

A COMPARATIVE STUDY OF NORMS OF HIGHER SECONDARY SCHOOL STUDENT ON TEST OF COMMERCE INTEREST INVENTORY

Mohan Kamble¹, Ph. D. & Arun Dengale²

¹Research Guide, Associate Professor, Adarsha Comprehensive College of Education and Research, Karve Road, Pune-411004.

Email – drmohankamble@gmail.com

²Research Scholar, Department of Education, Savitribai Phule Pune University, Pune - 411007, Maharashtra, India

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Abstract

The present study investigated the Interest inclination within Commerce stream of Secondary and Higher Secondary School Students of Maharashtra. The study was conducted on twelve hundred and four (1204) class 11th & 12th commerce students by giving due representation to boys and girls as well as rural and urban location of the six administrative regional zone in Maharashtra state, namely: Pune, Aurangabad, Amravati, Nasik, Kokan and Nagpur. The schools were selected using stratified random sampling technique. The selected schools are affiliated to the HSC board of State of Maharashtra. The descriptive survey method is used for data collections. Interest inclination within Commerce stream was measured by the group test of Commerce Interest Inventory (CII) constructed and standardized by Dengale, A. (2021). The finding of the study reported that, Comparison on nine professional filed on CII between male and female 11th and 12th commerce students done. On Actuarial Science boys scored higher than girls students. Similarly on Banking profession boys scored higher than girls' students likewise boys scored higher on Book Keeping & Accountancy and Information Technology. On Marketing & Advertising, Transport & Communication, Business & Trade, Management & Administration, and Law and Taxation girls students scored high than boy's students.

Keywords: Interest inclination within Commerce stream, Secondary and Higher Secondary School Students, Norms



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Introduction

There are numerous career options in the commerce field students usually get confused about what to choose with-in their academic field such as commerce. Present study

explored various occupational fields within the commerce stream, and linked the occupational characteristics and functional operations with psychometric scale to assess the career interest in the commerce stream.

In the present study attempt is being made to explore the factors that can contribute to commerce field interest assessment. Interest Inventories are widely used all over India for assessment of interest in secondary school, but we don't have scale to help students explore different career options within their respective academic stream such as commerce. The Commerce Interest Inventory was developed with this specific objective. All the tool standardization process has been completed and in the present chapter significance of the findings will be discussed.

Concept

Interest

Getzels, (1966) defined interests, an interest is a disposition organized through experience which impels an individual to seek out particular objects, activities, understandings, skills or goals for attention or acquisition. Interest is feelings that are generally of high intensity. Despite this general level of high intensity, they can range from no interest to high interest in terms of direction and intensity. Interests typically are directed towards some activity (target) and the relationships between feelings and the targets are learned.

Interest means to make a difference. 'It describe why the organism tend to favour some situation and thus comes to react to them in a very selective manner', Interest and attention are very closely related. They play an important role in the development of the behaviour and personality and are very important to understand the individual and to guide his future plan and activities, **Kulshrestha, (1967)**.

An interest may be defined as a tendency to make consistent choices in a certain direction without external pressure and in the face of alternatives, i.e. it represents a tendency to select certain activities or things in preference to certain others.' Formerly, it was believed that interest rejects inborn abilities, **Woodworth, (1918)**, but the recent trend is to emphasis the fact that interests are the product of individual's environment, **Thorndike, (1935)**, it means teachers; educational administrators and career guides should have a close watch on the student's interest from the very beginning of the life of the individual.

- **Nature of Interests** - A person's interests are the product of interaction between I) inherited bases of ability and temperament and II) many environmental factors, mainly the opportunities he has had and the values placed on their development by persons whose approval he values.

- **Types of Interest**

Super and Crites, (1962) distinguish four major interpretations of the term "Interests" associated with four methods of obtaining data on students' interests.

- **Expressed Interests:** These are verbal expression of interests in an activity or occupation. The student simply expresses a liking, or indicates his dislike, for a particular activity or vocation. The significance of such expressions of interest varies with the maturity and experience of the individual. In some cases, expressed interests represent temporary whims or fantasies.

- **Manifest Interest:** They are interpreted as evidenced by participation in an activity or occupation. A person who is active in dramatics club is manifesting his interests through actual participation. Manifest interest tends to be more stable than expressed interests since they are based on actual experience. This approach to the identification of interests however has similar limitations. The manifestation of interests may be limited by financial considerations or other environmental factors. Hence, these interests provide clues to possible educational and vocational goals, the absence of a specific interest may reflect only lack of environmental opportunity to develop that interest.

- **Tested interest:** These are measured by objective tests of vocabulary or other information rather than an inventory of reported interest. The use of such test as the Michigan vocabulary profile test as a measure of interest is based on the assumption that a stable interest, results in an accumulation of relevant information and corresponding growth in specialized vocabulary.

- **Inventoried Interests:** These interests are measured by lists of activities or occupations to which the student responds by an expression of liking or preference. In answering the inventory items' the examinee records a series of self perceptions that are summarized in such a way as to reveal their similarity to those of workers in different occupations. The scores of each student can be interpreted as reflecting a pattern of relatively high or low interests in various fields. Experience and research suggest that interest inventories can be valuable aids in vocational guidance. Evidence from the first three sources,

however, is useful in studying the validity of published inventories and in supplementing inventory results in the counseling of individual students.

The interest inventory does have the advantage of 'obtaining the students' reactions to a large sampling of items and of providing, through the use of converted scores, a means of comparing the student's interests with others of his sex and age. **Berdie, (1965)** stresses the importance of considering with both expressed and inventoried interests: As long as measured interests have a relevancy for vocational satisfaction and as long as self estimated (expressed) interests play an important role in the deliberation of individuals, both types of interests must be considered.

- **Expressed Versus Inventoried Interests**

Early research on interest measurements led to the conclusion that people were unaware of or could not adequately verbalize their interests. The principal support for this conclusion was the finding that scores on interest inventories did a better job in predicting future satisfaction than did claimed interests, which were obtained by simply asking persons to name things in which they were interested. The assumption that people could not identify their interests led to, or at least reinforced, the development of complex, indirect methods of interest measurement.

The assumption that people cannot describe their own interests has long been questioned (**Dolliver, 1969; Slaney & Russell, 1981; Zytowski & Borgan, 1983**). Studies examining people's ability to describe their core interests suggest that expressed interests show levels of validity in predicting future choices and satisfaction comparable to those achieved by well-constructed interest inventories. It may well be the case that claimed interests are valid interests. Nevertheless, interest inventories continue to serve a useful purpose, especially when used for counseling. Inventories help to clarify interests and to alert clients to specific aspects of their interests that may be unknown to them. For example, even if a person knows exactly the activities in which he or she is interested, inventories provide valid comparisons that could not be carried out by the person being assessed. No matter how much the client knows about his or her interests, the person is probably not sufficiently well informed to validly compare them to those of accountants, physicians, forest rangers, and so on. Interest inventories provide such comparisons.

Interest Assessment Inventory

An interest inventory is a testing instrument designed for the purpose of measuring and evaluating the level of an individual's interest in, or preference for, a variety of activities; also known as interest test.

Standardization of the Test

A Standardized test is a test that is given in a structured way or “standard” manner. Standardized tests are designed to have consistent questions, administration procedures, and scoring procedures. When a standardized test is administered, it is done so according to certain rules and specifications so that testing conditions are the same for all test takers. The main benefit of standardized tests is they are typically more reliable and valid than non-standardized measures. They often provide some type of “standard score” which can help interpret how far a child’s score ranges from the average. Standardization process involves reliability, Validity and establishing Norms. IN the current paper Norms of the test are compared on various categories such gender, class.

Norms - Norms refer to the performances by defined groups on particular tests. The norms for a test are based on the distribution of scores obtained by some defined sample of individuals. Norms are used to give information about performance relative to what has been observed in a standardization sample. Norms are obtained by administering the test to a sample of people and obtaining the distribution of scores for that group. Norms can be formed on the bases like age related, grade, gender etc. There are different types of norms, in the present study age norms, gender norms, Percentile rank, stanine and standard score. Percentiles norms will be used to develop norms. Separate gender and standards wise norms will be developed

i) Age Norms

Also known as age-equivalent scores, age norms indicate the average performance of different samples of test takers who were at various ages at the time the test was administered. For example, if the measurement under consideration is height in inches, then we know that scores (heights) for children will gradually increase at various rates as a function of age up to the middle to late teens. With the graying of America, there has been increased interest in performance on various types of psychological tests, particularly neuropsychological tests, as a function of advancing age.

ii) **Percentiles**

The percentile is explained by different psychologist like **Anastasi, (2006)**, etc. Percentile scores are expressed in terms of the percentage of the person in the standardization sample who falls below a given raw score (Anastasi 2006), Percentiles are the specific scores or point within a distribution. Percentile divides the total frequency for a set of observations into hundredths. Instead of indicating what percentage of scores fall below a particular score, as percentile rank do, percentile indicates the particular score, below which a defined percentage of scores falls. Percentile rank scores are the most direct and ubiquitous method used to convey norm-referenced test results. Their chief advantages are that they are readily understood by test takers and applicable to most sorts of tests and test populations. A *percentile score* indicates the relative position of an individual test taker compared to a reference group, such as the standardization sample; specifically, it represents the percentage of persons in the reference group who scored at or below a given raw score. Thus, higher percentile scores indicate higher raw scores in whatever the test measures; the 50th percentile (*P50*), or median, corresponds to the raw score point that separates the top and bottom halves of the score distribution of the reference group. In a normal distribution the 50th percentile is also the group's mean level of performance. An additional advantage of percentile rank scores comes into play when there is more than one normative group for the same test or when normative groups are subdivided by categories, such as gender, age, or ethnicity. When additional norms are available, a raw score can be located within the distributions of two or more different groups or subgroups and easily converted into percentile ranks. For example, interest inventory scores for various occupational groups are often reported for men and women as separate sex group norms, so that test takers can see their rankings on a given interest and occupational scale compared to both groups. This information is particularly useful for those who are considering an occupation that is significantly segregated along sex lines, such as engineering or nursing. The separation of norms allows individuals to gauge the relative strengths of their expressed interests in comparison to members of both sex groups.

iii) **Stanine**

Stanine is a contraction of 'Standard Nine' and it has score expressed in digits ranging from 1 to 9. The mean of these scores is 5 and the standard deviation is 1.96 or approximately 2. When raw scores are transformed into Stanine scores, they automatically take a shape approximating the normal curve. As a matter of fact, Stanine scores are the condensed scores

on the C scale. In the C scale there are 11 score points ranging from 0 to 10 with the mean lying exactly at 5, for computational facilities with computer punched-card records the 2 points at both the extremes (that is, 0 on the lower end and 10 on the higher end) are combined, these leaving only a 9 point scale (called the Stanine scale). A variant of the Stanine scale is the Sten scale proposed by **Canfield (1951)** where there are 10 units - 5 units above and 5 units below the mean.

Raw score can be transformed into the Stanine scale by arranging them in order of size and then giving the percentage of each Stanine score points according to normal distribution curve.

Table 1 - Normal Curve Percentage for use in Stanine Conversion

Percentage	4	7	12	17	20	17	12	7	4
Stanine	1	2	3	4	5	6	7	8	9
Percentile Rank	P 4	P5 - P10	P20 - P23	P25 - P40	P50 - P60	P70 - P77	P80 - P89	P90 - P96	P99

The first Stanine covers 4%, second Stanine covers 7%, and third Stanine covers 12%, fourth Stanine covers 17%, fifth Stanine covers 20%, sixth 17%, seventh 12% eighth 7% and nine 4% of the total cases. When, for example, there are 300 scores earned by 300 students on the test, then the lowest 12 scores (4% of 300) would receive a Stanine score of 1; the next 21 scores would receive a Stanine score of 2, and so on. Stanine divides the percentiles into 9 divisions, with the 4, 5 and 6th stanine considered average, 7th and 8th stanine considered above average, and 9th stanine considered very much above average.

Review Of Literature

The review of the research is important for any scientific investigation. Its main objective is not only to understand the trends of research in the field but also find the gap in research if any.

After in-depth review of most used interest inventories it has noticed that most of the inventories are aimed to measure individuals' interest in various career fields. Some inventories are 5 fields to ten fields i.e. Multiphasic Interest Inventory (MII), Bawa, (2006). Educational Interest Record (EIR), Kulshrestha, (2006). Kuder General Interest Survey (KGIS), Kuder, (1939), in which they have assessed interest only from major academic streams like; 1) Outdoor 2) Mechanical 3) Computational 4) Scientific 5) Persuasive 6) Artistic 7) Literary 8) Musical 9) Social Services and 10) Clerical s. Some of the inventories have widened their area to twelve fields and even nineteen fields of interest e.g. The Strong Vocational Interest Blank (SVIB), Strong, (1927), Interest inventory by Palsane, (1977),.

Sodhi & Bhatnagar Interest Inventory for Girls, Sodhi & Bhatnagar, (2004), in which they have assessed interest only from major academic streams like; 1) Administrative 2) Clerical 3) Computational, 4) Mechanical, 5) Outdoor 6) Persuasive 7) Scientific 8) Social-Public Service 9) Teaching 10) Artistic 11) Literary 12) Musical 13) Business. Hence there are plenty of interest inventories and they are assessing variety of interest areas and effective in career guidance.

Verbal interest reported by student and tested interest can differ, after the review it has noticed that none of the inventory provides detailed career information and unable to pin point a single career option among the broad area of that particular career. i.e. which area of Commerce in which student is more interested rather than providing him a general area one should be able give particularly or specific career option. For this particular reason in the present research work commerce interest inventory will be constructed.

Presently there are various interest inventories, which help to find interest from commerce but could not provide specific fields of commerce. Hence after careful study of literature from commerce fields and various Interest inventories, it is decided that areas / fields of commerce will be selected as these fields are related to the rest of the areas of commerce. This inventory will be able to provide information to students about their interest related to commerce fields where he / she is more interested. It will also help students and teachers to understand the inclination towards a particular profession within the commerce stream.

Need Of The Study

Test is generally guided by certain norms; norm-referenced test interpretation uses standards based on the performance of specific groups of people to provide information for interpreting scores. This type of test interpretation is useful primarily when we need to compare individuals with one another or with a reference group in order to evaluate differences between them on whatever characteristic the test measures. In the present study with the help of norms, interest inclination of commerce students within the commerce stream will be evaluated to support them make their professional choices, and learning policies.

Statement Of The Problem

A Comparative Study of Norms of Higher Secondary School Students on a Test of Commerce Interest Inventory

Objective Of The Study

To compare the norms of 11th& 12th standard Rural and Urban, Male and Female student on Commerce Interest Inventory to understand their interest inclination within Commerce stream

Method Of The Study

The present study attempted to find Interest inclination within the Commerce stream of higher secondary school students of Maharashtra state. Keeping the view of the nature of the study, the survey method was found to be more suitable.

Population of the Study

Population

In the present study researcher has studied a finite population, where all the members are easily counted, a 11th & 12th Commerce stream students of Marathi and English medium from State Board of Maharashtra is the population for the present study.

Sample

The sample considered for the present study is from the State of Maharashtra. There are a total six geographical zones in the State of Maharashtra; they are Pune, Kokan, Nasik, Aurangabad, Amravati and Nagpur. For this study the researcher administered the test in 6 administrative regional zone of State of Maharashtra. The sample consisted of 1204 Commerce field students of 11th& 12th standard from Rural and Urban area.

Table - 1: Sample for calculating Psychometric Properties

Sr.No.	Zone	Sample from std. 11th to 12th standard						TOTAL
		Urban		Rural		TOTAL		
		Boys	Girls	Boys	Girls	Boys	Girls	
1	Pune	51	50	50	50	101	100	201
2	Kokan	50	50	50	50	100	100	200
3	Nasik	50	50	50	50	100	100	200
4	Aurangabad	51	50	50	50	101	100	201
5	Amravati	50	50	50	52	100	102	202
6	Nagpur	50	50	50	50	100	100	200
TOTAL		302	300	300	302	602	602	1204

Research Tool

Commerce Interest Inventory (CII)

This research is aimed to develop the above mentioned inventory. Different areas of Commerce fields are consider here after detail review of the literature from commerce and

psychometrics, i.e. Banking, Actuarial Science, Marketing and Advertising, Bookkeeping and Accountancy, Business and Trade, Management and Administration, Transport and Communication, Law and Taxation and Information Technology.

There are fifteen items in each field of commerce with Three Point Likert - Type Scale, each item will have three options 'Yes', 'No', and '?' There are a total one Hundred and Thirty Five items in the inventory. Language will be used which can be understandable to XII Commerce students of Marathi and English Medium.

Statistical Techniques Used

In this study Norms are established through the method of percentile and stanine, Stanine are one of the standard scores therefore stanine scores were used for the comparison between groups.

Analysis of Data

After collecting data the investigators calculated percentile and stanine norms on the categories of grade, gender and area. The calculation was done by using SPSS version 20.0 on the computer.

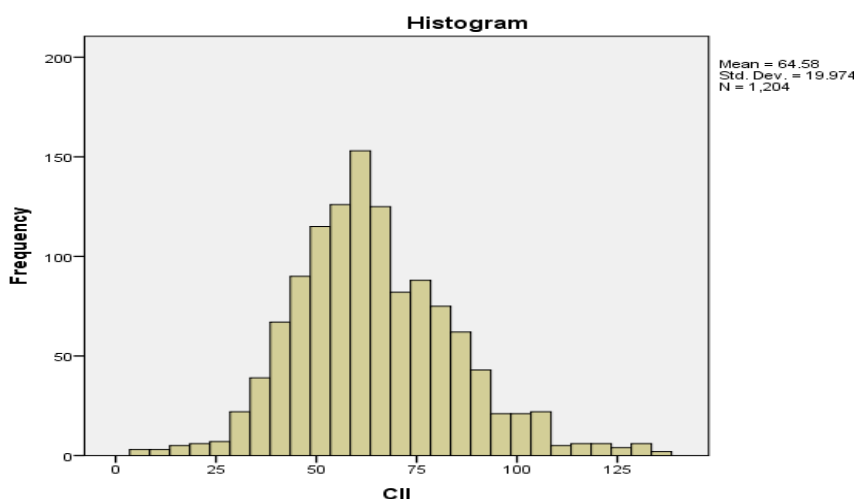
Table: 2 Descriptive statistics for all the Commerce Fields and total score of the entire scale

Commerce Fields	Mean	Std. Error of Mean	Std. Deviation	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Actuarial Science	26.42	0.364	7.807	1.523	0.114	1.083	0.227
Banking	34.02	0.361	7.744	1.463	0.114	1.029	0.227
Marketing & Advertisement	28.9	0.453	9.714	1.23	0.114	0.631	0.227
Transport & Communication	25.66	0.437	9.353	1.269	0.114	0.604	0.227
Book keeping & Accountancy	29.19	0.422	9.049	1.469	0.114	1.438	0.227
Business & Trade	29.78	0.45	9.631	1.396	0.114	1.136	0.227
Management & Administration	32.41	0.527	11.3	1.427	0.114	1.211	0.227
Law & Taxation	23.1	0.376	8.06	1.389	0.114	0.982	0.227
Information Technology	29.43	0.375	8.041	1.692	0.114	1.451	0.227
Total	488.37	6.127	131.26	1.221	0.114	1.005	0.227
N	1204	1204	1204	1204	1204	1204	1204

Table Number - 4.1 shows descriptive statistics with the Mean & S.D. sample consists 1204. To test the normality of the data, Skewness and Kurtosis was tested with the reference of standard error of mean. It has found that all the values of skewness & kurtosis with

reference to standard error is less than 1.96 it shows that data is acceptable on the Normal Distribution Curve (NDC).

Graph1: Normal Distribution Curve to test the Normality of the data



To test the normality of the data histogram with normal curve plotted, graph 4.1 explains normality of the data, it is noticed that score ranges from 0 to 135 with the mean of 64.58 and S.D. = 19.97 for N= 1204. The plot shows near to normal histogram it also implies the data is suitable for further statistical analysis.

Analysis of the Data

This section of chapter four deals with Norms of the test developed in the present research activity. Norms are the one of the most important factors of the process of standardization of the psychometric tool. Researcher has used the Stanine and **Percentile** Method to develop Norms. Separate norms are developed for Male, Female as well as for combined groups. Similarly grade wise (11th to 12th std.) norms have also developed. For all the psychological concepts when it is to be measured through the inventory normally separate norms for male, female and for the combined group are constructed. When it comes to measurement the influence of group and surrounding environment always took place; to consider this influence separate norms are constructed for boys, girls and combine (boys + girls), specifically in case of ability and Interest assessment area, gender, grade and Class are four basic criterion to be considered while establishing norms.

Norms for high school students for all sub fields of CII were developed for Boys and Girls, Urban and Rural as well as 11th to 12th grade commerce students included in the Normative sample. Initially percentile for row score was computed and then the percentile

score was converted into the Stanine. Following chart describes the range of percentile rank considered for calculating stanine as explained in chapter Three.

Table 3 - Normal Curve Percentage for use in Stanine Conversion

Percentage	4	7	12	17	20	17	12	7	4
Stanine	1	2	3	4	5	6	7	8	9
Percentile Rank	P4	P5 - P10	P20 - P23	P25 - P40	P50 - P60	P70 - P77	P80 - P89	P90 - P96	P9

Table Number - 4.25 explains three benchmarks on the score obtained on CII. These benchmarks were below average and above average these three benchmarks were linked with three stanine levels. Stanine 1 to 3 is below average stanine 4 to 6 average and 7 to 9 is above average

Gender Wise Norms

Gender Wise Norms of 11th Commerce Students

For Area wise Norms of 11th Commerce all sub fields norms are developed area wise on the sample 388 from which 205 were Boys and 183 were Girls form State of Maharashtra. Details norms values are shown in the Table Number - 4.27

Table Number - 4 - Gender wise Norms of 11th Commerce Students

Table 4.26 is attached in the appendix A

Observations

1) Sub field - Actuarial Science

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 7 on the Actuarial Science of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 7 on the CII. Raw scores of 7 to 12 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale.

2) Sub field - Banking

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 6 to 7 on the Banking of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 6 to 7 on the CII. Raw scores of 7

to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 13 to 15 explaining the highest score on the scale.

3) **Sub field - Marketing & Advertisement**

11th Grade boy's norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 7 on the Marketing & Advertisement of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 7 on the CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 13 to 15 explaining the highest score on the scale.

4) **Sub field - Transport & Communication**

11th Grade boy's norms were established, Stanine range of 1 to 3 lies at the raw score of 3 to 7 on the Transport & Communication of CII. Raw scores of 7 to 8 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 9 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girl's** norms were established, Stanine range of 1 to 3 lies at the raw score of 4 to 7 on the CII. Raw scores of 7 to 10 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 11 to 15 explaining the highest score on the scale.

5) **Sub field - Book-keeping & Accountancy**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 7 on the Book-keeping & Accountancy of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 7 on the CII. Raw scores of 7 to 11 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 11 to 15 explaining the highest score on the scale.

6) **Sub field - Business & Trade**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 5 to 7 on the Business & Trade of CII. Raw scores of 7 to 10 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 11 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 6 to 7 on the CII. Raw scores of 7

to 10 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 10 to 15 explaining the highest score on the scale.

7) **Sub field - Management & Administration**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 6 on the Management & Administration of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 7 on the CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale.

8) **Sub field - Law & Taxation**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 5 to 7 on the Law & Taxation of CII. Raw scores of 7 to 11 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 12 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 on the CII. Raw scores of 7 to 12 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 13 to 15 explaining the highest score on the scale.

9) **Sub field - Information Technology**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 6 on the Information Technology of CII. Raw scores of 7 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale. On same line Stanine, scores for **11th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 6 on the CII. Raw scores of 7 to 11 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 12 to 15 explaining the highest score on the scale.

Gender Wise Norms Of 12th Commerce Students

For Area wise Norms of 12th Commerce all sub fields norms are developed area wise on the sample 816 from which 397 were Boys and 419 were Girls from State of Maharashtra. Details norms values are shown in the Table Number - 4.27

Table Number - 4.27 - Gender wise Norms of 12th Commerce Students

- *Table 4.27 is attached in the appendix B*

Observations

1) **Sub field - Actuarial Science**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the Actuarial Science of CII. Raw scores of 9 to 15 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

2) **Sub field - Banking**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 5 to 8 on the Banking of CII. Raw scores of 8 to 15 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 4 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

3) **Sub field - Marketing & Advertisement**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the Marketing & Advertisement of CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the CII. Raw scores of 8 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale.

4) **Sub field - Transport & Communication**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 3 to 8 on the Transport & Communication of CII. Raw scores of 9 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

5) **Sub field - Book-keeping & Accountancy**

11th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the Book-keeping & Accountancy of CII. Raw scores of 9 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the CII. Raw scores of 8 to 13 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 14 to 15 explaining the highest score on the scale.

6) **Sub field - Business & Trade**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 6 to 8 on the Business & Trade of CII. Raw scores of 9 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 0 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

7) **Sub field - Management & Administration**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the Management & Administration of CII. Raw scores of 9 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

8) **Sub field - Law & Taxation**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 5 to 8 on the Law & Taxation of CII. Raw scores of 9 to 15 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 1 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

9) **Sub field - Information Technology**

12th Grade boys norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the Information Technology of CII. Raw scores of 9 to 15 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale. On same line Stanine, scores for **12th Grade Girls** norms were established, Stanine range of 1 to 3 lies at the raw score of 7 to 8 on the CII. Raw scores of 8 to 14 lies between the Stanine score of 4 to 6. Lastly, Stanine score of 7 to 9 lies between the score range of 15 explaining the highest score on the scale.

A) **Class And Categories Wise**

● **For Standard 11th:**

In '*Below Average*' (Percentile P4 to P23) range it is found that raw score of boys and girls is comparatively high than that of the score of girls in all fields except Transport & Communication, Business and Trade, Law & Taxation.

In '*Average*' (Percentile P25 to P77) range also raw score of boys and girls is comparatively high than that of the score of girls in all fields except Banking, Transport & Communication, Business and Trade, Law & Taxation.

In '*Above average*' (Percentile P80 to P99) range, there is difference seen in the raw score of boys and girls is comparatively high than that of the score of girls in all fields except Business and Trade, Law & Taxation.

● **For Standard 12th**

In '*Below Average*' (Percentile P4 to P23) range it is found that, raw score of boys is comparatively high than that of the score of girls in the fields, banking, Transport & Communication, Business & Trade, Law & Taxation. Raw score of girls is comparatively high than that of the score of boys in the fields Marketing & Advertisement, Book-keeping & Accountancy. But there is no difference shown in the raw score of boys and girls in the fields of Actuarial Science, Management & Administration & Information Technology.

In '*Average*' (Percentile P25 to P77) range it is found that raw score of boys is comparatively high than that of the score of girls in the all fields.

In '*Above average*' (Percentile P80 to P99) range it is found that raw score of boys is comparatively high than that of the score of girls in the fields, Banking, Actuarial Science, Management & Administration & Information Technology. Raw score of girls is comparatively high than that of the score of boys in the fields Transport & Communication.

But there is no difference shown in the raw score of boys and girls in the fields of Marketing & Advertisement, Book-keeping & Accountancy, Business & Trade and Law & Taxation.

Conclusion

Comparison on nine professional filed on CII between male and female 11th and 12th commerce students done. On Actuarial Science boys scored higher than girls students. Similarly on banking profession boys scored higher than girl's students likewise boys scored higher on Book Keeping & Accountancy and Information Technology. On Marketing & Advertising, Transport & Communication, Business & Trade, Management & Administration, and Law and Taxation girls students scored high than boy's students.

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