



Uses of Tools and Techniques for Research in Social Science

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ABSTRACT: Research within social sciences is deemed as a procedure that enquires into issues which are social in nature and social challenges that are known to exist within any given society. New knowledge is being gained with the help of research into social sciences and thereby, novel information is being acquired via scientific as well as systematic processes [1]. Social science research would refer to a step-by-step method of acquiring new information on any social topic that makes an impact on people within society. Research in social sciences provides new insights into social occurrences which enables researchers to get an idea of why, when, where, what and how social life is being developed and redeveloped on a day-to-day basis. On the basis of social science research the intricate manner of society is being comprehended as research in social sciences offers awareness for displacement or sustenance of realities that are preconceived [1]. Social science research is a strategic procedure that has been deployed by researchers to challenge current knowledge, on the basis of new findings that displace previous knowledge on social reality.

In the current day, social science research would pertain to either an applied or pure kind of research that offers valuable insights on social happenings or issues in any society. The focus of social research is on social aspects of human existence and the diverse nature of social reality [2]. Social research is deemed as a blend of 'social and 'research'. Therefore, social research would simply refer to research on social life and social issues.

KEYWORDS: Science, Research, Life, Tools, Techniques, Strategy, Social, Issue

I. INTRODUCTION

The basic challenge with master in social science research techniques would be the terms that are utilized to communicate concepts that are esoteric in nature [3]. While discussing methods in social science research, there is a need to decide the manner in which information can be gathered in a manner that is valid scientifically. Information can be collected through several ways; nonetheless, there is a limited number of ways to scientifically execute it. The spirit of social science research can be narrowed down to a single word; empiricism or being empirical. This would mean something that can be observed through senses [4]. Empirical tools to gather information would primarily be of six types and these would include; [5]

Surveys
Interviews
Focus Groups
Field Observation
Experimentation
Existing Data

However, gathering information through the above techniques warrants the need to develop questionnaires for social science research.

Questionnaire Development

Designing a questionnaire for a social research survey is not easy. A questionnaire is referred to as a tool for amassing data wherein a respondent (person who answers the questions) offers answers to an array of questions [5]. Questionnaire development for gathering data would require time and efforts. Nonetheless, by adopting steps of tool de-



velopment in research for questionnaire development, you would be in a position to come up with effective mediums to gather data that will be helpful to you in terms of answering your research questions [6]. Adopting a step-by-step approach would be the best way to develop a questionnaire. The steps are outlined as under.

Step One – Determining the Objective

Identifying the objective of the questionnaire. You need to decide on the kind of information that you are desirous of gathering with the questionnaire.

Develop a research question. It could be one or more nonetheless; it will form the crux of the questionnaire.

Develop hypotheses that will be tested using the questionnaire.

Step Two – Determining the Types of Questions

On the basis of the information accumulated, there would be many kinds of questions that could be added within the questionnaire, wherein, each would have their own advantages and disadvantages. Some of the commonly used questions within a questionnaire would be; dichotomous questions, open-ended questions, multiple choice questions, rank order questions and rating scale questions.

Step Three – Developing Questions

Questions within the questionnaire are supposed to be concise, clear and direct. This will be helpful in ensuring that you derive the most appropriate answers while conducting your social science research. However, the questions are supposed to be short and simple. Complicated statements or jargon need to be avoided.

Step Four – Questionnaire Length

Keep the questionnaire as short as it can be possible because a large number of respondents would be open to answer questionnaires that are short. Also refrain from asking unwanted questions and stick only to questions that are necessary for the research.[8,7]

Step Five – Writing the Questionnaire

It is necessary that you give an introduction of the person who will be conducting the survey. It is the onus of the interrogator to state whether he is working alone or as a group. Further, the purpose of the research / questionnaire should also be mentioned so that the respondent is aware how the data gathered from him will be used.

Questionnaire development for social research can be tedious, taxing and rigorous. A weak questionnaire would mean that it would impact the quality of your research. Therefore, utmost care has to be taken during questionnaire development. To make things easy, you can avail questionnaire and survey development help that is offered by professionals.[9,10]

II. DISCUSSION

The understanding of social studies is important both to the teachers and student for meaningful Social Studies instruction. The subject is increasingly vital in helping to create individuals who are active dynamic participants in our society. This view of Social Studies raises the problem of the organization of its interrelated components and how to make students become conscious of the underlying forces that make up its elements and other related phenomena. There is therefore the need to select appropriate strategies that will facilitate all round development in the cognitive, affective and psychomotor domains of the students. It is obvious that no single method of learning can adequately fit all learning situation. However, there is no best method of teaching Social Studies but combination of the other method would definitely help in achieving the desired instructional objectives. Some methods of teaching Social Studies include, stimulation, laboratory, inquiry, project, dramatizations, questions and answer, field-trips, discussion, lecture, problem-solving, dramatization, home assignment and construction methods. Learning can be less tedious and more functional, if efforts are made to identify and make extensive use of available instructional resources both material and human. The selection and decision on appropriate resources should be based on the student's age, ability and interest. The wide range of resources include textbooks, newspapers, pictures and charts, maps, models, real object resource centers, audio-visual devices, chalkboard and flannel graph. When the school instructional material are available, they must be well organize and administered for effective use.



Evaluation methods are used to judge student learning and understanding of the material for purposes of grading and reporting. Tools and techniques of evaluation critically examine a subject and then assign a grade or some other type of formal result based on how well they performed. Here we are going to learn all the tools and techniques of evaluation which will help us understand evaluation. [11,12]

Evaluation

Evaluation is an attempt to appraise the quality/suitability of a resource. It is not the same as Assessment.

TOOLS

1. Checklist
2. Rating Scale
3. Questionnaire
4. Inventory
5. Schedule
6. Anecdotal Record
7. Cumulative Record
8. Tests

TECHNIQUES

1. Self Reporting
2. Testing
3. Observation
4. Interview
5. Case study
6. Sociometry
7. Projective Techniques

Tools Of Evaluation

Checklist: A checklist is a list of items for consideration. They can be in the form of questions or actions to be carried out. They can have a scoring system or they can collect comments. Checklists can speed up the collection of information by using tick – boxes and rating scales. They need to be carefully designed to make sure that when they are completed, the results are reliable and true.

Rating Scale

Used to classify opinions and judgment regarding situation, object etc. Rating scale refers to a scale with a set of points which describes varying degrees of the dimension of an attribute being observed.

Questionnaire

It is a device in the form of questions or statements

Used for collecting factual data. It is a systematic compilation of questions that are submitted to the person about which information is desired.

Anecdotal Record

It's a record of informal teacher observations regarding the pupil. It's a record of factual descriptions of significant events in the pupil's life. An event in the anecdotal record is known as 'Anecdotal'.

Cumulative Record

It's a record of the complete history of the pupil. It's recorded cumulatively from period to period. It gives information about physical, intellectual, social, scholastic, personality etc.

Tests Most popular tool for collecting data for evaluation.

Classified into three Oral tests [13,15]

Written tests

Performance test.

Types of tests

Norm Referenced Tests

Criterion Referenced Tests

Teacher Made Tests

Standardised Tests

Techniques of Evaluation

Self Reporting Testing

Observation



Interview

Case Study

Sociometry

Projective Techniques

Self Reporting

React to items concerning his own behaviour or characteristics.

Used for measuring the traits like interest, adjustment, attitude etc. Obtained through a check list, questionnaire, rating scale etc.

Testing Commonly used technique of evaluation. Mainly focused on cognitive traits.

Testing is an evaluation technique by which we can measure the characteristics such as knowledge, skill, intelligence, aptitude etc. of an individual or a group in a particular situation as objectively as possible.

Purpose of Testing

Assessment of present status of an individual

Expressing probability of future success

Diagnosing the causes of lack of expected

For remedial measures

For academic or vocational guidance

Classification and comparison of individual or group

Undertaking research to answering various questions [17,18]

Observation

Not mere looking

It's the purposeful, goal oriented perception of an object or situation The teacher observes the behaviors of the student, if any relevant feature notice in behavior should be recorded as objectively as possible. In observation subjectivity of the observer will be often reflected in the judgment.

Different types of observation

Controlled observation/Experiment: Observation under controlled

Uncontrolled observation: Observation of events as they naturally occur.

Participatory observation: Observe the students by the observer while participating in the same activity with the students.

Merits

Natural & Flexible

Economical

Easy to implement

Can be used for all ages

Demerits

Not possible in all conditions

Highly subjective

Not accurate

It fails when the individual hide the actual behavior.

Interview

Used to gather information in a face to face session regarding an individual's experience, opinion, believes, feelings, etc. It's a conversation with a purpose

Types of Interviews

Structured Interviews – Questions are pre – planned by the interviewer – It is systematic

Unstructured Interviews – Questions are not pre – planned by the interviewer – It is flexible

5. Case Study

It is the in – depth study of a case such as an individual, a family, a community, an institution or a group

It aims to solve the deep rooted problems [19,20]

Merits

Gives holistic picture about an individual Helps to solve the problem.

Productive in nature



Demerits

Subjective

Time consuming

Generalisation is not possible

6. Sociometry

L. Moreno developed. It is used for describing the social preferences of individuals in a group. It reveals the social acceptance of an individual & their interpersonal relationships. It will help the teacher to identify.

7. Projective Techniques

Used in personality assessment

Used to collect data which cannot be collected directly from the individual. It helps to project one's inner feeling in an unconscious manner.

III. RESULTS AND CONCLUSIONS

Method Of Teaching Social Sciences

Teaching methods refer to the general principles, pedagogy and management strategies used for classroom instruction. It comprises the principles and methods used for instruction.

Lecture Method

It is the oldest procedure of teaching. It is widely used in schools and colleges. It is a good method that covers a wide topic at the high level of college or secondary schools and higher secondary classes but its success depends on the personality and ability of students.

Why this method should be used?

To motivate students.

To give an overview of a large topic.

To add supplement to the students' reading.

To make an important matter understandable.

To provide background of a topic or to introduce the topic

To help the students to use their time wisely

To explain the major concepts of a lesson

To develop reasoning skills of students

To have a classroom discussion

Merits Of The Method:

To establish face-to-face contact. It develops attention span. Students develop listening and note-taking skills. Students can prepare the notes. It is an easy method for new teachers.

Demerits Of The Method:

It is a teacher-centered method, not very good for SS. It is a monotonous, tiring, and sometimes it becomes a boring method. It brings a lot of burden and reading to the teacher. It is not an interactive method. [21,22]

Source Method:

There are three types of sources in this method.

1. Material resource: Ideas, machines, weapons etc....

2. Oral resources: Songs, folk stories, traditions, customs etc...

3. Written and printed resources: Records, reports, letters etc....

Source method is an activity-oriented method. It is generally used in social studies subject also. Generally, sources mean a person, book, or document or picture or actual objects that can provide information for learning. It is learning directly from the actual sources. For examples for social studies they can be- A contract with the bank – or study-



ing the sample of stone collected from the moon or an object found from any ancient place can also be studied. One can also take students to museums to find the objects to study.

Steps Followed To Use Source Method:

1. Demonstration or presentation by the teacher.
2. Locate related reading material and assign reading to the study.
3. Problem solving by students; with group discussion among the students.

Advantages Of Sources Method:

It provides direct, first hand experience.

It develops a sense of reality

It creates motivating and interesting ambience in the class.

It develops skill of data collection, thinking skill and observation skill.

It makes the subject meaningful.

Discussion Method:

The word discussion means exchanging views and debate. Here the discussion can be among the group of students as a whole group.

Where And When Can You Use Discussion Method?

1. The teacher of S.S. can use this method when he is using a project method.
2. When he has to share information and ideas from a large group.
3. When one needs to solve a problem, or do thinking and analytical activity in the class.
4. When one obtain information and ideas from a large group of students.[23,25]
5. When one needs to check or evaluate students' progress.

Forms Of Discussion:

Formal, debate, classroom, informal, panel, symposium.

The Process Of Discussion:

The process can be different depending upon the type of discussion.

1. The ideas are initiated by the teacher than there is exchange of ideas opinions observations comments etc
2. This is a co-operative learning.

Steps Of Discussion

Preparation:

To make discussion a success the teacher as well as the student must make a careful preparation. The teacher should do in depth reading of the topic. She should do critical reading, should understand the arguments well and know the gist of the lesson.

Conducting Discussion:

In this stage the teacher initiates the discussion. He controls process and keeps the students disciplined and keeps the discussion under control or on the right tract.

Merits Of Discussion Method:

- It is based on differences.
- It emphasizes independent study.
- It develops reasoning.
- It develops study habits.



- It is activity oriented.
- It teaches how to study purposefully.
- It helps the teacher to find leadership quality among students.
- It helps in clarifying ideas, issues etc.
- It creates better understanding of the topic, issues, events, ideas or concepts.

Demerits Of Discussion Method

- It is time consuming method.
- It needs some training and average teacher cannot
- Some students do not benefit from this activity.
- Sometimes only a few students dominate.
- There can be some necessary argument and can lead to some major problems.

PROBLEM-SOLVING METHOD

Problem-solving is the ability to identify and solve problems by applying appropriate skills systematically. Problem-solving is a process—an ongoing activity in which we take what we know to discover what we don't know. It involves overcoming obstacles by generating hypo-theses, testing those predictions, and arriving at satisfactory solutions.

Problem-solving involves three basic functions:

1. Seeking information
2. Generating new knowledge
3. Making decisions

Problem-solving is, and should be, a very real part of the curriculum. It presupposes that students can take on some of the responsibility for their own learning and can take personal action to solve problems, resolve conflicts, discuss alternatives, and focus on thinking as a vital element of the curriculum. It provides students with opportunities to use their newly acquired knowledge in meaningful, real-life activities and assists them in working at higher levels of thinking. [18,20]

- List all related relevant facts.
- Make a list of all the given information.
- Restate the problem in their own words.
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Students are presented with problems which require them to find either a scientific or technological solution. It is a student-centered strategy which require students to become active participants in the learning process. Problem solving is a teaching strategy that employs the scientific method in searching for information.

Five basic steps of the scientific method

1. Sensing and defining the problem
2. Formulating hypothesis
3. Testing the likely hypothesis
4. Analysis, interpretation and evaluation of evidence
5. Formulating conclusions

Advantages

1. This approach is most effective in developing skill in employing the science processes.
2. The scientific method can likewise be used effectively in other non-science subjects. It is a general procedure in finding solutions to daily occurrences that urgently need to be addressed.
3. The student's active involvement resulting in meaningful experiences serves as a strong motivation to follow the scientific procedure in future undertakings.
4. Problem-solving develops higher level thinking skills.
5. A keen sense of responsibility, originality and resourcefulness are developed, which are much-needed ingredients for independent study.



6. The students become appreciative and grateful for the achievement of scientists.
7. Critical thinking, open-mindedness and wise judgment are among scientific attitudes and values inculcated through competence in the scientific method.
8. The students learn to accept the opinions and evidence shared by others.
9. Problem-solving Skills[15,17]

PROJECT METHOD:

Project method is a direct outcome of pragmatism, especially of John Dewey's educational philosophy. Pragmatism believes in reality. It is scientific and empirical. It is based on the principle of learning by doing. Being influenced by John Dewey, Kilpatrick tried to give project method in 1918. This method is democratic in nature and it emphasizes social skills and team work.

What Is A Project Method?

It is a progressive approach of teaching. It is a purposeful act it provides the learner with learning experiences. Here the teacher acts like a guide assigns the projects to groups of students. Each group works on different topics or problems. They work together to prepare the project. The students work together as a team, they learn by discussing, reading, and exchanging ideas. Then they take the help of a teacher wherever they difficulties or have questions. The project method covers the content of many different subjects and the teacher tries to integrate the information to the main topic. This method gives complete freedom and choice to students.

Advantages Of Project Method:

It gives freedom and creativity.
Here the teacher and students both grow.
Students can link the subject to real life.
It motivates students.

Disadvantages Of Project Method:

It is expensive method.
It is time consuming.
It needs lots of resources.
Some projects cannot be done at school.

DIALOGICAL METHOD

Dialog is a means to transform social relations in the classroom and to raise awareness about relations in society at large. In a problem-posing participatory format, the teacher and students transform learning into a collaborative process to illuminate and act on reality.

Dialogic teaching is an approach which harnesses the power of talk to stimulate and extend pupils thinking, advancing their learning and understanding.

It is mainly built on 'talk' – both the teachers and the pupils.

The dialogic approach focuses more on:

- Narrate
- Analysis
- Justify
- Explain
- Speculate
- Imagine
- Explore
- Argue



- Evaluate
- Discuss
- Ask their own questions [11,12]

Advantages

Encourages children to voice their understanding. Children were found to be more motivated and be more engaged in learning when talk was used more often. Easily integrated to lessons.

Disadvantages

It involves the children to respect and listen to each other more than usual possibly which is a skill which may take time to develop. The concept needs to be developed further in order for it to be effective and to be incorporated into everyday teaching.

Method That Enhance Dialogic Teaching:

Socratic Method

CO-OPERATIVE LEARNING STRATEGIES

Cooperative Learning, sometimes called small-group learning, is an instructional strategy in which small groups of students work together on a common task. The task can be as simple as solving a multi-step math problem together, or as complex as developing a design for a new kind of school. In some cases, each group member is individually accountable for part of the task; in other cases, group members work together without formal role assignments.

According to David Johnson and Roger Johnson (1999), there are five basic elements that allow successful small-group learning:

- Positive interdependence: Students feel responsible for their own and the group's effort.
- Face-to-face interaction: Students encourage and support one another; the environment encourages discussion and eye contact.
- Individual and group accountability: Each student is responsible for doing their part; the group is accountable for meeting its goal.
- Group behaviors: Group members gain direct instruction in the interpersonal, social, and collaborative skills needed to work with others occurs.
- Group processing: Group members analyze their own and the group's ability to work together.

Cooperative learning changes students' and teachers' roles in classrooms. The ownership of teaching and learning is shared by groups of students, and is no longer the sole responsibility of the teacher. The authority of setting goals, assessing, learning, and facilitating learning is shared by all. Students have more opportunities to actively participate in their learning, question and challenge each other, share and discuss their ideas, and internalize their learning. Along with improving academic learning, cooperative learning helps students engage in thoughtful discourse and examine different perspectives, and it has been proven to increase students' self-esteem, motivation, and empathy.

Some challenges of using cooperative learning include releasing the control of learning, managing noise levels, resolving conflicts, and assessing student learning. Carefully structured activities can help students learn the skills to work together successfully, and structured discussion and reflection on group process can help avoid some problems.[22,25]

ROLE PLAYS ARE USE TO TEACH

To clarify social values.

To focus attention on a specific central ideas.

To extend vocabulary.

To gain greater insight into the problems of others.



It develops social skills, communication skills and team spirit.
They provide excellent basis for discussion and evaluation.

ROLE PLAY AND DRAMATIZATION METHOD:

Role playing, socio drama or creative dramas are used to present a specific situation for study and discussion. There is no prepared script. It is unrehearsed, speaking parts are not memorized and minimum properties are used.

Role play is a way of bringing situation from real life into the classroom.

A role in other words, they pretend to be different person.

A situation they pretend to be doing something different both a role & a situation.

In role play, students improvise the situation is fixed but they make up the exact as they go.

Follow up Activities After The Role Play

Role Play should be followed by discussion about the theme of the role play.

Students can be interviewed about their role. The audience can say about each role. They can also do the role play by other group of students.

ASSIGNMENT METHOD

Assignments are tasks requiring student engagement and a final tangible product that enables you to assess what your students know and don't know. They represent one of the most common ways to assess learning. They can be either low-stakes [formative assessment] or high-stakes [summative assessment], so the number and type of assignments will depend upon your course design, learning outcomes, and course enrollment numbers.

Strengths

- Easier and less time-consuming to construct than exams
- Promotes higher-order thinking (application, synthesis, and evaluation)
- Transfer and generalization more likely than for exams

Limitations

- May require additional resources (e.g. lab space or other facilities)
- May require class time (e.g. group projects, presentations, etc.)
- Typically more time consuming to grade than exams
- May be less effective for introductory level content

Types of Assignments

There are various types of assignments that can be used to develop or demonstrate students' higher-order thinking skills, writing skills, presentation skills and/or collaborative and interpersonal skills.[21,23]

- Essays are used to assess student comprehension over specific content and the ability to explain the material in their own words.
- Writing or research papers focus on student comprehension, ability to understand material, but depending upon the purpose of the paper, can also measure student's innovation or evaluation abilities.
- Oral presentations are used as a method to assess oral presentational skills, understanding of the content, and ability to organize and structure material.
- Projects are an exceptional method to assess student's creation or innovation abilities. For example, a student has to understand the material, apply their understanding to another context, and construct a project based upon this comprehension.
- Case studies are used to apply class content to a specific individual, usually themselves.
- Labs are an ideal method to apply abstract ideas or theories to concrete experiences.
- Group assignments are able to assess interpersonal, communication, and collaborative skills of students. For collaboration, a student must be able to synthesize the material from group members and help create a group solution or product.



REFLECTIVE LEARNING STRATEGIES

In the last few decades, reflective learning has come into the education spotlight. Reflective learning involves students thinking about what they have read, done, or learned, relating the lesson hand to their own lives and making meaning out of their material. It's more than just memorizing some facts, formulas, or dates.

Advantages

- Accepting responsibility for your learning and, as a result, for your personal growth.
- Becoming metacognitive, or aware of your internal thinking processes.
- Becoming aware of your motives with your actions.
- Seeking a link between the work you are putting into learning and what you are getting out of it.

Therefore, reflective learning really does have its perks. You might be thinking, 'that's great! Everyone should do that! And you would probably be correct. However, reflective learning takes time and practice.[25]

Strategies for Reflective Learning

In short, all of this information points to a newer and different way that students can conceptualize their learning. When students do things such as work in groups, where they bounce ideas off of each other and discuss the material, they tend to retain more. This helps them make the subject matter more relatable to their own lives. Likewise, when they recite material to themselves and summarize subject matter, they internalize it more. Reflective learners also take breaks when reading to really think about and digest what they have read. This, too, helps them to better relate the material to themselves. In addition, applying the five W'S, which means asking questions using who, what, when, why and where to what they are learning is a technique employed by reflective learners.

Since the purpose of reflective teaching is to focus on one's own teaching, the strategies for reflection are best made by personal preference rather than mandated. Many schools of education incorporate reflective teaching strategies as a means for student teachers to learn how and why they teach. While this is a valuable tool for student teachers, reflective teaching strategies can also be used by teachers in the classroom who wish to enhance their teaching skills.

Educators who teach reflectively use one or several of the following strategies -

1. Keep a teaching journal or diary.
2. Collaborative journal writing - a group of teachers keep and share diary entries during a prescribed period.

METACOGNITIVE LEARNING STRATEGIES OR "THINKING ABOUT MY THINKING"

In order to be effective learners, students must not only use their memory and the language skills they have internalized, they must also develop their own way of learning. Students who "learn to learn" gain control of their learning process and gradually develop the ability to master their mental processes more effectively. A student's inner language is what enables him/her to develop the high-level cognitive skills associated with metacognition.

Metacognition enables students to be more active in their learning, i.e., to mobilize all of their resources in order to have successful learning experiences. In order to do this, they must know how they learn and be aware of the steps that are followed and the means that are used to acquire knowledge, solve problems, and perform tasks.

Metacognition is the process of "thinking about thinking." For example, good readers use metacognition before reading when they clarify their purpose for reading and preview the text.

So in other words, metacognition is the understanding and awareness of one's own mental or cognitive processes.

Some examples of metacognition are:

- A student learns about what things help him or her to remember facts, names, and events.
- A student learns about his or her own style of learning.
- A student learns about which strategies are most effective for solving problems.

Students become increasingly autonomous in their learning as they become aware of their strengths and weaknesses and understand that being successful depends on the effort they make and the strategies they implement. Their ability to regulate their cognitive processes increases accordingly and their self-image improves. Students with LDS can improve their learning capacity through the use of metacognitive strategies.[19,20]

When students are able to manage their own performance on a task, they perform better and their learning is more meaningful than when they are not able to manage it. Metacognition starts when students think about the strategies they will use to perform a task. Metacognition happens when they choose the most effective strategies and decide



for themselves whether the outcome of these strategies meets the standards. The time taken to teach a variety of strategies is very important because students must choose strategies for each task they perform. Metacognitive principles

BRAIN-BASED LEARNING

Brain based learning is concerned with understanding how the brain works best. The brain is very complex and brain based research is still in the developing stages. Each child's brain is unique and the most effective teaching method varies based on each student's learning capacities. Active participation, student-centered learning, and differentiated instruction are at the core of this theory. Most teachers are already incorporating these practices in one form or another, into their classrooms.

According to brain based learning, students learn best when they are immersed into the subject area. Exposing the students to as much of the subject matter, having them actively participate, and surrounding them with as many manipulative as possible, creates the best environment for successful learning according to this theory. Each student learns differently, and it is the teacher's job to provide the best opportunity for each individual to experience success. This can be accomplished through reading, hands-on activities, field trips, or creative expression. Another key component of brain-based learning is active processing. This involves connecting learning to a prior experience. Students will better grasp a concept if there is a connection to something they have already learned. When students can relate concepts to a life experience or past knowledge, the brain is better able to comprehend. Brain based learning also suggests the importance of balancing stress and comfort. It suggests students should be in a state of relaxed alertness. Teachers should create an environment that stimulates the brain, while eliminating fear. When students are challenged, or slightly stressed, the brain functions better. Too much stress and the brain completely shut down from learning. [17,18]

Another important advance in our understanding of learning is that the human memory is not a single "vessel" to be filled, but rather a complex set of interrelated memory systems. This figure illustrates the memory systems of the human mind, and interactions with inputs from our affective and psychomotor inputs. [25]

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