that suits their needs and style and not worry about following some rigid plan established by others. This section is intended to guide teachers as they create their own action research plan.

Teachers who conduct action research are:

Observers – looking and looking again at what happens in the classroom, not necessarily for new information, but thinking about the information they already have;

Questioners – problems encountered in the classroom become questions and opportunities to investigate. Everything that occurs in a classroom can be seen as data to be understood;

Learners-the focus changes from, "What did you teach today?" to "What did you learn from today's experience?"

1.1 HOW TO BEGIN AN ACTION RESEARCH

Classroom action research is owned and operated by teachers.

- It starts with a problem/question teacher identifies that calls for a change.
- It tells the story of what teachers do and how teachers interpret what happens.
- It involves collaboration. Groups of teachers can share their stories and their perspectives on one another's work.
- A teacher or a group of teachers can work with an academician or an educationist, but they retain ownership of their research.

Based on existing and new information and knowledge, a researchable plan is devised and implemented within one's own professional context. In an ongoing

process, Action Researchers continue to observe, reflect, and plan. The different researchers may describe these steps of Action Research in slightly different ways.

Whatever the scenario may be the action research always involves the same four-step process. These four steps, which become an endless cycle for the inquiring teacher, are the following :

I. Observation

- Identify problem and pose a question
- Gather Data Pre-Assessment

II. Plan of Action

- Analyze and Study (RoL)
- Design Intervention/ Create an action plan

III. Intervention

- Enact Plan of Action
- Gather Data Post Assessment

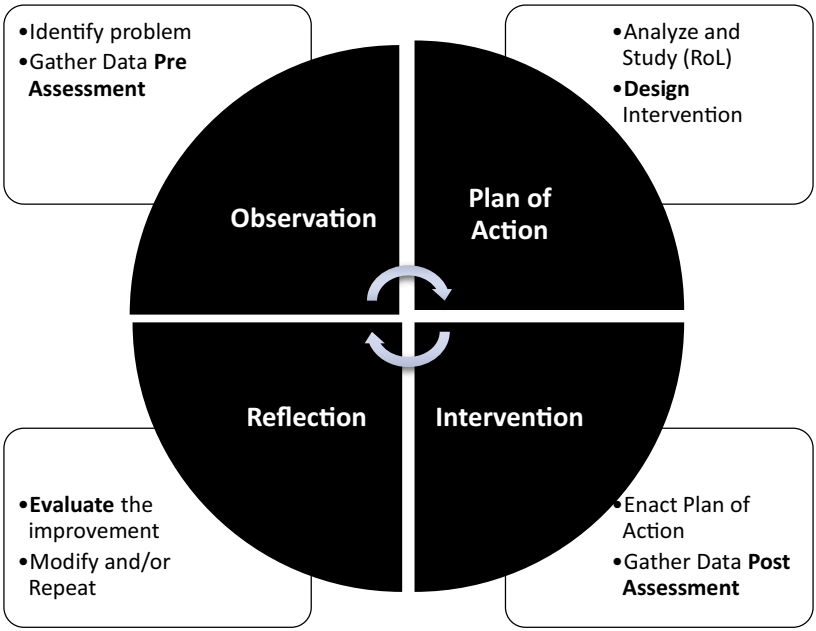
IV. Reflection

- Evaluate the improvement
- Modify and/or Repeat

Duration of Action Research

Typically, it will take place over several weeks or a few months. The length of time needed to observe or demonstrate improvement will depend upon the target of your inquiry. Action Research is an ongoing process, rather than a program. You might complete one phase of your project in a few weeks, evaluate and start the process over with your new information. These steps can be repeated continuously and applied to any learning situation or problem for continuous improvement in classroom instruction and learning.

1.2 ACTION RESEARCH CYCLE



STEP – A OBSERVATIONg/observing/reflecting are interwoven cycles.

(i) Identify A Problem And Pose A Question

What element(s) of our practice or what aspect of students' learning do you wish to investigate?

The first step in conducting action research is to identify and define the focus of your investigation. You have to develop some questions about the area of our focus. Finally, you need to identify a plan to effectively study and answer the questions that you have developed.

Action research typically will include an examination of the school programmes, students, and instructional practices. You have to consider what aspects of these areas are needed to be studied in your research. Specifically, you will need to examine:

a. Student outcomes (dispositions, achievement)

b. Instruction (teaching strategies, use of technology)

c. School climate (student morale, teacher morale, relationships between teachers and students)

d. Parental involvement (participation on committees, attendance at events)

Thus, identifying a topic worthy of a busy teacher's time should eventually make the teacher's work more successful and satisfying.

Use the following guidelines to help you narrow down your focus:

■ Write down some research questions of concern about your practice.

■ Try to specify what it is about the concern that you wish to change.

■ Describe the problem. Why is it a personal concern to you?

The following questions are related to actual experiences of teaching and are intended to improve classroom teaching and learning. These questions are borrowed from accounts of actual Action Research projects undertaken by teachers who had specific concerns about their teaching practices:

■ How can I help my students learn from their own ideas?

■ *How can I help students relate what they already know to what they are learning in the classroom?*

■ How can I have students become more independent learners?

■ *Can small co-operative group work help my students to interact more with each other in the class?*

■ *Will anchor charts (wall displays) bring about more learning in my classroom?*

■ *How can I come up with higher-level comprehension questions in my class?*

■ *When and how do I use praise in my classroom?*

▪ *How can I provide opportunities in my classroom environment to let students exercise their creative potentials?*

In order for your action plan to resolve the problem, the question must be valid and doable. To ensure that the question meets this criteria, you may ask yourself clarifying questions such as these:

1. What are some areas of interest I want to improve?

2. What are some potential solutions?

3. Which of these possible solutions can I investigate over an eight-week period?

4. What kind of evidence pertaining to the question of concern do I have or can I find as a baseline?

Example: Research journals, observations, tests, worksheets, informal reading assessments, etc.

5. Formulate a research question.

(i) GATHER EVIDENCES

Pre-assessment Data Collection

The second step involved in conducting action research is to collect data to be used in answering your research question(s). In the second step, you'll need to gather information to address these questions. This may consist of data from teacher-made surveys, standardized test data and interviews. Collected data may also consist of student portfolios, observations, and other sources of information.

The data you collect may also consist of research conducted to identify best practices, or research tested techniques. This is an opportunity to learn from others that may have been trying to unpack the same

problems or challenges. You can explore from Research journals and Google Scholar to quickly learn more about a topic.

Your instructional decisions should be based on the best possible data. It can be accomplished by making sure that the data used to justify our actions are *valid* (meaning the information represents what we say it does) and *reliable* (meaning that we are confident about the accuracy of the data). Lastly, before data is used to make teaching decisions, teachers must be confident that the lessons drawn from the data align with any unique characteristics of their classroom or school.

For some teachers, “data collection” can appear to be the most intimidating aspect of the entire action research process. The question that repeatedly comes to our mind is, “Where will I find the time and expertise to develop valid and reliable tools for data collection?” Fortunately, classrooms and schools are, by their nature, data-rich environments.

Each day a child is in class, he or she is producing or not producing work, is interacting productively with classmates or experiencing difficulties in social situations, and is completing assignments proficiently or poorly. Teachers not only see these events happening before their eyes, they generally record these events in their grade books. This becomes the potential source of data.

In order to show or prove the research, we need to capture the data beforehand. It can be done in two ways:

Quantitative data refers to data that can be measured in numbers, such as length, height, cost, ages, etc. In classroom Action Research, quantitative data might include test scores, student ages, number of discipline referrals or student attendance rates. To be precise, Quantitative data refers to Quantity, for example: 25 students; 15 boys and10 girls, 60% on Roll; 75% have perfect attendance, etc.

Qualitative data, on the other hand, deals with descriptions. Qualitative data can be observed, but not measured numerically. For example: friendly, bright, well-behaved, positive school spirit, studious, motivated to read independently, etc.

STEP – B PLAN OF ACTION

(i) Analyzing and interpreting data

The next step after identifying your focus and collecting data is to analyze the observations and the data collected and then perform RoL (Review of Literature of previous research on similar subjects) so as to get a good foundation before designing our own Intervention or Action Plan. Many researchers often give do's and don'ts, further need for research, etc., based on their research. These suggestions might help in formulating our intervention accurately.

This is very common in research, as the researcher will be looking for new methods or techniques which have not been done earlier. If such similar previous research or evidences are hard to come by, then what can be done is, similar researches or even vaguely similar researches can be tracked down and information can be obtained from them to devise and plan our research. Moreover, review of professional literature on teaching and learning is critically important.

Sources of Information for Action Research

- School and Student Records
- Colleagues and Administrators
- Professional Development Providers (Psychologists, Teacher Educators, Academicians, etc.)
- Internet Sites of Professional Organizations (i.e., International Reading Association, National Council of Teachers of English, National Centre for Excellence in the Teaching of Mathematics, Google scholars, Researchgate etc.)
- Professional Literature

(ii) DESIGN INTERVENTION

a. Consultation with relevant stakeholders

Prior to designing a research plan take others opinion about your concern and listen to suggestions they may have with respect to alternative approaches. Talk with your students to get a sense of how they view the quality of their classroom experience and their learning success. Consult with fellow educators, colleagues and administrators for their input and ideas related to your concern.

For Example: *Do they think your research question is feasible? What support can they provide for your research?*

a. Research Design

After going through the RoL, it is now time to design your research. For every research, a design has to be made before it can be implemented. How a design is to made completely depends upon the aim, requirements and the procedure of the research. There are several strategies and techniques for research designs. Broadly two main designs can be used:

1. Pre-Post Design- In this type the pre data is collected from the sample before the start of the intervention and after the intervention the post data is collected from the same sample. This shows us the difference between the pre and post, which gives us an insight into the expected improvement or the anticipated change.

2.Group Design- Here the intervention is given to only one group and not to the other group. We assume that both the groups are similar. The intervention will be given to one group; this group will be known as the Experimental group. For the other group, no intervention will be provided, this group will be known as the Control Group**.** After the intervention we can take the data of both the groups and compare the difference between the groups. After the comparison, we can draw a conclusion as to how effective the intervention has been.

C. Create an Action Plan

After identifying a research concern, gathering additional information, and refining the focus of the research, the plan of action needs to be developed and implemented. The action plan involves specification of the participants, strategies, available resources, evaluation procedures, and timeline. Using your clarified question and research concern, your action plan should answer these questions:

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- Where will the research take place?
- Who will participate in the research?
- What will happen with the participants?
- How will the research be conducted, and what will be the specific sequence of actions?
- When will the research be conducted, and how might it unfold or change over time?

STEP C- INTERVENTION

(i) Enact The Plan Of Action

Now we implement the plan of action, i.e., a novel strategy of teaching or an innovative learning method, etc. It is also important to be equipped with tools and procedures for collecting evidences to be analysed further. So, before enacting the plan, the investigator has to be ready with all the data collection related materials and procedures. You have to determine the types of data that needs to be collected to lead to meaningful, accurate, and appropriate conclusions regarding your research question. Take advantage of data you usually collect in your normal instructional process.

You must ask yourself these questions:

- What kinds of data do I need to collect in order to answer the research question?
- What kinds of data collection strategies will be used to collect the data I need?
- How do the various data sources collected help in answering my research question?

Some sources of data collection for Action Research include the following:

Artifacts	Observations	Inquiry
Teacher made tests	Field notes	Interviews with students, parents, teachers.
Standardised tests	Anecdotal records	Focus groups
Written assignments	Checklists	Surveys/Questionnaires
Projects	Video recordings	Attitude scales
Student records	Audio recordings	Self Assessments
Period plans	Rating scales	
Meeting notes and agendas	Data correlation	Opinionairre from parents, colleagues, etc.
Student portfolios	Critical thinking	-
Score-cards, schedules,	Display modules	-
Records, attendance, report cards, test reports	Research progress	-

(ii) Reliability and Validity of Data

Reliability refers to the consistency or stability of the data. This is more important with quantitative Action Research, especially if standardized data gathering tools are used. Consistency offers the possibility of replicating the research and generalizing the findings; however, since Action Research is generally case specific, generalizing the findings is not necessarily the goal.

Validity is the quality, which decides if what you are researching is of value. Validity refers to the accuracy and meaningfulness of what is collected as evidence in

research. Ways to increase the validity of evidence include triangulating data, member checking, and collaboration.

Some of the data collection tools are :

Interviews and focus groups may take place with students, teachers, administrators, or parents. You may keep observation records or checklists of resources, interactions, skills, or classroom practices. Anecdotal records, or informal notes on student behavior and interaction, will be helpful as will be reflective journals written by the teacher, students, or administrator.

Making audio or video recordings of lessons, meetings, interviews, and planning sessions will ensure accuracy and make for easier documentation when you are ready to report your findings. A self-assessment by students and by the teacher(s) can add valuable information to your findings.

The most sought tools for data collection are Interviews and Observations. Let's explore each of these:

Interview Techniques

Interviews help in gaining a clear understanding of people's thoughts, actions and views. Glesne (1992) has said that in qualitative inquiry, an interview gives one opportunity to learn about those things that cannot be seen.

Information can be obtained from students either individually or in small groups through an interview.

As with questionnaires, it is important to write interview questions ahead of time and keep them straight forward and directed toward the question for which answers are sought. During the interview process itself, it is important to reassure students that they will not be punished for being candid, to employ good listening skills and to emphasize how important their ideas are to you. The disadvantages of using interviews are that they are time consuming. The time factor can be reduced if students are interviewed in small groups. It is also frequently difficult to get students to express their true feelings and options candidly.

The following interview pointers will help you get the most information from your interview :

Individual Interviews

1. Start informally, with a little informal conversation.

2. Know your questions so you can "talk them," not read them.

3. Ask "why" questions to get greater depth and detail.

4. Ask "should" questions to get values and beliefs.

5. Ask "What do you think about…." questions to get candid responses.

6. Recall questions aid in remembering events and information.

7. Comparative questions may yield new insight.

8. Experience/behavior questions elicit what the interviewee can do or has done.

9. Demographic questions help to find out how the interviewee describes herself/himself.

10. Open-ended questions are more likely to give genuine information.

An alternative to individual interviews is Focus Group Interviews. A Focus Group explores a topic through group discussion. The group is comprised of 6-10 participants selected as representatives of a class.

The facilitator promotes discussion that will bring out information not tapped through a questionnaire or individual interviews. Use the guidelines on the following page to conduct a successful focus group session.

Focus Group Interviews

1. Pull together Focus Group Students; bring an audio tape or digital recorder.

2. Bring a set of open-ended questions / topics for the discussion.

3. Remind students that questions are to be discussed by the group, not by individuals.

4. Set time limits. Gather data for your research by interviewing the students about:

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4. Set time limits. Gather data for your research by interviewing the students about:

Their likes and dislikes of the new teaching method.

- Whether the teaching method has helped them learn more content.

- Whether the teaching method has made them more interested in the subject/school.

- Whether the teaching method has made a difference in how they work with their peers.

- Collect copies of student work before and after implementing the action plan to serve as

evidence of their learning.

Observation Techniques

Observation is a way to closely look at teachers' and students' behavior. The procedures and recording devices for observation can vary according to the type of question being asked. Sometimes, better information is acquired if a specific observation tool is designed and used. There are essentially four ways to collect information through observation: Ask a colleague (who understands the tool and can use them effectively) to observe classroom interactions and collect needed information.

- Make an audio recording of a lesson. When verbal behavior of students and teacher is the subject of inquiry, audiotapes work fine.

- Make a video recording of a lesson. For subtler non-verbal behaviors, video recording is better.

Audio or video recording is a good source for data collection because it provides evidence that

can be preserved and reviewed.

■ Use 2-column notes to record your observations.

STEP – D REFLECTION

(i) Evaluate - Analyze And Interpret Data

After collecting data, take a close look, analyze the information, and share results. Examine the data to find themes and patterns of behavior and performance that answer your research question. Check with students and peers to see if they agree with the data. You will find that you can easily form your opinion about some quantifiable data. Other data, such as surveys, questionnaires, checklists, and test results, can be recorded in a table or graph form. Once all your data is collected, the key to making a significant change in practice is analyzing and reflecting on the evidence you have collected.

(ii) Modify And Repeat – Reflective practice

The difference between simply teaching and becoming a great teacher is reflective practice. The Action Research report is your opportunity to reflect on your research data and results. Action Research is "trying out and reflecting on ideas in practice as a means of improvement and as a means of increasing knowledge."

As you study your teaching, you are studying the images you hold of yourself as teachers. These self images are challenged, questioned in the learning process. Whatever the outcome, reflection is critical. Key to effective reflection is that you are reflecting on your own practice. In the case of Action Research, you are reflecting on a question that arises from your problem or concern.

The immediate aim of reflective practice is self or professional development. Reflective practice is enhanced when the reflection is shared and discussed with colleagues who support you and share your concern. The end point of reflection may not be resolution of an issue, but attainment of a better understanding of it.

Think of something specific to reflect upon, such as student participation, motivation, or increasing student achievement. Things to consider when analyzing your data are:

- How will you assess whether or not your new approach will resolve the problem?
- What do you expect to see?
- What were student responses to your new approach?
- Watch and talk with other teachers (Peer coaching).

Continuing The Action Research Cycle

Information gained from previous research may open new avenues of research. You may choose to come down to this last step and decide to move back to the top of the cycle and start the process all over again after tweaking one small variable in the sequence. Action research is an ongoing process. In this cycle, you are continually involved in assessing instruction and seeking ways of improving your practice, classroom and much more.

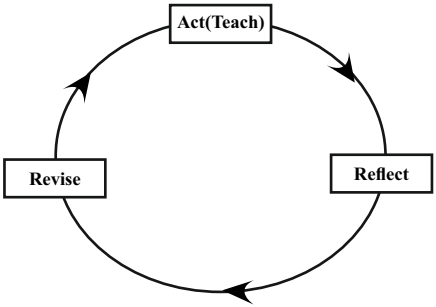

Figure-II

Conclusion :

The aforementioned step-by-step procedure for Action Research is an effective and implementable template for dynamically conducting educational research; and applying it in real-time environments of classrooms & schools. It is a means of continuous incremental improvement in the teaching-learning process which opens up practically new dimensions of improving the overall educational quality in our school systems. The teachers are expected to earnestly and iteratively conduct hands-on educational research and contribute towards the exchange of best practices amongst the community of educators.

Note :

Population- A **research population** is a well-**defined** collection of individuals or objects known to have similar characteristics. To us the population refers to the students of a particular grade or age who are the focus of research.

Sample- In **research** terms a **sample** is a group of people, objects, or items that are taken from a larger population for measurement. In our context mostly the sample is a small group of students taken from a very large group for our study. The **sample** should be representative of the population to ensure that we can generalise the findings from the **research sample** to the population as a whole.

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A case study on Quality Intervention to improve teaching-learning process in Government Schools of Haryana

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Abstract

This paper examined the learning outcomes in Government schools of Haryana. The project is envisaged by DL Shah Quality Research Centre in collaboration with Quality Council of India where 5 pilot schools of the state under goes the transformation towards academic quality. This study carried out in five targeted schools in Bahadurgarh block of Haryana from 3rd to 8th standard with an objective to improve the quality of education and teaching-learning practices thus achieving desired learning outcomes drafted by NCERT. To map the learning level of students and teacher competencies two types of tools were developed namely student assessment and teacher assessment. The student assessment tool was rigoursoly designed and developed to ensure that it can effectively capture student competencies. To map the teacher competencies classroom observation tool is also developed based on pedagogical skills to evaluate teaching learning process and to define, assesses and monitor the quality of teaching for improving student learning outcomes.

The data collected were analyzed and interpreted which revealed that the Quality of learning in Haryana is alarmingly low; So DL Shah Trust has recognized the significance of imparting quality education at schools and extended support and encouragement for improving learning outcomes through this study. Through this

study QRC disseminated several teaching instructional strategies and pedagogical processes to teachers in all the pilot schools, improvised reading and arithmetic skills, intervene to enhance subject knowledge of the students to elevate their performance level and consequently achieving the learning outcomes.

Based on the findings it is concluded that students scoring in category A during Pre-intervention increased from 12% to 21% in post intervention and 17% students shifted from C category in pre intervention to B category in post intervention, Similarly teachers competencies have also remarkably improved with focused applicability of pedagogical skills including systematic lesson planning, classroom management skills and assessment techniques, thus, showing a positive impact of various intervention undertaken to improve teaching learning process.

Introduction

The education imparted to students must include comprehensive analysis of how education should be imparted, in order to contribute for the development of country. An empirical study manifests that quality of education and associated government policies facilitate the process of innovation and knowledge creation, which have profound effects on the long-run economic growth and development. Recently, the education ameliorating debates has gradually shifted to improving learning quality. All education program must have Learning Outcomes that each school student is expected to personify.

The Program of Action, 1992, and National Policy on Education, 1986, have emphasized upon describing minimum learning levels for the students and suggested periodic assessment of every child learning to ensure that all students, studying in a school, acquire at least minimum level of learning. Recognizing this need, National

Council for Education Research and Training (NCERT) drafted Learning Outcomes as assessment standards indicating the expected level of learning. The effectiveness of education services imparted to students can be improved by monitoring and interventions in teaching-learning processes.

In this study, we have examined the changes in quality of education imparted to students, through monitoring and interventions in teaching-learning process, which ameliorated Student Learning Outcomes.

Major Thrust of the project

The main objective of the project is to study the impact of interventions in teaching instructional strategies for enhancing learning outcomes of students studying in classes 3rd to 8th. In addition, the broad objective has been achieved by strategies and goals mentioned below:

a) Assess and evaluate student-learning outcomes.
b) Assess and analyze teaching learning process and identify gaps in instructional strategies of teachers.
c) Conduct root cause analysis to test the basic skills of the students.
d) Development of action plan for teachers to bridge the identified gaps to cater their pedagogical needs.
e) Measure impact of intervention on instructional strategies of teachers.

Methodology (Execution Design)

This section depicts how quality intervention model (QIM) will unfold itself and which type activities are planned to conduct under each phase. QIM unfolds itself in following phases (as given in figure 1).

Development Phase- During this phase assessment following tools were developed:

➢ **Teacher Assessment Tool:** This tool is developed based on NCERT, National Curriculum Framework (NCF), 2005 and National Curriculum Framework for Teacher Education (NCFTE), 2009, to assess teaching learning process. The tools includes following broad parameters- Subject Expertise, Teaching Learning Process, Use of Teacher Learning Material (TLM) & Information Communication and Technology (ICT) resources, Classroom Assessment and Classroom Management.

➢ **Student Assessment Tool:** As per planning to assess and evaluate learning level of the students at different point of time, student assessment tool were designed. Learning Outcomes defined by SCERT/ NCERT were base documents for mapping the competency of students. The assessment items were designed based on Bloom's Taxonomy specified cognitive domains of learning – Knowledge, Understanding and Application, to assess thinking skills of students

2. Intervention Phase- Interventions were planned in conjunction with baseline
data collected and analyzed in pre-intervention phase. Based on analysis of baseline data in pre- intervention phase, action plan for students and teachers were developed and these action plans were implemented in intervention phase:

➢ **Intervention with Teachers**- QRC initiated interventions with teachers as a one way of improving student learning outcomes by providing action plans based on improvement areas identified during pre intervention phase, disseminating training considering all the key findings during classroom observation and continuous

monitoring of teachers to know the applicability of QRC interventions.

➢ **Intervention with students**-Conducted reading improvement activities (Vocabulary building quiz, daily book reading) and subject based activities (syllabus related worksheet) to strengthen reading skills and improvise learning level of the students.

2. Post-Intervention Phase- Major activities of this phase are following:

➢ In Post-intervention phase, terminal behavioral changes of students were assessed by administration of achievement tests on students.

➢ Comparative analysis of two data set of students of pre-intervention achievement assessment data and post-intervention achievement assessment data.

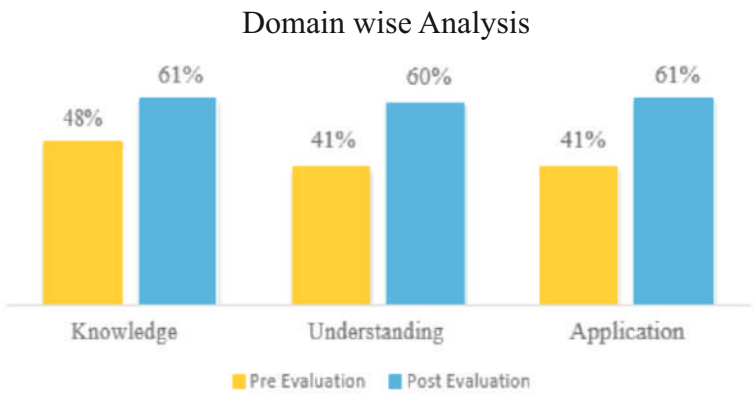
➢ Impact analysis by comparison of post-intervention students' performance against pre- intervention (baseline) students' performance.

Major Findings

Assessments are important tool to help both students and teachers to gauge the learning process. Pre and post intervention data was statistically analyzed to draw inferences on the academic performance of schools and examine the effectiveness of interventions undertaken. The school performance subject, mean, standard deviation based analysis and students categorization.

During Post-intervention, it was inferred that learning level of students has been increased remarkably well as compare to assessment in Pre-Intervention phase across all the five pilot schools. Following inferences have been drawn by comparing pre and post intervention results:

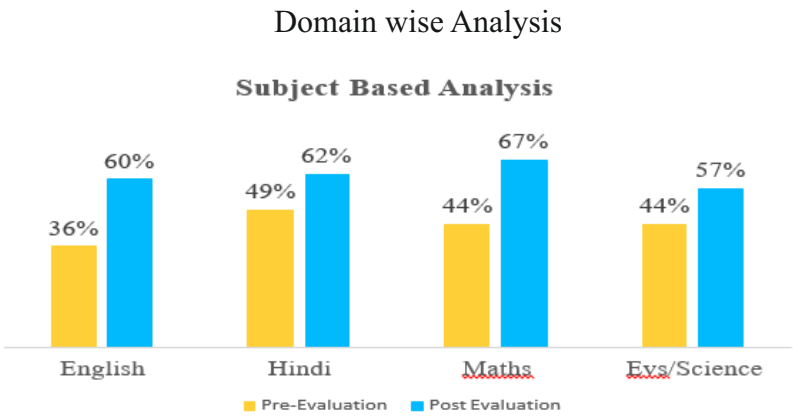
A. Domain wise Analysis



Graph1: Percentages scored by students in three domains of learning in pre and post intervention.

- For Knowledge Domain, average percentage scored by students increased from 48% to 61% in pre and post intervention
- On an average, students scored 41% in Understanding domain in pre intervention, which elevated to 60% in post intervention.

A. Subject Based Analysis



Graph 2: Subject based Analysis

- It is imperative to note that average percentage scored by students in English and Math shows a

Percentage change of 67% and 52%in pre and post intervention respectively.

- In Hindi and EVS/Science, percentage change in performance of students is 26% and 29% respectively.

Therefore, we conclude that overall percentages scored by students in English, Hindi, Math and Science/EVS have improved significantly.

C .Overall student Performance

Domain wise Analysis

Category	Percentage Scored by Student
A	Above 75%
B	50% - 75%
C	25% - 50%
D	Below 25%

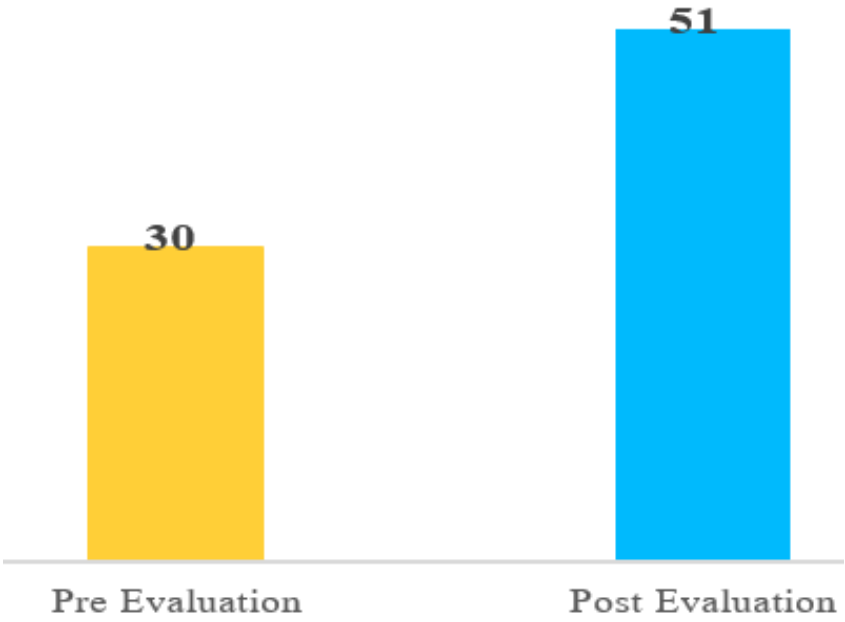
	Students in Pre Intervention	Students in Post Intervention	Change
A	12%	21%	↑ 75%
B	21%	38%	↑ 81%
C	47%	30%	↓ (36%)
D	20%	11%	↓ (45%)

Graph 3: Categorization of students based on overall performance of students in pre and post intervention.

- Students scoring in category A during pre intervention increased from 12% to 21% in post intervention. (Surge of 9%)
- 17% students shifted from C category in pre intervention to B category in post intervention.
- Students scoring in C category reduced from 20% in pre intervention to 11% in post intervention.

From the above observations we conclude that percentage of students falling in C, D categories have gravitated to A and B categories, thus, showing a positive impact of various interventions undertaken on students' performance.

D. Mean wise Analysis



Graph 4: Comparison of average score achieved by students in pre and post intervention

The data indicates that there in an increment of 21 marks in mean of scores achieved by students from pre to post intervention.

As the average score achieved by students have increased from pre to post intervention, thus, students are ushered towards improved Student Learning Outcomes.

Conclusion drawn on findings:

➢ Due to Quality interventions, percentage scored by the students in Application domain during pre intervention was 41% which has increased to 61% in post intervention.

➢ Learning levels of students have remarkably increased after the interventions conducted by QRC.

➢ Application of pedagogical strategies by the teachers resulted in creating a new and different learning experience for learners thus improving student learning outcomes.

➢ Remarkable improvement in overall percentages scored by students in pre intervention
i.e. .English (36%), Hindi (49%), Math (44%) and Science/EVS (44%) have improved significantly in post-intervention which is (60%) in English, (62%) in Hindi, (67%) in Math and (57%) in Science/EVS.

➢ Monitoring, scrutinizing and guiding teachers for improving teaching-learning processes eventually enhanced student-learning outcomes.

➢ Implementation of action plan by teachers showed a visible impact on post intervention results. Hence, if action plan is implemented in true sense, student performance will be improved.
➢ Providing teacher specific trainings in accordance with areas of improvement identified for each teacher would help in improving effectiveness of teacher.
➢ This study furnishes an analytical approach for mapping Student Learning Outcomes and guides frame of required interventions for each school as per identified area of improvement. Evaluation and intervention can give useful insights about how reasonably students are performing and where they need help.

Quality Intervention in Teaching Learning Process of Haryana Schools

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Introduction

Right of Children to free and compulsory education Act-2009 casts obligation on the government to ensure quality elementary education to children of "6-14" age group. In this regard, various measures have been taken by government. Recently central government, by making amendment in Rules 23 (2) (c) of Right to Education Act-2009, has made codification of learning outcomes essential for classes 1st to 8th. Learning outcomes are competencies that are required to be accomplished by students after completion of concerned class.

Major intent underlying codification of learning outcome is to use these outcomes as yardsticks for assessing the effectiveness of teaching-learning process prevalent in government and government aided schools, so that outcome oriented focused planning can be done for tangible improvement in learning outcome of students.

Need for the Study

Designing the Quality Intervention Model (QIM) is necessitated for making tangible improvement in teaching-learning process of government and govt. aided schools. As periodically National Achievement Survey (NAS) is conducted by the National Council for Educational Research and Training (NCERT), New Delhi and ASER (Annual Status of Education Report).

learning styles and frequent assessment of teaching and learning. These factors have been recognized by NCERT in NAS-2017 as crucial factors which have potential to impact the learning outcome of students significantly. Hence, QIM focus on these factors to make tangible improvement in learning level of students and teaching practices of teachers. In a galore of empirical studies, positive association between learning outcome and teaching practices of teachers have been reported.

In consistent with the fact that well planned diagnosis of problems and sound action plan developed thereupon have potential to make substantial improvement in teaching learning process. This entire exercise is executed to analyze the current performance level of teachers' and achievement level of students and to develop realistic action plan to raise the performance of students and teachers in focused way.

As set of skills constitute the teaching styles of any teacher which strengthens over-time, it is essential to sensitize and enable teachers to reflect on their teaching styles from the perspectives of different teaching skills. The analytical approach of classroom observation of teaching practice enables teachers to make desired change in their teaching styles by adopting various teaching strategies and ultimately leading to improvement in students' outcome.

Student Learning outcomes are assessment standards indicating the expected levels of learning that children should achieve for that class. These outcomes are used as check points to assess learning at different points of time. Accurate measurement of student achievement allows educators to accurately determine academic growth for all of their students. Growth data helps all the related stakeholders namely; teachers, parents, administrators, and the students themselves to critically interpret and use the data, helping us all know if all of our students are learning.

Considering all these factors, QRC team aspires to work upon interventions in teaching-learning practices in Government schools of Haryana. Thus, escalating the effectiveness of teaching- learning process that would eventually ameliorate student-learning outcomes.

Thrust Areas of the Project

The main objective of the project is to study the impact of interventions in teaching instructional strategies for enhancing learning outcomes of students studying in classes 3rd to 8th. In addition, the broad objective has been achieved by strategies and goals mentioned below:

a) Assess and evaluate student-learning outcomes.

b) Assess and analyse teaching learning process and identify gaps in instructional strategies of teachers.

c) Conduct root cause analysis to test the basic skills of the students.

d) Development of action plan for teachers to bridge the identified gaps to cater their pedagogical needs.

e) Measure impact of intervention on instructional strategies of teachers.

Scope of Project

For testing the potential of quality intervention model on pilot basis, project was implemented in 5 Government schools in Bahadurgarh block, Haryana. The school-wise breakup of students and teachers is given below:

School Name	Number of Students	Number of Teachers
GHS A	55	5
GHS B	51	3
GPS A	45	3
GPS B	32	2
GPS S	157	5

Methodology (Execution Design)

This section depicts how quality intervention model (QIM) will unfold itself and which type activities are planned to conduct under each phase. QIM unfolds itself in following phases (as given in Figure 1).

- Developmental Phase
- Pre-Intervention Phase
- Intervention Phase
- Post-Intervention Phase

Phase I: Developmental:

Following are steps undertaken in developmental phase, further, each step has been briefly explained:

a) Development of Classroom Observation Tool

b) Construction of Achievement Test

a) Development of Classroom Observation Tool: Based on review of National Curriculum Framework-2005, National Curriculum Framework on Teacher Education- 2009, NCERT/SCERT-Learning Indicators and Learning Outcomes at Elementary Stage, classroom observation tool was given final shape. This tool comprises of dimensions namely - Subject Expertise, Teaching-learning process, Integration of TLMs, Classroom Assessment and Classroom Management. Description of dimensions of Classroom observations are given below:

a) Construction of Achievement Test: For assessing the achievement of students within school subjects, achievement tests were constructed. Purpose of construction of tests was to assess entering knowledge level of students at beginning of intervention and further to assess terminal knowledge level of students at last of intervention. Steps of test construction are depicted below:

II. Grade wise Competency Mapping and sampling of Learning Outcome: Major intent of assessing students was to know the extent of accomplishment of learning competencies or outcome specified by NCERT/SCERT grade wise. For mapping of learning competencies or outcomes, NCERT/SCERT specified grade wise competencies was used as base document. For developing the achievement test, grade wise specified learning outcome or competencies were sampled.

II. Designing Test items based on Bloom's Taxonomy: Once the sampling of competencies was finalized, for designing the test items Bloom's Taxonomy was employed. Remembering, Comprehending and Applying thinking skills of Bloom's Taxonomy were usedas base for designing the test items for assessing the learning competencies. (Refer Figure 2) Figure 2: Blooms Taxonomy

III. Determination of Difficulty Values and Discrimination Power: While developing test items, this was planned that only those students can respond correctly to test items who have mastery of covered learning competencies by concerned test items. This was essential to make discrimination among students who have accomplished the learning competencies and who have not accomplished.

Test items were designed of simple, average and higher difficulties levels so that this can be determined what are mastery levels of students and whether they are capable to respond successfully to simple questions or have capability to respond test items of different difficulty levels.

Phase II: Pre-Intervention

Major intent underlying entire assessment exercise during this pre-intervention phase to create baseline data against which learning level of students and teaching practices of teachers will monitored for making tangible improvement. Diagnostic

assessment for students (root cause analysis was also planned in this phase to explore the learning difficulties and concern areas) for planning intervention activities for students. Following are brief details of pre-intervention phase undertakings:

a) Students Assessment: Assessment of students was conducted twice. During pre- intervention phase, this was conducted to create the baseline data and during post- intervention this was conducted to find out difference against baseline data so that amount of tangible improvement can be estimated and ascertained.

b) Teacher Classroom Observation: Current teaching practices of teachers were assessed and teacher specific action plan was developed.

c) Root Cause Analysis: To comprehend the reason for low performance of students in pre-intervention phase, root cause analysis as diagnostic assessment were designed with focus on assessing reading and numeric abilities of students. The learning difficulties of students were detected during root cause analysis. (Refer Annexure 1)

Phase III: Intervention

Interventions were planned in conjunction with baseline data collected and analyzed n pre- intervention phase. Based on analysis of baseline data in pre-intervention phase, action plan for students and teachers were developed and these action plans were implemented in intervention phase. Following are the details:

a) Action Plan for Teachers: After identifying areas of improvement in pre-intervention phase, teacher specific action plan was shared with teachers to work upon identified improvement areas.

b) Teachers' Training: to handhold teachers for making desired modification in the light of developed action plan, eminent educationists conducted training sessions.

c) Monitoring of Teachers: Monitoring of teachers was done by assessors, to check the impact of action plan and trainings disseminated to teachers for improving the learning levels of students.

d) Activities Based on Root Cause Analysis: To work upon weak areas, identified during root cause analysis, students' interventions were carried out with the help of teachers for different subjects. Following activities were performed with students majorly focusing upon improving reading and numeric skills of students:

I. Worksheets
II. Vocabulary Building Quizzes
III. Book Reading
IV. Phonetics Practice

Phase IV: Post-Intervention

Major activities of this phase are following:

a) In Post-intervention phase, terminal behavioral changes of students were assessed by administration of achievement tests on students.

b) Comparative analysis of two data set of students of pre-intervention achievement assessment data and post-intervention achievement assessment data.

c) Impact analysis by comparison of post-intervention students' performance against pre-intervention (baseline) students' performance

2.1Assessment Methodology

During entire phase of Quality Intervention Model, on various occasions assessment of students and teachers are planned and conducted. In the very beginning in pre-intervention phase, baseline assessment data for student and teachers were created. Baseline assessment data of students was analyzed and further diagnostic Assessment was planned for identifying underlying

factors affecting the performance of low achievers. At last for students final assessment was planned in post-intervention phase to know extent of tangible improvement in learning level of students against baseline assessment.

Baseline assessment data of teachers was analyzed and teacher specific action plan was developed. During intervention phase, assessors trained teachers. At last, assessors monitored the implementation of action plan by concerned teachers and extent of improvement in teaching practices of teachers against baseline assessment.

2.1 Analysis Method

Baseline and final student assessment data was comparatively analyzed. Following statistics were computed:

a) Computation of Mean Score: To find out the difference between average marks achieved in student assessment, mean score was computed on baseline and final data. Overall score achieved by students was averaged to calculate mean value.

b) Standard Deviation: Percentage score has been considered as raw score for computing standard deviation. It reflects the inter-student variation in academic performance of students. Baseline and final assessment data standard deviation has been compared to observe the change in inter-student variation from pre to post intervention phase.

c) Overall Student's Performance: Students were classified based on percentages achieved in assessment test. The students were grouped in four categories A, B, C, D (from high to low) as given below:

Category	Percentage Scored by Student
A	Above 75%
B	50% - 75%
C	25% - 50%
D	Below 25%

Findings and Conclusion

Both quantitative and qualitative data, collected in this study. There are two sets of quantitative data, pre intervention student assessment as baseline data and post intervention student assessment as final data. Qualitative data was collected through feedback survey of school stakeholders to find out major factors that influences teaching- learning process. In this section, following will be discussed in details:

a) Student Assessment Findings
   I. Computation of Mean Score
   II. Standard Deviation
   III. Subject wise Performance
   IV. Categorization Based on Student Performance
b) Feedback Survey Findings
c) Conclusion
d) Recommendations to Schools

Impact of differentiated learning on achievement of Secondary School students: An Action Research Study

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Action Research Paper MFERD/AR/3

Abstract

The purpose of this action research study was to evaluate the relationship between two grade tenth mathematics classroom; one with differentiated pedagogy and other with traditional pedagogy. To fulfill these purposes, the study tested the hypothesis utilizing an independent t-test. The t-test was used to identify statistical differences among variables. The participant-researcher utilized a differentiated mathematics instructional strategy of small group instruction, collaborative group instruction, and activity based instruction with one classroom and traditional lecture style pedagogy with the other classroom over a two week period in preparation for a Post-Assessment. Quantitative data included Mathematics Post-Intervention scores which were given to students to gage their mathematical problem solving abilities for the comparison study.

Introduction

To meet the needs of all students and utilize instructional strategies responsive to each student's strengths and interests, we must explore alternatives to traditional instruction. Mathematics is the key to opportunity, for students it opens doors, enables informed decisions, and provides knowledge to compete in a technological economy (National Research Council, 1989). For people to function in this global society,

mathematics play an integral role in basic knowledge. People need to have a complex understanding of numbers and procedures that are used in daily activities. “All students must have a solid grounding in mathematics to function effectively in today's world” (Ball et al., 2005, p. 1056). The identified problem of practice for the present study focuses on the deficit that exists in our school students in demonstrating high levels of mathematics reasoning.

Katz and Porath (2011) argue that for all students to learn, students must be recognized as having diverse needs, and a classroom that allows all students to learn and develop a sense of belonging. The heart of instruction has to focus on meeting the diverse needs of the students not teaching the standards and teaching to the test.

Research reveals how even well-intentioned reforms fail to address the most urgent issues precisely because such reforms are undertaken as a pre-made package without the knowledge of local issues, and their relation to the broader political, cultural, and economic context of society. (Valdiviezo, 2014, p 75) Instruction today is challenging because it does not begin on the first page of the curriculum guide, but rather where students are in regards to their ability (Tomlinson, 2001). Educators must understand the diverse ability levels of the students in their class to make quality instructional decisions. This understanding allows educators to implement instructional strategies conducive to their students' strengths and weaknesses. Marzano, Pickering, & Pollack (2001) stated that the individual instructional strategies that a teacher uses have a powerful effect on student learning. The students at Divine School showed greater achievement in other subjects, however a gradual decline in mathematics achievement was shown in the Assessments . When differences in students' abilities are significant, educators must make accommodations

and differentiate instruction to make teaching and learning more successful (Tomlinson, 2000). When children do not learn the way we teach then we must teach the way they learn (Kellough, 1999). Differentiated instruction was used in this research study as an instructional strategy to improve mathematics achievement in tenth grade students compared to traditional lecture style instruction.

The teacher in a differentiated classroom understands that they does not show respect for students by ignoring their learning differences. They continually tries to understand what individual students need to learn most effectively, and attempts to provide learning options that are a good fit for each learner whenever they can. This shows respect for learners by honoring both their commonalities and differences, not by treating them alike. (Tomlinson, 1999, p. 12)

This instructional strategy will allow the researcher a significant opportunity to address the diverse needs of the learners. Traditional lecture style instruction negates to engage my students in content and knowledge of mathematics. Standing in front of the classroom spraying students with information does not meet the individual needs of all of students. Slavin, Madden, & Stevens work (as cited in Kuntz & McLaughlin, 2001) noted that the best possible mathematics program for mainstreamed classrooms would be one that combined cooperative learning with individualized instruction.

Often students have a negative attitude toward mathematics because they are used to sitting in their desk and having to do work on their own. Making mathematics instruction more student centered allows students to really take ownership of their own learning. Effective math instruction allows children to develop positive attitudes toward math instead of negative ones (Clements, Sarama, & Dibiase, 2004). The major focus

on mathematics instruction in elementary schools is the development of proficiency in computation and of skills in applying computational ability to solving problems (Fleischner, 1985).

Students who are taught through differentiated methods not only learn mathematics effectively, but they also become motivated students who view themselves as successful mathematicians (Lawrence-Brown, 2004). Making the most of the little time that can be used on a daily basis for mathematics is crucial for students. Having students engaged in learning which meet their individual needs is of upmost importance. Differentiated math instruction based on student readiness meets the needs of students who are below grade level, as well as those who exceed benchmarks. When applied correctly, differentiation in mathematics ensures student success (Grimes & Stevens, 2009). Students who are instructed using differentiated instruction can work independently or collaboratively on activities that allow practice and review of mathematic concepts. Teachers are able to work closely with children individually or in small groups providing a more differentiated style of instruction consistently each day. This individualized instruction allows our students to receive tailored instruction to best meet their needs (Boushey & Moser, 2014).

Statement of the problem

The overarching goal of action research is to improve practice immediately within one or a few classrooms or school. The mathematics need of our general population in being left behind in the goal of making all learners literate. The purpose of my action research study is to examine the effects of differentiated mathematics instruction and traditional lecture style instruction on the achievement of tenth grade

mathematics students. The specific purpose of this study was to examine the utilization of small group instruction, collaborative groups, and the use of activities as a framework to differentiate learning of mathematics in tenth grade students.

Operational Definitions

The operational definitions of the key terms of my study are provided:

Action Research: It is a systematic inquiry conducted by educators for the purpose of gathering information about how their particular schools operate, how they teach, and how their students learn (Mertler, 2014).

Small Group Instruction: This typically refers to a teacher working with a small group of students on a specific learning objective. These groups consists of 2-4 students and provide these students with a reduced student-teacher ratio. It allows teachers to work more closely with each student, reinforce skills learned in the whole group instruction, and check for student understanding. (Meador, 2012).

Collaborative/Cooperative Learning: It is the instructional use of small groups so that students work together to maximize their own and each other's learning. Class members are organized into small groups after receiving instruction from the teacher. Then they work through the assignment until all group members successfully understand and complete it (DeJesus, 2012).

Differentiated learning: Differentiated learning is an educational strategy commonly used in "heterogeneous grouping", in which students of diverse group of students with diverse learning needs, and levels of academic achievement are grouped together. Then instructions are tailored to meet their individual needs.

Traditional Lecture Style Instruction: It is a predominant whole class instructional strategy that teachers utilize in classrooms.

This places the teacher in the front of the room delivering the information to students. There are theorists that believe traditional, whole class instruction is the best instructional strategy for educators to utilize. Whole class instruction is an effective tool in identifying students' prior knowledge and experiences that will affect the ability to learn new concepts (Valentino, 2007).

Area of a circle: It is the region occupied by the circle in a two-dimensional plane. It can be determined easily using a formula, $A = \pi r^2$, (Pi r-squared) where r is the radius of the circle. The unit of area is the square unit, such as m^2, cm^2, etc.

Research Question

Our study is guided by the following research questions:

RQ1. What is the difference in mathematics achievement in tenth grade students who have received differentiated mathematics instruction when compared to tenth grade students who received traditional mathematics instruction?

Rq2. What is the impact of parental education on student success?

Purpose of the Study

The purpose of my action research study was to examine the effects of differentiated mathematics instruction and traditional lecture style instruction on mathematics achievement of third grade students. The specific purpose of this study was to examine the utilization of small group instruction, collaborative groups, and the use of activities as a framework to differentiate the learning of third grade students. Effective instructional strategies enable diverse learners to construct their own knowledge and cultivate talents in an effective manner (Darling-Hammond, 1993). Schools are faced with the challenge of implementing state standards with a single requirement for all learners. The problem facing educators is

all learners need to have the same outcome but instructional strategies need to meet the diverse needs of their learners.

This study will examine two of the most predominant instructional strategies for teaching mathematics: Traditional lecture style and differentiated instruction.

Delimitations

This study was limited to two tenth grade mathematics classes in secondary school. The study was conducted in a single geographical area. The sample consisted of a 40 students from grade tenth. The assessment include multiple choice questions.

a. The study will be confined to the concept of Areas Related to Circles in Mathematics.

b. The study will be confined to the Secondary School students of Divine School, Gulbarga, Karnataka.

Significance of the Study

The curriculum in schools have become standards based, which means all students are expected to achieve equally and meet high standards despite their varied abilities. Educators are therefore challenged to meet the diverse needs of the student populations. The only way to meet the objective of the standards based curriculum is to personalize or differentiate the instruction (Lawrence-Brown, 2004.

Differentiated instruction is believed to be an effective instructional strategy because it advocates beginning where individuals are rather than with a prescribed plan of action, that disregards student readiness, interest, and learning profile (Tomlinson, 2005). This study is significant and contributes to the existing research because it provides educational leaders with a comparative study of differentiated instruction and traditional instruction. Society has become more diverse and complex, which is also represented in our classrooms.

Schools need to adopt learning strategies that enable all students to meet high standards.

Research Design and Methodology

The participant-researcher utilized a differentiated mathematics instructional program utilizing small group instruction, collaborative group instruction, and activities with one classroom. Traditional lecture style instruction was utilized with the other classroom. Both groups received a two-week period of study in preparation for the Post-Assessment. Both groups received instruction from the Grade tenth, State board textbook. Quantitative data included Mathematics Post-Test scores which were given to students to gage their mathematical problem solving abilities before and after the treatment. The Mathematics test was prepared by us covering the concept taught with varied levels of difficulty. The test scores were also utilized to determine class groupings for differentiated instruction.

Sample and Data Collection

The participant-researcher contacted the Principal of the Divivne School prior to the study to discuss the purpose, question, and action plan for the study. The school principal was also contacted in person to discuss all details of the research study. The post-test was administered after the beginning the instructional unit with a two week period between the intervention and the post-assessment. The researcher recorded all test scores of the participants on a spreadsheet. He test was administered to both the control and the experimental group. The 15 question test provided several multiple choice questions that helped to gauge students' skill level based on each standard to determine the student's conceptual understanding. The post-test provided a measure of

what the students had learned: a summary of student performance, and mastery of standards.

Data Analysis and Reflection

The purpose of collecting data was to determine if students receiving differentiated instruction (experimental group) are different in terms of their math achievement test scores than students receiving traditional lecture style (control group). The independent t-test was used to determine if the post-test means are significantly different. The t-test determined whether the observed difference was sufficiently larger than would be expected solely by chance. The t-test for independent samples was used to determine whether there was a significant difference between mathematics scores for students in differentiated instruction compared to students in traditional lecture style (whole group) instruction.

Findings of the Study

The Statistical Program for Social Sciences (SPSS) was used to analyze the data of the control group and the experimental group to compare the achievement. Descriptive Statistics are appropriate for comparing outcomes of two classes. The t-test for two independent samples were used to determine statistical difference of the mean math scores concerning mathematical achievement for groups receiving traditional instruction and differentiated instruction.

The differentiated instruction group (N=19) was associated with post-test score M=84.15 (SD=12.20). By comparison, the traditional lecture style group (N=21 was associated with a pre-test score of M=56.40 (SD=19.30) and post-test score M=82.00 (SD=11.10). Based on the post-test means data, the grade tenth students who received differentiated mathematics was 2.15 (SE= 4.40) higher than the grade tenth students who received traditional mathematics instruction. The test

revealed there was statistically significant difference in mathematics achievement for grade tenth students who received differentiated instruction and the traditional instruction (t= 0.49, df = 26, p > .005). Table 4.1 shows the two classes' average mean scores . In addition, it shows the average difference between the two groups. The assumption of homogeneity of variances was tested and satisfied via Levene's F test, F= .000, p=.998. See Table 4.2 for Levene's Test.

Table 4.1 Post- Assessment Results

Group		Post-test Score-SD
Difference Differentiated Instruction	(N=13)	84.15- 12.20
Traditional Instruction	(N=15)	82.00- 11.10

Table 4.2 Levene's Test for Equality of Variances

Post-test Data	F	Sig.
Equal Variances Assumed	.000	.998
Equal Variances Not Assumed		

Interpretations of Results of the Study

Thus, the test revealed that there were statistically significant differences among mathematics scores (achievement) between the control group and the experimental group that received differentiated instruction.

Suggestions for Future Research

Based on the finding of this study, recommendations for future research that might further inform the processes for improving students' development of mathematics achievement.

1. Analyze student data beyond just one chapter, possibly a year to evaluate if there is stronger difference with an extended amount of time.

2. Further research is needed to determine how teachers feel about using differentiated instruction.
3. Replicating the study to include other subject areas, grade levels, and ethnicities to provide more data on the effectiveness of differentiated instruction in meeting the needs of all diverse learners.
4. Implementing other methods (qualitative) to address the effectiveness of differentiated instruction.
5. Further research is needed to see if teacher knowledge on differentiated instruction would impact student achievement.

Impact of School Closures on Students Well Being

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Action Research Paper MFERD/AR/4

Problem: What is the impact of school closures on students' wellbeing?

Hypothesis: Students are deprived of physical ,mental social & emotional well being due to school closure

Purpose: Improvements in physical activity levels, sleep time happiness & generally being were observed in general for children during school enclosure compared to previous years

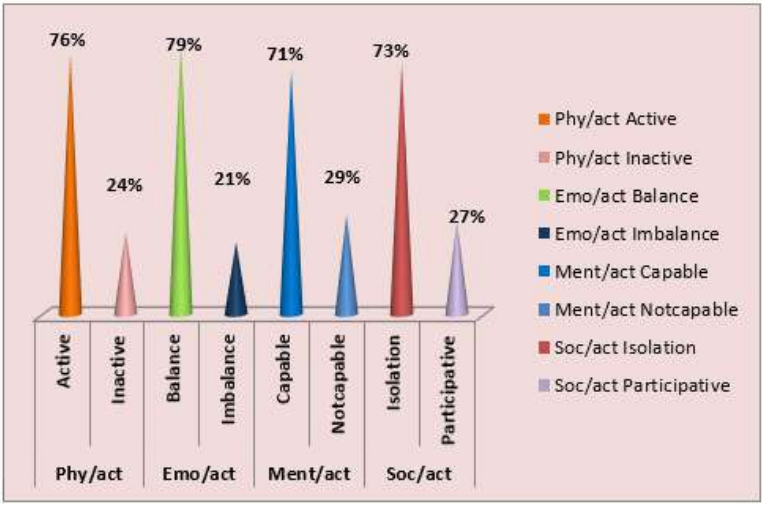
Back ground research: This study aim to explore the relationship between initial school closures and children health by comparing health and wellbeing outcomes collected during school closures (Arpril - june 2020) via happen (the health and Attainment of pupil in a primary education network) with data from the same period in 2018 - 2019 via the happen survey.

Procedure: Pre data collecting by examining the students physical , mental social & emotional status in the first week of school reopen , After 15 days of schooling post data is exactly collect students are monitered for the physical, mental ,social & emotional status
Data sheet is prepared, results are tabulated.

Data Analysis: Pre Data

Class	Phy/act		Emo/act		Ment/act		Soc/act		
DATA	Active	Inactive	Balance	Imbalance	Capable	Notcapable	Isolation	Participative	Total
3B1	25	6	26	5	22	9	20	11	31
3B2	30	3	25	8	20	12	21	12	33
4B1	18	12	26	4	20	10	23	7	30
4B2	27	5	26	6	22	10	21	11	32
5B1	21	9	22	8	23	7	24	6	30
5B2	21	11	23	9	26	6	28	4	32
	142	46	148	40	133	54	137	51	188

Class	Phy/act		Emo/act		Ment/act		Soc/act		
DATA	Active	Inactive	Balance	Imbalance	Capable	Notcapable	Isolation	Participative	Total
TOTAL	76%	24%	79%	21%	71%	29%	73%	27%	188



Activities done:

Physical activity: improve their concentration and ability to stay on task, done physical exercise.

Mental activity: took a general knowledge quiz and given project work to do at home.

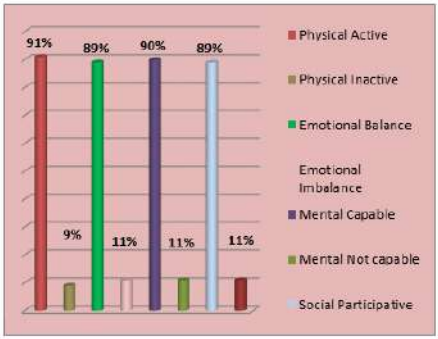
Emotional activity : encouraging positive self task, skill and self awareness.

Social activity : played board games with classmates.

Post Graphical Data

Class DATA	Physical Active	Physical Inactive	Emotional Balance	Emotional Imbalance	Mental Capable	Mental Not capable	Social Participative	Social Isolation	Total
3B1	29	2	30	1	28	4	25	6	31
3B2	32	1	29	4	26	7	30	3	33
4B1	26	4	24	5	28	2	27	3	30
4B2	29	3	29	3	30	2	28	4	32
5B1	26	4	27	3	27	3	28	2	30
5B2	29	3	28	4	30	2	30	2	32
TOTAL	171	17	167	20	169	20	168	20	188

Class DATA	Physical Active	Physical Inactive	Emotional Balance	Emotional Imbalance	Mental Capable	Mental Not capable	Social Participative	Social Isolation
TOTAL %	91%	9%	89%	11%	90%	11%	89%	11%



Results: the wellbeing of children from a holistic perspective physical, emotion, social, mental

And academic aspects are well balanced and frequently done by the students. Most parents believe that there children are more active and engaged in school projects.

CONCLUSION: The purpose of this study was to determine the impact of school closure and well being. The scores of both group were compared the scores of the experimental group were higher than the control group. By doing the activities on physical, mental, emotional and social activities the students performance was more than pre data performance.

I am please to acknowledge the assistance for this research from the H.M of my school Mrs.Firdose Begum

Enhancing Students Reading & Writing Skills

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Action Research Paper MFERD/AR/5

It is possible for the student to acquire basic language skills that will be used throughout his / her life, with the first teaching process of reading and writing planned correctly and effectively. Writing has always been a painful activity for learners. The fact that the duration of the course is limited and that other activities focused more take place in the language teaching puts this skill to the background. The excuse that the students are not well-equipped to do some writing activities can be counted as the reasons given by the related course teachers. Hence, third language learners constantly struggle to achieve language proficiency; therefore, they find it hard to produce written texts. However, reading materials will set a good model for which they can transfer into their own writing. The goal of this study is to put forward writing and reading skills.

Problem: How can students enhance their reading and writing skills in Urdu language?

Hypothesis:

- Reading enhances the vocabulary & writing traines on to improve syntax.
- Reading helps the students to expand their vocabulary & get a better grip on grammar & punctuation.
- Reading good articles & books helps you not only in reading but also in writing.
- Take minutes of each 10 minutes to read a blog to writes

whatever comes into your mind.

Purpose: - To enhance reading & writing competence, oral communication skills, vocabulary growth, increase in motivation, self-esteems & empathy.

Procedure: -

- Regular reading is a stepping stone to better writing & helps student strength their writing skills.
- Give students opportunities to talk about their writing.
- By assigning task in the class writing & reading activities.

Causes:-

a. Home environment and surrounding.
b. Lack of pronunciation.
c. Lack of writing and reading.

Measures To Be Taken:-

1. Annotate and highlight text
2. Personalize the content
3. Practice problem skills
4. Incorporate more senses
5. et reading goals
6. Let students guide their reading

Background research:

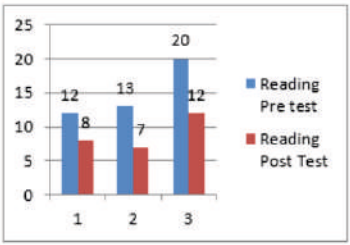
This study aims to explore the reading and writing skill among the students to improve their academic performance The data collected during the academic year from 12 weeks. The performance of the students in primary and secondary education network with data collected from 2020-2021

Pre Data sheet is prepared results are tabulated:

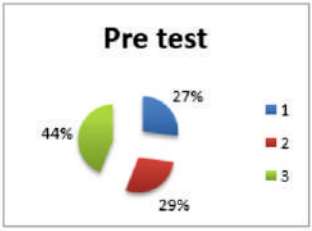
Literacy Rate of Urdu father	Literacy Rate of Urdu mother	Illiteracy rate of Urdu father	Illiteracy Rate of Urdu mother
50%	53%	48%	50%

Pre & post reading analysis

Reading	Pre test	12	13	20
	Post Test	8	7	12

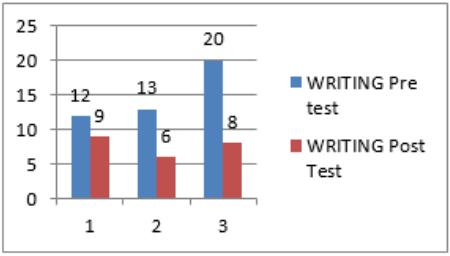


Pre test	27%	29%	44%
Post Test	17%	16%	27%

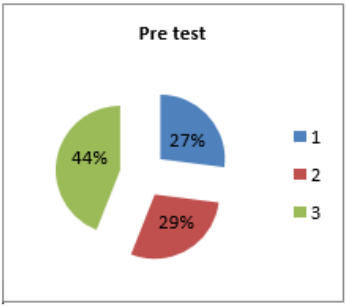


Pre & post writing analysis

WRITING	Pre test	12	13	20
	Post Test	9	6	8



Pre test	27%	29%	44%
Post Test	20%	13%	18%



Conclusion:

Student writing can be evaluated on five product factors: fluency, content, Conventions, syntax, and vocabulary. Writing samples also should be assessed across a variety of purposes for writing to give a complete picture of a student's writing performance across different text structures and genres.

While writing is important in its own right, the evidence clearly shows that writing supports reading and reading development. ... They also are vital ways of improving your reading skills overall. Reading and writing are academic skills, to be sure. They are also success skills for life, at large .

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https://www.readingrockets.org/article/learning-read-and-write-what-research-reveals

The impact of COVID-19 pandemic outbreak on education of Indian children aged 6 – 10 years

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Action Research Paper **MFERD/AR/6**

The emerging of psychological problems triggered by COVID-19 particularly in children have been extensively high lightened and emphasized, governments around the world have moved to suspend face to face teaching in school, affecting some 95% of the world's student's population, it is crucial to know whether students are learning less in lockdown and whether disadvantaged students do so disproportionately. Whereas previous research examined the impact of summer recess on learning or disruptions from events such as extreme weather or teachers strikes covid-19 presents a unique challenge that makes it unclear how to apply past lessons. Concurrent effects on the economy makes parents less equipped to provide support as they struggled with economic uncertainty or demands of working from home. The health and mortality risk of the pandemic incurs further psychological costs as does the toll of social isolation. Family violence is projected to rise putting already vulnerable students at increased risk. At the same time the scope of pandemic may compel government and school to respond more actively than during other disruptive events.

We find that students made little or no progress while learning from home, during pandemic technology paves the way for education, thus helping students and teachers to connect virtually through online classrooms, webinars, digital exams and so on. In the beginning schools and teachers have been struggling to adopt online based solutions for instruction. The sad truth is that it was

not available to many students all over the nation because of which the education has suffered to a large extent. Now we should think of ways to undertake the situation and provide education to every child . Therefore, we designed this study to evaluate the impact of COVID-19 pandemic on students learning and further bridge the gap of learning.

PROBLEM: How much is the learning loss due to school closures in students during the COVID-19 pandemic ?

HYPOTESIS: Students have lost fundamental abilities such as reading with understanding and performing addition and multiplication which had been learnt earlier and have become proficient in, and which are basis of further learning. These fundamental abilities are such that their absence will impact not only on learning of more complex abilities but also conceptual understanding across subjects.

PROCEDURE: The assessment is done for the students who are regular to school from day -1 not for the entire school. The assessment tool designed in alignment with NCERT's learning outcomes for two subject areas, language and mathematics for classes 3 to 5. Age appropriate core contain domains were identified and mapped to the NCERT learning outcomes for both the subjects for the specific abilities for each of the learning outcomes that are the foundation for the learning were carefully identified these specific abilities were selected from the abilities associated with previous class because of the absence of any of these would deeply compromise the acquisition of more complex abilities and impact learning across the subject as a child moves through different stages in the school.

Language assessments included: reading comprehension, reading fluency, and writing skills for grades 3 to 5.

Mathematical assessments included: Identification of numbers, using basic arithmetic operations for daily life problem solving and description of 2D and 3D shapes for grade 3, 4 & and 5

Pre-Assessment (language and mathematical assessments) was conducted for the students on 2nd week of November. Data was collected, tabulated, and analysed.

Teachers helped students recall and solve problems based on fundamental operations basics for 5 weeks, Continuous comprehensive evaluation was done to bridge the gaps in learning and strengthen the mathematical concepts.

Post-Assessment (language and mathematical assessments) was conducted for the students on 1st week of December. Data was collected, tabulated, and analysed.

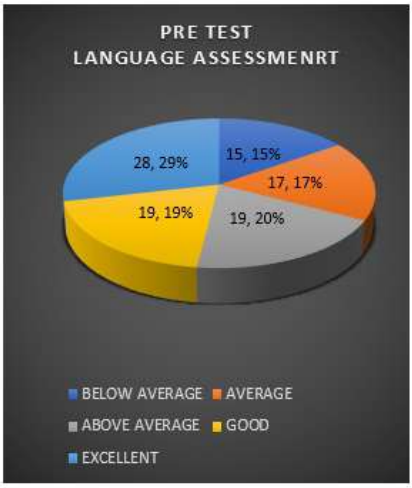
Data Analysis:

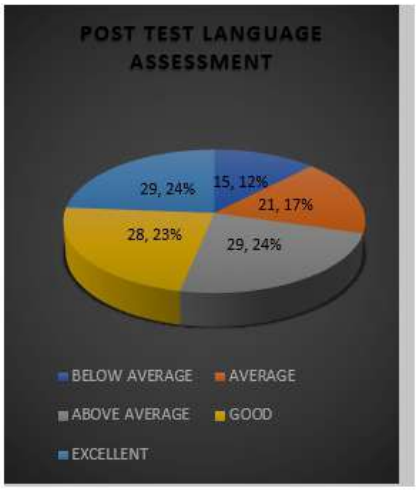
Pre-assignment Data (language Assessment)

	Academic achievement	Students				
		Below average	Average	Above Average	Good	Excellent
3rd Grade	Reading comprehension Reading fluency writing	5	8	6	5	0
4th Grade	Reading comprehension Reading fluency writing	8	4	6	7	13
5th Grade	Reading comprehension Reading fluency writing	7	5	7	7	15

Post Test Assessment
(language Assessment)

	Academic achievement	Students				
		Below average	Average	Above Average	Good	Excellent
3rd Grade	Reading comprehension Reading fluency writing	**7**	**9**	**18**	**13**	**7**
4th Grade	Reading comprehension Reading fluency writing	**5**	**6**	**3**	**8**	**15**
5th Grade	Reading comprehension Reading fluency writing	**3**	**6**	**8**	**7**	**17**





Results:

Pre-test Language Assessment 3rd ,4th & 5th grades :

About 29% students able to comprehend the grade level text with little support.

Can recognize words automatically and reads fluently with expressions.

Can frame meaningful sentences.
About 19% students were able to read and comprehend grade level textbook with some support at times from teacher.
Can recognize words automatically and read without expression. The students tend to make a few errors while reading.
Can frame sentences but with teachers support
About 17% were able to understand a few sentences and need teachers support.
Can recognize words but takes time to decode. Ready loud and makes lots of errors while reading.
Makes grammatical errors while framing sentences miss linking words.
About 15% not able to comprehend grade level text.
Not able to blend and read
Unable to frame sentences independently
Post-test language Assessment 3rd ,4th & 5th grades :
About 24% students able to comprehend the grade level text without any support and retained high quality.
About 23% students were able to read and comprehend grade level textbook with some support at times from teacher.
Can recognize words automatically and read without expression. The students tend to make a few errors while reading.
Can frame sentences but with little teachers help .
About 24% were able to understand a few sentences and need little teachers support.
Can recognize words but takes time to decode. Ready loud and makes few errors while reading.
Makes grammatical errors while framing sentences recognize linking words.
About 12% students are still not able to comprehend grade level text.
Not able to blend and read expects teachers support

Unable to frame sentences independently.

Pre-test Maths Assessment 3rd ,4th & 5th grades :

About 33% students over were able to understand and solve problems related with numbers under addition, subtraction and multiplication which had been learnt earlier independently.

About 40% students finds difficult to solve problems expects teachers help.

About 37% students struggles to recall the concepts of fundamental operations

Could not solve problems.

Post-test Maths Assessment 3rd ,4th & 5th grades :

About 24% students were able to solve problems independently

9% students still struggled to solve application-based problems

About 36% students finds difficult to solve application-based problems expects teachers help.

About 31% students able to understand and solve problems related with numbers under addition, subtraction and multiplication with little confidence.

About 12% students struggles to recall the concepts of fundamental operations least interested in studies and irregular to school students quickly managed to recall the fundamental operation and showed interest in studies.

Conclusion:

Students have lost fundamental abilities such as reading with understanding and performing addition, subtraction and multiplication which had been learnt earlier and have become proficient in, and which are basis of further learning. These fundamental abilities are such that their absence will impact not only on learning of more complex abilities but also conceptual understanding across subjects.

Suggestions:

Language development

Improve students Vocabulary.
Help students break up the reading into smaller session.
Give reading comprehension practice, read aloud.
Mathematics basic and conceptual development
The use of structured peer assisted learning activities.
systematic and explicit instructions using visual representations and hand on activities.
Modifying instruction based on data from formative assessment of students (such as classroom discussion or quizzes).

Stake-holders Outreach Leaders

Aliya Khan

TEAM HUDA A BLOCK

Action Research Paper MFERD/AR/6

Abstract

"Behold everyone is a guardian and everyone shall be asked about your subjects" (Shahi Bukhari) Anonymous concern letters are the major issue in every organization. The question here is: Is it reaching the right person? Are we as leaders aware of people, situations, feelings and expectations of those around us? If not, the goal here is to accomplish it by inspiring, motivating and aiding others by listening to them. More than being sympathetic we need to empathize with our stakeholders by reaching them through suggestion boxes at our school campus or no matter what the problem is we have to reach them through feedback Google forms. Sort out the issues, monitor progress through the suggestions received and improve the training process. Take the advice that is said. And also notice what is not being said. The start of reaching the stakeholders should be consistent like a domino effect. Management and leadership is an important element to accelerate organizational performance and achieve goals by community building.

Keywords: Anonymous letters; awareness; building community; domino effect; empathy; feedback.

1. Introduction

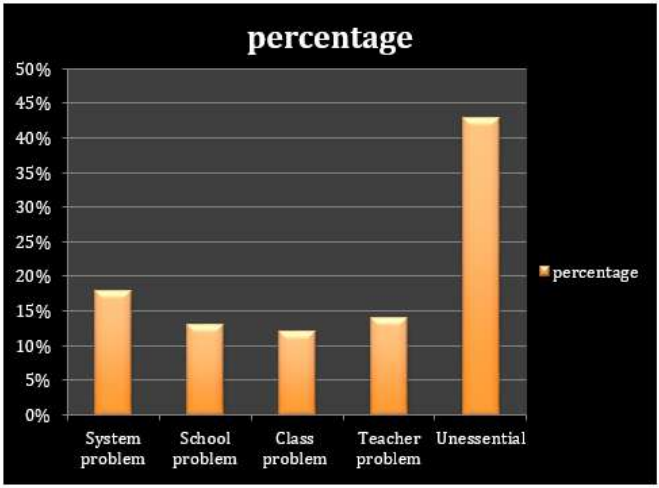
The Prophet Sallahu Alaihi Wassalam is reported to have said: "Each one of you is a shepherd (care taker) and is responsible for his flock. - Sahih Al Bukhari 6719 Main aim of leaders is to

understand the needs of stakeholders. In doing so they need to be aware of happenings and concerns in the organization in a very formal way. This responsibility as leaders/ Vicegerents has to be taken up systematically by trying our level best to reach every stakeholder. In order to achieve the above said technology can assist a lot.

1.1 Suggestion Box:

Suggestion box was installed and the letters were segregated to system problem, school problem, class problem and teacher problem out of which system problem was the major issue. It was opened in front of the principal; the complaints are recorded in a log book. Unessential letters was a time sink. Couldn't justify reading every letter and it had a futile result.

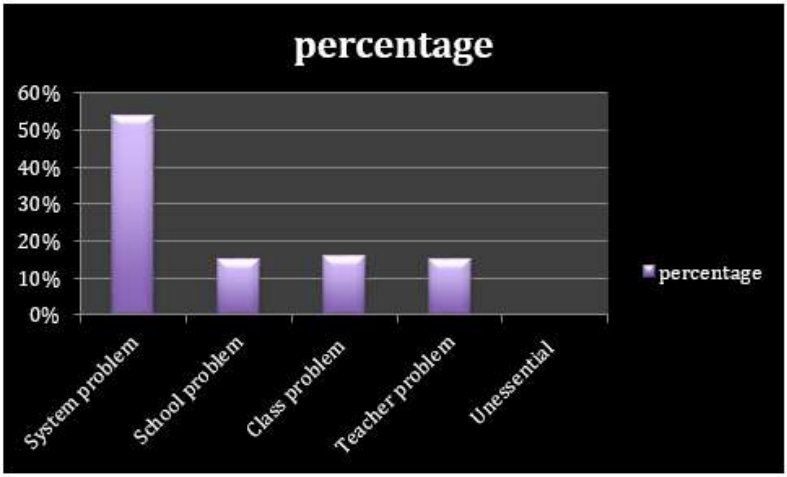
Suggestion box	percentage
System problem	18%
School problem	13%
Class problem	12%
Teacher problem	14%
Unessential	43%



1.1.1 Feedback Google form:

An important pillar of the bridge that connects Leaders and stake holders is a feedback Google feedback form which is also a time saver. Indeed many problems have been worked and discussed using both conventional methods and technology. Furthermore in order to anchor the treatment to reality, real life data have been used where we can build bridges instead of walls through feedback forms

Google feedback form	percentage
System problem	54%
School problem	15%
Class problem	16%
Teacher problem	15%
Unessential	0%



1. Conclusion

Acknowledgment

The logical conclusion is that as leaders we need to understand that management and leadership has to attain the zenith to reach out the stakeholder. Once your mind stretches to a new level it never goes back to its original dimension. All of us do not have equal talent. But, all of us have an equal opportunity to develop our talents. If your actions inspire others to dream more, learn more, do more, you are a leader. Consider domino effect positively, identify the problems. In case of any complexity we have to follow the life and direction of our Prophet Sallahu Alaihi Wassalam. The one who is an embodiment of Uswa-e-Husna for all times as a model of excellence here and success hereafter.

References

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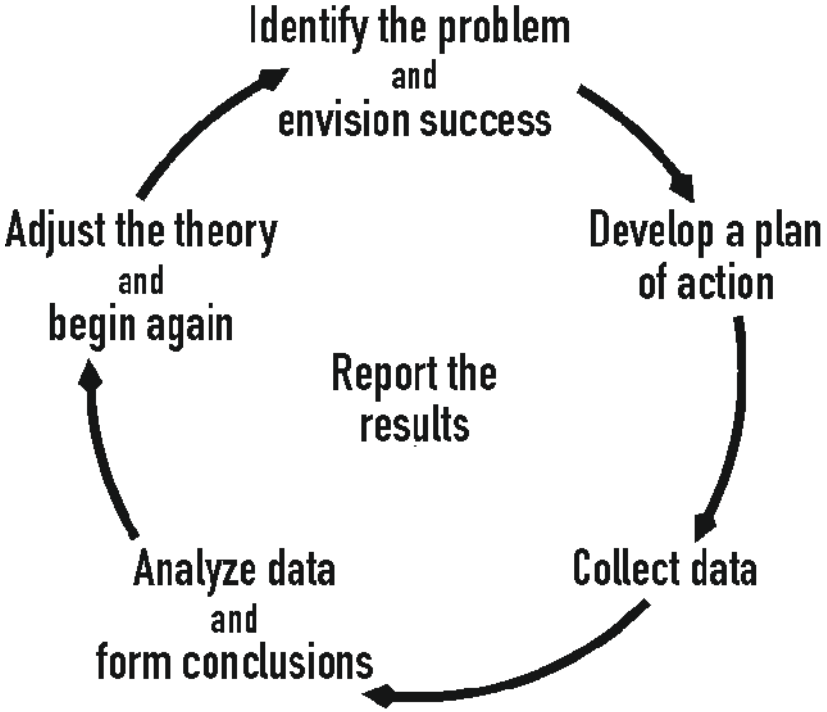
Action Research Cycle



SCOPE OF THE JOURNAL

Changing cultural dynamics in lifestyle, parenting as well as schooling.

- Consumption of Technology
- Impact of Social Media
- Digital Literacy
- Inclusive Education

Child Psychology and it's significance in education

- Psychology of Addiction
- Consequences of Labelling
- Corrective measures and punishments
- Fixed vs Growth Mindset

Initiatives for efficiency with systems and effectiveness with people.

- Teacher Learning and Development
- Balanced Score Card for Schools
- Holistic Security,
- Competency vs. Commitment

Innovative Learning Methodologies for individual learning and research in Pedagogies

- Inquiry based Learning
- Project based learning
- Brain based Education
- Hands on Learning

Classroom management and school discipline

- Classroom Management approaches
- Student empowerment through house leadership
- Choice of learning and decision making

Setting culture of research in schools.

- Goal Oriented Education
- Self Assessment and Assessments that work
- Learning Difficulties
- Learning Styles

Framework of curriculum

- Leadership Curriculum,
- Value Integration
- Transversal Competencies
- Multi Disciplinary Learning

Purpose and Outcome of education,

- Fostering Positive School Culture
- Outcome of Education
- School Transformation
- Framing age appropriate vision

Submission in the above areas of research for consideration in upcoming issues can be done at : **abstracts.mferd@gmail.com**

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