



Instructional Strategies for Developing Problem Solving Skills Among Upper Elementary School-Children- A Theory-Based Approach

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Abstract

Developing problem-solving skills is an essential competency for sustaining emotional and mental health among children. These skills are also used as a part of various intervention programs aimed at depression prevention, substance abuse prevention and safer sex promotion in youths and adolescents. The purpose of this article was to portray an instructional strategy for developing problem-solving skills among school kids. The target audience for this teaching strategy is sixth-grade students at any elementary school.

Key words: Problem-solving, Instructional strategy, Teaching strategy, Elementary school

Introduction

The competency to develop problem solving skills among children is an essential skill required for mental development. When this is established, it helps children make informed decisions about their health and act upon them in a social-ecological context [1]. Problem-solving skills are also, an important component of school readiness among children, which leads to academic success, stemming from effectively managing emotions and behaviors [2]. Emotional health is closely related to mental health and stress levels, as is well established [3] and hence the emphasis of developing and sustaining problem-solving skills for positive youth development programs [4].

As mentioned earlier, an intricate relationship between emotional health, mental health, stress levels and depression exists. This was examined closely among high-school students and results indicated that a) emotional repair was positively related to self-esteem, b) emotional intelligence was negatively related to levels of depression and anxiety [5]. Problem solving skills can be developed using intervention programs based on social skills training [6], and social emotional development [7] which in turn help in prevention of depression and stable mental health in the long-run [8]. Problem-solving skills are a part of various intervention

programs aimed at depression prevention in youths and adolescents and include skills such as assertiveness training, negotiation, decision-making and relaxation [9]. These skills can be developed by including parents in the social and emotional skill developing process of a multilevel family-focused intervention strengthening parent-child interaction [10]. A school-curriculum that incorporates problem-based learning can help augment scientific thinking, problem solving skills and conflict resolution skills [11] and can be a strategy for depression prevention among school-kids especially those coming from socioeconomically disadvantaged schools [12] and diverse cultures [13].

The aim of the current manuscript is to portray an instructional strategy for developing problem-solving skills among school kids. The authors believe that such a strategy can be applied in diverse school settings with a favorable result in developing problem-solving skills and thus reducing stress, preserving and promoting emotional health and preventing long-term depression among school kids. The purpose of this manuscript is to discuss and present in details some of the teaching techniques and learning methods used in the form of two different interventions in a sample target audience of sixth-grade students at an elementary school in Midwest.

The overall objectives for using teaching strategies in the experimental intervention group was a) to explain stress, stressors and problem solving skills, b) provide problem solving steps with examples and also c) to provide problem solving practice skills.

The overall objectives for using teaching strategies in the knowledge based intervention group was to develop knowledge among 80% of participating sixth-grade students about different type of stressors, b) effects of stress on the individual(body, mind) and community, c) ways to deal with stress and d) problem

Methods

The teaching strategy used for developing problem solving skills consisted of three -session modules for sixth graders who were the participants. The learning

objectives for the first session consisted of a) defining the terms stress, stressor and problem solving, b) listing some common stressors affecting school children of their age, c) identify some common stressors in their personal lives, d) explain the benefits of developing problem-solving skills and e) identify the benefits of problem solving skills in their personal lives. The objectives for the second session dealt with steps in problem solving steps such as a) apply some steps to deal with at least one common stressor, b) describing the importance of generating alternative solutions in dealing with the common stressor, c) describe the importance of thinking about advantages and disadvantages of dealing with the common stressor, d) describe the importance of choosing an appropriate solution in dealing with a common stressor e) identify ways their role models use problem solving in their personal lives and f) identify that all of them have the capability to use problem solving skills in their lives. The objectives for the third session highlighted practicing problem solving skills such as a) apply the steps of problem solving skills in dealing with a different stressor, b) describe the importance of self-reward in applying problem solving skills c) identifying some things they can give themselves after practicing these skills in real lives and d) give an example of how they can use problem-solving skills in a real-life situation. The session details are shown in Illustration 1.

Teaching procedures:

The materials and resources used during the different sessions consisted of overhead projectors, teaching aid sheets and student activity sheets.

Assessment techniques:

The assessment conducted for these sessions, was in the form of a structured tally sheet with two observers carrying out the assessments independently. The details of this tally sheet have been provided in Illustration 2.

Results

The tally sheets that assessed the degree of fidelity of the session teaching strategy for developing problem-solving skills was completed by two raters. The results of the percentage of tally check marks for the sessions are presented in Illustration 3.

Discussion

The purpose of this article was to portray a variety of teaching strategies for developing problem solving

skills in a group of sixth-grade students at an elementary school in the Midwest region. A number of different teaching strategies were used such as brainstorming, teaching aides and assignment sheets, case scenarios and lectures with overhead projectors. These techniques assisted the researcher in developing problem-solving skills and providing knowledge about stress and stressors to a group of sixth-grade children. Two independent raters evaluated these teaching sessions and for the most part were in agreement about the implementation of these strategies. The researchers believe that these strategies applied to sixth-graders in a Midwestern school can be generalized to any other school in the nation with favourable results.

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Illustrations

Illustration 1

1

Teaching techniques to build problem-solving skills among upper elementary school children

Session 1. Stress, Stressors, and Problem Solving

CONTENT	LEARNING PROCESS	TIME
<p>Introduction</p> <ul style="list-style-type: none"> Define and explain the meaning of <u>stress and stressors</u> underscoring the following points: <ul style="list-style-type: none"> -- Stress refers to how body and mind react to different events around us. -- Stress makes us worry, feel nervous, feel bad, or get angry. -- Stressors are “events around us or problems” They can happen : (1) once in a while, such as divorce between parents, death of some loved one or (2) more often, such as getting teased by a classmate, not doing homework, and taking tests. Define and explain <u>problem solving skills</u> consisting of following five steps: <ol style="list-style-type: none"> Name the problem (stressor). Think <u>many</u> ways to deal with the problem. Think all <u>good</u> points about <u>each</u> way. Think all <u>bad</u> points about <u>each</u> way. Choose one best solution after thinking many ways. Introduce the students to the acronym <u>SMART</u> as a means to remember the steps: <ul style="list-style-type: none"> S: Stressor (what is it?) M: Many ways (think) A: All good things about each way R: (W)rong things about each way T: Try (choose) one solution 	<p>Get responses to the word “stress” from the students</p> <ul style="list-style-type: none"> List them on a flip chart or on the black board Build on student responses and explain stress and stressors <ul style="list-style-type: none"> Mention that a good way to prevent “bad” stress is to use problem solving skills. Elaborate on the steps of problem solving <p>Present the acronym and explain it</p>	<p>15 minutes (prompt students for at least five minutes to get their responses to the word stress)</p>

<ul style="list-style-type: none"> • Introduction to <u>brainstorming</u> • Some possible <u>stressors</u> affecting school children • Identify some <u>common stressors</u> as (1) getting teased by a classmate; (2) not doing homework; (3) taking tests; and (4) arguments between parents. 	<ul style="list-style-type: none"> • Show the students a pin and ask them to come up with all possible uses of a pin. (You may have to prompt the students with some uses) • Write all their answers on the flip chart or black board • Do <u>not</u> evaluate or judge any answer, even if it is funny. • Once the students get a feel of this process, ask them to help in preparing a list of stressors. • After the list has become exhaustive, classify them into (1) “once in a while” and (2) “more often” categories • Highlight some common stressors 	20 minutes
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<ul style="list-style-type: none"> • <u>Benefits</u> of developing problem solving skills. Some of the benefits that need to be highlighted are: <ol style="list-style-type: none"> 1. Increased popularity with friends 2. Quick learning 3. Better grades 4. More fun with family 5. More fun at school • Emphasize that most students relate to these <u>benefits as being important</u> to them in their lives. 	<ul style="list-style-type: none"> • Ask the students some benefits of developing problem solving skills. • Write their reasons on the flip chart or black board • Emphasize that most students relate to these benefits as being important to them in their lives. <p>Explain assignments toward the end</p>	<p>10 minutes</p>
		<p>45 minutes</p>

Session 2. Problem Solving: Steps and Example

CONTENT	LEARNING PROCESS	TIME
<ul style="list-style-type: none">• Review of Session 1 (Definitions of stress, stressors, problem solving skills, and benefits of problem solving skills)	<ul style="list-style-type: none">• Collect assignments and provide encouragement to those who have completed their assignments.• Ask the students what they remember from previous class about stress, stressors, problem solving steps, and benefits of developing problem solving skills. Supplement, as needed, to what some students respond.	10 minutes

<ul style="list-style-type: none"> • Present the steps of problem solving through a <u>working example</u>. • Underscore the importance of thinking <u>many ways</u> for each problem. • Underscore the importance of thinking <u>good and bad points</u> of each way. • Underscore the importance of <u>choosing one solution</u> after thinking through many possible solutions. 	<ul style="list-style-type: none"> • Present a case scenario with the help of an overhead projector • Ask the students to name the problem or identify what the stressor is? (Help them recollect that character “S” from the acronym relates to this step) • Write out the correct answer • Ask the students to name a few possible solutions and keep filling those on the sheet. Add to this list some more ways (Help them recollect that character “M” from the acronym relates to this step) • Underscore the importance of thinking <u>many ways</u> for each problem. • Ask the students to name a few possible good (positive) points about each way and keep writing them in the space provided (Help them recollect that character “A” from the acronym relates to this step) • Ask the students to name a few possible bad (negative) points about each way and keep writing them in the space provided (Help them recollect that character “R” from the acronym relates to this step) • Underscore the importance of thinking <u>good and bad points</u> of each way • Ask the students to pick one choice -- discuss why they chose that choice. Write out one choice which seems logical and supported by many students (Help them recollect that character “T” from the acronym relates to this step) • Underscore the importance of <u>choosing one solution</u> after thinking through many possible solutions. 	<p>25 minutes (spend at least 5 minutes working on each step)</p>
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<ul style="list-style-type: none"> • Associate common <u>role models</u> of fifth grade students as using problem solving skills 	<ul style="list-style-type: none"> • Mention that most successful football players, basketball players, and baseball players use problem solving skills • Elaborate how problem solving skills are needed in any sport. • Mention that in doing any job problem solving skills are important. • As an example narrate the story of <u>Michael Jordan</u>, who thought of playing <u>many games</u>, considered the good and bad points of each game and then finally chose basketball as his career through application of problem solving skills 	5 minutes
<ul style="list-style-type: none"> • Reinforce personal <u>capability</u> to apply problem solving skills 	<ul style="list-style-type: none"> • Mention that <u>all</u> students can learn and apply problem solving steps in daily life. • Mention that <u>students in other schools</u> have been successfully taught to apply problem solving skills and they are very successful in their daily life. • Explain assignment 	5 minutes
		45 minutes

Session 3. Problem Solving Skills Practice

CONTENT	LEARNING PROCESS	TIME
<ul style="list-style-type: none">• Review of Session 1 & 2 (steps of problem solving skills, and benefits of problem solving skills)	<ul style="list-style-type: none">• Collect assignments and provide encouragement to those who have completed their assignments.• Ask the students what they remember from previous class about problem solving steps, and benefits of developing problem solving skills. Supplement, as needed, to what some students respond.	10 minutes

<ul style="list-style-type: none"> • Present the steps of problem solving through a <u>different working example</u>. 	<ul style="list-style-type: none"> • Present a case scenario with the help of an overhead projector • Ask the students to name the problem or identify what the stressor is? (Help them recollect that character “S” from the acronym relates to this step) • Write out the correct answer. • Ask the students to name a few possible solutions and keep filling those on the sheet. Add to this list some more ways (Help them recollect that character “M” from the acronym relates to this step) • Underscore the importance of thinking <u>many ways</u> for each problem. • Ask the students to name a few possible good (positive) points about each way and keep writing them in the space provided. (Help them recollect that character “A” from the acronym relates to this step) • Ask the students to name a few possible bad (negative) points about each way and keep writing them in the space provided.(Help them recollect that character “R” from the acronym relates to this step) • Underscore the importance of thinking <u>good and bad points</u> of each way • Ask the students to pick one choice -- discuss why they chose that choice. Write out one choice which seems logical and supported by many students (Help them recollect that character “T” from the acronym relates to this step) • Underscore the importance of <u>choosing one solution</u> after thinking through many possible solutions. 	15min utes
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<ul style="list-style-type: none"> • Define <u>self-rewards</u> as “prize one gives to oneself in the form of something one likes” • Explain self-rewards for using problem solving skills as it will help them use this skill in daily life in actual problems 	<ul style="list-style-type: none"> • Define self-reward • Ask students to provide some examples of self-rewards • Write out the examples of self-rewards on a flip chart or the black board. • Explain that students can self reward themselves on applying problem solving skills. 	10 minutes
<ul style="list-style-type: none"> • Relate <u>application to real life situations</u> 	<ul style="list-style-type: none"> • Ask students if they faced any problem during the past week at school or home. • Explain how they can apply the SMART way to deal with this problem • Explain assignment 	10 minutes
		45 minutes

Illustration 2

2

Structured Tally Sheets for assessing Problem-Solving Skills development sessions.

Session # 1. Stress, Stressors, and Problem Solving

Objective: To assess the degree of implementation of the first problem solving skills development in the participating schools with the help of two observers who observe the health educator implementing the session for consistency and discrepancy between the planned session and the session actually occurring through a structured tally sheet.

Name of the observer:

Name of the health educator:

Classroom #:

No.	Item	Check if performed	Time (in min.) upon completion (from stop watch)
	Did the health educator . . .	_____	_____
1.	Get verbal response to the word “stress” from at least three students and write them on the Blackboard/flip chart.	_____	_____

2. Define stress verbally using overhead projector. _____
3. Define stressors verbally using overhead projector. _____
4. Give four examples of stressors. _____
5. Define five steps of problem solving skills. _____
6. Define the acronym SMART as a way to remember
Steps of problem solving. _____
7. Introduce brainstorming with the “pin” example. _____
8. Conduct brainstorming on possible stressors. _____
9. Supplement the student generated list with
already prepared list of stressors in an aide sheet
using overhead projector. _____
10. Ask the students about benefits of developing problem
solving skills and write them on the blackboard/ flip chart. _____
11. Supplement their list with five reasons provided in
aide sheet using overhead projector. _____
12. Emphasize that most students relate to these
benefits as being important. _____
13. Read and explain an assignment pertaining to
recording personal stressors _____
14. Read and explain an assignment pertaining to
steps of problem solving. _____

Session # 2. Problem Solving: Steps and Example

Objective: To assess the degree of implementation of the second problem solving skills development session in the participating schools with the help of two observers who observe the health educator implementing the session for consistency and discrepancy between the planned sessions and the sessions actually occurring through a structured tally sheet.

Name of the observer:

Name of the health educator:

Classroom #:

No.	Item	Check if performed	Time (in min.) upon completion (from stop watch)
1.	Did the health educator . . . Collect assignments from Session 1 and provide encouragement to those completing assignment.	_____	_____
2.	Review the definition of stress.	_____	_____
3.	Review common stressors.	_____	_____
4.	Review the steps of problem solving skills.	_____	_____
5.	Review the SMART acronym.	_____	_____
6.	Review the benefits of problem solving skills.	_____	_____

- 7. Using an aide sheet 1 on working example of problem solving, name and write the problem (using overhead projector) _____
- 8. Using an aide sheet 2, on working example of problem solving, name and write many ways to deal with this problem (using overhead projector) _____
- 9. Using aide sheet 3, on working example of problem solving, name and write all good points about each way to deal with this problem (using overhead projector). _____
- 10. Using aide sheet 4, on working example of problem solving, name and write all bad points about each way to deal with this problem (using overhead projector). _____
- 11. Using aide sheet 5, on working example of problem solving, name and write one way after evaluating many ways to deal with this problem (using overhead projector). _____
- 12. Say something like, “most successful players use problem solving skills.” _____
- 13. Say something like, “most jobs require problem solving skills.” _____

- 14. Say something like, “all students can apply problem solving skills.” _____
- 15. Say something like, “students in other schools have been successfully taught to apply problem solving skills.” _____
- 16. Read and explain assignment pertaining to problem solving skill building. _____

Session # 3. Problem Solving Skills Practice

Objective: To assess the degree of implementation of the third session of the experimental intervention in the participating schools with the help of two observers who observe the health educator implementing the session for consistency and discrepancy between the planned program and the program actually occurring through a structured tally sheet.

Name of the observer:

Name of the health educator:

Classroom #:

No.	Item	Check if performed	Time (in min.) upon completion (from stop watch)
1.	Did the health educator . . . Collect assignments from Session 2 and provide encouragement to those completing assignment.	_____	_____
2.	Review the steps of problem solving.	_____	_____
3.	Review the benefits of problem solving.	_____	_____
4.	In aid sheet 1 on working example of problem solving, name and write the problem (using overhead projector)	_____	_____
5.	In aide sheet 2, on working example of problem solving, name and write many ways to deal with this problem (using overhead projector)	_____	_____

6. In aide sheet 3, on working example of problem solving, name and write all good points about each way to deal with this problem (using overhead projector). _____
7. In aid sheet 4, on working example of problem solving, name and write all bad points about each way to deal with this problem (using overhead projector). _____
8. In aid sheet 5, on working example of problem solving, name and write one way after evaluating many ways to deal with this problem (using overhead projector). _____
9. Define self reward. _____
10. Ask students for examples of self reward And write them on blackboard/flip chart. _____
11. Supplement student examples of self Reward from already prepared list in a teaching aide sheet _____
12. Ask students about examples of real life problems faced in the past week. _____
13. Explain application of SMART steps in solving these real life problems. _____
14. Read and explain an assignment pertaining to applying problem solving skill to a real life problem. _____

Illustration 3

3

Fidelity assessment of independent raters for different problem-solving skill development sessions.

Classroom	Session#	Max possible check marks	Check marks by Rater 1	Percentage of check marks by rater 1	Check Marks by rater 2	Percentage of check marks by rater 2
1	1	14	14	100.0	14	100.0
	2	16	16	100.0	16	100.0
	3	14	14	100.0	14	100.0
2	1	14	14	100.0	14	100.0
	2	16	16	100.0	16	100.0
	3	14	14	100.0	14	100.0
3	1	14	14	100.0	14	100.0
	2	16	15	93.8	15	93.8
	3	14	14	100.0	14	100.0
4	1	14	14	100.0	14	100.0
	2	16	16	100.0	16	100.0
	3	14	13	92.8	13	92.8
5	1	14	14	100.0	14	100.0
	2	16	16	100.0	16	100.0
	3	14	14	100.0	14	100.0

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