
ICASH-A004

**FACTORS AFFECTING GRADE 11 STUDENTS' ACHIEVEMENT IN
LEARNING POPULATION EDUCATION IN SCHOOL POPULATION
AWARENESS, INDONESIA**

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ABSTRACT

Background: *School population awareness program (SSK) is a school program of teaching and learning strategies of population education developed at school level with the pilot project in Sukabumi, Indonesia. Prior this study, there was no research had been conducted to see the effectiveness of the program from the perspective of the students, on how the students perceived, their learning achievement, and whether the teaching and learning population under the SSK program contribute as the factor affecting learning achievement, which all of this could draw a conclusion whether the SSK program effective for students. Further, it would also give a valuable input for teacher and school sectors on how to improve the students' learning achievement. This study has a purpose to investigate the attitude of student toward five aspect of learning situation of population education, which are the subject, method of teaching, activity of teaching, media of instruction, and class environment. Students' learning achievement was also assessed in this study including the factors that affecting the students' learning achievement in population education*

Methods: *A descriptive cross-sectional study was applied using a quantitative research method. The sample size was 188 of eleventh grade students studying at three pilot projects of School Population Awareness in Sukabumi, Indonesia. Data were collected through a survey using close-ended questionnaire which distributed purposively.*

Results: *Students' attitudes were at high level, and their learning achievements were also high. Three predictive factors of learning achievement in population education were found: the attitude towards subject, activity of teaching, and method of teaching.*

Conclusion: *From the result it was reveal that all of the predictive factors found were associated with the teaching and learning strategies of population education under the SSK program which draw a conclusion that the program is effective for the students. For BKKBN as the government institution who developed the SSK program it is recommends to advocate the Ministry of Education and Culture of Indonesia and other senior high schools to implement the SSK program based on the model of SSK implemented in Sukabumi. For the respective teachers and school sectors it is suggested to emphasize the students with the importance of learning population education, adding more real-life activities, and provide more group work in the learning process in order to improve the students' learning achievement in population education.*

Keywords: *Students' attitude, population education, learning achievement, school population awareness program/ Sekolah Siaga Kependudukan (SSK)*

INTRODUCTION

Population education has been introduced world-wide due to the rapid population growth occurring in both industrial and developing countries [1]. The Demographic Expert Forum which was held on 1970 in Japan had been proposing every country should include population matters into the school curriculum [2]. This forum became the milestone for Indonesia to implement population education in school.

Population education is one of the subjects delivered to Indonesian senior high school students. The objective is to impart knowledge of population matters, issues and develop the students' rational understanding, awareness, attitudes, and behaviors, so then learners have the responsibility for the effect of population growth to individual life, community, nation, and humanity aspects [3]. It also develops a possible attitude supporting the small family [4], and increase age of marriage [2]. Some programs include specific units on family planning and human reproduction while others do not [5].

Though population education has been implemented in Indonesia three decades, some problems still occur. Nzobonimpa & Zamroni have conducted a research on the implementation of population education in senior high school in Indonesia found that the learning process is less appropriate, students are not encouraged to do discussion or activities outside the classroom, teachers view population education was not popular, unfamiliarity with the topics, invalid or out-of-date of materials, and some teachers do not have any concern to teach population education. In fact, looking to the Indonesian population number, problems, and trends, population education should remain as a concern [1].

According to 2017 Indonesia's Statistical Yearbook data, the numbers of population in Indonesia has reached 258 million in 2016 and became the fourth most populous country in the world [6]. Although Indonesia's population growth rate had been decreasing over the decades, but the number are projected continue to increase in the next twenty-five years to 305.6 million in 2035 [7]. Population structure has been also been changed, where the number of young people increase representing 28 percent of the population, and the number of elderly people continue to grow, and due to uneven population distribution caused population density centered in big cities [8].

High population number becomes a serious impediment to development. It is not only a problem to environment such overgrazing, soil erosion, destruction of rain forests and environmental pollution which all of this have a great impact to global warming and climate change, but population pressure also tend to social problems such as increasing poverty, conflicts, education and health problems. United Nations in "A Concise Report" Integrating Population Issues into Sustainable Development stated that population growth has increased the standards of living and higher consumption of energy and natural resources which unquestionably contributed to substantial and fundamental changes in the earth's environment [9].

Giving the knowledge of population matters, issues and develop the students' rational understanding is important to be taken to develop their responsible attitude and behavior toward the situation. One of the indicator achievements' of RPJMN (National Medium-Term Development Planning) of BKKBN (National Population and Family Planning Board of Indonesia) is the increasing percentage of Indonesian youth having knowledge on population matters and issues occur in Indonesia. However, based on 2017 National Medium-Term Development Planning Survey, the result is still far from the target which only 34.4% of Indonesian youth have the knowledge toward it [8]. Therefore, promoting the importance of population education in school sector becomes important. How to re-emphasize the importance of population education

and provide material input to educational sector in accordance with the present situation, and proposed teaching and learning process that could motivate student to learn the subject.

Concrete steps have been carried out by BKKBN through establishing School Population Awareness Program/*Program Sekolah Siaga Kependudukan (SSK)*, with a pilot project developed in senior high schools in Sukabumi district, West Java Province, Indonesia. School Population Awareness Program (SSK) is a school program that integrates population education, family planning and family development into several subjects and/ or local content specific to population with the objectives to give students knowledge about population, both quantity and quality of distribution in accordance with the carrying capacity, the importance of reproductive health, elderly people, cause and effect of urbanization, the formation of small family and the ideal marriage age [10].

In senior high school, population education is taught to the eleventh grade students. The teaching and learning process of population education under the SSK program emphasized the student-centered learning, collaborative learning, real-life activities, and the use of visual media, including providing materials such as books related with population [10]. With this effort, it is expected that students will gain a better understanding in population education. However, there are many factors contributed on the students' learning achievement, and among the factors positive attitude of learners toward the learning situation have relationship with learning achievement [11].

In teaching and learning process, attitude of student toward learning situation of a subject become important as a factor that contributes on learning achievement. Gardner's Revised Socio-Educational Model Theory explain that positive attitude of student towards learning situation of a subject could influence student's motivation to learn and thus leads to their achievements [12]. The attitude toward learning situation refers to the attitude toward every aspect related to the teaching and learning process of a subject taught in school [12].

Therefore, in the light of above-mentioned statement, the researcher intends to study (1) the attitude of students toward the subject and the learning situation of population education implemented under the SSK program, (2) assess their learning achievement, and (3) investigates the predictive factors of attitude toward learning situation on students' learning achievement in population education.

From the objectives of the study mentioned, this study will draw a valuable information how the students' perceived toward learning situation of teaching and learning population education implemented under the SSK program, and find out whether the learning situation of teaching and learning population education implemented at the pilot project of SSK contributed as the factors that affecting the students' learning achievement in population education which reflects that this program is effective and can be used as a model of teaching and learning population education in other senior high schools in Indonesia. Besides, it would also give the information on how to improve the students' learning achievement in population education in the pilot project of SSK.

LITERATURE

Attitude

Human judgement depends heavily on evaluation. Assessments of objects, people, and events appear to be made primarily along an evaluative or attitudinal continuum ranging from good to bad, desirable to

undesirable [13]. People’s belief, opinions, perceptions, feelings towards object, situation, people, and individual has been widely used by researchers to define people attitude towards it. In context of learning, students’ attitude has been proven by researchers will an effect to student’s academic achievement. Gardner defined attitude as an evaluative reaction to some referent or attitude object, inferred on the basis of the individual’s beliefs or opinions about the referent. “Attitude is thus linked to a person’s values and beliefs and promotes or discourages the choices made in all realms of activity, whether academic or informal [14]. While Wood mentioned that attitude is an evaluation of an object, ranging from extremely negative to extremely positive [15].

Learning Situation of Population Education under the School Population Awareness Program (SSK)

Table 1. Teaching and Learning of Population Education

Course Subject		Activity of Teaching	
1.	Population Data Resources/ Data Census	1.	Lecture
2.	Quantity and Quality of Population	2.	Observation and Identification
3.	Demographic Analysis	3.	Classroom Discussion
4.	Teenagers and the Challenges face	4.	Problem Solving
5.	Elderly and its problems	5.	Collaboration
	Urbanization and its consequences		
Method of Teaching		Media of Instruction used	
1.	Collect Population Data	1.	Video
2.	Calculating population data	2.	Pictures
3.	Interviewing pregnant woman and infant mother related to health	3.	Pamphlet
4.	Interviewing elderly people about a healthy life	4.	Brochure
5.	Develop population graphic and pyramids	5.	Map
6.	Interviewing peers about reproductive health and dangerous of narcotics		
7.	Observing the negative effect of urbanization		

METHODOLOGY

Study Population

Population of this research were 357 grade 11 high school students of social science in three pilot projects of SSK, SMAN 1 (Sekolah Menengah Atas Nasional, National Senior High School) Cisolok, Cibadak, Cikidang Sukabumi, West Java Province, Indonesia. Determination of the population and site of the research based on the consideration that population education being taught to grade 11 of social science, and School Population Awareness Program (SSK) were earlier implemented in those three schools compared to other schools.

Sample and data collection

Number of sample size of this research was calculated by using the Yamane formula. Based on the sample calculation, the sample size was 188 students (91 boys and 97 girls) which represents 52% of the population. To define the number of respondents in each of the three senior high schools, a proportionate stratified sampling was applied. Data collection were gathered through a survey using close-ended questionnaire and

distributed to the respondents purposively after permissions given by the National and Political Unity Agency and the Educational Representative Office, West Java Province, Indonesia.

Instruments

Close-ended questionnaire was constructed to collect the information. Structured questionnaire on attitude toward learning situation was developed by the researcher based on the teaching and learning process in SSK which include five aspects (attitude toward subject, method of teaching, activity of teaching, media of instruction, and classroom environment) with total of 30 questions. While for learning achievement researcher used questionnaire’ test developed by BKKBN with 12 questions. Consultation with teachers also had been made to reaffirm the congruity of the questions with the learning situations and materials. The instruments were tested by pilot study to find out the reliability. Number of 30 students which was not included in the sample were selected purposively. Based on Cronbach’s alpha coefficient, the internal consistency value of the descriptive questionnaires for attitude toward learning situation were at range 0.75 – 0.80. While, for the level of learning achievement test, Kuder-Richardson Formula 20 (KR-20) was applied with value result of 0.70. To confirm its content validity and Item-Objective Congruence (IOC), three experts of Mahidol University were examined the questionnaire.

Statistical Analysis

SPSS 20 software were used for analyzed the data. The analytical methods were divided into four parts as follows: (1) personal background information of the respondents by frequency distribution and percentage, (2) attitude toward learning situation using mean and standard deviation, (3) learning achievement using score, and (4) predictive factors of attitude towards learning situation on learning achievement by Stepwise Multiple Regression.

RESULTS

Table 2. Students’ Background Information

General Information	Frequency (n)	Percentage (%)
1. Name of School		
SMAN 1 Cisolok	77	40.96
SMAN 1 Cibadak	57	30.32
SMAN 1 Cikidang	54	28.72
Total	188	100.00
2. Gender		
Male	91	48.40
Female	97	51.60
Total	188	100.00
General Information		
3. Age		
16	52	27.66
17	84	44.68
18	45	23.94
19	6	3.19
20	1	0.53
Total	188	100.00

Total of 188 students from 3 schools were responded to the research questionnaire. They were 77 students of SMAN 1 Cisolok (40.96%), 57 students of SMAN 1 Cibadak (30.32%), and 54 students of SMAN 1 Cikidang (28.72%). The sample for this research were mostly female students (51.60%) compare to boys (48.40%), with the median age at 18 years old age (45%).

Level of students' attitude towards learning situation of population education

Table 3. Overall level of students' attitude towards learning situation of population education

Attitude Towards Learning Situation of Population Education	Mean	S.D	Meaning
1. Course Subject	4.04	.57	High
2. Method of Teaching	4.02	.49	High
3. Activity of Teaching	3.94	.61	High
4. Media of Instruction	4.19	.55	High
5. Classroom Environment	4.04	.43	High
Total	4.04	.41	High

Note: 1.00-1.80 = lowest, 1.81-2.60 = low, 2.61-3.40 = moderate, 3.41-4.20 = high, 4.21-5.00 = highest

The overall level of students' attitude toward learning situation of population education in *SKK* were high with the mean score of 4.04 and a standard deviation of 0.41. The attitude toward media of instruction had the highest level with mean score of 4.19 followed with attitude toward the course subject, classroom environment, method of teaching, and activity of teaching which all rated at high level with means score of 4.04, 4.04. 4.02, 3.94 respectively.

Level of students' learning achievement of learning population

Table 4. Overall level of students' learning achievement of learning population

No.	Item	Correct Answer		Incorrect Answer		Meaning
		n	%	n	%	
1.	Factors that influence population growth	172	91.5	16	8.5	Highest
2.	Definition of Total Fertility Rate	100	53.2	88	46.8	Moderate
3.	The cause of the emergence of slums and the large number of street vendors in urban areas	125	66.5	63	33.5	Moderate
4.	The population graph according to age and sex at a certain time	131	69.7	57	30.3	Moderate
5.	Classification of population according to livelihood, religion, age, gender and place of residence	66	35.1	122	64.9	Low
6.	The uses of the population pyramid	101	53.7	87	46.3	Moderate
7.	Population issues in Indonesia	150	79.8	38	20.2	High
8.	Understanding the Government's efforts to reduce Indonesia's population growth rate	178	94.7	10	5.3	Highest
9.	Understanding composition of age group, men and women	149	79.3	39	20.7	High
10.	Understanding the population classified based on productive age	148	78.7	40	21.3	High
11.	Attitude of the ideal marriage age	150	79.8	38	20.2	High
12.	Attitude of the ideal number of children	156	83.0	32	17.0	High
	Average		72.08		27.92	High

Note: 0-29% = lowest, 30-49% = low, 50-69% = moderate, 70-89% = high, 90-100% = highest

As seen from the table, 72.08% of the students have good learning achievement in population education. It indicates that the overall level of students' population education learning achievement was at high level. In term of knowledge, the most common questions that was answered correctly and rated as the highest level were item number 8 "Understanding the Government's efforts to reduce Indonesia's population growth rate" 94.7%, and item number 1 "Factors that influence population growth" 91.5%. In the other hand, item number 5 "Classification of population according to livelihood, religion, age, gender and place of residence" were the lowest among other items at 35.1%. In term of attitude of ideal marriage age (item 11) and ideal number of children (item 12), both rated as high level with 79.8% and 83.0% respectively.

Predictive factors of attitude towards learning situation of population education effecting learning achievement

Table 5. The predictive factors

Model	R	R ²	Adjusted R ²	R ² Change
a	.617 ^a	.380	.377	.380
b	.656 ^b	.430	.424	.049
c	.672 ^c	.452	.443	.022

Note: a. Predictors: (Constant), AS.
 b. Predictors: (Constant), AS, AAT
 c. Predictors: (Constant), AS, AAT, AMT

Three independent variables were entered as the predictive factors affecting learning achievement which were attitude toward subject (AS), attitude toward activity of teaching (AAT), and attitude toward method of teaching (AMT), while two other variables were found to be non-significant and removed. The coefficient determination of all three independent variables was R² = .452. This finding explained that the three independent variables entered could 45.2% affecting learning achievement of population education.

Table 6. The significant effect of predictive factors

Model	β	T	Sig.
AS	.306	3.646	.000
AAT	.235	3.046	.003
AMT	.219	2.733	.007

Note: **.Coefficient is significant < 0.01

The most variable affected learning achievement was the attitude towards subject (AS) with the highest coefficient value (β = .306) and highest significant level (p = .000). The remaining two independent variables which were attitude toward activity of teaching (AAT) and attitude toward method of teaching (AMT) were in the following order of decreasing effect on learning achievement with coefficient values (β = .235, and β = .219) with high significant level (p < 0.01). Based on table 4.11, the equation for the regression line is following: LA (Learning Achievement) = 0.306 AS (Attitude toward subject)** + 0.235 AAT (Attitude toward activity of teaching)** + 0.219 AMT (Attitude toward method of teaching)**

DISCUSSION

In case of education, students' positive attitude stands as the factors that could affecting their academic achievement [12]. Attitude is an evaluative reaction of a person toward some situation experienced by the person ranging from good to bad, desirable to undesirable [13]. This study found that students' attitude toward learning situation of population education were high and their achievement were also high. Therefore, it indicates that students like studying population education based on the teaching and learning strategies implemented under the SSK program. Gardner's Revised Socio-Educational Model Theory explain that attitude of student toward learning situation influent motivation to learn and thus affected on their learning achievement [12]. In this research, this theory can predict that positive attitude of student toward learning situation of population education under the SSK program have an effect on students' learning achievement. There are several reasons why research on student attitude towards learning important. First, attitudes are believed to influence behaviors in learning. Second, a relationship between attitudes and achievement has been shown to exist, and there is support for the proposition that attitudes influencing achievement rather than achievement influencing attitudes [16]. Further, in this study also found that there were three predictive factors of learning achievement which those three factors are associated with the teaching and learning process under the SSK program.

The first predictor was the attitude of student toward the subject. Looking to the subject taught in population education, all materials is connected to every aspect and issue of life where this make students think that learning population education is useful and important to be learned. This notion is supported by the study conducted by Nzobinimpa & Zamroni which found that students like and had the interest to learn the subject of population education because they find it useful and important for them [1]. If student like studying the subject it could followed by their achievement. For example, study conducted by El-Omari which found that students who have positive attitude toward learning the subject have score higher than those whose achievement is poor [17]. Therefore, in order to improve the students learning achievement, it is necessary for teachers and school sectors to always maintain the attitude of student toward learning the subject of population education by emphasizing them the importance of learning population education.

The second predictor was the activity of teaching. The activity of teaching in SSK provides the students with real-life activity such as collecting, calculating, and creating population pyramid and diagram cycle which the data gathered by the students from BKKBN District Office. The activity also requires the student to observe the effect of urbanization in their perspective area, and conducting interview with societies such as interviewing the elderly people and giving them the information about a healthy life, interviewing infant mother and pregnant woman, interviewing their peers about the importance of reproductive health and the dangerous of narcotics [10]. Learning activities if based on real-life experience help learners to transform the information gained into their personal knowledge which influence their learning achievement. Sharma who studied the effect of real-life activity in the learning process on students' learning achievement and students' attitude towards real-life activity in Connecticut urban community found that attitude of student towards real-life activity were positive and the achievement of the classes receiving consistent exposure to real-life activities was greater than classes receiving only some of the special instructional treatments [18]. Therefore, in order to improve the students learning achievement, it is suggested for teachers and school sectors to add more real-life activities in the teaching and learning process of population education.

The third predictor that contributes on learning achievement in population education was the method of teaching. The method of teaching applied in SSK emphasized on the collaborative learning method. Teacher makes students more active through collaboration, classroom discussion, observation, identification, and problem solving [10]. Collaborative teaching method is a teaching strategy believed by educational

researchers could contribute on the students' learning achievement. Study conducted by Bhowmik who studied the effect of collaborative teaching method on students' learning achievement and the attitude of the students toward collaborative teaching method found that students' attitude was positive and their achievement also showed a statistically improvements [19]. This explain that teaching method work effective if they suit learners' needs since every learner interprets and responds to questions in a unique way. As such, alignment of teaching methods with students' needs and preferred learning would influence students' learning achievement. Therefore, in order to improve the students learning achievement, it is suggested for teachers to give more opportunities to the students to discuss, to observe, to identify, and to solve the problem in a group during the teaching and learning process of population education lesson.

Based on the result of this study which found that students attitude toward learning situation of population education were positive, and their achievement were also high, including that the factors that affecting learning achievement in population education were associated with the teaching and learning strategies under the program of SSK, therefore it reveals that this program is effective for students. It recommends to the Ministry of Education and Culture of Indonesia to suggest other senior high school to implement and applied the teaching and learning strategies of population education based on the model of SSK implemented in the pilot project of SSK in Sukabumi. However, BKKBN should also give the explanation to the educational sector why the program is important to be applied in school. If other senior high schools implement this program, and followed with the students' learning achievement in population education, it could contribute for the achievement of RPJMN (National Medium-Term Development Planning) of BKKBN which is the increasing percentage of youth knowledge and awareness on population problems in Indonesia.

However, this study was limited only on the students' attitude toward learning situation based on the teaching and learning population education in SSK as the factors affecting learning achievement which not include the students' motivation. For future study it is suggested to add the motivational factor. Considering that in Gardner's theory, motivational factor is another important aspect that need to be assessed. Besides, it is also suggested to find out the obstacles faced by the students during the teaching and learning process of population education in SSK which will give a valuable input to BKKBN and school sector who implementing the SSK program to overcome the problems.

CONCLUSION

This study found that students' attitude toward all aspects of learning situation of population education were high. This explain that students' like studying population education based on the learning situation of population education in the pilot project of SSK. Another finding is the students' learning achievement in population education which also rated at high level. Further, according to the factors that effecting students' learning achievement in population education, it was revealed that among five factors, only the attitude toward subject, activity of teaching, and method of teaching was found as the predictors affecting learning achievement which these three factors are associated with the teaching and learning of population education implemented under the pilot project of SSK.

From the findings, it can be understood that improving students' attitude toward learning population education in the pilot project of SSK will in turn increase their learning achievement. Therefore, teachers and school sectors should give more explanation to the students the importance of learning population education, add more real-life activities in the teaching and learning process, and provide more collaborative

learning for students so that they can discuss, observe, identify, and solve the problem from the task given together with their friends.

This study also reveals that SSK program is effective which contributes on the students' learning achievement. Therefore, it is recommends to BKKBN as the government institution who developed the SSK program to advocate the Ministry of Education and Culture of Indonesia in the Central, Provincial, and District Office, including other senior high schools to implement the teaching and learning process of population education based on the model of implemented in the pilot project of SSK in Sukabumi. Finally, for further studies it is suggested to see from the motivational aspect and the obstacles faced by the students' in learning population education.

REFERENCES

1. Nzobonimpa C, Zamroni Z. The implementation of population education in senior high school. *Research and Evaluation in Education*. 2017;3(2):124-132.
2. Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN). *Kedudukan dan Peran Pendidikan Kependudukan Dalam Mendukung Program KB Nasional-Analisis Masa Lalu dan Prospek Ke Depan (The Role of Population Education Supporting the National Family Planning Program-Analysis of the Past and the Future Prospects)*. Jakarta: BKKBN. 2010.
3. Darahim A. *Kedudukan dan Peran Pendidikan Kependudukan Dalam Mendukung Program KB Nasional (The Role of Population Education Supporting the National Family Planning Program)*. Jakarta: BKKBN. 2010.
4. Djoko S. *Role perception and commitment of high school population education: a case study in Yogyakarta province, Indonesia [dissertation]*. Florida: Florida State University; 1997.
5. John Hopkins University. *Population Education in Schools*. Maryland: Population Reports. 1982.
6. Badan Pusat Statistik. *Statistical Yearbook of Indonesia*. Jakarta: BPS. 2017.
7. BAPPENAS, BPS, UNFPA. *Proyeksi Penduduk Indonesia (Indonesia Population Projection)*. Jakarta: Badan Pusat Statistik. 2013.
8. Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN). *Survei Kinerja BKKBN Tahun 2017 (BKKBN Work Performance in 2017)*. Jakarta: BKKBN. 2017.
9. United Nations. *Integrating Population Issues into Sustainable Development*. New York: UN. 2015.
10. Badan Kependudukan dan Keluarga Berencana Nasional (BKKBN). *Modul Pembekalan Guru SMA Dalam Pengintegrasian Pendidikan Kependudukan Tahun 2015 (Senior High School Teachers' Module in Integrating Population Education in 2015)*. Jakarta: Ditpenduk BKKBN. 2015.
11. Masgoret AM, Gardner RC. Attitudes, motivation, and second language learning: A meta-analysis of studies conducted by Gardner and associates. *Language Learning*. 2003;53(1): 167-210.
12. Gardner RC. *Language learning motivation: The student, the teacher, and the researcher*. Texas Paper in Foreign Language Education. 2001;6(1):1-18.
13. Osgood, CE, Suci GJ, Tanenbaum PH. *The measurement of meaning*. Oxford, England: Univer. Illinois Pres. 1957
14. Gardner R C. *Social psychology and second language learning. The role of attitudes and motivation*. London: Edward Arnold. 1985.
15. Wood W. Attitude Change: Persuasion and Social Influence. *Annual Review of Psychology*. 2000;51(1): 539-570. DOI:10.1146/annurev.psych.51.1.539.
16. Weinburgh MH. *Gender, Ethnicity, and Grade Level as Predictors of Middle School Students' Attitudes Toward Science*. 2000 [cited 2019 Feb 23] Available from: <https://eric.ed.gov/?id=ED442662>
17. El-Omari AH. *Factors Affecting Students Achievement in English Language Learning*. *Journal of Educational and Social Research*. 2016;6(2). DOI:10.5901/jesr.2016.v6n2p9.
18. Sharma JK. *Effect of Instructional Videos and Real-life Mathematics Activity on Student Achievement and Attitude in a Community College Transitional Mathematics Course [dissertation]*. New York: Columbia University; 2018 [cited 2019 Feb 22]. Available from: <https://academiccommons.columbia.edu/doi/10.7916/D84474DB>.
19. Bhowmik M. *Impact of Collaborative Learning on Academic Achievement in Mathematics of Secondary Students in the School Hostel in Rural Area in India*. *British Journal of Education, Society & Behavioural Science*. 2016;14(1): 1-7. DOI:10.9734/bjesbs/2016/19819