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Dr. Suresh Patil

Asst. Professor of Physical Education, College of Horticulture Munirabad, Tq- Dist-Koppal, Karnataka.

Hanamanth M Talawar

Physical Director, Biluru Gurubasava Mahaswamiji Institute of Technology Mudhol, Bagalkot. Karnataka.

Vithal D Metri

Physical Education, Bagalkot

Construction and standardization of model knowledge test for high school students of Karnataka state

Dr. Suresh Patil, Hanamanth M Talawar, Vithal D Metri

Abstract

The study attempted to construct and standardized a knowledge test based on physical education text Books to assess health awareness among high school students of Karnataka state. For this purpose a questioners was structure and then various measures were adapted to find out its Reliability and validity. Subjects for this study were sixteen Boy's and Girls studying in Ninth Standard of nation high school B.R project during the academic year 2014-15 their age reigned between 14 to 16 years. The questioner was administered twice with a times spin of 20 days in between, prior to this a pilot study was conducted on a similar group in order to resolve ambiguities. The data thus collected during vacations and the marks squared during class test in general science subject were statistically treated using mean, standard Deviation and Pearson product movement co-relation. The adopted volume of was treated for significance at 0.05 levels The Result of the study revealed that the questioners was acceptably high in Reliability and very low in terms of validity.

Keywords: Knowledge, Physical Health, Health and Wellness

Introduction

Children are most important asset of a nation. If one is concerned about the future of one's country then one must think about what is happening to its nation's children Scope of Health Education is very important. It has a very wide scope. It is closely related to many other aspects besides health. These aspects include housing economic security agricultural and industrial prosperity. Normally health education includes: The balanced and nutritive diet and now it should be prepared. Knowledge of the structure of the various organs of the body. Knowledge of the functioning various common diseases their causes symptoms precautionary measures and cure. Sanitation of home, school, neighborhood, community slums over crowded cities, factory areas, markets, villages etc. To develop a sense of civic responsibility. The sewerage system arrangements for fresh water supply, the sanitary arrangements in the city, health canters and their functioning.

School is a miniature society; responsibility of ill-health does not lie on any one's shoulders. Even some causes of ill health have their origin in social conditions which require action on the part of community as a whole in order to eradicate them. It aims at realizing the people to make combined efforts and work for common good. Thus we see that the scope of health education is very wide indeed, it touches all branches of life, namely personal life, school life and community life.

Physical Health

One who has good physical health is able to use life more fully than one who is ill. Alexis Corel said 'The quality of life is more important than life itself'. This is one of the life's real lessons and blessed is he who masters it while a young child. According to Park, the physical health is not only a good complexion, clean skin bright eyes, lustrous hair, firm flash, optimum fat and coordinated movement but it also covers sweet breath good aptitude with normal functioning bowel and bladder. The child must get sound sleep for needed hours in relation to age. Along with physical health, the fitness is also to be kept in mind, strength, power, flexibility, agility, resting, pulse rate and recovery rates after exercise etc. All special senses should work in harmony occurred within the range of normality.

Correspondence

Dr. Suresh Patil

Asst. Professor of Physical Education, College of Horticulture Munirabad, Tq- Dist-Koppal, Karnataka.

Health Education

Education for keeping, maintaining good health and avoiding harmful as agents may be understood as health, education. But it has the wider meaning and it can be explained as

- Education which enables us to maintain health.
- For school children, it should be a systematic programmer of developing healthy habits. Proper attitude and correct knowledge which will contribute to physical, mental and social health.
- It is concerned with establishing or inducing changes in personal and group attitudes and behaviors that promote healthier living.
- When health facts are inculcated in children by professionally competent person.
- It is a process which affects changes in health practices of people, practices in individuals, families, groups, organizations, communities, state and ultimately the country.
- Process with fills the gap between the health, information and practices.
- The process of education which affects change or reinforce health practices in individuals, families, groups, organizations, communities, states and ultimately the country.
- Process which fills the gap between the health, information and practices.

It is a process of providing learning experience for the purpose of influencing knowledge, attitudes or conduct relating to individual community or world health. It is the sum of experiences which favourably influence practices, attitudes and knowledge relating to health. Though it has comprehensive approach but in its scope it differs from health propaganda. Health education aims at developing favorable attitude, habits and skills. It has a wider scope. This with the help of interest will create awareness, evaluation, trial and finally adoption to educate the people. Hence they solve their problems with their own actions and efforts under the scope of health education, the following aspects are concerned. Basic knowledge of the body and environment coughing, sneezing, bathing and general cleanliness of body and surroundings.

Health activities involve multi-dimensional aspects carried out by different functionaries. Therefore, it is essential to make all of them appreciate the intensions, it involves programmer. Let us take the case of malaria control programme, it involves doctors, paramedical, people spray men etc. to make the programmer successful all must communicate among themselves.

Health and Wellness

Educational testing is an essential activity in every school, district and in every state. Standardized tests are used to evaluate students and schools to help improve teaching and learning and to generate important data from which policy decisions can be made. Standardized test results often are a major force in shaping public perceptions about the performance of our students and the quality of our schools. With the recent passage of the no child left behind act of 2001 which requires tests to be the primary measure of school accountability testing has taken an added significance. A number of national surveys show testing has strong support among the public for example, a survey by the association of American publishers found overwhelming parental support for standardized testing. According to the

survey, a large majority of parents believe that standardized tests provide important information about their children's educational progress and nine out of ten parents said they want comparative data about their children and the schools they attend. More than two thirds of all parents surveyed said they would like to receive standardized test result for their children in every grade.

Formats of questions on a standardized test

Standardized tests can have a variety of questions and formats. Any format can present challenging questions as well as fundamental skills. A standardized test may include more than one format of questions. The most common formats are

Multiple choice questions: Many standardized tests require students to select a single correct response to each test question from Among a small number of specific choices. This format called Multiple Choice or Selected Response is efficient, practical and usually produces highly reliable results. Multiple choice tests offer the advantages of objectivity and uniformity in scoring case of administration and low cost.

Use of standardized test

Information from standardized tests can be used for many purposes. These purposes may include: Supporting instruction decisions for individual students by identifying their instructional needs. A test may be used to diagnose a student's strengths and weaknesses. This allowing the teacher or school to choose effective instructional programmer for the student. Demonstrating student's proficiency in basic skills and their ability to meet academic standards. Test results are sued by states to demonstrate individual student's mastery of specified levels of achievement.

Informing parents and the public about school and student performance states administer standardized assessments and report the results in part to inform the public about how well progressing over time and compared to other localities or schools. Many states and districts publish annual report cards on school districts and individual schools. The results of the tests by informing and influencing parents to take action to improve the quality of local schools. Holding schools and educators accountable for student performance on tests aligned to high standards of what students should know and be able to do. Consequences are often attached to test results and may include school improvement plans, technical assistance, increased or decreased funding for schools, salary, bonuses, promotions, loss accreditation and takeovers of local schools by the states such consequences are used to leverage change at the school and classroom level.

Need of test

The purpose of tests is to provide educators students. Parents and policy makers with information that is valid, fair and reliable standardized tests provide information that helps support four critically important tasks for educators and the public.

1. Identify the instructional needs of individual needs of individual students so educators can respond with effective targeted teaching and appropriate instructional materials.
2. Judge students proficiency in essential basic skills and challenging standards and measure their educational growth over time.

3. Evaluate the effectiveness of educational programmers and
4. Monitor schools for educational accountability including under the NCIB Act.

In some test provide information to help students learn more successfully teachers teach more effectively and school to be more accountable.

There are limits to testing however tests are a necessary but not the exclusive means to evaluate current achievement and student's growth in skills. What may be tested is not and cannot be inclusive of all of the desired outcomes of instruction. Tests should be considered a means to an end and not ends in themselves. Tests should be used in combination with other important types of information such as teacher judgments of student work and classroom performance plus other individual and group assessments to measure achievement and growth.

A standardized test

A standardized achievement test is simply a test that is developed using standard procedures and is then administered and scored in a consistent manner for all tests takes students respond to identical or very similar questions under the same conditions and test directions. The standardization of test questions directions, conditions of testing and scoring is needed to make test scores comparable and to assure as much as possible that test takers have equal unbiased opportunities to demonstrate what they know and can do. Standardized tests may be used for a variety of purposes. One purpose of testing is to enable educators to make high stakes decisions about individual students through measures such as high school graduation tests. In contrast the annual testing provisions of the NCIB act are used to inform schools, teachers and parents about student improvement in the classroom and to hold schools and states accountable for such improvement.

Types of information provided by test

Tests can provide information on individual students or group performance that can be interpreted and used in many different ways. There are currently educational testing systems at the national state and local levels. The national assessment of educational progress is a federal testing programme that generates periodic snapshots nationally and within states of how small samples of students perform in a given subject at a particular grade level. States and districts use standardized test usually administered to all children rather than by samples to generate information that teachers, parents and policy makers need to make decisions about schools and students. Most standardized testing programmers at the school and classroom levels are designed to help teachers improve their teaching of specific individual student learning.

Children's Health

Child's health includes physical, mental and social well being. Most parents know basics of keeping children health like offering them health food. Making sure they get enough sleep and exercise and insuring their safety. It is also important children to get regular checkups with their health cure provider. Presence of exercise and a good diet in one's daily routine can ensure a healthy body. Health of a child is a major issue that concerns a majority of parents. Hence, it is imperative for parents to participate in sports and physical activities together with their children. Parents should

encourage their children to take part in games and physical activities on a regular basis and try to convince them into making it a part of their lives.

It is estimated that the burden of disease for school age children of 5-15 years is 11 per cent of the total global burden of disease. There estimated 1, 2 trillion school age children with 88 per cent of those living in poorer countries. As much as the burden is derived from poor related issues, it is this 88 per cent that is most at risk. Ninety-nine per cent of child deaths occur in poor countries. Child health requires action on global scale. Pneumonia causes 2 million childhood deaths annually, while measles results in more than child deaths annually. More than 1500 children are infected with HIV every day. Also HIV leaves millions of school age children without these children carry greater work loads which affect their growth and education.

A new baby is probably the most exciting and challenging event of a family experiences. A good prenatal programmer will see that you and your partner are well prepared to care for the new family member.. Every child should have regular medical checkups, learn to practice good hygiene and nutrition and get plenty of rest and exercise. For the first several years, a family doctor or pediatrician should monitor your baby's development and be call when the inevitable childhood ailments come along.

Statement of the Problem

The purpose of the study was to construct and standardize a model knowledge test for high school students of Karnataka state. On the basis of scholars overall understanding of the study following delimitations were formulated: The study was delimited to twenty students. The questionnaire was delimited to forty questions in total. The questionnaire was structured to measure health awareness of subjects. The questions were driven from and N standards physical education text books published by D.S.E.R.T. Government of Karnataka, Bangalore. All together twenty students were randomly selected school B.R. Project for this study. The questionnaire consisted objective type questions, specifically delimited to multiple choice and true or false. In order to assess reliability test – retest method was adopted. Concurrent validity was assessed through the achievement of student's general science subject. Intelligent levels of students were not considered in the present study. Wrote memory aspect which might influence the response of students were not controlled. Whole hearted co-operation during data collection could not be ascertained.

The questionnaire to assess health awareness of high school students duly structured will be reliable and valid. The result and findings of the study may be used to update the available questionnaire matching to model knowledge. The result and findings of this study may enable to know and understand the model knowledge test.

Methodology

This chapter contains the procedure adopted for selection of subjects, criterion measures, procedure for administration of test and collection of data and statistical techniques employed.

Selection of the subject

For the purpose of this study sixteen high school boys (N=10) and girls (N=6) of N.E.S. Government High School, B.R. Project were selected. Stratified random sampling techniques were observed for selection of subjects from ninth standard of the academic year 2014-15. Their age ranged between 14 to 16 years.

Criterion measures

The study included construction and standardization of knowledge test on the basis of available text books on physical education for high school students. A forty item questionnaires was constructed on the basis of the knowledge and insight of the researcher. The questions related to health and safety education were included in the questionnaire. There were multiple choice questions and true or false categories of objective questions.

Pilot study

The duly constructed questionnaire was administered to twenty students of directed group of student. On the basis of results item analysis and item discrimination procedures were carried on. Questionnaire which were carefully incorporated. The results suggested necessary alteration to intended questionnaire. Eventually certain questions were either replaced or altered.

Reliability

This study included test-retest method of assessing reliability for the intended questionnaire.

Validity-In order to assess the validity of intended questionnaire concurrent validity found out the marks scored by subjects in general science subject was considered for assessing concurrent validity of intended questionnaire.

Procedure for administrating the test and collection of data

The questionnaire was administered to the subject twice with a gap of twenty days in between. The leisure time of the students was made known and instructed to assemble in a classroom with a pen. The students were given necessary instructions in the beginning and an objective of the study was made clear. The students were given ample time to complete the questionnaire and honest responses were sought. The completed questionnaires were collected back for further analysis.

Statistical techniques

In order to derive inferences descriptive statistics and Pearson product moment correlation co-efficient was employed. Table and figures were included wherever essential to depict the results.

Data

This chapter contains the analysis of data, findings of the study and discussion on findings with respect to construction and standardization of knowledge test in physical education for high school students. The raw data pertaining to performance of subjects on the knowledge test was subjected to statistical analysis including descriptive statistics and correlation statistics. Mean, Standard Deviation and Pearson Product Moment Correlation were calculated. The level of significance selected for this study was $p < 0.05$. Means and Standard Deviations of subject's performance on tests conducted twice are given in table 1.

Table 1: Mean and Standard Deviation of student's scores on two tests

| | Mean Scores | Standard Deviation |
|--------|-------------|--------------------|
| Test 1 | 16.94 | 3.07 |
| Test 2 | 17.81 | 3.99 |

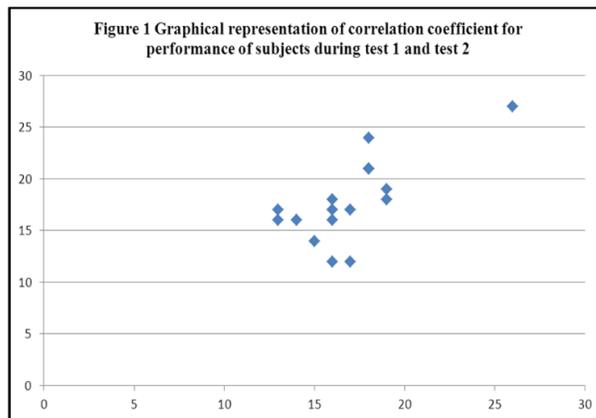
The Mean and Standard Deviation of student's performance on knowledge test through the intended questionnaire is 16.94 ± 3.07 and 17.81 ± 3.99 for tests 1 and 2 respectively. The data on mean scores given in table 1 appears to be normally distributed with acceptable standard deviation revealing the homogeneity of sample. In order to examine statistical significance in terms of correlation coefficient, Pearson product moment correlation coefficient was employed and the results are depicted in table 2 as below.

Table 2: Summary on correlation coefficient for test scores of subjects on two occasions

| | | Test 1 | Test 2 |
|--------|---------------------|--------|--------|
| Test 1 | Pearson Correlation | 1.000 | .708 |
| | Sig. (2-tailed) | . | .002 |
| | N | 16 | 16 |
| Test 2 | Pearson Correlation | .708 | 1.000 |
| | Sig. (2-tailed) | .002 | . |
| | N | 16 | 16 |

** Correlation is significant at the 0.01 level (2-tailed).

The correlation coefficient in terms of performance of students on tests during two occasions is found to be 0.71. The above result is graphically represented in figure 1.



From the above figure it is evident that there exists positive correlation between the knowledge test scores of subjects during test 1 and test 2.

Mean and Standard Deviation of students during performance on intended knowledge test measured in terms of duly constructed questionnaire and their performance in General Science subject are given in table 3.

Table 3: Mean and Standard Deviation of student performance during tests on intended questionnaire and General Science

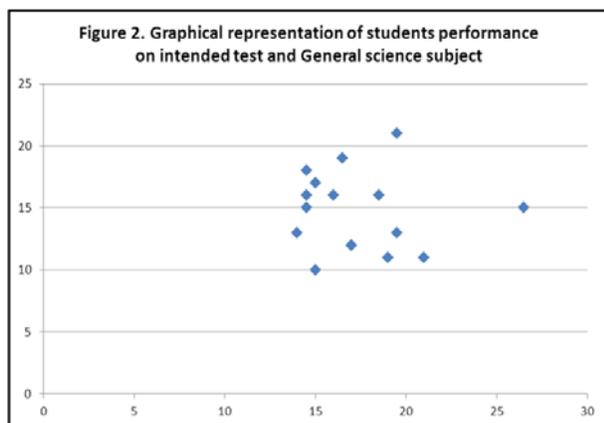
| | Test 1 | Test 2 | Average | General Science |
|--------------------|--------|--------|---------|-----------------|
| Mean | 16.94 | 17.81 | 17.38 | 14.69 |
| Standard Deviation | 3.07 | 3.99 | 3.26 | 3.16 |

The average Mean and Standard Deviation of student's performance on knowledge test through duly formulated questionnaire and General Science subject is 17.38 ± 3.26 and 14.69 ± 3.16 for respectively. The data on mean scores given in table 3 appears to be normally distributed with acceptable standard deviation revealing the homogeneity of sample. In order to examine statistical significance in terms of correlation coefficient, Pearson product moment correlation coefficient was employed and the results are depicted in table 4 as below.

Table 4: Summary on correlation coefficient for test scores and general science subject

| | | Average Score on tests | Marks scored in General Science |
|---------------------------------|---------------------|------------------------|---------------------------------|
| Average Score on tests | Pearson Correlation | 1.000 | -.025 |
| | Sig. (2-tailed) | . | .928 |
| | N | 16 | 16 |
| Marks scored in General Science | Pearson Correlation | -.025 | 1.000 |
| | Sig. (2-tailed) | .928 | . |
| | N | 16 | 16 |

The correlation coefficient in terms of performance of students on intended knowledge test measured in terms of average scores of test 1 and test2 and marks scored in General Science subject was found to be -0.025. The above result is graphically represented in figure 2.



From the above figure it is evident that there exists negative correlation between the intended knowledge test scores and General Science subject marks.

The results of the study have demonstrated certain findings which needs discussion. Data on descriptive statistics are presented in table 1 and 3. Results reveal that the scores are normally distributed and homogeneity is also acceptable which is revealed through Standard Deviation. Table 2 provides results on Pearson product moment correlation for finding the reliability of the questionnaire under construction and standardization. It was primarily hypothesized that the duly structured questionnaire will exhibit acceptably high reliability. On the basis of the findings of study, it is evident that the duly constructed questionnaire does exhibit high amount of reliability during test-retest. The correlation coefficient between performance of students on test 1 and 2 was found to be 0.71. This is acceptably high and thus the questionnaire is deemed to be reliable one for its consistency in measuring the knowledge of students on health and safety education.

Table 4 provides results on Pearson product moment correlation for finding Construct validity of the questionnaire under construction and standardization. It was primarily hypothesized that the duly structured questionnaire will exhibit acceptably high Construct validity. On the basis of the findings of study, it is apparent that the duly constructed questionnaire does not demonstrate necessary amount of validity assessed in terms of construct validity. It involved

assessment of correlation between the performance on intended test and marks scored in General Science taken as representative of the construct. The correlation coefficient between performance of students on test 1 and 2 was found to be -0.025. This is unacceptably low and thus the questionnaire is considered to be invalid one for its consistency in measuring the knowledge of students on health and safety education. The investigators examined whether the “Short questionnaire to assess health-enhancing physical activity” and the “Injuries and Physical Activity in the Netherlands” questionnaire were valid in assessing adherence to physical activity guidelines. Both questionnaires failed to correctly categorize adults according to the American College of Sports Medicine guideline.

Conclusion

Analysis of data developed that: The intended questioners primarily consisted ambiguous statements in spite of every care taken by researcher. The students showed consistent results during test retest on the intended questionnaire the correlation co-efficient was acceptably high. It was found that their was negative correlation between the performance of students on intendment questions and their general science masks this shows that concurrent validity for intended questionnaire was to low and unacceptable.

On the basis of present investigation of and findings of the study hear are same recommendations for physical education teacher’s administrators and policy makers in education the physical education text books provided for students of class sixth to ninth have to be systematically taught. Remedial teaching should be conducted were students find difficulty in understanding the concepts included in health and safety education. There is a need for similar study by taking into account various other means of accessing reliability and validity. A similar study can be conducted on larger sample and other class students. The questionnaire should include other types of objective questions which were not included in this study.

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