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Research Article

Effectiveness of Computer-assisted Teaching Program and Lecture Method on the Effect of Junk Food on Health among the Adolescence in Selected Schools of Digboi, Tinsukia

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Abstract

Aim: A comparative study was conducted to evaluate the effectiveness of computer-assisted teaching program and lecture methods on the effect of junk food on health among the adolescence in selected schools of Digboi, Tinsukia.

Methodology: A descriptive comparative research design was adopted to collect data with the help of self-structured knowledge questionnaire from 60 adolescence selected using simple random method. The 60 adolescents were the students of Class VIII section (B) of Carmel School and Little Star Sr. Sec School, Digboi.

Results: The collected data were arranged and analyzed and it was found that the post-test mean knowledge of students on "The ill effects of junk foods on health" gained through computer-assisted teaching is 19.83 with standard deviation of 2.49. The post-test mean knowledge of students on "The ill effects of junk foods on health" gained through lecture method of teaching is 16.5 with standard deviation of 2.38. It was found that the tabulated "t" value (2.00) is more than calculated "t" value (1), so the research hypothesis is accepted. The present study shows that the computer-assisted teaching method is more effective than lecture method the assumption of researcher that computer-assisted teaching method is more effective than lecture method is accepted.

Conclusion: Based on the comparison of level of knowledge of the students gained through computer-assisted teaching and lecture method, it is concluded that computer-assisted teaching method is more effective than lecture method while providing knowledge to the adolescents.

Keywords: Adolescence, assisted, comparative, computer, effect, effectiveness, evaluate, health, junk food, lecture method, schools, students, teaching method, teaching

Introduction

Teaching in an educational institution involves a teacher's physical acts to convey knowledge, know-how, and interpersonal skills to a learner, student, or other audience. Teaching has a direct relationship to learning, which is the process by which students acquire knowledge.[1] The larger idea of education includes teaching.[2] Improvements in technology have pushed the education sector in the last few decades and have changed education methods. Many educators still choose to practice a more old-fashioned, low-tech method to teaching and learning. Some research has revealed that low-tech classrooms may enhance teaching and learning, work better, and give better result.[3]

Students at old-fashioned lecture faced problem on capturing what is really said from the teacher and eventually resolved by reversed classrooms with the help of allotment visual aids such as videos to gather extra lecture details before it starts.[4]

Date of Submission: 14-06-2023
Date of Revision: 20-07-2023
Date of Acceptance: 25-07-2023

Access this article online
Website: http://innovationalpublishers.com/Journal/ijnr
ISSN No: 2454-4906
DOI: 10.31690/ijnr.2023.v09i03.015

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The findings of the research study by Koch and Guide on teaching electrocardiography: Computer-assisted learning versus lecture method revealed that computer-assisted learning displayed more positive affective responses of the students.[5]

While the study by Gega *et al*. in a randomized controlled experiment conducted with pre-registration nursing students, the efficacy of computer-aided teaching versus tutor-delivered teaching of exposure therapy for phobia/panic was investigated. The results indicated that when utilized in isolation, both methods demonstrated effectiveness, both teaching techniques led to parallel improvements in knowledge and skills as well as parallel satisfaction. Computer-assisted self-instruction was more effective since it eliminated the requirement for a specialized instructor and reduced preparation and delivery time for teachers.[6]

Lecture method is the first-born inexpensive method of teaching for enlightenment of a topic to a bigger group of learners where teachers are more active and students are passive. It provides a chance for better clarification of the topics.[7]

Teaching and learning supported by computers makes learning entertaining. To improve the standard of instruction and to create teachers who are knowledgeable and capable of using information technology's tools, teachers should receive enough training.[8]

The term "junk food" is commonly used to refer to diets that contain a great deal of calories but offer very little in the way of nutritional value.[9] Adolescence is a distinct period in human development that occurs between childhood and maturity and is characterized by a period of fast growth in all aspects of physical, cognitive, and psychosocial development.[10]

Students of today are becoming more accustomed to visual tools such as television, video, computers, and the internet. It is impossible to pique the interest of young children utilizing antiquated techniques that were employed in the past. Conveying knowledge to the students becomes difficult through traditional methods. Therefore, the researcher of this study decided to conduct this study to evaluate the effectiveness of computer-assisted teaching program and lecture method on the effect of junk food on health among the adolescence in selected schools of Digboi, Tinsukia.

Materials and Methods

Research approach

This was a quantitative research approach.

Research design

This study was descriptive comparative design.

Setting of the study

The present study was conducted in Carmel School and The Little Star Senior Secondary School, Digboi, Tinsukia, Assam.

Variable of the study

Independent variable

The computer-assisted teaching method and lecture method on effects of junk food on health among the adolescence.

Dependent variables

The knowledge on effects of junk food on health gain through computer-assisted method and lecture method among the adolescence.

Selected demographic variables

Age, gender, type of family, educational status of parents, occupational status of parents, and type of residence.

Population of the study

The adolescent students of selected schools of Digboi, Tinsukia, Assam.

Target population

The Class VIII Students of Carmel School and the Little Star Senior Secondary School, Digboi, Tinsukia, Assam. The total target population is 162.

Accessible population

The accessible population for the study was the Class VIII Section B Students of Carmel School and The Little Star Senior Secondary School, Digboi, Tinsukia, Assam. The total accessible population is 66.

Sample

Sixty students from Class VIII Section B of Carmel School and The Little Star Senior Secondary School, Digboi, Tinsukia, Assam.

Sample size

The sample size was 60.

Sampling technique

Simple random Technique.

Development and description of tools

Data collection tools

Developed in two parts.

- Part A: Demographic Pro forma: Age, gender, type of family, educational status of mother, educational status of father, occupation of mother, occupation of father, type of residence, and type of food.
- Part B: A self-structured knowledge questionnaire was prepared to evaluate the effectiveness of computer-assisted teaching program and lecture method on the effect of junk food on health among the adolescence. Validation of the tool was done.

Plan for data analysis

Descriptive and inferential statistics were used to analyze the data.

Data collection procedure

A formal written permission was taken from the principal of Carmel School and The Little Star Senior Secondary School,

Digboi, Tinsukia, Assam 60 students., that is, 30 students from Class VIII (B) of Carmel School and 30 students from Class VIII (B) of the Little Star Senior Secondary School, Digboi, Tinsukia, Assam, who were present at the time of data collection were selected using simple random technique. The purpose of the study explained to the participated students and a written consent was taken from each participant. The pre-test was conducted using the self-structured questionnaire. It took 1 h to fill the questionnaire by the students and filled questionnaires were collected in the same sitting. Teaching on "The ill effects of junk foods on health" using computer-assisted teaching method was given to 30 students of Class VIII (B) of Carmel School. The post-test was conducted 7 days after the teaching. Teaching on "The ill effects of junk foods on health" using lecture method was given to 30 students from Class VIII of the Little Star Senior Secondary School, Digboi. The post-test was conducted 7 days after the teaching program.

Results

The findings of the study were arranged and analyzed under the following section.

Section 1: This section deals with the selected demographic characteristics of the students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia.

Table 1 shows that 77% of students belong to the age group 13–14 years, 12% of students belong to the age group <13 years, 10% of students belong to the age group 14–15 years, and 2% of students belong to the age group more than 15 years.

Table 2 shows that 36% of students are male, 24% of students are female, and 0% is other.

Table 3: shows that 60% of students belong to nuclear family, 38% of students belong to joint family, and 2% of students belong to extended family.

Table 4 shows that father of 27 students are graduate and above, father of 14 students passed HS, father of 12 students passed high school, father of six students passed middle school, no student's father found in primary school passed, and father of 2% of students had no formal education.

Table 5 shows that mother of 35% students are graduate and above, mother of 20% students have passed HS, mother of 38% students passed high school, mother of 3% students passed middle class, mother of 2% students passed primary school, and mother of 2% had no formal education.

Table 6 shows that father of 26 students are self-employee, father of 19 students are private employee, father of 14 students are Government Employee, and father of one student is retired.

Table 7 shows that mother of 50 students are housewife, mother of one student is self-employed, mother of four students are private employee, mother of five students are Government Employee, and mother of no students found retired.

Table 1: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam according to their age

Age (years)	Frequency	Percentage
<13	7	11.67
13–14	46	76.67
14–15	6	10
more than 15	1	1.66

Table 2: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to gender

Gender	Frequency	Percentage
Male	36	60
Female	24	40
Other	0	0

Table 3: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their type of family

Type of family	Frequency	Percentage
Nuclear	36	60
Joint	23	38.34
Extended	1	1.66

Table 4: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their education of father

Education of Father	Frequency	Percentage
No formal education	1	1.67
Primary school passed	0	0
Middle school passed	6	10
High school passed	12	20
HS	14	23.33
Graduate and above	27	45

Table 5: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their education of mother

Education of mother	Frequency	Percentage
No formal education	1	1.66
Primary school passed	1	1.66
middle school passed	2	3.34
high school passed	23	38.34
HS	12	20
Graduate and above	21	35

Table 8 shows that 40 students stay at their own residence, nine stay at rented house, eight stay at hostel, and three stay at relative house.

Table 9 shows that 44 students prefer homemade food, 15 students prefer junk foods, and one student prefer other food

Table 6: Frequency and percentage distribution of students of Carmel school and the little stars senior secondary school, Digboi, Tinsukia, Assam, according to their occupation of father

Occupation of Father	Frequency	Percentage
unemployed	0	0
self-employee	26	43.34
private employee	19	31.66
government employee	14	23.33
retired	1	1.67

Table 7: Frequency and percentage distribution of students of Carmel School and The Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their occupation of mother

Occupation of Mother	Frequency	Percentage
Housewife	50	83.33
Self-employee	1	1.67
private employee	4	6.66
Government employee	5	8.34
retired	0	0

Table 8: Frequency and percentage distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their type of residence

Type of residence	Frequency	Percentage
Hostel	8	13.33
Own residence	40	66.67
relative house	3	5
rented house	9	15

Table 9: Frequency and percentage distribution of students of Carmel school and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their types of food prefer

Type of food prefer	Frequency	Percentage
Homemade	44	73.33
Junk food	15	25
Others	1	1.67

Table 10: Frequency and percentage distribution of students of Carmel school and the Little Stars Senior Secondary School, Digboi, Tinsukia, Assam, according to their past hospitalization

Past Hospitalization	Frequency	Percentage
Once	11	18.33
Twice	4	6.67
More Than Twice	6	10
Never	39	65

Table 10 shows that 65% of students never get hospitalized, 18% of students get hospitalized once, 7% twice, and 10% more than twice.

Section 2: This section deals with the comparison of level of knowledge of computer-assisted teaching method and lecture method.

Table 11: Mean and standard deviation value of the post-test knowledge on "The ill effects of junk foods on health" gained through computer-assisted teaching method and mean and standard deviation value of the knowledge on "the ill effects of junk foods on health" gained through lecture method

Teaching method	Mean	Standard deviation
Computer-assisted teaching	19.83	2.49
Lecture method	16.5	2.38

Table 11 shows that the post-test mean knowledge of students on "The ill effects of junk foods on health" gained through computer-assisted teaching is 19.83 with standard deviation of 2.49.

The post-test mean knowledge of students on "The ill effects of junk foods on health" gained through lecture method of teaching is 16.5 with standard deviation of 2.38.

Table 12 shows that 34 (56.66%) of students of Carmel School had adequate knowledge, 26 (43.34%) of students of Carmel School had moderately adequate knowledge, and no students of Carmel School had inadequate knowledge on "the ill effects of junk foods on health" after the teaching given through computer-assisted teaching method on "the ill effects of junk foods on health."

Table 12 shows that 12 (20%) of students of the Little Stars Senior Secondary School of Digboi, Tinsukia had adequate knowledge, 38 (63.34%) of students of the Little Stars Senior Secondary School of Digboi had moderately adequate knowledge, and 10 (16.66%) students of the Little Stars Senior Secondary School of Digboi had inadequate knowledge on "the ill effects of junk foods on health" after the teaching given through lecture method on "the ill effects of junk foods on health."

Section 3: This section deals with the comparison of effectiveness of teaching between computer-assisted teaching method and lecture method.

Table 13 depicts that tabulated "t" value (2.00) is more than calculated "t" value (1), so the research hypothesis is accepted. The assumption of researcher that computer-assisted teaching method is more effective than lecture method is accepted.

Discussion

The present study reveals that knowledge gained by the students of Carmel School and the Little Stars Senior Secondary School, Assam, on "The ill effects of junk foods on health" through the teaching method of both the lecture approach and online-assisted instruction was found adequate and moderately adequate, respectively.

The findings of the study were discussed with reference to the objectives of the study, that is, to assess the post-test level of knowledge of the teaching on "the ill effects of junk foods on health" given through computer-assisted teaching among the

Table 12: Frequency and percentage and distribution of students of Carmel School and the Little Stars Senior Secondary School, Digboi, Tinsukia, as per the level of knowledge gained on "The ill effects of junk foods on health" through computer-assisted teaching method and lecture method

Specification of the students	Method of teaching	Frequency distribution of the students	Percentage distribution of the students (%)	Level of knowledge
Students of Class VIII, Carmel School, Digboi	Computer-assisted teaching	34	56.66	Adequate
		26	43.34	Moderate
		0	0	Inadequate
Students of Class VIII, the Little Stars Senior Secondary School, Digboi, Tinsukia.	Lecture method	12	20	Adequate
		38	63.34	Moderate
		10	16.66	Inadequate

Table 13: Post-test mean, standard deviation, paired t-value, df, tabulated value to compare the effectiveness of between computer-assisted teaching method and lecture method

Teaching method	Mean value	Standard deviation	Paired t-value	df	Tabulated value
Computer-assisted teaching	19.83	2.49	1	59	2.00
Lecture method	16.5	2.38			

students of Carmel School and to assess the post-test level of knowledge of the teaching on "the ill effects of junk foods on health" given through lecture method among the students of the Little Stars Senior Secondary School.

The present study shows that 34 (56.66%) of students of Carmel School had adequate knowledge, 26 (43.34%) of students of Carmel School had moderately adequate knowledge, and no students of Carmel School had inadequate knowledge on "the ill effects of junk foods on health" after the teaching given through computer-assisted teaching method on "the ill effects of junk foods on health."

The present study also shows that 12 (20%) of students of the Little Stars Senior Secondary School of Digboi, Tinsukia had adequate knowledge, 38 (63.34%) of students of the Little Stars Senior Secondary School of Digboi had moderately adequate knowledge, and 10 (16.66%) students of the Little Stars Senior Secondary School of Digboi had inadequate knowledge on "the ill effects of junk foods on health" after the teaching given through lecture method on "the ill effects of junk foods on health."

The results of the present study are also consistent with a comparison of the effectiveness of traditional lectures versus computer-assisted learning conducted by Aruna and Thenmozhi, which found that computer-assisted instruction, was more effective than lectures.[11]

The findings of the present study also support the findings of the study conducted by Padmanaban on computer-assisted instruction (CAI) and lecture Method: A comparative study where it was revealed that the CAI was best suitable teaching method for both open and distance learning.[12]

The results of this study are similar to those of a study by Jacqueline Bloomfield and her colleagues called "The impact of computer-assisted learning versus traditional teaching methods on the acquisition and retention of hand washing theory and skills in pre-qualification nursing students: A randomized controlled trial." In that study, it was found that the computer-assisted learning module was an effective way to teach nurses both the theory and practice of hand washing.[13]

The findings of the present study are also supported by a study by Kausar *et al*. entitled "A comparative study to evaluate the effectiveness of CAI versus class room lecture for Computer Science," in which the researchers recommended using CAI as a successful teaching strategy to enhance teaching quality and to eliminate linguistic, regional, and ethical biases between students.[14]

The results of this study disagree with the results of a study done by Rogers *et al*. on computer-assisted learning versus a lecture and feedback seminar (LFS) for teaching a basic surgical technical skill. In that study, it was found that the CAL group did not learn this skill as well as the LFS group.[15]

Conclusion

From the findings of the present study and discussion with the findings of various research studies, the researcher came to the conclusion that the computer-assisted teaching method is more effective than the lecture method for imparting knowledge to the adolescent students in schools.

Acknowledgment

The authors gratefully acknowledge the participants of the study for their participation in the study and expresses deep appreciation to the principals of both the school for their cooperation and support for successful conduction of the study.

Conflicts of Interest

The writers say that they do not have any competing interests.

Funding

No funding sources.

References

1. Musial M, Pradere F, Tricot A. How to Design a Teaching Course. Brussels: De Boeck; 2012.
2. Chessex-Viguet C. Penser l'école. Paris: L'Harmattan; 2015. Available from: https://worldcat.org/oclc/922630409 [Last accessed on 2023 Jun 13].
3. Available from: https://teach.com/what/teachers-know/teaching-methods [Last accessed on 2023 Jul 25].
4. Asiri AM. Teaching methods with high tech learning in teacher centered such as flipped classrooms and student centered such as debate theory. Multi-Knowl Electron Compr J Educ Sci Publ 2019;17:87-94.
5. Koch B, Guice R. Teaching electrocardiography: Computer assisted learning vs lecture method. Aust J Adv Nurs 1989;6:33-9.
6. Gega L, Norman IJ, Marks IM. Computer-aided vs. Tutor-delivered teaching of exposure therapy for phobia/panic: Randomized controlled trial with pre-registration nursing students. Int J Nurs Stud 2007;44:397-405.
7. Available from: https://en.m.wikipedia.org/wiki/lecture [Last accessed on 2023 Jul 25.]
8. Sheppard R. March of the Laptops: Is Technology Overtaking the Classroom ? MacLean; 98. Available from: https://www.encyclopedia.com/science-and-technology/computers-and-electrical-engineering/computers-and-computing/computer-assisted-instruction [Last access on 2023 Jul 25].
9. Magee E. Junk-Food Facts. New Delhi: Nourish. Available from: https://www.webmd.com/diet/features/junk-food-facts [Last accessed on 2023 Jun 07].
10. Available from: https://www.who.int/health-topics/adolescent-health#tab=tab_1 [Last accessed on 2023 Jul 25].
11. Aruna S, Thenmozhi P. Comparative study to assess the effectiveness of lecture method of learning versus computer assisted learning. Int J Adv Inf Commun Tech 2014;1:11-14.
12. Padmanaban S. Computer Assisted Instruction and Lecture Method: A Comparative Study; 2018. Available from: https://www.researchgate.net/publication/325688782_computer_assisted_instruction_lecture_method_a_comparative_study [Last accessed on 2023 Jul 26].
13. Bloomfield J, Roberts J, While A. The effect of computer-assisted learning versus conventional teaching methods on the acquisition and retention of handwashing theory and skills in pre-qualification nursing students: A randomised controlled trial. Int J Nurs Stud 2010;47:287-94.
14. Kausar T, Choudhry BN, Gujjar AA. A comparative study to evaluate the effectiveness of computer assisted instruction (CAI) versus class room lecture (CRL) for computer science at ICS level. Turk Online J Educ Technol 2008;7:2.
15. Rogers DA, Regehr G, Yeh KA, Howdieshell TR. Computer-assisted learning versus a lecture and feedback seminar for teaching a basic surgical technical skill. Am J Surg 1998;175:508-10.

How to cite this article: Baruah AP, Chetia M. Effectiveness of Computer-assisted Teaching Program and Lecture Method on the Effect of Junk Food on Health among the Adolescence in Selected Schools of Digboi, Tinsukia. Int J Nur Res. 2023;9(3):88-93