

RESEARCH ARTICLE

The Use Reproductive Health Game (KEPO Game) on Female Adolescent's Five Dimensions Satisfaction**Sri Susilawati,^{1,2} Farid Husin,³ Firman Fuad Wirakusumah,³ Meita Damayanti,⁴ Herry Herman,⁵ Ruswana Anwar,³ Nanan Sekarwana⁴**¹DIII Midwifery Studies Program, Faculty of Health Sciences, Universitas Muhammadiyah Tasikmalaya, Tasikmalaya, Indonesia, ²Midwifery Master Study Program, ³Department of Obstetrics and Gynecology,⁴Department of Child Health, ⁵Department of Orthopaedics and Traumatology, Faculty of Medicine, Universitas Padjadjaran, Bandung, Indonesia**Abstract**

The adolescent's reproductive health is the major problem that should take into consideration. To solve this problem, it needs an alternative strategy by using a media, reproductive health/*kesehatan reproduksi* (KEPO) game, in Android smartphone. The aim is analyzing the effect of KEPO game on the five dimensions of female adolescent's satisfaction. The research method was quasi-experiment, and the research design used pre-test post-test with control group design. The sampling technique used simple random sampling. The subject was 64 respondents of female student age of 12–15 years old in public junior high school in Bandung city. The respondents divided into two groups, the first one treated by KEPO game is 32 students of Public Junior High School 50 Bandung, while the control group was 32 students of Public Junior High School 8 Bandung, get counseling from Ujungberung Indah Public Health Center; the entire research conducted in April–May 2017. Research result shows the percentage differential of satisfaction average score improvement on both groups. The treatment group produces percentage of content 14.6%, display 23.6%, accuracy 11.4%, easiness 12.4%, and correctness 17%. In the other hand, control group produces content 5%, display 3%, accuracy 4.3%, easiness 2.8%, and correctness 4.7% with a p value for each indicator was $p < 0.05$ on the intervention group and $p < 0.05$ on the control one. Entirely, it known that adolescent's satisfaction from those five aspects in using KEPO game has a matter differential $p < 0.05$, with satisfied percentage, was 84%. In conclusion, there was an effect of KEPO game on the five dimensions of female adolescent's satisfaction.

Key words: KEPO game, learning media, satisfaction**Pengaruh Penggunaan Gim Kesehatan Reproduksi (KEPO) terhadap Lima Dimensi Kepuasan Remaja Perempuan****Abstrak**

Kesehatan reproduksi remaja merupakan masalah utama yang harus diperhatikan sehingga untuk mengatasi ketidakpuasan remaja, diperlukan strategi alternatif, yaitu gim kesehatan reproduksi (KEPO) menggunakan *smartphone* Android. Tujuan penelitian ini adalah menganalisis pengaruh gim KEPO terhadap lima dimensi kepuasan remaja perempuan. Metode penelitian adalah *quasi-experiment* dan desain penelitian menggunakan *pre-test post-test with control group design*. Teknik pengambilan sampel menggunakan *simple random sampling*. Subjek penelitian adalah 64 responden siswa perempuan usia 12–15 tahun SMP Negeri di Kota Bandung. Responden dibagi menjadi dua kelompok, yaitu kelompok perlakuan menggunakan gim KEPO sebanyak 32 siswa SMP Negeri 50 Bandung, sedangkan kelompok kontrol menerima penyuluhan dari Puskesmas Ujungberung Indah sebanyak 32 siswa SMP Negeri 8 Bandung. Penelitian dilaksanakan pada bulan April–Mei 2017. Hasil penelitian menunjukkan perbedaan persentase peningkatan nilai rerata kepuasan pada kedua kelompok. Kelompok perlakuan menghasilkan persentase konten 14,6%, tampilan 23,6%, akurasi 11,4%, kemudahan 12,4%, dan ketepatan 17%. Di sisi lain, kelompok kontrol menghasilkan konten 5%, tampilan 3%, akurasi 4,3%, kemudahan 2,8%, dan ketepatan 4,7% dengan nilai p untuk setiap indikator sebesar $p < 0,05$ pada kelompok intervensi dan $p > 0,05$ kelompok kontrol. Secara keseluruhan, diketahui bahwa kepuasan remaja dari kelima aspek kepuasan dalam menggunakan gim KEPO memiliki perbedaan yang bermakna $p < 0,05$ dengan persentase puas 84%. Simpulan, terdapat pengaruh penggunaan gim KEPO terhadap lima dimensi kepuasan remaja perempuan.

Kata kunci: Gim KEPO, kepuasan, media pembelajaran

Received: 8 September 2017; Revised: 2 April 2019; Accepted: 25 April 2019; Published: 30 April 2019

Correspondence: Sri Susilawati. DIII Midwifery Studies Program, Faculty of Health Sciences, Universitas Muhammadiyah Tasikmalaya. Jln. Tamansari Km. 2,5, Tasikmalaya 46196, West Java, Indonesia. Mobile: +6281313922343. E-mail: susilawati.sri88@gmail.com

Introduction

Human resources become an essential component in reaching health development goal. Qualified human resources are very needed to be able to increase society health status. Furthermore, adolescents have a role as the component of the human resources itself as a precious asset for the nation in the future.^{1,2}

According to WHO,³ the adolescent is a citizen age of 10–19 years, divided early adolescent (10–13 years old), middle adolescent (14–15 years old), and late adolescent (16–19 years old). Next, according to the Regulation of the Minister of Health Republic of Indonesia,⁴ adolescent means citizen age of 10–18 years. In the other hand, the National Population and Family Planning Board or *Badan Kependudukan dan Keluarga Berencana Nasional* (BKKBN) says the average age of adolescent is 10–24 years old and unmarried.⁵

Another opinion comes from Mehta et al.⁶ said the characteristics of the adolescent are aggressive, dynamic, innovative, overconfident, enthusiastic, explorative, trying something new, sociable, brave, cheerful, and focus in doing something. The whole characteristics had faced with the availability of the surrounding facilities that can fulfill their curiosity. This condition produces the adolescents' conflict somehow. If they choose the incorrect decision in handling their conflict, they may get some continuity risks such as psychosocial and physics problem that even may exist in their lifetime.⁵

Having a special relationship becomes another serious problem that takes attention too. Approximately, it is about 32.1% young female and 36.5% young male age of 15–19 years; they start having a special relationship when they were before 15. If they do not have life skill, they face the risk of possessing an unhealthy relationship.⁷

Reproductive health is one of the other problems of adolescent that needs to take attention to from all parties not only from parents but also from the school counselor. Recently, the adolescents' attitude toward gender reverse has led them to the abnormal attitude of active sex and ignore the right substance in having a real relationship which has a positive role as a place of learning activity, communication, emotion expression, and commitment.⁸

The adolescent based school gain health service through the school health program (*usaha kesehatan sekolah*/UKS). The UKS

held Trias UKS consisted of health education, health service, and healthy school environment guidance.^{9–11} Adolescent health services that cannot be handled by UKS was served by the public health center (*puskesmas*) that implement young health program (*pelayanan kesehatan peduli remaja*/PKPR).¹² On this research, the selected school is junior high school located in the Puskesmas Ujungberung Indah surrounding.

According to the Government Regulation of Republic of Indonesia Number 61 the Year 2014, reproductive health service had comprised of communication, information, and education.¹³ The Laws of Republic of Indonesia Number 36 the Year 2009 article 74 says every reproductive health service characterized as promotive, preventive, curative, or rehabilitative with particular attention to peculiar aspects, especially the woman's reproductive health.¹⁴ The teenager's age of 12–15 years in this research has taken from one of UNESCO data that provide topic and learning objectives for teenager age of 12–15 years.¹⁵ Therefore, an learning media of interest had designed based on the technological information.

The development of information technology nowadays has influenced society, especially in the field of game development deals with software development too. One of the mobile smartphone systems that are developing is Android one. Also, it possesses opened character so that it puts a chance for the developers to create their application, especially the game one; it grows fast in the Android system.¹⁶

Based on the recent study has done in Public Junior High School 35 Bandung, the scenario or instruction in making the game spread out to the students in purpose to know how far the scenario suit the teenagers' need related to adolescent's reproductive health. They said some picture displays look too vulgar, and they suggest to enrich the materials correlate with adolescent's reproductive health.

The degrees of player satisfaction in playing a game is an essential factor in developing the game. Rizkiyani¹⁷ described the evaluation as the process of gathering various information or data to determine the extent, in terms of what, and how the objectives of a program achieved, as well as a systematic process for determining or make decisions to how extent the teaching goals had achieved by the program.

The user's satisfaction or dissatisfaction means a respond in using this education game

Table 1 Satisfaction Score Before and After Treatment

Satisfaction Sub-variabel (Scale 100)	Group		p Value
	Treatment (n=32)	Control (n=32)	
Content			
Pre-test			
Mean (SD)	71.8 (6.5)	75.1 (9.7)	0.103*
Median	68.7	75	
Interval	56.2–81.2	50–93.7	
Post-test			
Mean (SD)	81.8 (4.6)	78.1 (6.9)	0.011*
Median	81.2	75	
Interval	68.7–87.5	62.5–93.7	
Post-test score ≥70 (%)	84	47	0.001
Comparison pre-test vs post-test**	<0.001	0.064	
Increase of average (%)	14.6	5	
Display			
Pre-test			
Mean (SD)	70.9 (13.9)	74.6 (10.3)	0.284*
Median	75	78	
Interval	43.7–93.7	56.2–87.5	
Post-test			
Mean (SD)	85 (6.9)	76.4 (8.6)	<0.001*
Median	84.4	78	
Interval	68.7–100	62.5–93.7	
Post-test score ≥70 (%)	91	50	<0.001
Comparison pre-test vs post-test**	<0.001	0.086	
Increase of average (%)	23.6	3	
Accuracy			
Pre-test			
Mean (SD)	74.4 (6.2)	73.6 (6)	0.417*
Median	75	75	
Interval	50–88	63–88	
Post-test			
Mean (SD)	82.6 (5.2)	76.4 (5.7)	<0.001*
Median	81.2	75	
Interval	68.7–100	68.7–87.5	
Post-test score ≥70 (%)	91	28	0.010
Comparison pre-test vs post-test**	<0.001	0.062	
Increase of average (%)	11.4	4.3	
Easiness			
Pre-test			
Mean (SD)	70.3 (6.9)	72 (5.5)	0.068*
Median	68.7	75	
Interval	62.5–93.7	62.5–81.2	
Post-test			
Mean (SD)	78.7 (8.2)	73.8 (6.4)	0.019*
Median	81.2	75	
Interval	68.7–100	62.5–87.5	
Post-test score ≥70 (%)	66	22	0.003
Comparison pre-test vs post-test**	<0.001	0.074	
Increase of average (%)	12.4	2.8	
Correctness			
Pre-test			
Mean (SD)	74.2 (9)	77.9 (6.3)	0.082*
Median	75	81.2	
Interval	56.2–93.7	62.5–87.5	
Post-test			
Mean (SD)	86 (5)	81 (5.8)	0.001*
Median	87.5	81.2	
Interval	75–100	68.7–93.7	
Post-test score ≥70 (%)	97	21	0.001
Comparison pre-test vs post-test**	<0.001	0.074	
Increase of average (%)	17	4.7	

*Mann-Whitney test, **Wilcoxon test

Table 2 Comparison Score of Satisfaction Five Dimension

Satisfaction Score	Groups		p Value
	Treatment (n=32)	Control (n=32)	
Pre-test			
Mean (SD)	72.3 (5.2)	74.7 (4.1)	0.067*
Median	72.5	74.3	
Interval	62.5–86.2	66.2–82.5	
Post-test			
Mean (SD)	82.8 (3.1)	77.1 (3.1)	<0.001*
Median	82.5	76.8	
Interval	77.5–93.7	71.2–82.5	
Post-test score ≥ 70 (%)	84	25	
Comparison pre-test vs post-test**	<0.001	0.001	<0.001
Increase of average (%)	14.8	3.5	

*Mann-Whitney test, **Wilcoxon test

Table 3 Effect of KEPO Game on Female Adolescent Satisfaction

Groups	Satisfaction		p Value*	RR (CI 95%)
	Unsatisfied	Satisfied		
Control	24 (75%)	8 (25%)	<0.001	4.8 (2.1–11)
Treatment	5 (15.6%)	27 (84.4%)		

*Chi-quadrat test

toward the evaluation of disconfirmation, which felt by the user before and after using.¹⁸ Education game as a learning medium completed by a fascinating visualization; has a purpose of facilitating the user in getting the given information quickly. An educational game as a learning media with interesting visualization so that users can easily find out the information conveyed. The function of this educational game is as a media of communication or the delivery of information through digital media and is informal so it must fulfill five dimensions of satisfaction; there are content, display, accuracy, easiness, and correctness.¹⁹

Based on the statements mentioned above, it needs an alternative strategy by using a media, the reproductive health/*kesehatan reproduksi* (KEPO) game, in the Android smartphone. This study aim was analyzing the effect of KEPO game on the five dimensions of female adolescent's satisfaction.

Methods

This research used a quasi-experiment method completed using pre-test post-test with control

group design. Two groups analyzed, the treatment and the control group. The treatment group is measured before and after KEPO game giving for a month, then evaluated every once a week. In the other hand, the control one is measured before and after the regular program of PKPR/UKS giving. The target population in this research were female student age of 12–15 years in the public junior high school in Bandung. The whole research had done in Public Junior High School 50 Bandung for the treatment group and Public Junior High School 8 Bandung for the control one. The reached populations are female students class 8 age of 12–15 years in Public Junior High School 8 Bandung as the control group and Public Junior High School 50 Bandung as the treatment group that fulfills the inclusion and unfulfilled the inclusion criteria. Next, the sample taking technique in this research is simple random sampling in a simple random way from each student pull the lottery and exit the lottery number according to pull the lottery, with 32 students of treatment group and 32 students of control group that fulfill the inclusion criteria and not include the exclusion criteria, so the total population are 64 people.

The inclusion criteria are young age of 12–15 years class 8 of public junior high school, have smartphone android based with minimum 1 gigabytes (GB) of random-access memory (RAM) and able to use it; can install the KEPO game. They play the game frequency minimum three times a week in 60 minutes per day. The students who willing to be respondents get the treatment of game usage, from public junior high school which has inactive PKPR/UKS program, Public Junior High School 50 Bandung. Next, the control group got a counseling program that has run well, PKPR/UKS, Public Junior High School 8 Bandung. Whereas the exclusion criteria, the sick students, the absence student in pre-test and post-test, the adolescent who has experienced formal reproductive health education. Finally, drop out calls for the adolescent who never apply the KEPO game three times a week.

This research is the use of educational tools in the form of games and has gone through stages of development that ensure reliability. In the treatment, the group played the KEPO game for one month and evaluated once a week to junior high school, then post-test. The control group was given PKPR program counseling from Puskesmas Ujungberung Indah through UKS, then one month later a post-test was conducted. The grace period of the study was one month, based on the results of research on time satisfaction was able to determine customer satisfaction with a variable. Data analyzed by chi-square test, Wilcoxon test, and Mann-Whitney test.

This research applies the three principles of the Belmont Report: respect for person, beneficence, and justice. Also, this research had approved by the Health Research Ethics Committee of the Faculty of Medicine of the Universitas Padjadjaran Bandung by ethical approval letter number: 285/UN6.C.10/PN/2017.

Results

Table 1 showed that satisfaction score (content, display, accuracy, easiness, and correctness) on the pre-test both groups shows there is no difference; based on Mann-Whitney test result has p value >0.05 , that means both groups are comparable. The pre-test and the post-test result shows a meaningful comparison based on the Wilcoxon test, p value <0.001 . Based on this data, there is a difference in satisfaction score before and after treatment with p value <0.001 increase.

The research result from Table 2 shows different calculation score of pre-test and post-test on both groups increased. Wilcoxon test on the treatment group produces satisfaction score improvement after pre-test and post-test giving with the result p value <0.001 . In line with the treatment one, the score increase on both groups, the percentage increase and get higher on the treatment one 14.8%, while the control group only produce 3.5%.

Based on Table 3, the usage of the KEPO game interferes adolescent satisfaction with p value <0.001 . Relative risk (RR) score was 4.8, that means the respondent who did not apply the game probably get risk 4.8 times to feel unsatisfied than the game user one.

Discussion

The usage of KEPO game interferes the adolescent satisfaction reflected by game content dimension. Table 1 shows the difference exists to the content satisfaction improvement before and after game using, p value <0.001 . Improvement percentage of satisfaction content average on both groups increased: the treatment group 24.6% and the control one only 5%. Statistically, it shows a different satisfaction content score on both groups reflected by p value $=0.011$. It is suitable with previous research by Green and Pearson,²⁰ tells content gives positive influence to the application user. As consideration for further development planning, the management expected to be able to consider more the application content.²¹ Next, the interactivity includes the ability to set display, nuances, and content gives interaction to the user.²⁰

The use of KEPO game influences adolescent satisfaction based on the game display dimension. The display dimension measures the user's satisfaction viewed by the application display. The total value from a game centered on design and time duration. Education game application organized with new and interactive design. The time duration determination in this game applies the timer feature.^{18,20} The display format or information which is produced by application system needs to decide whether it is exciting or not, and how the display works whether the system works well to ease the user in gaining core information on its application or not.²²

Table 1 shows there was a difference in display satisfaction enhancement before and after KEPO

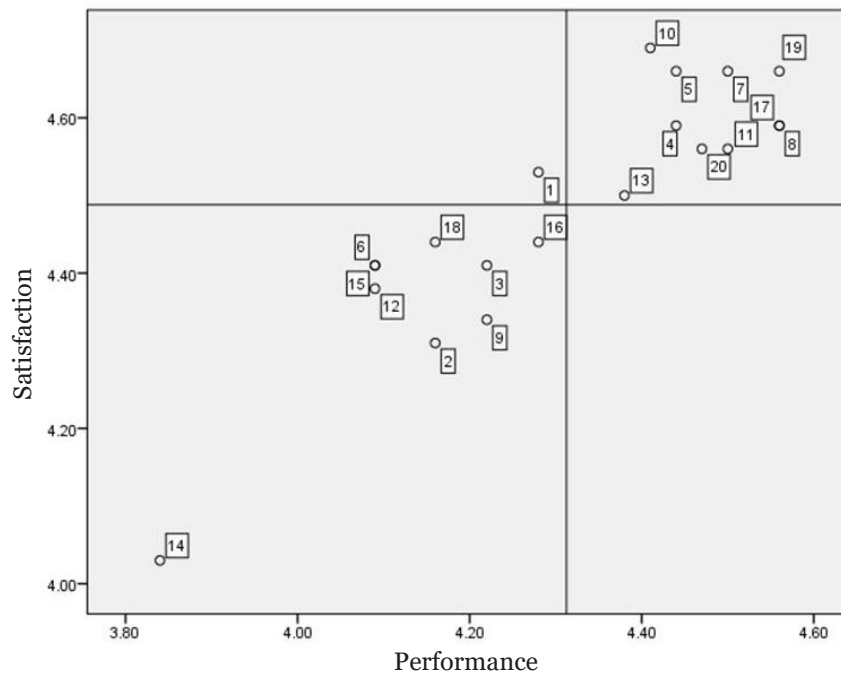


Figure Cartesius Diagram

game using, with p value < 0.001 . The percentage of the increasing average of display satisfaction on both groups get enhancement; the treatment group is 23.6%, and the control group only get 3%. Statistically, it reflects the difference of the content satisfaction value between both groups, which showed by p value < 0.001 .

Another influence of KEPO game usage on adolescent satisfaction was from game accuracy. On this research, it shows the difference of accuracy satisfaction enhancement before and after game using with p value < 0.001 . The percentage of the increasing average of accuracy satisfaction on both groups get enhancement; the treatment group was 11.4%, and control one only got 4.3%. Statistically, it reflects the difference of accuracy satisfaction value between both groups, which showed by p value < 0.001 .

According to Mosley,²³ there are two methods for accurately measuring satisfaction, namely the product definition of the application system and the identification of attributes of relevance that are indicators of the key to effectiveness. Moreover, the quality of the application system can give any influence to the user satisfaction. The better the application system quality, the better the user satisfaction will be. Decision taking to answer the question in the game has given to the

user.²⁴

Also, KEPO game usage interferes the adolescent satisfaction viewed by the game easiness dimension. Useable and accessible become a crucial point that needs to exist in an information system, and it tries to organized with interface way which is user-friendly so that it expected for the user could be able to use the game application easily.¹⁹

Table 1 reflects the existent of difference in easiness satisfaction enhancement before and after game using with p value < 0.001 . The percentage of the increasing average of easiness satisfaction on both groups reach enhancement; the treatment group was 12.4%, yet control one only gets 2.8%. Statistically, it reflects the difference of easiness satisfaction value between both groups that showed by p value < 0.019 .

It correlates with Sutanto's²² research that easiness can be categorized well because the user has a strong relationship between satisfaction and the easy of the game using. The Table of Estimation Parameter Regression Weights showed the relation of satisfaction and easiness conclude the estimation result was 0.806, means the better the easiness felt, the higher the satisfaction felt will be.

Finally, it discussed the use of KEPO games

from another point of view, namely the game correctness dimension. Correctness means the following information to the receiver well received and on time; the information must be up to date too. The old information is not precious anymore since the information is a base decision in decision making.^{20,25}

Table 1 shows the existent of difference in correctness satisfaction enhancement before and after game using with p value < 0.001 . The percentage of the increasing average of correctness satisfaction on both groups reach enhancement; the treatment group was 17%, yet control one only gets 4.7%. Statistically, it reflects the difference of correctness satisfaction value between both groups that showed by p value $= 0.001$. Also, in line with Sutanto's²² research tells correctness is categorized well since the user who applies the application get time efficiency.

The level of adolescent satisfaction with the KEPO game shown in the Cartesian diagram (Figure). Quadrant A is the main priority. The component that includes quadrant A and as improvement priority is item number 1, related to information in learning media. Quadrant B is keep the achievement. The components of this quadrant are item number 4 (animation picture), 5 (learning media display design), 7 (suitability of picture and material), 8 (color selection on learning media), 10 (detail of information given), 11 (positivity of information given), 13 (use understandable language), 17 (well-received information given), 19 (up to date information), 20 (correctness of font size, color, and font type).

Quadrant C is low priority. The components of this quadrant are item number 2 (variety exciting information), 3 (readable and understandable text), 6 (interactive), 9 (clarity of material goal), 12 (suitability of information with learning goal), 14 (easiness to accesses adolescent reproductive health), 15 (clarity of material presentation), 16 (easiness to comprehend adolescent reproductive health theory), 18 (suitability of age and material). Quadrant D is extremely. There is no component on this quadrant.

Satisfaction scores on the dimensions of content, display, accuracy, easiness, and correctness in both groups before and after the treatment had a significant percentage of satisfaction in the treatment group (84%). The increase in satisfaction scores in both groups showed $RR=4.8$, which means respondents who did not use the KEPO game had a 4.8-fold risk

of dissatisfaction compared to respondents who used.

Conclusion

There was an effect of KEPO game on the five dimensions of female adolescent's satisfaction.

Conflict of Interest

The authors declare no conflict of interests.

References

1. Hidayangsih PS. Perilaku berisiko dan permasalahan kesehatan reproduksi pada remaja. *Kespro*. 2014;5(2):1–10.
2. Respati WS. Problematika remaja akibat kurangnya informasi kesehatan reproduksi. *Formil*. 2010;7(1):1–7.
3. World Health Organization (WHO). Adolescent health and development [Internet]. WHO SEARO. 2017 [cited 2017 June 30]. Available from: http://www.searo.who.int/entity/child_adolescent/topics/adolescent_health/en/.
4. Peraturan Menteri Kesehatan Republik Indonesia Nomor 25 Tahun 2014 tentang Upaya Kesehatan Anak.
5. Pusat Data dan Informasi Kementerian Kesehatan Republik Indonesia. Situasi kesehatan reproduksi remaja. 29 Juni 2015 [cited 2017 June 29]. Available from: <http://www.depkes.go.id/resources/download/pusdatin/infodatin/infodatin%20reproduksi%20remaja-ed.pdf>.
6. Mehta B, Kaur A, Kumar V, Chawla S, Malik M, Khatri S. Adolescent reproductive and sexual health in India: the need to focus. *J Young Med Res*. 2013;1(1):e1.
7. Statistics Indonesia; National Population and Family Planning Board; Ministry of Health of Republic of Indonesia; MEASURE DHS, ICF International. The 2012 Indonesia demographic and health survey. Jakarta: Statistics Indonesia (Badan Pusat Statistik—BPS); 2013.
8. Rohmayanti, Rachman IT, Nisman WA. Pelayanan kesehatan peduli remaja menurut perspektif remaja di Kota Magelang. *JKR*. 2015;2(1):12–20.
9. Budiono MA, Sulistyowati M. Peran UKS (usaha kesehatan sekolah) dalam

- penyampaian informasi kesehatan reproduksi terhadap siswa SMP Negeri X di Surabaya. *J Promkes*. 2013;2(2):184–91.
10. Nurhayu MA, Shaluhayah Z, Indraswari R. Pelaksanaan trias usaha kesehatan sekolah pada tingkat sekolah dasar di wilayah Kecamatan Tembalang Kota Semarang. *JKM*. 2018;6(1):770–9.
 11. Novariana N, Hermawan NSA. Analisis pengelolaan trias usaha kesehatan sekolah (UKS) di tingkat SMP se-Kota Bandar Lampung (studi kualitatif). *JK*. 2018;9(1):12–20.
 12. Kementerian Kesehatan Republik Indonesia. Pedoman standar nasional pelayanan kesehatan peduli remaja (PKPR). Jakarta: Kementerian Kesehatan Republik Indonesia; 2014.
 13. Peraturan Pemerintah Republik Indonesia Nomor 61 Tahun 2014 tentang Kesehatan Reproduksi.
 14. Undang-Undang Republik Indonesia Nomor 36 Tahun 2009 tentang Kesehatan.
 15. Jones TM, Hillier L. Sexuality education school policy for Australian GLBTIQ students. *Sex Educ*. 2012;12(4):437–54.
 16. Jeffry, Petrus J. Laporan hasil penelitian: rancang bangun aplikasi game edukasi puzzle pengenalan tokoh sejarah berbasis Android dengan metode linear congruential generator (LCG) [Internet]. STMIK MDP. 2014 [cited 2017 July 28]. Available from: http://eprints.mdp.ac.id/1335/1/Penelitian%20Pak%20Johannes1%20_1_.pdf.
 17. Rizkiyanti AH. Skala Likert sebagai teknik evaluasi [Internet]. Kompasiana. 2013 [cited 2017 July 29]. Available from: <https://www.kompasiana.com/alifianahr/55283fcd17e6111318b45a7/skala-likert-sebagai-teknik-evaluasi>.
 18. Harun HI. Hubungan antara kualitas pelayanan dengan kepuasan konsumen pada mahasiswa pengguna game pointblank. *EMPATHY*. 2013;2(1):1536.
 19. Nugraheny D, Destiranti A. Penerapan edugame interaktif untuk pengenalan pakaian adat nasional Indonesia. *Simetris*. 2016;7(1):359–64.
 20. Green DT, Pearson JM. A confirmatory factor analysis of two web site usability instruments. In: McCoy S, Hess T, Nah FFH, Yi M, Houston A, Everard A, et al., editors. *Proceedings of the Third Annual Workshop on HCI Research in MIS*. Washington, D.C.: Association for Information Systems Electronic Library (AISEL)-Special Interest Group on Human-Computer Interaction (SIGHCI); 2004. p. 35–9.
 21. Prayoga SH, Sensuse DI. Analisis usability pada aplikasi berbasis web dengan mengadopsi model kepuasan pengguna (user satisfaction) JSI. 2010;6(1):70–9.
 22. Sutanto Y. Analisis kepuasan pengguna website manajemen informatika dengan metode EUCS berbasis CMS. *Informatika*. 2015;2(1):1–18.
 23. Mosley DJ. *The handbook of MIS application software testing: methods, techniques, and tools for assuring quality through testing*. Upper Saddle River, New Jersey: Yourdon Press; 1993.
 24. Pilnick A, Clegg J, Murphy E, Almack K. Questioning the answer: questioning style, choice and self-determination in interactions with young people with intellectual disabilities. *Sociol Health Illn*. 2010;32(3):415–36.
 25. Pangestu DW. Teori dasar sistem informasi manajemen (SIM) [Internet]. *IlmuKomputer*. 2007 [cited 2017 July 29]. Available from: <https://ilmukomputer.org/wp-content/uploads/2008/08/sim.pdf>.