

A Design Thinking Based Study to Assess the Effectiveness of Computer Assisted Teaching on Knowledge and Attitude Regarding Organ Donation Among Non-Health Professional Students at Selected College in Coimbatore

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Article History	Abstract
Received: 06 June 2023 Revised: 05 Sept 2023 Accepted: 14 Dec 2023	Design thinking is generally defined as an analytic and creative process that engages a person in opportunities to experiment, create and prototype models, gather feedback, and redesign. Design Thinking Approach is adopted to carry out the research to correlate the knowledge and attitude among non-health professional students. Objectives: (a) To assess the pre-test and post-test level of knowledge and attitude regarding organ donation among non-health professional students. (b) To assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non-health professional students. (c) To find out the association between post-test level of knowledge and attitude regarding organ donation and the selected demographic variables among non-health professional students. (d) To assess the correlation between knowledge and attitude regarding organ donation. Methodology: The research design used was a pre-experimental one group pretest and posttest design. The samples for the study were chosen by using convenient sampling technique, The sample size was 50. Results: Karl Pearson correlation test was used. It reveals that there is effectiveness present in the group. Conclusion: Organ donation is a huge public health concern worldwide. The biggest advantage to organ donation is, it saves lives that would otherwise be lost. A single organ donor has the chance to save the lives or improve the quality of life for several people. So, the organ donation should be encouraged and the people should be motivated to donate their organs by conducting periodical educational programmes regarding organ donation.
CC License CC-BY-NC-SA 4.0	Keywords: Design Thinking, Effectiveness, Teaching, Knowledge, Attitude, Organ donation

1. Introduction Empathy

With Empathy approach Organ donation is a unique social activity that has a direct influence on the delivery of healthcare to a wide range of patients. Transplantation is the treatment of choice that improves life expectancy and quality of life. In addition, transplantation contributes to reducing healthcare expenditure. The donation and transplantation system represents a complex practice and is dependent on individual attitudes, social structures, cultural practices and religious beliefs. Advances in immunology and surgical techniques are transforming organ transplant is an important therapeutical option.

Organ donation is the donation of biological tissue or an organ of the human body, from a living or dead person to a living recipient in need of a transplantation. Organs can be donated by three types of donors that is living, brain-dead and dead donors. A living donor can donate his/ her one kidney, a segment of liver, a portion of pancreas and intestine and even a lobe of lung. After cardiac death, as blood circulation stops, the solid organs become unusable for transplantation. So, solid organs like heart, lung liver, pancreas and kidney can be donated by brain-dead donors as blood still circulates in these

organs at the time of retrieval. But tissues like corneas, bone, skin and heart valves can be donated within first 24 hrs of cardiac death.

It has increased dramatically the number of patients waiting for organ donation. Demographic, socioeconomic and cultural characteristics have been related with different prevalence of willingness to organ donation among population. One of the main limiting factors for organ donation is the low amount of families that consent to donation. When the individual willingness to donate, organs is previously communicated to the family, they become more inclined to permit the donation. The rate of willingness to organ donation in developed countries is around 50-75% but in developing countries it is little known.

The prerequisites for the success of a transplantation program include awareness, positive attitude of the public toward organ donation and consent by relatives for organ donation in the event of brain death. Lack of knowledge and understanding about organ donations, religious attitudes, and superstitious beliefs have generated fear and mistrust in the minds of the common man and, especially, the terminally ill patients. To give a better understanding about organ donation, we are in need of educating the public thus by we can promote the awareness and positive attitude towards organ donation.

The demand for organ transplantation has rapidly increased all over the world during the past decade due to the increased incidence of vital organ failure, the rising success and greater improvement in post-transplant outcome. However, the unavailability of adequate organs for transplantation to meet the existing demand has resulted in major organ shortage crises. As a result, there has been a major increase in the number of patients on transplant waiting lists as well as in the number of patients dying while on the waiting list. Knowledge gap and misunderstandings about organ donation have generated fear and mistrust in people's mind thereby preventing them from coming forward.

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Objectives:

- (a) To assess the pre-test and post-test level of knowledge and attitude regarding organ donation among non-health professional students.
- (b) To assess the effectiveness of computer assisted teaching on knowledge and attitude regarding organ donation among non-health professional students.
- (c) To find out the association between post-test level of knowledge and attitude regarding organ donation and the selected demographic variables among non-health professional students.
- (d) To assess the correlation between knowledge and attitude regarding organ donation.

Hypothesis:

- H1: There is a significant difference between the pretest and post-test level of knowledge and attitude regarding organ donation among non-health professional students.
- H2: There is a significant association between the post-test level of knowledge and attitude regarding organ donation and their selected demographic variables among non-health professional students.
- H3: There is a significant correlation between knowledge and attitude regarding organ donation.

Review of Literature (Define)

A define approach is the Aparajita Dasgupta et.al, (2014) conducted a observational cross sectional study to find out the perception of people regarding organ donation in a slum area of Chetla, Kolkata. 110 adults aged 18 years and above were selected by simple random sampling method. Data was collected by distributing the semi structured questionnaire. Data analysis was done by using R software. Univariate logistic regression was used to test the significance of the variables in influencing knowledge and attitude regarding organ donation. Significant variables in bivariate analysis were further assessed by multivariate logistic regression analysis. The study found that none of them knew that apart from Eye and Kidney other organs can also be donated. 84.5% were aware of the term organ donation, 70.9% didn't have any preference organ donation to any particular religion. Although 35.5% would donate an organ if required only 11.8% were ready to sign a card regarding donation after death. 40.5% have said that they would take money in exchange of organ donation. Our study has found fear (63.4%) as the main reason for not donating organs followed by possible objection from family (36.6%). 40% and

43.6% of people have satisfactory knowledge and attitude respectively. The study concluded that mass awareness campaigns are necessary to promote organ donation.

Agarwal (2014) conducted a cross sectional study to determine the level of knowledge among medical students regarding organ donation and their overall attitude towards the concept of organ donation at Mandya Institute of Medical Sciences, Mandya, Karnataka. 393 students participated in the study were selected by simple random sampling. Questionnaire in the form of true or false for knowledge, five-point Likert scale for attitude were distributed to collect the data. Data was analyzed by SPSS version 10. Chi square test was used to find out the association. The study found that all the students knew about organ donation and Majority 55.2% answered media as their major source of information. 300 students (76.3%) answered that brain dead persons can be considered for organ donation. 76.8% students regarded infections as a contraindication to organ donation. Heart and kidney was majorly answered as the organs that can be donated. 90.4% agreed that organ donation is a gift of life to another individual, though only 57.3% were willing to donate their organs. 14.2% believed their religion does not allow them to donate organs, while 7.4% believed that organ donation may disfigure their body after death. The study concluded that medical students have positive attitude towards organ donation and there was a high-level motivation and desire among the students to learn more on this topic of organ donation.

2. Materials And Methods

The research design selected for the present study was pre-experimental with one group pretest and post-test design, in which pretest was conducted, followed by Computer Assisted Training regarding organ donation and then conducted post- test for the same group.

The target population consists of the total membership of a defined set of samples are selected and to whom the data will be generalized. In this study the target populations were Non health professional students.

Accessible population refers to the aggregate of cases which confirm to the designed criteria and which is accessible to the researcher as the pool of subject or object. In this research the accessible populations were the first year B.E engineering students at Sns college of Engineering. Sample size is the number of participants in the study. The sample size is determined based on the type of study, variables being studied, the statistical significance required, and availability of samples and feasibility of conducting the study. The sample size for this study was arbitrarily decided to be 50. In this study researcher selected the samples by convenient sampling method.

Description of the Tool:

Description of the tool refers to the explanation of the content of the tool. The researcher listed the number of items and the scoring for each item in the tool. The tool for data collection consists of following sections: -

Part 1: Socio-demographic variables It deals with demographic variables which include Age, Gender, Religion, Residential area, regarding organ donation, Sources of information, Willingness to donate relative's organ.

Part 2: Knowledge questionnaire regarding lifestyle practice This part consists of 30 multiple choice questions which will be very helpful to assess the knowledge regarding organ donation before and after the computer assisted teaching programmed. The Knowledge regarding organ donation was measured in terms of knowledge score. Each correct answer was given a score of one mark and wrong answer or unanswered was given a score of zero. The maximum score was 30 and the minimum score was Zero.

Part 3: Attitude rating scale it allows the participants to express their opinion regarding organ donation. The scale consists of 10 statements to assess the tendency of the participants towards organ donation. Each statement has four options like Strongly Agree, Agree, Disagree, strongly disagree and the scores were distributed as 4,3,2,1. The maximum score is 40 and the minimum score is 1.

Data collection Procedure (Prototype)

The main study was conducted in sns Institution, Coimbatore. Data was collected for 4 weeks. After obtaining official permission from the concerned authorities screening was done with the help of the professors working in the college to select the samples. Total of 500 students 50 participants from BE first year were selected by convenient sampling technique. Before collecting the data, informed consent was obtained from the participants by considering the ethical aspect of the research. The samples were assured anonymity and confidentiality of information provided by them. Selected groups were taken to provide the Computer Assisted Teaching on the first day. Before the Computer Assisted Teaching,

pretest was conducted by distributing the structured questionnaire. One week after the pretest selected group was exposed to the educational programme. Post test was conducted with the same participants by using the same questionnaire after seven days of Computer Assisted Teaching.

3. Results and Discussion

Section I: Data on selected demographic variables of non-health professional students participated in the study

Section II: Data on pre and posttest level of knowledge and attitude regarding organ donation among non-health professional students

Section III: Data on effectiveness of computer assisted teaching programmed regarding organ donation among non-health professional students

Section IV: Data on association between posttest level of knowledge and attitude and the selected demographic variables among non-health professional students Section V: Data on correlation between posttest level of knowledge and attitude regarding organ donation among non-health professional students.

Data on Correlation Between Level of Knowledge and Attitude Regarding Organ Donation among Non-Health Professional Students

Knowledge and Attitude Regarding Organ Donation

Table 1: Mean, Standard Deviation and 'r' value on the Post Test Level of Knowledge and Attitude Regarding Organ Donation

Post Test	Mean	SD	'r' Value of Knowledge and Attitude
Knowledge	20.22	4.54	0.001
Attitude	24.64	6.79	

Table 1 Shows the correlation between posttest level of knowledge and attitude regarding organ donation among non-health professional students. The posttest knowledge mean was 20.22 with SD 4.54 and the attitude mean was 24.64 with SD 6.79 and the obtained 'r' value was 0.001 which was calculated by karl pearson correlation coefficient method. It was found to be positively correlated. Hence, it was inferred that when the knowledge was increased, attitude also changed

The major findings of the study were classified under following headings.

I. Findings related to selected demographic variables of non-health professional students in experimental group. Among the non-health professional students 48(96%) were between 17-18 years of age, 26(52%) were males, 41(82%) belong to Hindu religion, 38(76%) was living in urban area, all of them were in the first year, 28(56%) knew about organ donation, 10(35%) knew about organ donation through media, 42(84%) were willing to donate their organs, 46(92%) were willing to donate their relative's organ.

II. Findings on pre and posttest level of knowledge and attitude regarding organ donation among non-health professional students.

Regarding knowledge, among 50 participants in pretest majority 43(86%) had inadequate knowledge and 7(14%) had moderately adequate knowledge. The posttest was administered after computer assisted teaching. The posttest knowledge scores showed a significant difference. In posttest, Majority of them 32(64%) gained adequate knowledge and 18(36%) had moderately adequate knowledge.

Regarding attitude, in pretest majority 38(76%) had negative attitude and only 12(24%) had positive attitude. After computer assisted teaching majority 34(68%) changed their attitude from negative to positive and only 16(32%) showed negative attitude towards organ donation.

III. Findings effectiveness of computer assisted teaching regarding organ donation among non health professional students

Regarding knowledge, in pretest the obtained overall mean score was 7.94, Standard deviation was 2.71, mean percentage 15.88% and range was 12. The obtained overall posttest mean score was 20.22 and standard deviation was 4.54, mean difference 40.44% and the range was 15. The mean difference was 2.28 and the obtained 't' value 17 was significant at $P < 0.05$ level.

Regarding attitude, in pretest the obtained overall mean score was 16.42, standard deviation was 5.64, mean percentage was 32.84% and range was 17. The obtained over all posttest mean was 24.64 and standard deviation was 6.79 mean percentage was (49.28%) and the range was 23. The mean difference was 8.22 and the obtained 't' value was 11.20 at significant $P < 0.05$ level.

IV. Findings on correlation between posttest level of knowledge and attitude regarding organ donation among non-health professional students. The posttest knowledge mean was 20.22 with SD 4.54 and the attitude mean was 24.64 with SD 6.79. The obtained r value was 0.001 which was calculated by Karl Pearson correlation coefficient method. It was found to be positively correlated.

V. Findings association between the posttest level of knowledge and attitude and the selected demographic variable among non-health professional students. The selected demographic variable willingness to donate organ was significant with the posttest level of knowledge at $P < 0.05$. Hence the Hypothesis 2 was accepted.

4. Conclusion

Organ donation is a huge public health concern worldwide. The biggest advantage to organ donation is, it saves lives that would otherwise be lost. A single organ donor has the chance to save the lives or improve the quality of life for several people. Families of organ donors may be able to correspond with the recipients of loved one's organs, which may give them that the sense that some good came out of tragedy, particularly if the donor were very young. It gives the sense that all life is sacred and one recipient is not more valuable than another. When the organs are donated to the persons belong to different religion, indirectly it helps the community to grow in love, affection, tenderness, humanity, etc. etc. So, the organ donation should be encouraged and the people should be motivated to donate their organs by conducting periodical educational programme regarding organ donation.

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