



Published by DiscoverSys

Improvement of adolescent reproductive health understanding by implementation of Educative, Collaborative, Participative, and Problem Based (ECPBP) learning strategy in Buleleng district, Bali-Indonesia



CrossMark

Desak Made Citrawathi*

ABSTRACT

Introduction: One of potential public health issues in Indonesia is the problem of Adolescent Reproduction Health (ARH), particularly the behavior of having sex premaritally and promiscuity, which is at risk of having unwanted pregnancy and sexually transmitted diseases such as HIV/AIDS. Increase in student's knowledge, attitude, and skill by application of education of adolescent reproduction health (EARH) is hopefully will reduce the ARH problem.

Method: This was experimental research with randomized pretest-posttest control group design. This research was conducted in Grade VIII of Junior High School with 72 research samples. Data were analysed by using Multivariate Analysis of Variances (Manova).

Result: Data analysis showed that ECPBP learning strategy was better to improve students' knowledge ARH, students' attitude

toward reproduction health, and students' skill in ARH problem solving than students who were treated by using conventional teaching strategy in which the $p = 0.0001$ ($p < 0,05$). The Partial Eta Squared (ETA) was 87.4%, which means the learning strategy was able to improve learning achievement as much as 87.4%. The highest improvement of learning achievement by using ECPBP learning strategy was on students' skill in ARH problem solving (ETA=80.9%). Improvement of health reproduction attitude was 63.2%, and improvement of students' knowledge about reproduction health was 25.1%.

Conclusion: Based on the result of this study was suggested in order to students be given EARH was integrated on the subject of science in junior high school by using ECPBP strategy.

Keywords: ECPBP Learning Strategy, ARH Knowledge, Health Reproduction Attitude, Problem Solving Skill

Cite This Article: Citrawathi, D. 2016. Improvement of adolescent reproductive health understanding by implementation of Educative, Collaborative, Participative, and Problem Based (ECPBP) learning strategy in Buleleng district, Bali-Indonesia. *Bali Medical Journal* 5(3): 470-478. DOI:10.15562/bmj.v5i3.308

Ganesha University of Education,
Bali-Indonesia.

INTRODUCTION

One of the potential public health issues in Indonesia is adolescent reproduction health (ARH), especially on adolescent. Lately, reproduction health problems that should be handled by adolescent are unwanted pregnancy and the increase of HIV and AIDS among adolescent.

Reproduction health is one of major programs conducted by government as the result of international convention in reproduction health which was held on 5-13 September 1994 in Cairo. ARH is one of the Millennium Development Goals (MDGs), which is by reducing number of mother who are having birth (related to adolescent who are having birth) and HIV/AIDS control.

Sexual attitude amongst adolescents has lately been in uncontrollable situation. According to National Commission of Children Protection, in 33 provinces from January - June 2008 concluded that: (1) Amongst of Senior and Junior High School students 97% had watched porn movies; (2) Amongst Senior and Junior High School students 93.7% had

experienced kissing, genital stimulation, and oral sex; (3) Amongst Junior High School students 62.7% were no longer virgin; and (4) Amongst adolescent 21.2% had conducted abortion.¹ Free sex attitude among adolescents may cause negative effect such as unwanted pregnancy which leads to abortion, and sexual transmitted infection including HIV/AIDS. Data of *Riskesmas* showed that proportion of inhabitant 10-15 years old who have experienced intercourse in male adolescent was 17.7%, and in female adolescent was 15.8%, and 4.5% of 10-14 years old adolescent were married.² Survey of Indonesian Health Demography in 2012 stated that 12.8 of 15-19 years old adolescent were married.³ Adolescent pregnancy increases the probability of health risk or even death of mother-children when having a birth. This condition highly increases the failure of achieving MDGs target.

Every adolescent has risk to experience reproduction problem, because it is related to their growth and physiological development. Other factors are

*Correspondence to: Desak Made Citrawathi, Ganesha University of Education, Bali-Indonesia
dskcitra@gmail.com

lees information of the adolescent about the changing of themselves especially related to reproduction health and sexuality,^{4,5,6,7,8} society environment of the same age, less attention of parents and family as well as school in giving information about ARH, permissive society which because teenagers are easy to have pre-marital intercourse^{4,5,9,10,11} and the vast development of information technology. In this information era, teenagers easily get either printed or electronic pornography (book, video, VCD) which lead them to have sexual stimulation.⁹ In adolescent period, they will get stimulation to have sexual activity, even sexual intercourse. Lestary and Sugiharti argue that risky attitude of teenagers closely related to knowledge, attitude, access to information media, and communication with their parents.¹² To prepare adolescents in decreasing the risk of having sexuality and reproduction health problem, they should be informed through education of adolescent reproduction health (EARH) correctly and comprehensively as young as possible.

National Policy and Strategy of Reproduction Health in Indonesia in 2005 established adolescent health program is conducted through School Health Centre (SHC).¹³ In policy of the Minister of National Education of the Republic of Indonesia No. 22 of 2006 about Content Standard, health education is embedded in subject of Physical Education Sport and Health. In Law of Republic of Indonesia Nomor 36 of 2009 about Health stated that the state must provide information and education of health, including reproduction health for adolescent. Until today, school policy in implementing SHC more emphasizes on health service and healthy environment consultation. Health education especially about ARH is conducted in form of incidental consultation through extra-curricular on community of Student Cares AIDS and Drugs or Youth Red Cross. The Republic of Indonesia's Voluntary Family Planning and Living Standards Coordinating Body (BKKBN) also establishes Information and Counseling Center of Adolescent Reproductive Health (ICC-ARH) which aims at helping adolescents to solve problems in reproduction health. However, not all schools have ICC-ARH which causes not all students have a chance to experience the program of ICC-ARH.

So far, EARH has not been taught as a subject in school. Research finding and academic review about adolescent reproductive health proposes the importance of EARH into curriculum.^{5,15} Through EARH, students will acquire sufficient knowledge, attitude, and skill about ARH. Students who have sufficient knowledge, attitude, and skill in reproduction health and sexuality will propose right decision toward their rights of reproduction as well as sexuality appropriately and in right manner.

Material about ARH has been embedded into Science in Junior High School. However, it is not appropriate with the needs of Junior High School students about it. So far, the materials are given through conventional learning strategy (CLS). This strategy is teacher centred and the students have lesser roles in the teaching learning process which lead them to be passive. It more improves students' cognitive skill, which means that it does not train students' problem solving skill optimally, especially about ARH. In this situation, students do not understand the process as well as the result of the learning. It will cause the students to be less competence in implementing their learning into real life situation. Therefore, problem solving skill should be taught to them. It can be used along their life since they will need this skill every time they have problem including reproduction health. Teachers tend to use this strategy since the final assessment is only based on students' cognitive aspect.

Based on research about materials of ARH and Junior High School students' characteristics as well as analysis of many teaching characteristics, therefore, EARH should be taught by using ECPPB learning strategy (ELS). It has four educational pillars, namely (1) education, (2) collaborative, (3) participative, and (4) problem-based. Education means giving information and establishes knowledge as well as understanding to help individual having values, attitude and making decision based on presented information.¹⁶ Here, the education process is about ARH. It is social issue; therefore, collaborative strategy is appropriate to be implemented because it gives opportunity to the students to interact developing meaning based on learning material through social interaction. In Arends, it is stated that cooperation will motivate students to be involved continuously in tasks, discussion, and developing social skill.¹⁷ In participative strategy, all students are involved in learning process, and the teacher as facilitator and mediator. In problem-based strategy the students are trained to solve a problem about ARH scientifically. EARH with ELS is started by giving problem about ARH in students' environment. Group discussion, teacher and students are collaboratively and participative in solving the problem of ARH.

Problems about physical growth, physiology and psychology of Junior High School students who have puberty, unwanted pregnancy, or even HIV/AIDS case should encourage us to perform ICC-ARH in all schools. Porn videos or information on internet and external factors in Buleleng put EARH as important element for Junior High School students. Materials of EARH should be integrated into Science through ELS. It will improve students' achievement in form of knowledge, attitude of healthy reproduction,

and students' skill in solving ARH problem. The improvement of students' achievement on ARH will decrease the opportunity of students having reproduction health. Integration of ELS as alternative in EARH with Science should be researched. This research aims at finding out the advantages of ELS compared to CLS in order to improve students' knowledge about ARH, healthy reproduction attitude, and problem solving skill toward reproduction health by Junior High School students.

MATERIAL AND METHODS

Research Design

An experimental research with randomized pretest-posttest control group design was conducted at junior high school at Buleleng District, Bali Province.¹⁸ The population was State and Private Junior High Schools in Buleleng District, Buleleng Regency, Bali Province. The schools were chosen by using graded random sampling. This research was conducted in class of SMPN 2 Singaraja on Jalan Sudirman. The samples were class VIII of 72 students.

Research Instrument

Integrated EARH Lesson Plan, Teaching Learning Materials of ARH, and Problem Based Worksheet were used to integrate EARH into Science with ELS. Students' knowledge about ARH, students' attitude of healthy reproduction, and students' skill in problem solving were the evaluated variables. Students' knowledge about ARH was assessed by objective test, multiple choices test with four answers. Students' attitude of healthy reproduction was assessed by attitude scale. Students' skill in problem solving of adolescent reproduction was assessed by using problem solving skill test.

Research Implementation

The research was conducted as follows:

PRETEST

Students in control and experiment class were given *pretest*. The tests were cognitive test, attitude scale, and problem solving skill test about reproduction health.

TEACHING IMPLEMENTATION

In experiment class, the students were treated by using ELS and students in control class were treated by using CLS with material of human growth and human reproduction system.

POSTTEST

Students in control and experiment class were given *posttest* after the treatment. This test includes

cognitive test, attitude scale, and problem solving skill test about reproduction health.

Data Analysis

Descriptive data analysis was conducted to determine mean, standard deviation, and gain score from *pretest* and *posttest* about knowledge, attitude, and problem solving skill both from control and experiment class. Score gain was analyzed by using Multivariate Analysis of Variance (Manova). Normality test with Box's M, homogeneity test with Leven's test, and intercorelation test with Bartlett's Test were conducted to fulfill condition of Manova requirement. After having those test, the data were analyzed by using Manova.¹⁹

RESULTS

Characteristics of Research Subject

The research subjects were 72 students of class VIII Junior High School. Average age of the students who were treated by using CLS was 13.22 ± 0.53 , and average age of the students who were treated by using ELS was 13.23 ± 0.55 . Yusup, Pieter & Lubis, and Sarwono stated that adolescents in ages of 12-14 are in puberty period.^{20,21,22} Besides teaching materials and learning objectives, students' period development is one of important criteria that should be considered in choosing and planning teaching strategy.²³ From Junior High School student's development characteristics, ARH materials, and the purpose of EARH in Junior High School, it was found that ELS was relevant to teach ARH to the students.

Description of Students' Achievement about Adolescent Reproduction Health

The following is the description of students' achievement about ARH that was treated by ELS and CLS. The analyzed data was from *pretest* and *posttest* result on each of the implemented strategies. The mean (M), standard deviation (SD), and gain score (g) were normalized and the result of students' achievement about teenager reproduction health can be seen in the following [Table 1](#).

From [Table 1](#), it can be seen the learning achievement of *pretest* and *posttest* about EARH on treated class both by ELS and CLS. From description of knowledge, attitude, and problem solving skill about ARH, there was improvement of the achievement in both classes treated by ELS or CLS. Mean score of normalized gain score (g) on CLS was categorized medium ($0.7 <g > 0.3$), meanwhile in attitude and problem solving skill, they were categorized as low ($g < 0.3$). Mean score of normalized gain score (g) on ELS in terms of its knowledge, attitude and problem solving skill about ARH was categorized medium ($0.7 <g > 0.3$).²⁴

Multivariate Analysis of Learning Achievement

The result of this research was analyzed by using Manova with SPSS 20 for Windows. The Manova test result is presented in the following Table 2.

From Multivariate significance test of Pillai's Trace, Wilk' Lambda, Hotelling's Trace, and Roy's

Largest Root, it was found that significance score = 0.000 ($p < 0.05$). It indicates that learning strategy had influenced the learning achievement of knowledge of ARH, healthy reproduction attitude, and students' skill in solving problem about ARH. The Partial Eta Squared (PES) was 0.874 (87.4%). It means the implemented teaching strategy improved students' achievement as much as 87.4%.

The effect of teaching strategy upon students' knowledge of ARH, healthy reproduction attitude, and students' skill in solving problem about teenager reproduction health can be seen in the following Table 3.

From those three learning achievement aspects, the significance score was 0.0001 ($p < 0.05$) which showed that the teaching strategy improved students' learning achievement in terms of students' knowledge of teenager reproduction health, healthy reproduction attitude, and students' skill in solving problem about teenager reproduction health. The teaching strategy improved 25.1% of students' knowledge; 63.2% of healthy reproduction attitude; and 80.9% of skill in solving problem about teenager reproduction health.

To look more detail about the number of students' learning achievement about ARH both in ELS and CLS, we can see in the following mean score on Estimate Marginal Means as stated in Table 4.

Table 4 shows mean on Estimate Marginal Means. Mean score on knowledge of ELS (mean = 0.545) was higher than CLS (mean = 0.384). Mean score on healthy reproduction attitude of ELS (mean = 0.377) was higher than CLS (mean = 0.200). Mean score on problem solving skill about teenager reproduction health of ELS (mean = 0.536) was higher than CLS (mean = 0.189).

DISCUSSION

Relevancy of ECPPB Learning Strategy on Junior High School Students Growth

Based on Piaget's theory on cognitive development, Junior High School students are in formal operational level. Suparno, Nur, and Santrock described that in formal operational level, students have acquired logical thinking about abstract ideas systematically, and scientifically in solving a problem.^{25,26,27} It means that in cognitive development aspect, Junior High School students can be treated by using ELS. ELS stimulate the students to collaborate and participate actively in solving problem about ARH around them. In Suyatno, it was stated teaching learning process which involves collaborative strategy closely related to real life.²⁸ In the discussion, there is social interaction among students, between teacher and students.

Table 1 Result Description of Pretest and Posttest on treated class by ELS and CLS

Learning Strategy	Learning Achievement	Test	M	Statistical Description	
				SD	g
ELS	Knowledge	Pre	054.31	10.12	0.38
		Post	072.22	06.20	
	Attitude	Pre	203.76	12.89	0.20
		Post	222.76	13.10	
	Skill	Pre	028.65	02.88	0.19
		Post	042.19	04.12	
CLS	Knowledge	Pre	051.49	10.47	0.52
		Post	078.46	05.43	
	Attitude	Pre	198.51	11.55	0.37
		Post	236.29	12.69	
	Skill	Pre	028.34	03.40	0.53
		Post	066.83	07.08	

ELS: ECPPB Learning Strategy
CLS: Conventional Learning Strategy

Table 2 Result of Mannova Test

Learning Strategy	Score	F	p	PES
Pillai's Trace	0,874	157,775 ^b	0,000	0,874
Wilks' Lambda	0,126	157,775 ^b	0,000	0,874
Hotelling's Trace	6,961	157,775 ^b	0,000	0,874
Roy's Largest R	9,961	157,775 ^b	0,000	0,874

Table 3 Result of Test of Between-Subjects-Effects

Source	Dependent Variable	p-score	Partial Eta Squared
Corrective Model	Knowledge	0,000	0,251
	Attitude	0,000	0,632
	Skill	0,000	0,809

Table 4 Estimate Marginal Means of Teaching Strategy and Learning Achievement

Variable	Means	
	CLS	ELS
Knowledge	0,384	0,545
Attitude	0,200	0,377
Skill	0,189	0,536

Junior High School students have a desire to be accepted in their community. Besides that, ELS may trigger harmonious and good situation among students and between teacher and students. Good and harmonious teaching learning condition may develop respectful, trusted, and responsible attitude.^{20,26,29,30} Therefore, learning condition with ELS may develop students to be mature emotionally and teach them to behave through problem solving.

Based on those explanations, ELS is suitable to the students' development and be able to accommodate Junior High School students' needs about teenager reproduction health, so the process and learning achievement of the students can be improved.

Improvement of Students' Knowledge upon ARH

The implemented teaching strategy can develop students' knowledge upon ARH significantly ($p < 0.05$) as much as 25.1%. From mean score of Estimate Marginal Mean, it was found that students who were treated by using ELS had higher score in terms of their knowledge about ARH than students who were treated by using CLS. Integration of EARH into Science with CLS caused lower achievement on the students' knowledge than ELS. It is caused by the teacher-centred paradigm of CLS. Teacher dominated the process, while students only received materials given so they tend to be passive.^{31,32} According to Kardi & Nur, Gulo, and Arends, in CLS, teacher should manage the materials completely before giving to the students.^{26,33,34} Individual or group assignments aim at reviewing previous discussed concepts. In CLS, teacher rarely stimulates and trains the students to implement the concept into real life. CLS aim at material understanding which can be seen from test score or rapport score.

ELS is a teaching strategy designed to make the students active, through collaborative, participative, and problem based teaching. ELS design is appropriate to the idea proposed by Brownell, *et al.*, Hesson & Shad, and Ajiboye & Ajitoni, in which student-centered learning strategy can be implemented through collaborative, participative, and problem based learning.^{35,36,37} ELS implementation is facilitated with Teaching Learning Materials of ARH, and Problem Based Worksheet (PBW).

Teaching learning materials of ARH is arranged based on needs analysis, so it is suitable to the Science syllabus in Junior High School, teacher's need, and students' need, and has been approved to be used in PKRR in Junior High School. By using Teaching learning materials of ARH as main material it will make the learning process to be more innovative, contextual, interesting and memorable for students, therefore it will motivate them to

study. Nuroso & Siswanto, and Prastowo argued that materials which are arranged based on the level of students and suitable with their cognitive level, will make the learning process to be more interesting, memorable, exciting, so it will trigger more effective learning process and improving the learning achievement.^{38,39} This argument is in line with research of Adnyana & Citrawathi, Citrawathi, *et al.*, and Adnyana, *et al.*, which found that materials based on need analysis and taught by using appropriate learning strategy may develop the process as well as the learning achievement of the students.^{40,41,42,43}

ELS facilitates students into small heterogenic groups (4-5 students). Siberman & Auerbach stated that the advantage of learning in small group is optimizing individual participation.⁴⁴ Meanwhile, heterogenic group aims at finding various opinions. Students may improve their learning achievement when they are learning in a group with different level of ability. More experienced student will explain to inexperienced students based on the needs of them, and the inexperienced students will be triggered into their experience limits, and even far more beyond that.²⁹ Slavina also explained that students will be easier to find and understand difficult concept if they discuss it with other students.⁴⁵ Interaction within group friends has big influence into student's mind. It is in line with Murmanto who said that students who are given opportunity to deliver their opinion, idea, and interact to the teacher and other students have already mastered the materials.⁴⁶ This learning process is the same as in EARH. As argued by Iryanti that the same age education in EARH may improve students' knowledge significantly.⁴⁷ Improvement of learning achievement as the result of interaction among students and between student and teacher was also stated by Dewi, *et al.*⁴⁸ Therefore, group study with all students' participation makes EARH more effective so the learning achievement can be improved. Knowledge improvement through collaborative learning strategy was also stated by Tangaard, Ajiboye & Ajitoni, Lin & Xie, Duze, and Santoso.^{37,49,5,51,52}

Learning process with ELS is started with real problem about ARH which deals with main material in Science syllabus. It is the same with Ostroff's opinion who said that effective learning strategy to improve students' knowledge is discussing concrete problem or experience.⁵³ Students' motivation will arise when they are asked to find solution of real life problem. Muhzon stated that discussing real life problem in learning process will make the process more interesting and meaningful.⁵⁴ Improving motivation in collaborative learning and improving learning achievement was proposed by

Santoso.⁵² Same opinions was proposed by Eggen and Kauchak, they stated that learning through authentic problem solving really improve students' motivation because they are triggered by challenge and curiosity.³² Motivated students will use higher cognitive process in learning the materials. Mulyasa proposed that motivation is one factors increasing learning quality.⁵⁵ Students will learn attentively if they have high motivation.

Improvement of Healthy Reproduction Attitude

The teaching strategy improved healthy reproduction attitude significantly ($p < 0.05$) as much as 63.2%. This finding showed that the ELS improving students' healthy reproduction attitude better than CLS. From mean score of Estimate Marginal Mean, it was found that students who were treated by ELS had higher improvement than students who were treated by CLS.

Learning syntax with ETS triggered conducive condition and harmonious relationship among students and between students and teacher. Learning process with ELS improve positive attitude of the students upon attitude object in EARH rather than students under CLS process. This result is in line with Nur, Yusuf, Muijs & Reynolds, and Sanjaya, who stated that harmonious and conducive learning condition may develop respectful, trusted, and responsible attitudes.^{20,26,29,30} Discussed problems in ARH put the students into the problem itself. This learning strategy trains the students to understand other people. Sanjaya explained that helping and developing students to care and emphatic to others is an attitude learning.³⁰ During the discussion, students are trained to accept and believe other students opinion by their argumentation. In solving problem with ELS, by teacher's guidance, the students are learning how to analyse strength and weakness of others' opinion and attitude. Therefore, students gain the best attitude and opinion. In the activity, students analyse and assess opinion or attitude about teenager reproduction health as a part of problem solving steps.

When discussing problem about teenager reproduction health with ELS, teacher roles as facilitator and mentor to teach students about values and morale related to reproduction and sexuality. Teacher guides, supervise, and support students in the group discussion or class discussion to find alternative solution, and decide the best solution based on the value and morale in the society. Suryoputro, *et.al* stated that values and morale are the strongest factor influencing teenagers' behaviour.⁵⁶ The values and morale can be taught in the EARH. As stated by Yusuf and Sanjaya, students are more familiar to morale values through

experiences or interaction with their friends, besides with their parent or adults.^{20,30} Iryanti and Teguh, *et.al* asserted the education of the same age can influence students' attitude.^{47,57} In Adisusilo, it was stated as well about values is the barometer to determine attitude, and attitude determine how to behave.⁵⁸ Therefore, values direct someone to behave based on society morale. Participative and collaborative learning can teach about attitude, and students' attitude will be better or positive as found by Murmanto and Duze.^{46,51}

EARH and ELS can improve students' knowledge about ARH. The improvement of this knowledge effects on students' believe (cognitive response), students' feeling (affective response), and students' tendency to do (conative response) related to attitude object. As cited from Naidoo & Wills, improving knowledge will improve attitude.⁵⁹ Attitude change through education process will last longer.

Hamzah stated that students who learn specific discipline will not only acquire learning achievement of cognitive aspect but also forming attitude related to the object being learned.²³ Research finding of Rao, *et.al.* showed the program of reproduction health education intervention is able to improve adolescents' knowledge and attitude about reproduction health.⁶⁰

Improvement of Problem Solving Skill about ARH

The implemented learning strategy has improved students' problem solving skill about ARH significantly ($p < 0.5$) as much as 80.9%. This finding showed that ELS can improve students' problem solving skill about ARH better than CLS. To find out the differences of students' skill in solving problem about ARH among students who were treated by ELS or CLS can be seen from mean of Estimate Marginal Mean. From Estimate Marginal Mean, it was found the mean of students in problem solving skill on teenager reproduction health who were treated by CLS was 0.189 and e mean of students in problem solving skill on teenager reproduction health who were treated by ELS was 0.536. It means that ELS is better in improving students' problem solving skill on ARH than CLS.

Adolescents should have skill on teenager reproduction health. Muadz, *et.al* argued that adolescednts should acquire life skill on teenager reproduction health in form of problem solving and making decision⁽¹⁾. Problem based learning is the way to teach students in order to have problem solving skill. Research finding of Adyana, *et.al* explained that problem based learning may improve students' life skill and competence.⁶¹ Moreover, research finding of Afcariano, Krishnan, *et al*, and

Astika, *et al*, explained that problem based learning may improve students' thinking skill.^{62,63,64} Besides that, Delisle explained that problem based teaching trigger collaborative teaching. As the problem based teaching, participative learning emphasizes on cooperation and collaborative.⁶⁵ As stated by Hesson & Shad, problem based learning is used to change teacher-centered learning into student-centred learning and the knowledge transfer problem would be better.³⁶ Therefore, in ELS, students learn in group and cooperate to solve ARH problem in order to understand the development and system of ARH.

In the use of ELS in EARH, students were trained and taught to solve teenager reproduction health problem. In ETS, students were stimulated to improve knowledge about human reproduction system, and solving teenager reproduction health problem by using knowledge of human reproduction system which have been understood by them. Krishnan, *et al* and Eggen and Kauchak suggested that problem based teaching uses problem as the focus to improve problem solving skill, collaboration, communication, and learning material.^{32,63} Problem solving exercises improve internalization in the process of students' learning; therefore, there is a meaningful process toward what is learned. ELS supports students to be active and construct knowledge, attitude, and skill. Santrock & Muhson also suggested that the problem used in learning should be real life problem, and the students would be more motivated in solving the problem rather than a problem from textbook or learning book.^{27,54}

In CLS, teenager reproduction health problem is given in the end of learning and the students work in group. Students are assigned to discuss a teenager reproduction health problem given by teacher within his/her group and find the solution to solve the problem. Here, the students are not taught the steps in solving problem. Problem solving skill is not arranged specifically in CLS. As stated by Arends, that direct learning which dominates CLS is not intended to achieve higher thinking as in problem solving skill.³¹

Based on previous explanations, it shows that ELS which is used to integrate EARH in Science is able to improve students' knowledge about ARH, healthy reproduction attitude, and students' skill on the problem solving of ARH. The result of present study shows that ELS has the most positive effect on in improving students' achievement on problem solving of ARH, with PES 80.6%. Meanwhile, the healthy reproduction attitude improved 63.2%, and finally the students' knowledge of teenager reproduction health improved 25.1%.

CONCLUSION

Based on the previous explanation of the research finding and discussion, it can be concluded as follows: (1) ECPPB Learning Strategy (ELS) has improved students' knowledge about ARH meaningfully rather than Conventional Learning Strategy (CLS); (2) ELS has improved students' healthy reproduction attitude to be positively and meaningfully rather than CLS.; (3) ELS has improved students' problem solving skill on ARH issue meaningfully rather than CLS; and (4) ELS is the best way to be used in teaching students about problem solving skill on ARH, because the improvement of learning achievement in problem solving is higher than improvement of students' knowledge about ARH, and students' health reproduction attitude.

REFERENCES

1. Muadz, M.M., F. Siti, A.S.Endang, dan M. Laurike. *Keterampilan Hidup (Life Skills) dalam Program Kesehatan Remaja*. 2008. Jakarta: BKKBN Direktorat Remaja dan Perlindungan Hak-Hak Reproduksi.
2. Riset Kesehatan Dasar. Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan Republik Indonesia. 2010.
3. Survei Demografi dan Kesehatan Indonesia. Kesehatan Remaja. Badan Pusat Statistik Badan Kependudukan dan Keluarga Berencana Nasional Kementerian Kesehatan. 2012.
4. Muzayyanah, S.N., 2008. *Pendidikan Kesehatan Reproduksi Remaja: Bagaimana Menyikapinya?* Available from: <http://halalsehat.com/index.php/Anak-sehat/>. Accessed 4 September 2010.
5. Noviasari, E., N. S. Kiki, N.M.Irm. Mata Pelajaran Reproduksi Remaja dalam Kurikulum SMP untuk Menghindari Remaja dari Tindak Aborsi akibat Free Sex (*Laporan Penelitian*). 2008. Universitas Negeri Malang.
6. Catio, M. 2009. *Peran Pendidikan dalam Mengatasi Masalah Kesehatan Remaja*. Available from: <http://www.idai.or.id/remaja/artikel.asp?q=2009113012438>. Accessed 24 Nopember 2010.
7. Pramesemara. 2009. *Perlunya Pendidikan Seks yang Benar untuk Remaja*. Available from: <http://kisarayouthclinic.org>. Accessed 23 Oktober 2011.
8. Zahra, A. A. 2010. *Genting Pendidikan Kesehatan Reproduksi*. Available from: <http://mylearningissue.wordpress.com/2010/02/21>. Accessed 23 Mei 2011.
9. Dianawati, A. 2003. *Pendidikan Seks untuk Remaja*. Jakarta: Kawan Pustaka.
10. Duarsa D. P. *Persepsi Remaja tentang Hubungan Seksual Pranikah di Kota Denpasar: Perspektif Kajian Budaya*. 2009. *Disertasi*. Denpasar: Universitas Udayana.
11. Irawati L. CH. *Konseling Kesehatan Reproduksi Remaja*. 2010. Available from: <http://www.jogjakarta.go.id/index/extra.detail/2827>. Accessed 10 Pebruari 2010.
12. Lestary, H. dan Sugiharti. *Perilaku Berisiko Remaja di Indonesia Menurut Survey Kesehatan Reproduksi Remaja Indonesia (SKRRI) Tahun 2007*. *Jurnal Kesehatan Reproduksi* 2011;1(3): 136-144.
13. Departemen Kesehatan. *Kebijakan Kesehatan Reproduksi*. 2005.
14. Depdiknas. *Panduan Teknis UKS SMP*. 2009. Jakarta: Direktorat Jenderal Manajemen Dikdasmen.
15. Rohmat. *Kurikulum Kesehatan Reproduksi Bisa Tekan Seks Bebas*. 2011. Available from: <http://news.okezone.com/read>. Accessed 1 Oktober 2011.

16. Maulana H. D. J. *Promosi Kesehatan*. 2009. Jakarta: Penerbit Buku Kedokteran EGC.
17. Arends, R.I. *Learning to Teach. Belajar untuk Mengajar*. Edisi 7. Buku Satu. (Helly Prajitno Soetjipto dan Sri Mulyantini Soetjipto, Pentj). 2008. Yogyakarta: Pustaka Pelajar.
18. Tuckman, B.W. *Conducting Educational Research*. 5th Edition. 1999. New York: Harcourt Brace College Publishers.
19. Hair, J.F., R.E. Anderson, R.L. Tatham and W.C. Black. *Multivariate data Analysis*. 5th ed. 1998. New Jersey: Prentice Hall.
20. Yusuf, L.N. S. *Psikologi Perkembangan Anak & Remaja*. 2004. Bandung: Remaja Rosdakarya.
21. Pieter dan N.L. Lubis. *Pengantar Psikologi dalam Keperawatan*. 2010. Jakarta: Kencana.
22. Sarwono, S., W. *Psikologi Remaja*. 2010. Jakarta: Raja Grafindo Persada.
23. Hamzah, B. Uno. *Model Pembelajaran Menciptakan Proses Belajar Mengajar yang Kreatif dan Efektif*. 2009. Jakarta: Bumi Aksara.
24. Hake, R. R. *Analyzing Change/Gain Score*. 1999. USA: Indiana University.
25. Suparno, P. *Teori Perkembangan Kognitif Jean Piaget*. 2001. Yogyakarta: Kanisius.
26. Nur, M. *Perkembangan Selama Anak-anak dan Remaja*. 2004. Malang: Universitas Negeri Malang.
27. Santrock J.W. *Psikologi Pendidikan*. (Tri Wibowo, Pentj). 2007. Jakarta: Kencana Prenada Media Group.
28. Suyatno. *Metode Kolaboratif untuk Pembelajaran di Kelas*. 2008. Available from: <http://garduguru.blogspot.com/2008/12/metode-kolaboratif-untuk-pembelajaran.html>. Accessed 7 Oktober 2012.
29. Muijs, D. dan D. Reynold. *Effective Teaching Teori dan Aplikasi*. (Helly Prajitno Soetjipto dan Sri Mulyantini Soetjipto, Pentj). 2008. Yogyakarta: Pustaka Pelajar.
30. Sanjaya, W. *Strategi Pembelajaran Bertorientasi Standar Proses Pendidikan*. Cetakan ke-6. 2009. Jakarta: Prenada Media Group.
31. Arends, R.I. *Learning to Teach. Belajar untuk Mengajar*. Edisi 7. Buku Satu. (Helly Prajitno Soetjipto dan Sri Mulyantini Soetjipto, Pentj). 2008^a. Yogyakarta: Pustaka Pelajar.
32. Eggen, P dan D. Kauchak. *Strategi dan Model Pembelajaran. Mengajarkan Konten dan Keterampilan Berpikir*. Edisi keenam. (Satrio Wahono, Pentj). 2012. Jakarta: Indeks.
33. Kardi. S. dan M. Nur. *Pengajaran Langsung. Pusat Sains dan Matematika Sekolah*. Program Pascasarjana UNESA. 2000. Surabaya: University Press.
34. Gulo, W. *Strategi Belajar Mengajar*. 2004. Jakarta: Grasindo.
35. Brownell M.T., A. Adams, P. Sindelar, N. Waldron, dan S. Vanhover. *Learning From Collaboration: The Role of Teacher Qualities. Council for Exceptional Children*. 2006;72(2): 169-185.
36. Hesson, M. dan K.F. Shad. A Student-Centered Learning Model. *American Jurnal of Applied Sciences*. 2007;4(9): 628-636.
37. Ajiboye, J.O. dan Ajitoni. Effect of Full and Quasi-Participatory Learning Strategies on Nogerian Senior Secondary Students' Environmental Knowledge: Implication for Classroom Practice. *International Journal of Environmental & Science Education*. 2008;3(2): 58-66.
38. Nuroso, H. dan J. Siswanto. *Model Pengembangan Modul IPA Terpadu Berdasarkan Perkembangan Kognitif Siswa*. JP2F 2010;1(1): 35-46.
39. Prastowo, A. *Panduan Kreatif Membuat Bahan Ajar Inovatif*. 2011. Jogjakarta: Diva Press.
40. Adnyana, B.P. dan D.M. Citrawathi. Pengembangan Modul Biologi Berorientasi Siklus Belajar untuk Meningkatkan Penalaran dan Keterampilan Inkuiri Siswa SMA. *Jurnal Penelitian dan Pengembangan Pendidikan*. 2008;2(3): 206-221.
41. Citrawathi, D.M., P.B. Adnyana, dan S. Maryam. Pendidikan Kesehatan melalui Pembelajaran Tematik Bertema Kesehatan di SD. *Jurnal Pendidikan dan Pengajaran*. 2010^a;43(2): 159-166.
42. Citrawathi, D.M., P.B. Adnyana, dan S. Maryam. Penggunaan Modul Kesehatan Reproduksi Remaja Berwawasan STM dengan Model Pembelajaran Kooperatif Jigsaw untuk Meningkatkan Hasil Belajar Siswa SMA. *Jurnal Penelitian dan Pengembangan Pendidikan*. 2010^b;4(1): 77-90.
43. Adnyana, B.P., D.M. Citrawathi, S. Maryam. Keefektifan Buklet Edukatif Tematik (BET) sebagai Media Pembelajaran Kesehatan di Sekolah Dasar. *Jurnal Penelitian dan Pengembangan Pendidikan*. 2011;5(3): 274-287.
44. Silberman, M. dan Auerbach, C. Active Training. Pedoman Praktis tentang Teknik, Desain, Contoh Kasus, dan Kiat. (M. Khozim. Pentj). 2013;Bandung: Nusa Media.
45. Slavina E.S. *Psikologi Pendidikan. Teori dan Praktek*. Jilid 2 (Mariantio Samosir, Pentj). 2009. Jakarta: PT. Indeks.
46. Murmanto, M.D. Pembentukan Konsep Diri Siswa melalui Pembelajaran Partisipatif. *Jurnal Pendidikan Penabur*. 2007;IV(8): 66-74.
47. Iryanti. Pengaruh Pendidikan Kesehatan Reproduksi melalui Metode Pendidikan Sebaya terhadap Pengetahuan dan Sikap Remaja dalam Pencegahan Kehamilan dan Diinginkan (KTD) di SMKN 15 Kotamadya Bandung. *Jurnal Kesehatan Kartika Stikes A.Yani*. 2004;30-39.
48. Dewi A.N., S. Dwiajastuti, dan A.A. Prayitno. Pengaruh Penggunaan Model Active Knowledge Sharing terhadap Hasil Belajar ditinjau dari Minat Belajar Siswa SMAN 2 Karanganyar. *Makalah Hasil Penelitian*. 2013. Disampaikan dalam Seminar Nasional IX Pendidikan Biologi FKIP UNS.
49. Tanggaard, L. Collaborative Teaching and Learning in the Workplace. *Journal of Vocational Education an Training*. 2005;57(1): 109-122.
50. Lin, R. dan J. Xie. A Study of the Effectiveness of Collaborative Teaching in the "Introduction to Design" Course. *Asian Journal og Management ang Humanity Sciences*. 2009;4(2-3): 125-146.
51. Duze, C.O. Effect of Participatory Learning Technique on Achievement and Attitude of B. Ed. Student in Educational Research Methods. *J Soc Sci*. 2010;22(3): 185-189.
52. Santoso, S. *Pengaruh Model Pembelajaran Kolaboratif dan Motivasi Belajar terhadap Peningkatan Hasil Belajar Fisika Siswa Kelas x SMA Negeri 1 Purwantoro Wonogiri, Jawa Tengah*. Berkala Fisika Indonesia. 2013;5(1): 15-19.
53. Ostroff, W.L. *Memahami Cara Anak-anak Belajar: Membawa Ilmu Perkembangan Anak ke dalam Kelas*. (B. Sendra Tanuwijaya, Pentj). 2013. Jakarta: PT Indeks.
54. Muhson, A. Peningkatan Minat Belajar dan Pemahaman Mahasiswa melalui Penerapan *Problem-Based-Learning*. *Jurnal Pendidikan*. 2009;39(2): 171-182.
55. Mulyasa, E. *Menjadi Guru Profesional Menciptakan Pembelajaran Kreatif dan Menyenangkan*. 2005. Bandung: Remaja Rosdakarya.
56. Suryoputro, A, J.F., Nicholas, Shaluhayah, Z. Faktor-faktor yang Mempengaruhi Perilaku Seksual Remaja di Jawa Tengah: Implikasinya terhadap Kebijakan dan Layanan Kesehatan Seksual dan Reproduksi. *Jurnal Makara Kesehatan*. 2006;10(1): 29-40.
57. Teguh, A., T. Istiarti, Widagdo, L. Hubungan Pengetahuan, Sikap terhadap Kesehatan Reproduksi Remaja dengan Praktik Seksual Pranikah pada Mahasiswa Kebidanan di Politeknik Kesehatan Depkes Semarang. *Jurnal Kesehatan Masyarakat*. 2013;2(2). Available at: <http://ejournals1.undip.ac.id/index.php/jkm>. Accessed 10 Maret 2013.
58. Adisusilo, S.J.R. Pembelajaran Nilai-Karakter: Konstruktivisme dan VCT sebagai Inovasi Pendekatan Pembelajaran Afektif. 2012. Jakarta: PT Rajagrafindo Persada.
59. Naidoo, J. dan J. Wills. *Health Promotion. Foundations for Practice* (2nd ed). 2000. China: Bailliere Tindall.
60. Rao, R.S.P, A. Lena, N.S. Nair, V. Kamath. A. Kamath. Effectiveness of Reproductive Health Education Among Rural Adolescent Girls: A School Based Intervention Study in Udipi Taluk, Karnataka. *Indian J Med Sci*. 2008;62(11): 439-443.
61. Adnyana, B. P., D.M. Citrawathi, I N. Sumardika, I N. Kariasa. Pengembangan Model Pembelajaran Sains (Biologi)

- pada Pendidikan Dasar dan Menengah dengan Menerapkan Pembelajaran Berbasis Masalah untuk Mencapai Kompetensi dan Pembekalan Kecakapan Hidup (*Life Skills*) (*Laporan Penelitian*). 2003; Singaraja: IKIP Negeri.
62. Afcariano, M. Pembelajaran Berbasis Masalah untuk Meningkatkan Kemampuan Berpikir Siswa pada mata Pelajaran Biologi. *Jurnal Pendidikan Inovatif*. 2008;3(2): 65-68.
63. Krishnan, S., R. Gabb, dan C. Vale. Learning Cultures of Problem-Based-Learning Teams. *Australian Journal of Engineering Education*. 17(2): 67-77.
64. Astika, I K. U., I K. Suma, I W. Suastra. Pengaruh Pembelajaran Berbasis Masalah terhadap Sikap Ilmiah dan Keterampilan Berpikir Kritis. *e-Journal Program Pascasarjana Universitas Pendidikan Ganesha Program Studi IPA*. 2013;Vol. 3: 1-10.
65. Delisle R. *How to Use Problem-Based Learning in The Classroom*. 1997. Alexandria: ASCD.



This work is licensed under a Creative Commons Attribution