

**ACHIEVEMENT MOTIVATION OF PHYSICALLY CHALLENGED VIZ.  
VISUALLY IMPAIRED, HEARING IMPAIRED AND ORTHOPEDICALLY  
IMPAIRED SECONDARY SCHOOL STUDENTS OF KASHMIR DIVISION**

**Javeed Ahmad Puju<sup>1</sup> & Aqueel Ahmad Pandith<sup>2</sup>, Ph. D.**

<sup>1</sup>Assistant Professor, School of Open Learning, DDE., University of Kashmir  
javeeds411@gmail.com

<sup>2</sup>School of Education and Behavioural, Sciences, University of Kashmir  
E-mail of the corresponding author:aqueeleduku@gmail.com

---

**Abstract**

---

*This study was undertaken to study the achievement motivation of visually impaired, hearing impaired and orthopedically impaired secondary school students of Kashmir division. The sample for the study was 300 physically challenged secondary school students viz. (visually impaired N= 100, hearing impaired N= 100 and orthopedically impaired N=100) by using purposive sampling technique. Pratibha Deo and Asha Mohan achievement motivation scale was administered for the collection of data. The result of the study highlight that there is no significant difference among visually impaired, hearing impaired and orthopedically impaired secondary school students on achievement motivation. The Achievement Motivation is a planned decision-making process, which energies individual to work to the best of their capacities, by providing them with motives, which is based on their unfulfilled desires. Thus it is generally regarded as the force to achieve targets and the process to sustain the drive. Physically challenged viz. visually impaired, hearing impaired and orthopedically impaired categories feel inferiority due to physical impairment. They are not being ready and eager to face new situations and carry out different tasks, generally are withdrawn, inactive, and unmotivated for their achievement, therefore lack of motivation and lack of self-confidence are two of the main reasons for failure and of living an upset, anxious, depressed, worried ordinary and dissatisfied life.*

**Keywords:** achievement motivation, visually impaired, hearing impaired, orthopedically impaired students,



*Scholarly Research Journal's* is licensed Based on a work at [www.srjis.com](http://www.srjis.com)

**1. Introduction:-**

A world health organization report (2009) said children with physical impairments or any other disabilities are four times more likely to experience violence or abuse and for more prone to physical and other type of violence, humiliation, shame, dishonor and neglect than normal children. The strong feelings of frustration, anger, sadness, or shame can lead to psychological difficulties such as anxiety, depression, or low achievement motivation of all physically challenged children. Due to physical impairment, these children are less accepted,

and often rejected by their peers. Society also may tend to have negative views of children with physical impairments.” Such social rejection can result in loss of self-esteem and negative views of oneself. In addition, social rejection can result in feelings of loneliness, fear, insecurity, low achievement motivation and other behavioral, emotional and self-related problems. Visual impairment is a condition in which an individual’s vision is deficient to such an extent that it considerably affects his/her working. There are four major categories of visually impaired children such as partially sighted, low vision, legally blind and totally blind. A partially sighted child is the child who has some complication in seeing and in overall impression, requires special assistance with learning. Low vision indicates a more serious problem, where reading at normal distances is not possible. Children with low vision have to use supportive tools to read and see in their environments. They may even learn through the use of Braille. Legally blind refers to a vision less than 20/200. Children who are legally blind cannot see things clearly, whether it is near or far. They haven't lost their sight completely but have lost enough vision that they'd have to stand 20 feet from an object to see it as well as someone with perfect vision could from 200 feet away. Thoroughly blind means that the person has no vision at all. Their eyes are not able to process images, and they learn through non-visual resources, including Braille. The visually impaired children can be recognized by various symptoms such as crossed eyes, enlarged eye lids, watery eyes, itching, lethargy, headaches, rubbing eyes markedly, blinking frequently and holding substance or books close to the eyes. Visual impairment can be caused by numerous types of eye disorders such as cataracts, infection, glaucoma, albinism, diabetic retinopathy etc. The government made enlightening provisions for visually impaired children from nationwide to the worldwide such as provision of close circuit television; magnify eyeglasses, large print materials, Braille System talking calculators and tape recordings. Seeing that per official reports of WHO (2012), the 285 million people are estimated to be visually impaired worldwide: 39 million are blind and 246 have low vision. The 90% of the world's visually impaired population live in developing countries. According to the report of World Intellectual Property Organization (WIPO 2008), there are about 39 million people across the globe that are blind, out of these India is a home to about 15 million of them. If we include the partially sighted ones and persons with other visual disabilities, then it would make it to be around 285 million persons. India has a big size of people of the blind community and the majority of them live in the poorest parts of the nation with small or no right of entry to even basic health care facilities. The 80 per cent of them (9.6 million) could have been prevented

from going blind if they had received time-honored treatment? But poverty – which is both a cause and effect of blindness – can be very hard to smash and shatter, especially in the rural areas where most visually impaired people live.



Plate 1: Subjects identify visual impairment

Hearing impairment refers to a defect in or damage to the hearing mechanism. This defect or damage may occur in any part of the ear such as outer ear, middle ear or inner ear. It leads to hearing impairment or loss of hearing. It may range in severity from mild to moderate and to profound. A person may become deaf or hard of hearing depending upon the nature of impairment and the degree of hearing loss. Hearing impaired are those in whom the sense of hearing is non-functional for ordinary purposes of life. They do not hear or understand sound at all even with amplified speech. The cases included in this category will be those having hearing loss of more than 70 decibels (Graham Bell's Scale) in the better ear (profound) loss of hearing in both ears (ministry of social welfare 1987). A hearing impairment is a hearing loss that prevents a person from totally receiving sounds through the ear. If the loss is mild, the person has difficulty hearing faint or distant speech. A person with this degree of hearing impairment may use a hearing aid to amplify sounds. If the hearing loss is severe, the person may not be able to discriminate any sounds. There are four types of hearing loss such as Conductive hearing loss, sensor neural hearing loss, mixed hearing loss and central hearing loss. Conductive hearing loss is caused by diseases or obstructions in the outer or middle ear that by and large affect all frequencies of hearing. A hearing aid normally

helps a person with a conductive hearing loss. Sensor neural loss occurs from damage to the inner ear. This loss can range from mild to profound and frequently affects certain frequencies more than others. Sounds are often unclear and hazy, even with a hearing aid. Mixed loss occurs in both the inner and outer or middle ear. Central loss results from damage to the central nervous system. These children are identified by means of various symptoms such as, regular pain in the ears, discharge from the ear, scratching the ear repeatedly, turning the head frequently towards the speaker and restlessness. The most common categories of hearing loss are mild hearing loss, moderate hearing loss, severe hearing loss and profound hearing loss. Mild hearing loss is that in which the nearly all sounds that people can hear with their better ear are between 25 and 40 dB. People who are ill with from mild hearing loss have some difficulties keeping up with conversations, especially in noisy surroundings. Moderate hearing loss is that in which a usual sounds heard by people with their better ear are between 40 and 70 dB. People who suffer from moderate hearing loss have complexity keeping up with conversations when not using a hearing aid. Severe hearing loss is that an average sounds heard by people with their better ear are between 70 and 95 dB. People who suffer from severe hearing loss will benefit from powerful hearing aids, but often they rely a great deal on lip-reading even when they are using hearing aids. Some also use sign language. In profound hearing loss the most quiet sounds heard by people with their better ear are from 95 dB or more. People who suffer from profound hearing loss are dreadfully hard of hearing and rely typically on lip-reading, and sign language. The Rehabilitation Council of India Act, (1992) has defined "hearing handicapped person is one who has the hearing loss of 70 decibels and above, in better ear or total loss of hearing in both ears. The legal definition of "hearing impairment" in India as per the Persons with Disability Act PWD (1995) – "a hearing disabled person is one who has the hearing loss of 60 decibels or more in the better ear for conversational range of frequencies". As per WHO grades of hearing impairment description: i no impairment 25 dBHL or less (better ear) no or very slight hearing problems able to hear whispers ii Slight impairment 26-40 dBHL (better ear) able to hear and repeat words spoken in normal voice at 1 meter iii Moderate impairment 41-60 dBHL (better ear) able to hear and repeat words using raised voice at 1 metre iv severe impairment 61-80 dBHL (better ear) able to hear some words when shouted into better ear v Profound impairment including deafness 81 dBHL or greater (better ear) unable to hear and understand even a shouted voice. According to the estimates of WHO (2005), 278 million people have disabling hearing impairment. The frequency of deafness in Southeast Asia ranges from 4.6% to 8.8%.

In India, 63 million people (6.3%) suffer from significant auditory loss. As on 1st March 2001, India's population stood at 1,027,015,247 and projected population in 2016 would be 1,263,543,000 (Census of India, 2001). With the present set of concept of hearing disability, the Census of India, (2001) counted 1,261,722 people in whom hearing disability existed (Males 53.4% and Females 46.59%).” As per NSSO (2001) there are 291 persons per one lakh population who are suffering from severe to profound hearing loss. A large percentage of these, are children aged from 0 to 14 years. With such an outsized number of hearing impaired young Indians, it amounts to a severe loss of productivity, both physical and economic.



Plate 2: Subjects identify hearing impairment

The Orthopedically impaired children are those who have a physical defect or deformity, which causes a hindrance with the normal functioning of the bones, muscles and joints." According to the Individuals with Disabilities Education Improvement Act (IDEA), orthopedic impairment is defined as a severe orthopedic impairment that adversely affects a child's educational performance. The term includes those born with dislocated hips, club feet, spina bifida (a congenital deformity of the spinal cord), and children who are victims of such

crippling diseases as polio and osteomyelitis. Orthopedic impairment may be caused by: inherited defects, metabolic errors, nutritional deficiencies, infections, physical trauma, toxins, poisons, gross brain disease and environmental factors. These children have poor motor control coordination, are unable to coordinate two or more muscle groups for performing any task. They walk awkwardly or with a limp, show signs of pain during physical exercise, difficulty in picking and holding things. These children fall frequently, jerking movement in walking, complicatedness in sitting and standing. They are of many types as: Osteomyelitis is a chronic bacterial bone and joint infections that more and more destroy the bone and may also affect the joints. When the bone is infected, pus is produced within the bone, resulting in a foul-smelling discharge. The condition often causes severe physical impairment if left untreated. Polio paralysis is a condition that causes paralysis of muscles without loss of sensation. Contractures deform joints and hamper with the patient's ability to walk. The initial disease, polio (poliomyelitis), is a viral disease that can damage the nerves in the spinal cord, causing paralysis of the arms, legs, or trunk. Polio mainly affects children under the age of three. Polio is caused by a virus that enters the body through the mouth. The polio virus lives in the throat and intestinal region of infected persons. It is usually contracted from hands or eating utensils contaminated with the stool of an infected person. Initial polio attacks are preventable by vaccination. Tuberculosis of the spine is an infection of the spinal column and the disease progressively destroys the backbone and causes severe physical impairment and may lead to death if left untreated. Tuberculosis can be identified by a sharp bend in the middle section of the backbone that goes along with shortening and thickening of the chest. The disease is caused by the tubercle bacillus. Pulmonary tuberculosis, an infection of the lungs, is the most common presentation. Tuberculosis of the spine occurs when a tubercular infection of the lungs spreads to the spinal bones. This frequently happens in children. Cerebral palsy describes a group of chronic conditions affecting body movement, muscle coordination, and often mental capability. The conditions are characterized by rigid muscles and a loss of control and coordination of movements. This often makes walking impossible or even causes difficulties in sitting. Hydrocephalus translates as "water on the brain" and describes a condition characterized by excess cerebrospinal fluid in the brain. This leads to pressure build-up under the skull, causing the head to swell and possibly brain damage. Clubfoot, also known as 'congenital talipes equinovarus' (CTEV), is a condition in which the child is born with the foot turned inwards and pointing down; either one or both feet may be affected. Cleft lip and palate is a

common inborn deformity. It occurs when the separate areas of the face that develop individually and then join together, do not join accurately. A cleft lip is an opening between the upper lip and the nose and looks like a split in the lip. A cleft palate occurs when the roof of the mouth has not joined from top to bottom. The conditions may occur separately or be combined. Pointed bone deformities or bent bones, most often occurring just above or just below the knee. The condition causes severe knock knees (genu valgus) or bow legs (genu varus) that develop and degenerate with growth. The deformities make walking difficult and may damage the joints, resulting in arthritis. Burn contractures describe a permanent shortening of burn scar tissue that pulls joints out of position and results in physical impairment. Burn contractures may occur after thermal injury. Not every burn results in burn contractures but when burn wounds are left untreated or exposed to dirt, the chances of the condition occurring increases.



Plate 3: Subjects identify orthopedic impairment

According to the census (1981), the 0.12 million population reported to be disabled/handicapped about 45% were blind, 32% crippled and 25% dumb. As per the offationl report of (2009), in India 12 million are blind, 29 million are with low vision,12 million are with speech and hearing defects and 6 million have orthopedic impairment. Census of India (2001) has identified five types of disabilities and estimated 21.9 million handicapped/disabled persons. Which constitute about 2.13 percent of total population. The

(48.55 percent) nearly half total were visually impaired and (27.87 percent) orthopedically impaired. The physical defect becomes a challenging and demanding factor for them to lead a happy and prosperous life. These physical defects are accountable for their inferiority complex in the society. This inferiority complex is responsible for creating a number of conflicts and other psychological problems results low achievement motivation. The achievementmotivatiodenotes processes leading to behavior that aims to achieve a certain criterion or standard. The criterion can be any goal or objective, formal or informal, set by an individual or by others, in any professional or leisure domain (e.g., school, sports, work, music, gardening, even social relationships and moral conduct), which provides a guide for evaluating success and failure. Achievement motivation stemming from a wish to carry out well or a striving for success. It is evidenced by effort and determination in the face of difficulties. It is regarded as a central human motivation and is a key determinant of aspiration and persistence, when an individual expects that his or her performance will be evaluated on the basis of some standard of excellence. Such behavior is called being *achievement-oriented*. Motivation to achieve is prompted, when an individual knows that he or she is responsible for the outcome of a venture and anticipates clear knowledge of results that will define that venture as a success or failure. There also needs to be some degree of threat, such as uncertainty about the outcome of one's effort. Individuals differ in their ability to self-motivate, and different activities each pose different challenges to different people. Therefore, personality must be considered together with environmental factors when accounting for the strength of achievement motivation in a particular person. The desire to achieve can fluctuate depending on a number of factors including confidence levels and physical strength. Achievement motivation is generally regarded as the force to achieve targets and the process tosustain the drive. Motivation provides an important foundation to completetecognitive behavior, such as planning, organization, decision-making, learning, andassessments (Pintrich&Schunk, 1996). Spence and Helmreich (1983) definedachievements as task-oriented behavior. Performances of individuals are oftencompared against standards or with others for assessments. Atkinson (1964), who defined it as thecomparison of performances with others and against certain standard activities. Incentive theory: Incentive theory of motivation states that external goals motivate organisms to perform certain actions. The external stimuli in the environment that 'pull' the organism in certain directions are called 'incentives'. The basic assumption of incentive theory is that if a desirable goal can be anticipated following the finishing point of a



particular action, the organism is motivated to perform that action. Conversely, anticipation of an undesirable goal-something aversive or unpleasant motivates the organism not to perform the action. Thus, incentive theorists focus on the environment and focus on what induces organisms to act or what inhibits their action. According to goal setting theory, people often did much better when working towards specific goals than when goals were abstract. When the goals set are highly specific, the goals are challenging but, the goals are perceived as attainable. Finally, goal setting is most successful when people receive feedback on their progress towards meeting the goals and when they are truly and deeply committed to reaching them.

## **2. Objectives:-**

1. To study the visually impaired, hearing impaired and orthopedically impaired secondary school students on achievement motivation.
2. To compare the visually impaired and hearing impaired secondary school students on achievement motivation.
3. To compare the visually impaired and orthopedically impaired secondary school students on achievement motivation.
4. To compare the hearing impaired and orthopedically impaired secondary school students on achievement motivation.

## **3. Hypothesis:-**

1. There is no significant difference between visually impaired and hearing impaired secondary school students on achievement motivation.
2. There is no significant difference between visually impaired and orthopedically impaired secondary school students on achievement motivation.
3. There is no significant difference between hearing impaired and orthopedically impaired secondary school students on achievement motivation.

## **4. Methodology and procedure:**

This study was designed to compare visually impaired, hearing impaired and orthopedically impaired secondary school students on achievement motivation. As such; descriptive method of research was employed.

### **SAMPLE:**

The total sample for the present investigation consists of 300 physically challenged secondary school students of Kashmir Division. These students were identified on the basis of information obtained from the offices of various secondary school institutions. Further, the

investigator categorized them into three main categories viz. visually impaired N= 100, hearing impaired N= 100 and orthopedically impaired N=100. All the three categories of physically challenged students were taken from 189 secondary schools institutions of Kashmir Division. However the whole population (N=300) was taken for sample by the investigator by using the purposive sampling technique.

**4.1. Tool used:**

- ✚ For the measurement of achievement motivation of visually impaired, hearing impaired and orthopedically impaired secondary school students, pritabhaDeo and Asha Mohan achievement motivation scale was administered.

**4.2. Statistical treatment:-**

The data collected was subjected to the following statistical treatment

1. Mean
2. S.D
3. t-test

**5. Analysis and interpretation of data:**

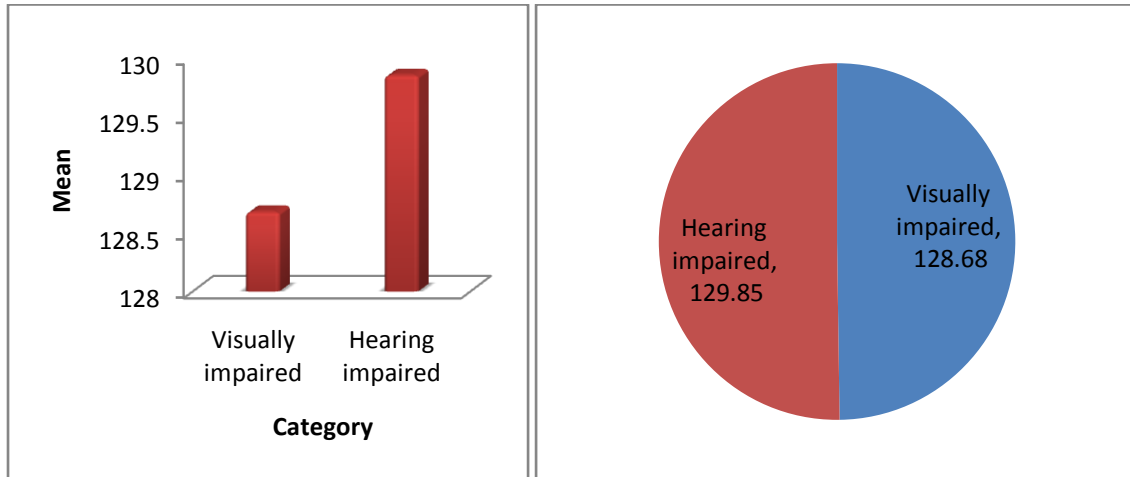
In order to test the hypotheses formulated for the present investigation, the data collected through the administration of the selected tool was statistically analyzed by employing t-test. As a result of this, the visually impaired, hearing impaired and orthopedically impaired students, were compared on achievement motivation.

**Table 1.0: Showing the mean comparison of visually impaired and hearing impaired secondary school students on Achievement motivation Scale (N=100 in each group).**

Group	N	Mean	S.D	t-value	Level of significance
Visually impaired	100	128.68	27.22	0.30	Insignificant
Hearing impaired	100	129.85	27.49		

The table 1.0 shows the mean comparison of visually impaired and hearing impaired secondary school students on achievement motivation scale. The calculated t-value (0.30) is less than the tabulated t-value (2.59) at 0.05 level of significance, which depicts that there is no significant difference between visually impaired and hearing impaired secondary school students on achievement motivation. The physical impairment hampers the task-oriented behavior of both visually and hearing impaired secondary school students and results low level of achievement motivation. Thus from the confirmation of the results from the above

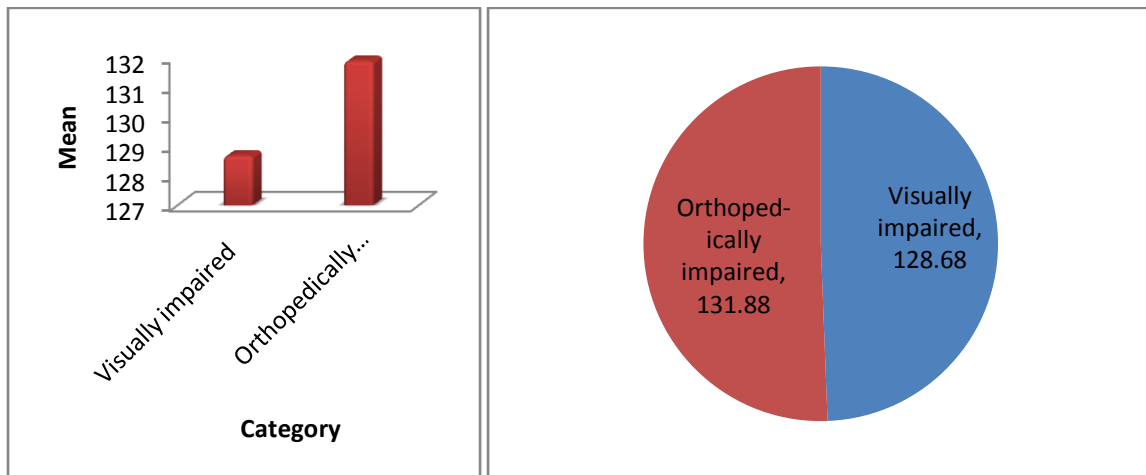
table, the null hypothesis no. 1 which reads as, “**There is no significant difference between visually impaired and hearing impaired secondary school students on achievement motivation**”, stands accepted.



**Table 1.1: Showing the mean comparison of visually impaired and orthopedically impaired secondary school students on Achievement motivation Scale (N=100 in each group).**

Group	N	Mean	S.D	t-value	Level of significance
Visually impaired	100	128.68	27.22	0.86	Insignificant
Orthopedically impaired	100	131.88	24.81		

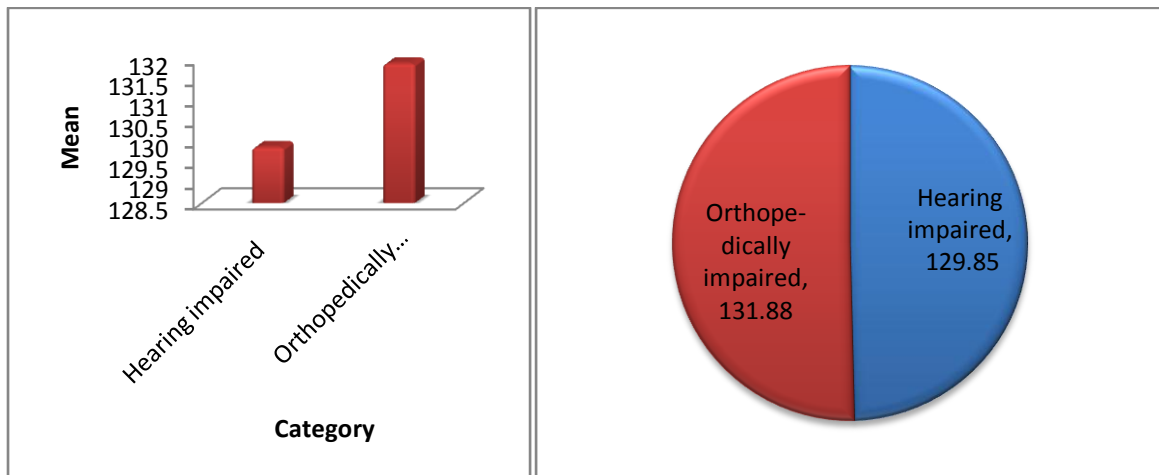
The table 1.1 shows the mean comparison of visually impaired and orthopedically impaired secondary school students on achievement motivation scale. The calculated t-value (0.86) is less than the tabulated t-value (2.59) at 0.05 level of significance, which depicts that there is no significant difference between visually impaired and orthopedically impaired secondary school students on achievement motivation. The physical impairment hinders the task-oriented behavior of both visually and orthopedically impaired secondary school students and results low level of achievement motivation. Thus from the confirmation of the results from the above table, the null hypothesis no. 2 which reads as, “**There is no significant difference between visually impaired and orthopedically impaired secondary school students on achievement motivation**”, stands accepted.



**Table 1.2:** Showing the mean comparison of hearing impaired and orthopedically impaired secondary school students on Achievement motivation Scale (N=100 in each group).

Group	N	Mean	S.D	t-value	Level of significance
Hearing impaired	100	129.85	27.49	0.54	Insignificant
Orthopedically impaired	100	131.88	24.81		

The Table 4.3.4 shows the mean comparison of hearing impaired and orthopedically impaired secondary school students on achievement motivation scale. The calculated t-value (0.54) is less than the tabulated t-value (2.59) at 0.05 level of significance, which depicts that there is no significant difference between hearing impaired and orthopedically impaired secondary school students on achievement motivation. The physical impairment restricts both hearing impaired and orthopedically impaired secondary school to attain a desired goal, and results low level of achievement motivation. Thus from the confirmation of the results from the above table, the null hypothesis no. 3 which reads as, **“There is no significant difference between hearing impaired and orthopedically impaired secondary school students on achievement motivation”**, stands accepted.



## 6. Conclusion:

On the basis of the data analysis the following conclusions have been drawn.

- I. The two groups of students viz. visually impaired and hearing impaired secondary school students have not shown any significant difference on achievement motivation scale. The physical impairment hampers the task-oriented behavior of both visually and hearing impaired secondary school students and results low level of achievement motivation.
- II. The two groups of student's viz. visually impaired and orthopedically impaired secondary school students have not shown any significant difference on achievement motivation scale. The physical impairment hinders the task-oriented behavior of both visually and orthopedically impaired secondary school students and results low level of achievement motivation.
- III. The two groups of student's viz. hearing impaired and orthopedically impaired secondary school students have not shown any significant difference on achievement motivation scale. The physical impairment restricts both hearing and orthopedically impaired secondary school students to achieve a desired goal, and results low level of achievement motivation.

## 7. Suggestions:

1. The present study confirms itself to drawing the sample of the physically challenged students from various secondary schools of Kashmir division. A similar study should be conducted by drawing the samples from special and inclusive settings of these areas.
2. Parental attitudes and their socio-economic background of the students can also be considered in further studies.

3. A study on inter-institutional differences as affecting the Psychological make-up of the physically challenged children may also be attempted. This may bring out the institutional climate as affecting the total development of these children.
4. A comparison can also be made between those physically challenged children who study in special school and those who study in other schools with normal children.

### References:

- Atkinson, J.W. (1957). *Motivational determinants of risk-taking behavior*. *Psychological Review*, 64, 359–372.
- Elliot, A. J., & Covington, M. V. (2001). *Approach and avoidance motivation*. *Educational Psychology Review*, 13, 73–92.
- Elliot, A. J., & Thrash, T. M. (2001). *Achievement goals and the hierarchical model of achievement motivation*. *Educational Psychology Review*, 13, 139–156.
- Linnenbrink, L. E. (Guest Ed.), (2006). *Special issue on: Emotion research in education: Theoretical and methodological perspectives on the integration of affect, motivation, and cognition*. *Educational Psychology Review*, 18.
- Schultheiss, O. C., & Brunstein, J. C. (2005). *An implicit motive perspective on competence*. In A. J. Elliot & C. S. Dweck (Eds.), *Handbook of competence and motivation* (pp. 31–51). New York: Guilford.
- Ryan, Richard; Edward L. Deci (2000). "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions". *Contemporary Educational Psychology* 25 (1): 54–67. doi:10.1006/ceps.1999.1020.
- Rani, Rekha; Kumar-Lenka, Dr. Sameer. "motivation and work motivation: concepts, theories & researches". <http://www.euroasiapub.org/ijrim>. retrieved october 20, 2014.
- Atkinson, John; Norman Feather (1974). *A Theory of Achievement Motivation* (6 ed.). Krieger Pub Co. ISBN 0-88275-166-2.
- Atkinson, John; George H. Litwin (1960). *Achievement Motive and Text Anxiety Conceived as Motive to Approach Success and Motive to Avoid Failure*. Bobbs-Merrill Company.
- McClelland, David (1953). *The Achievement Motive*. New York: Appleton-Century-Crofts.
- Special Needs". *Journal of Indian Education; Special Issue on Education of Learners with Special Needs*. New Delhi: NCERT.
- Alur, M. (2002). "Special Needs Policy in India", in S. Hegarty and M. Alue (eds), *Education and Children with Special Needs: From Segregation to Inclusion*. New Delhi: Sage.
- Balasubramanian, K. (2004). *The Helping Hand (A Short Story about a Disabled Child)*. Hyderabad: Spark-India.
- UNESCO(2000). *Inclusion in Education: The Participation of Disabled Learners*. World Education Forum:
- Hegarty, S. and M. Alur (eds) (2002). *Education and Children with Special Needs*. New Delhi: Sage.
- Rioux, M.H. and Mohit, A. (2005). *Human Rights Disability and Law: National Human Rights Commission*. New Delhi.
- Singh, S. (2001). "Educational Needs, Relevant Curriculum and Rehabilitation Expectations of Handicapped Children". *Indian Educational Review*, 37 (1): 84–96.
- American Foundation for the Blind. *AFB directory of services for blind and visually impaired persons in the United States and Canada*. 27th ed. New York, 2005. 772p. \$39.95 online subscription; \$79.95

*paperback with one-year online subscription. (AFB Press, Customer Service, P.O. Box 1020, Sewickley, PA 15143).*

*Banks, Carrie. All kinds of flowers grow here: The Child's Place for children with special needs at Brooklyn Public Library. Children and libraries, v. 2, spring 2004: 5-10.*

*Saumure, Kristie, and Lisa M. Given. Facilitating information access for visually impaired postsecondary students. Feliciter (Canadian Library Association), v. 48, issue 5, 2002: 222-224.*

*Defining the Boundaries of Low Vision Patients". ssdiqualify.org. Retrieved Jan 22, 2014.*

*Visual Impairment, Visual Disability and Legal Blindness". SSDisabilityApplication.com. Retrieved January 22, 2014.*

*Cooper, Rory A; Hisaichi Ohnabe; Douglas A. Hobson (2006). An Introduction to Rehabilitation Engineering. CRC Press. p. 131. ISBN 9781420012491.*