

Measuring quality as students' problem solving skill development in mathematics: The case of grades 9 and 10 students in Addis Kidame Secondary School, Amhara Region, Ethiopia

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ABSTRACT: Quality in education is an amorphous term where no two people can exactly communicate. However, there is a growing trend that quality should be viewed in terms of learning improvement. Thus, this study intends to examine the status of students' problem solving skill in mathematics. Particularly, this study aims at measuring grades 9 and 10 students' problem solving skill improvement in mathematics. This study also compared male and female students' problem solving skill in mathematics. A total of 284 students (142 female and 142 male) were selected using stratified random sampling technique from grades 9 and 10 students. Fifteen problem solving skill test items with five levels of difficulty were constructed based on the conceptual framework, which was suggested by the Department of Mathematics and Computer Science of Saint Louis University and Mara University of Technology. The results of the analysis unraveled that grades 9 and 10 students have low level of problem solving skill in mathematics. As the difficulty level of items increases, there appeared to be significant difference on students' problem solving skill in favor of male students. Based on the results, the researchers noted that problem solving skill is the result of the combination of a multitude of human skills. It is also manifested in several ways, such as, thinking, reasoning, doing things, etc. Thus, to measure the problem solving skill of people, a combination of tests that address several components of problem solving should be used. Moreover, the problem solving skill development requires models that could possibly help the students to emulate the skill. To this end, teachers should develop their problem solving skill and thereby become good models for their respective students.

Keywords: Difficulty level test, learning improvement, mathematics, problem solving, quality.

INTRODUCTION

Problem based learning is understood as an instructional strategy in which students identify issues and rules of solving specific problem that could possibly help them to develop and understand concepts and develop skill of solving problems (Kilpatrick, 2003). It has been claimed that problem based learning has the advantage of promoting deep understanding of the matter, improving collaboration between disciplines, and increasing the knowledge retention and motivation of students.

Students can learn the skill of how to practice procedures and rules of problem solving and acquire problem solving skills (inductive/deductive reasoning, analyzing, synthesizing, accessing information, interpreting and so on) through working on a problem rather than memorization of facts. In order to solve a problem, one has to first collect some information about a problem, observe a problem that have already been solved in the past and use known theorems, definitions, postulates, etc. Combi-

ning these facts in a manner that enable us to solve the new problem will be the next task of the problem solver (Polya, 1995).

Burns (1992) maintained that there are distinct stages involved in solving a problem in general science. These stages include identifying the problem, defining and presenting the problem, exploring possible strategies to act on those strategies and look back and evaluate the effect of action taken. Polya (1995) has proposed four steps which students should employ to solve problems. They include understanding a problem, devising a plan, carrying out a plan and look back. The development of students' problem solving skill is the result of multifaceted variables such as the nature of the curriculum and the role of the teacher. For instance, Mayl University has adopted a problem based learning curriculum to see its effect in problem solving skill. Two groups of students were randomly assigned and taught by two different curricula: traditional curricula and problem based learning curricula. After 6 months of adoption, the two groups of students are assessed by problem-based learning standard exams. The result revealed that students who were taught through problem based learning curricula show progressive increase in conceptual understanding and deductive/ inductive reasoning (Kilpatrick, 2003).

The findings of some researchers (SAIP, 1997; Charles and Lester, 1987) pointed out that grade seven students who were taught about problem solving strategies became better at solving problems and using each strategy required in solving problems. Huntley et al. (2001) posited that students' score on problem solving skill might be affected by the nature of tests. For instance, students' problem solving skill scores vary in favor of students taught by problem based curriculum when American College Testing Assessment Mathematics Tests were used. However, Students' Achievement Test (SAT) was used as an instrument to compare students' scores, no significant difference was observed. In view of this, Gipps (1999, p. 370) stated "testing is value laden and socially constructed."

As problem solving is regarded as more process than product oriented (NCTM, 2000), measuring students' problem solving ability through tests is more complex that involves understanding of philosophical assumptions embedded in it and its application into the specific nature of each subject discipline. The case in point is the construction of the achievement tests that measures students' problem solving skill. In each subject, an attempt is made to check teachers understanding of the philosophy behind the essence of problem solving, the framework that such philosophical assumptions put in effect, and the knowledge and its application in specific subject area. To see the progress of the problem solving ability, one can provide different problems with a varying degree of difficulty level. It is also possible to attain at a certainty when one has obtained a complete solution. But it is equally important to see steps, procedures, heuristics and reasoning that enable problem solver attain the solution (Polya, 1995).

As to McIntosh and Jarrett (2000), observing some traits when solving problems can be used to check that students exhibit problem solving skill. Such traits are key tools to measure the degree of progress of problem solving. He stated that teachers can identify and use these traits as clues in teaching mathematics in the classrooms. Similarly, Department of Education of State of New Jersey as cited in Zanzali and Lui (2000) indicated that student's problem solving skill progress can be measured using the varieties of strategies in problem solving situations depending on the factors involved in problem solving.

Statement of the problem

There is a general agreement among mathematics educators that students should learn and solve problems at different levels of difficulty (Lue et al., 2009). They stressed the importance of students being actively involved in their problem solving: construct, modify and integrate ideas by interacting with the physical world. Such situations help them to solve problems with different levels of difficulty. As to the aforementioned scholars, problem solving skill is mostly dependent on looking at different kinds of problems; the students thinking ability, suitable teaching method, etc.

The application of problem solving teaching approach in the Ethiopian schools claims two solid decades since the implementation of the ETP (MOE, 1994). However, the implementation was entangled with problems. For instance, the study conducted to examine grades 9 and 10 mathematics textbooks for adequate integration of problem solving approach has reported that the contents are not organized to foster problem solving, critical thinking and heuristics among Ethiopian students. Similarly, teachers' beliefs and actual practice of problem solving teaching approach was found below the expectation. However, little/no results were found to show students' problem solving skill in different subject matters. Hence, one of the purposes of this study was to examine the status of students' problem solving skill in mathematics.

A standardized achievement indicator tests which involve different levels of difficulty are administered for students to judge their level of problem solving skill. These levels are linked to the heuristics or problem solving strategies (Polya, 1995). According to Department of Mathematics and Computer Science of Saint Louis University and Mara University of Technology (Zanzali and Lui, 2000), the difficulty levels of program in mathematics are described in Table 1.

Gender difference in problem solving skill in mathematics

Competency in mathematics has been identified as a crucial skill that is directly related to educational and occupational choice. Compared to men, however, fewer

Table1. The description of the difficulty levels of problem solving skill.

Difficulty levels	Operation of problem
Level 1	Need to find one step solution Need one case to establish a proof Need memorization of concepts facts, rules
Level 2	Need a choice of algorithm to find a solutions of one step problem Need more than one particular case to establish proof Need common mathematics vocabulary to present a solution
Level 3	Need a choice of algorithm to solve multi- steep problem Need to use necessary and sufficient condition to solve a problem or application of skills familiar situations
Level 4	Need to adapt one or more algorithms to find a multi step problems or constructs structure proof that may lack some details Need to use heuristics in unfamiliar situation
Level 5	Need to create a new algorithm to be solved Need to extend additional steps from known strategies to solve unfamiliar situation

Note: This conceptual framework was used to construct mathematics problem solving skill test questions in this study.

women choose to take advanced level of mathematics course to enter careers that require mathematics training (Callas, 1993).

A strong background in mathematics will be critical for many carrier and job opportunities in an increasingly technological society. It has become an economic necessity to attempt to change the patterns of females restricting their opportunities by education decision. Begley as cited in Callas (1993) argues that academic gender differences have declined over the years, but it has not totally gone. Boys continue to outscore girls in the advanced math classes. Callas (1993) reported that boys do out score girls in the area of mechanical reasoning but the gap has shrunk by half since 1947. The difference is not completely gone but they are decreasing.

There is a great deal of evidence to support the findings that gender gap exists in math achievement (Cahil, 2005; Hyde et al., 2008). The above studies indicated that elementary school students have a very low gender gap in math. Instead the gap increases around the age of thirteen and continues to expand through the high school and college ages. The research conducted in China has also portrayed similar results (Callas, 1993). Banks and Banks (1997) also reported a gender gap in the adolescent years. They reported that in elementary schools, males and females have a small, if any sort of gender gap. They go on to discuss the rate at which males excel in math.

According to Apple (1980), it seems that males tend to progress much more quickly than females and therefore surpass the ability of females. Merten (1997) has reported findings similar to that of Banks and Banks (1997); he argued that the gender difference become much larger as

the grade level increases. One means through which gender gap is created and widened is through the tacit but the effective impact of the hidden curriculum that differentially treats students based on the ascribed characteristics (Alemayehu, 2008; Melesse, 2014).

Matthew and Joshua (2007) found out that female students progress from primary and secondary schools to higher education, their math achievement decreases due to differential threat from stereotyped communications among school actors. They indicated that there is a very small gender gap between males and females in the eighth grade. But, the gap expands in the tenth grades and then increase even more in the twelfth grade. Again, the gender gap tends to grow as students get older. Thus, another purpose of this study was to compare male and female students' problem solving skill in mathematics. To achieve the above mentioned objectives, the following basic questions were formulated.

1. What level is of grades 9 and 10 students' problem solving skill in mathematics?
2. Is there gender difference on students' mathematics problem solving skill?

Significance of the Study

The results of this study will be significant to the regional education bureau to see the mathematical problem solving status of students vis-à-vis the core issue of the education policy of Ethiopia (the development of problem solving skill). Besides, teachers can use the results of this study to assess the nature and organization of mathematics

textbooks, their teaching method and evaluation mechanism in line with the philosophy of problem solving.

The scope of the study

This study is delimited only on the results of mathematics problem solving skill test developed based on the model suggested by the Department of Mathematics and Computer Science of Saint Louis University and Mara University of Technology (Zanzali and Lui, 2000). The study is also geographically delimited to Addis Kidam Secondary school, Awi zone, Amhara region, Ethiopia.

METHODOLOGY

This study is a quantitative survey research that focused on measuring students' problem solving skill in mathematics. The results are obtained through teacher made tests based on the model suggested by the Department of Mathematics and Computer Science of Saint Louis University and Mara University of Technology.

Population of the study

The population of this study is students of Addis Kidam General Secondary school. The school is found in Amhara Region, Ethiopia. The school was selected for study area due to its geographical convenience for the study. In this school, there were 20 sections of grade nine and 18 sections of grade ten. A total of 2742 students were enrolled. Of these, 1462 were males and 1280 were females. Since, one of the purposes of the study is to investigate the gender gap on mathematics problem solving skill. To this end, the researchers have selected equal number of male and female students. As a result, 142 male and 142 female students were selected as samples using stratified and simple random sampling techniques.

Instruments of data collection

According to Polya (1995), students' skill of mathematics problem solving can be measured by constructing tests of mathematics from difficulty levels 1 to 5 and administering these problems. Based on the sample items suggested by Polya (1995), and the criteria of the items in each difficulty level suggested by Department of Mathematics and Computer science of Saint Louis University and Mara University of Technology, the researchers of this study (having mathematics background) have developed test items for grade nine and ten students.

By taking into consideration this fact, the researchers constructed 15 items on mathematics problem solving skill, which consisted of 3 items in each difficulty level. After that, the items and the criteria to evaluate the items for each difficulty level of problem solving skills were given

to three mathematics teachers to check the extent to which the items in each difficulty level meet the standard.

Data analysis procedures

Based on the results of mathematics problem solving skill test, the researchers rated students' ability in five levels, accuracy, understanding, discussion of heuristics, devising plans to carry out the problems and total rated values were projected to 100 (i.e, each student score was corrected out of 100).

Percentage, Chi-square and t-test analysis were employed to analyze the data drawn from the students through the mathematics problem solving skill test instrument. Percentage analysis is used to indicate the amount of students fall in each level of achievement category. Chi-square test was employed to test the significance of the associations of difficulty level across gender. Finally, t-test was calculated on the scores to indicate the significance of mean difference across gender in mathematics problem solving skill.

RESULTS AND DISCUSSION

The results in Table 2 indicates that 74% grade 10 students have scored above 5 (the natural standard) in level one (the items that measure lower level problem) problem solving skills in mathematics, 57% in level two, 43% in level three, 35% in level four and only 10% grade 10 students score above 50 in level five (the highest problem solving skill). This implies that the majority of the students have low level problem solving skill.

The analysis made on the tests to measure students problem solving skill in mathematics as shown in the Table 2 further indicates that 73.5% (76 in number) of students from grade 10 have scored above 50% on problems of difficulty level one (able to solve problems of difficulty level one). This percentage drastically decreased down to 10% (10 in number) of students in difficulty level five. This implies that as the difficulty level of items measuring students' problem solving skill increases, the number of students scoring high score decreases.

The results in Table 3 indicated that 68% (70 in number) of the students are able to solve problems with first level difficulty. However, as the level of difficulty increases from one to five the percentage of students who scored above 50% decreased down to 8.7% (9 in number). Such phenomena have occurred due to the fact that problems with difficulty level 5 need application of heuristics of problems solving and posing new problem solving model. But most problem taught in the classroom, as ascertained by this study, are problem of first level difficulty. Such problems are termed as exercise which function only to give students practice on rote learning and memorization that do not give opportunities for students to practice on heuristics of problem solving.

Table 2. The distribution of grade 10 students' achievement level in each difficulty level.

Difficulty level	Level of achievement in %									
	Poor		Low		Moderate		High		Total	
	n	%	N	%	n	%	N	%	n	%
Level-1	12	11.5%	16	15%	39	39%	37	35.5%	104	100%
Level -2	18	17.2%	27	26%	38	36.6%	21	20.2%	104	100%
Level-3	28	27%	31	29.8%	30	28.8%	15	14.4%	104	100%
Level-4	34	32.6%	34	32.75%	27	25.95%	9	8.7%	104	100%
Level-5	51	49%	43	41.3%	6	6%	4	3.7%	104	100%

Table 3. The distribution of grade 9 students' mathematics achievement level in each difficulty level.

Difficulty level	Level of achievement in %									
	Poor		Low		Moderate		High		Total	
	N	%	N	%	n	%	n	%	n	%
Level-1	7	7%	26	25%	29	28%	41	40%	103	100%
Level-2	20	20%	27	26%	28	27%	28	27%	103	100%
Level-3	27	26%	34	33.1%	31	29.9%	11	11%	103	100%
Level-4	37	36%	35	34.1%	20	19.4%	11	10.5%	103	100%
Level-5	59	57.7%	35	33.6%	6	5.8%	3	2.9%	103	100%

SAIP (1997) found that students who are taught problem solving strategies become better at solving problems using each strategy. On the same way, Charles and Lester (1987) revealed that students taught using process oriented approach scored better than their peers who were taught using lecture method. It is also asserted that students taught through problem based curriculum showed improved problem solving skills than their counter parts who were taught conventional curriculum (Kilpatrick, 2003).

The low level of scores in higher difficulty level items implies that students have poor reasoning abilities, inadequate communication skill and inability to apply strategies that require higher order thinking on the nature of problems. The reason for the inadequate skill of higher level problem solving skills seems that students' trend of problem solving was not in line with what Huntley et al. (2001) suggested. That is, lack of opportunity to practice on a curricula materials which contain problem based materials.

The result of this study also posited that students are weak in application of basic skills. The reason seems clear that students lack background experience that enables them to apply mathematical concepts into real life problems. In line with this, Gipps (1999) portrayed that the learners' problem solving skill is dependent on the wealth of prior knowledge and experience that contributes to the current problem solving process. Similarly, the research conducted by Zanzali and Lui (2000) outlined that most students in secondary schools are constrained by their insufficient entrance skill and knowledge.

Relationship between gender and mathematics problem solving skill

It is evident from Table 4 that 6% of the male students and 17% of the female students had scored below 25% and fallen under the category of "poor achievers" in problems of difficulty level-1. Besides, 16% of the male students and 30% of the female students had scored below national standard (<50%). In other words, 84% of the male students and 70% of the female students had scored above national standard (>50%). But, the chi-square ($X^2=6.5$, $df=3$ $p<0.05$) analysis indicates that level of mathematics achievement and students' gender were independent on the problems of difficulty level one. In other words, the results in Table 5 revealed that there was non-significant association between student gender and mathematics achievement for the test of problems of difficulty level-1.

However, the Chi-square analysis portrayed that starting from difficulty level 2 to 5, there appears significant difference across gender. That is, as difficulty level increases from 2 to 5, the number of female students scoring high achievement significantly decreased compared to their male counterparts. This suggests that there is a strong association between the students' sex and math problem solving skill in favor of males.

To sum up, as the level of difficulty increases from one to five Chi-square analysis ($X^2=8.8$, 8.9 , 12.06 , 11.1 ; $df=3$, $p<0.05$) for the scores obtained from difficulty level 2 to difficulty level 5, there is a significant difference in mathematics problem solving skill test between male and female students.

Table4. Level of mathematics achievement of grade 10 students by gender in each difficulty level [from difficulty level -1 to difficulty level-5].

Difficulty level	Gender	Achievement level in %								df	X ²	
		Poor	Low	Moderate	High	Total	Min%	Max%	Mean			SD
Level-1	M	6%	10%	40%	44%	100%	20	98	67.78%	22.3	3	6.52
	F	17%	20%	36%	27%	100%	18	92	58.75%	20.4		
Level-2	M	11.5%	17.3%	46.2%	25%	100%	17	88	58.7%	18.0	3	8.8
	F	23%	34.6%	27%	15.4%	100%	14	83	47.2%	17.5		
Level-3	M	19.25%	23%	38.5	19.25%	100%	10	79	51.94%	20.5	3	8.9
	F	34.6%	36.6%	19.2%	9.6%	100%	8	77	40.75%	19.2		
Level-4	M	23%	27%	34.6%	15.4%	100%	7	78	48.1%	20.7	3	12.06
	F	42.2%	38.5%	17.3%	2%	100%	2	76	34.8%	18.6		
Level-5	M	44%	36.6%	12%	7.4%	100%	0	77	33.28%	17.1	3	11.01
	F	54%	46%	0%	0%	100%	0	48	25.52%	12.4		
Total	M	21%	21.5%	37.5%	20.25%	100%	4	84	51.96%	19.7	3	8.48
	F	34.2%	37%	20.8%	8%	100%	3	75	41.4%	16.3		

*p<0.05 n=104(M=52, F=52).

Table5. Level of mathematics achievements of grade 9 students by gender for each difficulty level [from difficulty level -1 to difficulty level-5].

Difficulty level	Gender	Achievement level in %								df	X ²	
		Poor	Low	Moderate	High	Total	Min%	Max%	Mean			SD
Level-1	M	10%	20%	30%	46%	100%	25	97	69.5	18.88	3	5
	F	11.6%	30.4%	26%	33.6%	100%	20	95	58.45	15.2		
Level-2	M	27.4%	19.2%	34.6%	34.6%	100%	16	89	58.07	19.7	3	9.62
	F	20%	33.3%	19.65%	19.65%	100%	16	78	49.80	16.3		
Level-3	M	32.4%	28.8%	36.8%	14.4%	100%	11	83	48.8	18.2	3	9.3
	F	30.8%	37.4%	22.6%	7.6%	100%	9	76	38.76	15.3		
Level-4	M	41.2%	27%	25%	17.2%	100%	7	79	41.6	16.1	3	9.3
	F	45.4%	41.2%	13.7%	3.9%	100%	6	75	34.75	12.56		
Level-5	M	45.4%	37.2%	11.6%	5.8%	100%	4	76	30.17	10.8	3	11.3
	F	70%	30%	0%	0%	100%	0	48	21.9	9.3		
Total	M	17.5%	27%	38.4%	38.4%	100%	12	85	49.65	16.4	3	9.1
	F	35.3%	35.3%	21.6%	21.6%	100%	10	75	40.44	12.6		

*p<0.05 n=103(M=52, F=51).

Table 5 indicates similar result as in the above as students' performance ability for tests of canceled problem level as analyzed by Chi-square was independent of gender influence ($X^2=9.62, 9.3, 9.3, 11.3; df=3, p<0.05$) and for test of problems of difficulty level 2 to 5 indicates that there is a significant association ($X^2=5, df=3, p<0.05$) between students' gender and level of achievement.

From the Tables 4 and 5, it is learnt that students' conceptual understanding and memorization abilities are independent from gender influence. However, their ability of applying heuristic approach of problem solving was dependent on students' gender in favor of males, i.e., there is a significant association between student sex and problem solving skills.

Once the association between mathematics problem

solving and student gender is ascertained, the data was further analyzed using t-test to find out whether or not the difference between scores of the two groups is significant. As it can be seen from Table 6, the t-test analysis ($t=3.98, 2.87, 3.44, 2.65; df=102, p<0.05$) indicates that there is significant difference between mean scores of female and male students with respective difficulty levels for grade 10 students.

In a similar vein, the t-test analysis for the result drawn from grade 9 mathematics skill test as indicated in Table 7 revealed that the observed t-value ($t=2.33, 2.42, 4.2, \text{ and } 3.12$) for difficulty level 2, 3, 4 and 5 shows that there is a significant difference between male and female students in problem solving skill in mathematics. Moreover, the cumulative mean achievement difference of boys and girls

Table6.t-test analysis value for grade 10 students' mathematics performance [from level -2 to level -5] n=104.

Difficulty level	Mean (X)		SD		Df	t-observed	t-critical
	Male	Female	Male	Female			
Level-2	58.7	47.2	20.4	18.01	102	3.98	1.98
Level-3	51.94	40.75	20.5	19.2	102	2.87	1.98
Level-4	48.1	34.8	20.75	18.6	102	3.44	1.98
Level-5	33.28	25.52	17.1	12.4	102	2.65	1.98
Total	51.96	41.4	19.7	16.3	102	2.98	1.98

Table7. t-test analysis value for grade 9 students' mathematics performance [from level-2 to level -5], n=103.

Difficulty level	Mean (X)		SD		df	t-observed	t-critical
	Male	Female	Male	Female			
Level-2	58.07	49.8	17.7	16.3	101	2.33	1.98
Level-3	48.8	38.76	18.2	15.3	101	2.58	1.98
Level-4	41.6	34.75	16.1	12.56	101	2.42	1.98
Level-5	30.17	21.9	10.8	9.3	101	4.2	1.98
Total	49.65	40.44	16.4	12.6	101	3.21	1.98

($X_b=51.96$, $X_g=41.4$) for grade 10 students and ($X_b=49.55$, $X_g=40.45$) for grade 9 students are statistically significant.

For the prevailed gender difference, Fel'dman (1990) suggested that the difference is socially constructed through the course of life and instruction in schools. He said that there is no inherent biological reason for female underachievement instead there is cultural influence for their under achievement. He further explained that girls are less helped from their parents and they viewed mathematics as male domain and as a result, develop negative attitude to the mathematics subject and the necessary problem solving skills. In the same vein, Banks and Banks (1997) underscore that as female students stay in school longer, the differential treatment gets depth and hidden and thereby affects their academic achievement.

Thus, from the results and the discussions made above, it is possible to conclude that even though the development of problem solving skill among the citizens is the core value of the Ethiopian Education and Training Policy (MoE,1994) has worked out for more than two decades), students' mathematics problem solving skill is at lower level. Moreover, female students' problem solving skill in mathematics is far lower than their male counterparts. This also goes against the intentions of the education and social policies of the Ethiopian Government and the efforts made by the Ministry of Education to minimize gender gap in education.

Currently, there is an aggressive measure to ensure gender equality in all walks of life including the education sector. As a result, the enrollment rate of female students is increasing at an alarming rate. In many primary schools, the number of female students is exceeding that of male students. However, gender equality cannot be ensured only by bringing females to schools. It is because what is

going on in schools (the differential treatment of students across their background) has a debilitating effect on female students' academic progress.

The results in this study also portray this fact to be true. Several reasons can be mentioned for such low level of student problem solving skill. The empirical evidences revealed that the curriculum content selection and organization does not fit with the philosophy underpinning problem solving (Melesse, 2014; Alemayehu and Ayalew, 2013). Similarly, the study conducted to examine teachers' beliefs and practices of problem solving teaching approach suggested that they have low level of beliefs and are not practicing it in line with the principles of problem solving philosophy (Alemayehu, 2010; Melesse, 2015). Besides, student, school, curriculum and teacher, other factors might have affected the development of students' problem solving skill.

Implications for future direction

1. Problem solving skill is the result of the combination of a multitude of human skills. It is also manifested in several ways, such as, thinking, reasoning, doing things, etc. Thus, to measure the problem solving skill of people, a combination of tests that address several components of problem solving should be used.
2. The Amhara Regional Education Bureau has to conduct a wider research to measure the status of students' problem solving skill in several subjects.
3. The regional education bureau should also identify the factors that may impede the development of students' problem solving skill.
4. Both the national and regional teaching-learning

culture has to foster the skill of problem solving among the students.

5. The problem solving skill development requires models that could possibly help the students to emulate the skill. To this end, teachers should develop their problem solving skill and thereby become good models for their respective students.

CONFLICTS OF INTEREST

The authors declare that they have no conflict of interest.

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