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ROLE OF TEACHER IN TEACHING PROBLEM-SOLVING SKILLS

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Introduction

Life Skills are abilities for adaptive and positivebehavior that enable Individuals to deal effectively with the demands and challenges of everyday life. Life Skills are abilities that facilitate the physical, mental and emotional well-being of an individual. Problem Solving is one of the important life skills. A major goal of education is to help students learn in ways that enable them to use what they have learned to solve problems in new situations. In short, problem solving is fundamental to education because educators are interested in improving students' ability to solve problems. Problems are a part of our lives. Every problem has a solution. One just has to find it. They are within ones reach because most of the problems are man-made. Whether one succeeds in finding the solution of the problem or not, it depends upon how one faces it.Problem Solving helps us to deal constructively with problems in our lives. Significant problems that are left unresolved can cause mentalstress and give rise to accompanying physical strain. Problem solving skills can be used to realize even the most distant dream with the power of determination and persistence. One is constantly being challenged with problems, whether big or small, both at home and at school. Some people rise up and come out with flying colors as they see those problems as opportunities for development. They know a systematic way of tackling problems which always works. This raises their self confidence and self-esteem. But some fear challenges and fail to identify the exact nature of their problem.

Definition

Problem Solving is a mental process involving the ability to analyze and find the solution that best resolves the problem.

"Few can really understand the problem, the answer will come out ofit, because the answer is not separate from the problem."

-Jiddu Krishnamurti

Need & Importance:

When children learn problem-solving skills they gain confidence in their ability to make good decisions for themselves. Using effective problem solving techniques will help children avoid conflicts in a school setting and in their day to day lives. It can also strengthen children beginning empathy skills. It can help children learn more positive attributions about other persons' intentions. Problem solving is essential for school readiness and academic success.

Objectives

- Identify different problem solving styles.
- Identify methods appropriate for solving problems.
- Apply methods to specific problems.
- Apply problem solving skills when working with children.
- Students will be able to explore difficult issues and developsuitable responses to these issues.
- Students will be able to use their thinking skills.

Steps

1. **Define the Problem- Looking at the situation or the problem carefully**: Try to be specific while defining the problem, do not try to look at the solution before thinking about it.
2. **Identify Options - Making a list of all that you can do:** Try to be creative and think of allpossible options, try to avoid the more obvious options.
3. **Identify the Best Solution - Thinking about each option and selecting the best one:**

   Try to be sure that the selected solution will produce the desired results, try to avoid selecting the easiestOption.
4. **Plan to Achieve the Best Solutions - Thinking about how to get at the solutionand enlisting the resources needed to achieve that solution**

   Try to think through the plan and how the solution thought of will affect other people, try not to reject other ideas
5. **Evaluate Results - To determine if it is the best possible solution to the problem.**

   Evaluation should be immediate and not to be delayed, try to avoid the assumption that the problem will stay solved.

Teaching and Learning Strategiesthat Enhance Problem-Solving Skills:

There are two types of strategies that can overcomedifficulties in problem-solving: *pedagogical strategies*,which are teacher-centered methods, and*methodological strategies*, which tend to be learner centered.

Pedagogical Strategies

Some pedagogical strategies allow the teacher to address the emotional, psychological, and cognitive barriers to problem-solving simultaneously. For example, on the first day of class, an instructor could conduct an open discussion about the nature of the course material, encouraging students to voice their fears and concerns about it. This approach helpscreate a comfortable learning environment-a classroom in which students are encouraged toquestion and take risks without penalties. Continuing this kind of open dialogue in the classroom throughout the semester will strengthen rapport between teacher and student and provide many opportunities for students to discuss different ideas and approaches to solving problems. Class discussion also reinforces success and transfer of learned skills. Studies suggest that active involvement is critical in developing problem-solving skills, so using student learning groups to promote active experimentation with problems is a sound pedagogical strategy. The traditional instructional mode of lecturing and explaining is effective for only one learning style. To address other learning styles, we might use graphics to illustrate concepts, provide opportunities for practice in class, ask for student interpretations of data, and require students to work on problems in groups. Making students aware of their learning styles and preferences can also be helpful.

Methodological Strategies

Methodological strategies provide a series of steps toassist students in addressing and solving a newproblem, and work hand-in-hand with the pedagogicaltechniques. There are two basictypes: algorithmic and heuristic methods.An *algorithmic procedure* is a "step-by-stepprescription for achieving a goal" (Wool folk, 1993).Algorithmic methods arelimited to low-level tasks and tend to be domainspecific.*Heuristic methods*, general schemes used to derivesolutions to problems, are more useful thanalgorithms. There are a variety of heuristics that canbe useful to students. Branford and Stein (1984)use the acronym IDEAL to represent the five stepsusually contained in many solution strategies.i.e. Identify the problem, Define and represent the problem, Explore possible solution strategies, Act on the strategies, Look back and evaluate. This scheme is beneficial in a large number ofdisciplines.

Promoting Transfer

Other strategies assist students in transferringproblem-solving techniques from one problem to verysimilar or analogous problems. For successful transferto occur, it is essential for students to identify thecentral theme that is common to a set of problems sothey can readily recognize and apply it in moreabstract settings. Through the conscious use of analogy, students can explore situations which aresimilar, transferring structure to the problem athand. A powerful aspect of this technique is that itappeals to past experience and common sense. This outcome suggests thatinstructors need to use a wide variety of analogies intheir repertoire of examples. Also, instructors shouldencourage students to develop appropriate analogiesof their own. They also need to show explicitly,perhaps through diagrams, how elements of oneproblem map onto elements of an analogous problem,and discuss the underlying relationships betweenthem.Having students work on numerous problemsindividually and in groups also facilitates transfer.Once students have mastered problems of aparticular type, they can begin to tackle problems ofa more general nature. Choosing problems whichevolve from simple and well-defined to complex andill-defined will help them develop transfer skills.Using real-world data in sample problems will alsohelp facilitate the transfer process, since studentscan more easily identify with the context of a givensituation. Using these strategies, students will learnthe relevance of course material to daily life and willbegin to transfer concepts between disciplines, movingtoward a more cohesive understanding of the realworld.

Role of teacher in development ofproblem solving skills:

- **Model a useful problem-solving method:**Problem solving can be difficult and sometimes tedious. Teacher can show students by their own example how to be patient and persistent and how to follow a structured method.
- **Teach within a specific context:** Teach problem-solving skills in the context in which they will be used. Teacher should use real-life problems in explanations, examples, and exams. Do not teach problem solving as an independent, abstract skill.
- **Help students understand the problem:** In order to solve problems, students need to define the end goal. This step is crucial to successful learning of problem-solving skills.
- **Take enough time**. When planning a lecture enough time for understanding the problem and defining the goal should be given, both individually and as a class.

- **Ask questions and make suggestions:**Ask students to predict "what would happen if …" or explain why something happened. This will help them to develop analytical and deductive thinking skills. Also, ask questions and make suggestions about strategies to encourage students to reflect on the problem-solving strategies that they use.
- **Link errors to misconceptions:**Use errors as evidence of misconceptions, not carelessness or random guessing. Make an effort to isolate the misconception and correct it, then teach students to do this by themselves. We can all learn from mistakes.
- **Communicate:** Have students identified specific problems, difficulties, or confusions. If students are unable to articulate their concerns, determine where they are having trouble by asking them to identify the specific concepts or principlesassociated with the problem. Make students articulate their problem solving process**.**
- **Encourage Independence:** Model the problem solvingprocess rather than just giving students the answer. Have students work through problems on their own. Ask directing questions or give helpful suggestions, but provide only minimal assistanceand only when needed to overcome obstacles. Group work should be assigned to students so that they can frequently help each other, and talking about a problem helps them think more critically about the steps needed to solve the problem. Additionally, group work helps students realize that problems often have multiple solution strategies, some that might be more effective than others.
- **Be sensitive:**Frequently, when working problems, students are unsure of themselves. This lack of confidence may hamper their learning. It is important to recognize this when students come to us for help, and to give each student some feeling of mastery. Do this by providing positive reinforcementto let students know when they have mastered a new concept or skill.

- **Encourage Thoroughness and Patience:** Try to communicate that the process is more important than the answer so that the student learns that it is ok to not have an instant solution. This is learned through your acceptance of his/her pace of doing things, through your refusal to let anxiety pressure you into giving the right answer, and through your example of problem solving through a step-by step process.
- **Brainstorm:** Invite children to be fluent thinkers by asking them to respond to questions that have many right answers. Incorporate these questions into the interests children are involved with and the situations they are in.
- **Reflect.** Help children to be flexible thinkers by asking them to comment on specific objects or situations in your room.
- **Provide plenty of time every day for children to choose activities based on their interests and developmental levels:**Free-play situations create endless opportunities for children to identify and solve problems.
- **Follow children's leads.** By observing children's interactions and dilemmas, you can support their problem-solving efforts and help them accomplish their goals.
- **Reinforce children's solutions:** Let children know that their ideas and efforts are valued.
- **Extend creative thinking and problem solving:** Ask open-ended questions about activities to help children see the problem they are trying to solve in new and different ways.
- **Step back and watch children's independent problem solving:** Sometimes it may seem easier and faster to jump in and solve a problem for children or to show them the "right" way. But stepping in too early can stifle their thinking or send a subtle message that you're not confident they can think problems through by themselves. Instead of intervening right away, step back and watch children's problem-solving skills unfold.
- **Focus on the process children are engaged in:** Try to be patient while you encourage children to try new ways and look at problems from new perspectives.
- **Acknowledge children's efforts, letting them know that what they are doing is important:** Offer verbal support: "Look at all the different ways you're trying to make that piece fit in your puzzle. You're working hard to figure it out, aren't you?" At times, nonverbal support may be all that's needed - a smile, an understanding nod, or thumbs up can show support and encourage children to continue in their thinking

process. Remember too, that just by sitting quietly next to a child, you can communicate: "I understand what you're doing, and I know it's important."

- **Create accepting environments where children feel free to express their ideas without fear of being wrong:** Make sure your setting is a protective "laboratory" where children know they can experiment and practice problem-solving skills throughout each day.
- **Give children opportunities for open ended play activities in long periods of time:** Create opportunities for children to initiate and solve their own problems and plenty of time to test out possible ideas and solutions.
- **Provide a variety of problem-solving experiences:** Offer games, puzzles, discussions, literature, and projects that children design - a wide range of activities that inspire creative and critical thinking and encourage children to stretch their minds.

Conclusion:

To develop better problem-solvers, teacher must help students overcome both emotional and cognitive barriers to learning effective problem-solving skills. By first creating a comfortable classroom environment and helping students overcome their fears and anxieties related to problem-solving, teachers lay the necessary foundation for successful learning. Thenusing an array of pedagogical and methodological strategies, teacher can promote student reflection on the problem-solving process itself and provide them critical tools for and practice in productive problem-solving. As a result students will become increasingly effective problem-solvers, able to solve more and more complex problems with greater and greater independence. Problem solving skills will help students learn in ways that enable them to use what they have learned to solve problems in new situations.

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