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# STRUCTURE EQUATION MODELS OF NARCISSISM PERSONALITY RATING SCALE

1

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## INTRODUCTION

Narcissistic personality is one of the significant concepts in the field of psychology. Narcissism is a self–centered personality style characterized as having an excessive preoccupation with oneself and one's own needs, often at the expense of others. Narcissism exists on a continuum that ranges from normal to abnormal personality expression. While many psychologists believe that a moderate degree of narcissism is normal and healthy in humans, there are also more extreme forms, observable particularly in people who are excessively self-absorbed, or who have a mental illness like narcissistic personality disorder (NPD), where the narcissistic tendency has become pathological, leading to functional impairment and psychosocial disability.

The term narcissism comes from the Roman poet Ovid's Metamorphoses, written in the year 8 CE. Book III of the poem tells the mythical story of a handsome young man, Narcissus, who spurns the advances of many potential lovers. When Narcissus rejects the nymph Echo, who was cursed to only echo the sounds that others made, the gods punish Narcissus by making him fall in love with his reflection in a pool of water. When Narcissus discovers that the object of his love cannot love him back, he slowly pines away and dies. The concept of excessive selfishness has been recognized throughout history. In ancient Greece, the concept was understood as hubris. Some religious movements such as the Hussites attempted to rectify what they viewed as the shattering and narcissistic cultures of recent centuries. It was not until the late 1800s that narcissism began to be defined in psychological terms. Since that time, the term has had a significant divergence in meaning in psychology. It has been used to describe: (i) A sensual perversion, (ii) A normal developmental stage, (iii) A symptom of psychosis, and (iv) A characteristic in several of the object relations. In 1911 Otto Rank

published the first clinical paper about narcissism, linking it to vanity and self-admiration (Fudge, 2021).

In an essay in 1913 called "The God Complex", Ernest Jones considered extreme narcissism as a character trait. He described people with the God complex as being aloof, self-important, overconfident, auto-erotic, inaccessible, self-admiring, and exhibitionistic, with fantasies of omnipotence and omniscience. He observed that these people had a high need for uniqueness. Sigmund Freud (1914) published his theory of narcissism in an essay titled "On Narcissism: An Introduction". For Freud, narcissism refers to the individual's direction of libidinal energy toward themselves rather than objects and others. He postulated a universal "primary narcissism", a necessary intermediate stage between auto-eroticism and object love, love for others. Portions of this 'self-love' or ego-libido are, at later stages of development, expressed outwardly, or "given off" toward others. Freud's postulation of a "secondary narcissism" came as a result of his observation of the peculiar nature of the schizophrenic's relation to themselves and the world. He observed that the two fundamental qualities of such patients were megalomania and withdrawal of interest from the real world of people and things: "The libido that has been withdrawn from the external world has been directed to the ego and thus gives rise to an attitude which may be called narcissism". It is a secondary narcissism because it is not a new creation but a magnification of an already existing condition i.e. primary narcissism. (Ogrodniczuk, 2013).

In 1925, Robert Waelder conceptualized narcissism as a personality trait. His definition described condescending individuals, who feel superior to others, are preoccupied with admiration, and exhibit a lack of empathy. Waelder's work and his case study have been influential in the way narcissism and the clinical disorder narcissistic personality disorder are defined today. His patient was a successful scientist with an attitude of superiority, an obsession with fostering self-respect, and a lack of normal feelings of guilt. The patient was aloof and independent from others, could not empathize with others, and was selfish. Waelder's patient was also overly logical and analytical and valued abstract intellectual thought over the practical application of scientific knowledge (Jones, 2007).

## OBJECTIVE

The objective of the study was to validate a student Narcissism Personality Rating Scale (NPRS) through confirmatory factor analysis with and without exploratory factor analysis.

## ITEM FRAMING

The items were framed by referring to the concepts and definitions cited in the foregoing pages, a few statements from the review of literature on the subject, and also discussions with experts in the field of education and psychology. Some of the items were adapted from

Narcissism Personality Inventory (NPI) by Emmons (1984) and Narcissism Personality Inventory (NPI) by Raskin and Terry (1988). These sources have provided the base for the development of the Narcissism Personality Rating Scale. An item conveying the idea most clearly was retained, and the language of the item was made simple and suitable to express the concept implied. This process of scrutiny and evaluation yielded 40 statements as shown in Table 1.

Narcissism Personality Rating Scale (NPRS) was prepared with four hypothetical constructs namely leadership, entitlement, superiority, and self-admiration. Leadership dimension is the ability of an individual or a group of people to influence and guide followers or members of an organization, society, or team. Leadership often is an attribute tied to a person's title, seniority, or ranking in a hierarchy. The entitlement dimension is defined as a sense of deservingness or being owed a favor when little or nothing has been done to deserve special treatment. It's the "you owe me" attitude. Entitlement is a narcissistic personality trait. It's not known exactly how this mentality develops. The superiority dimension is the fact that one person or thing is better, stronger, etc. than another. An unpleasant way of behaving that a person has when they think they are better than other people. The self-admiration dimension is the quality of being very proud of yourself and your actions. An often unjustified feeling of being pleased with oneself or with one's situation or achievements his overweening self-admiration blinded him to constructive criticism of any kind.

**Table 1 - Items of the Narcissism Personality Rating Scale with their Hypothetical Constructs**

| S. No | Code | Statements/ Items/ Dimension |
|---|---|---|
| **Leadership** | | |
| 1 | NP1 | I see myself as a good leader. (Emmons, 1984) |
| 2 | NP2 | I like to be the center of attraction. (Emmons, 1984) |
| 3 | NP3 | I like having authority over other people. (Emmons, 1984) |
| 4 | NP4 | I would be willing to describe myself as a unique personality. (Emmons, 1984) |
| 5 | NP5 | I would prefer to be a leader. (Emmons, 1984) |
| 6 | NP6 | I have a natural talent for influencing people. (Raskin & Terry, 1988) |
| 7 | NP7 | I like to be assertive. (Raskin & Terry, 1988) |
| 8 | NP8 | People always seem to recognize my authority. (Raskin & Terry, 1988) |
| 9 | NP9 | I think I will be successful. (Raskin & Terry, 1988) |
| 10 | NP10 | I feel I am a born leader. (Raskin & Terry, 1988) |

| S. No | Code | Statements/ Items/ Dimension |
|---|---|---|
| **Self-admiration** | | |
| 11 | NP11 | I like to often look at myself in the mirror. (Emmons, 1984) |
| 12 | NP12 | I feel I am an extraordinary person. (Emmons, 1984) |
| 13 | NP13 | I have unique taste when it comes to beauty. (Emmons, 1984) |
| 14 | NP14 | I think I am a special person. (Emmons, 1984) |
| 15 | NP15 | I like to be complimented. (Emmons, 1984) |
| 16 | NP16 | I like to be a great person. (Raskin & Terry, 1988) |
| 17 | NP17 | I believe that I am good because everyone keeps telling me so. (Raskin & Terry, 1988) |
| 18 | NP18 | I rarely depend on anyone else to get many things done. (Raskin & Terry, 1988) |
| 19 | NP19 | I like to take responsibility for making decisions. (Raskin & Terry, 1988) |
| 20 | NP20 | I can live my life in any way I want to. (Raskin & Terry, 1988) |
| **Superiority** | | |
| 21 | NP21 | Everybody likes to hear about my stories. (Emmons, 1984) |
| 22 | NP22 | I usually dominate any conversation. (Emmons, 1984) |
| 23 | NP23 | I can make anybody believe anything. (Emmons, 1984) |
| 24 | NP24 | I can read people's minds. (Emmons, 1984) |
| 25 | NP25 | I am apt to show off if I get the chance. (Emmons, 1984) |
| 26 | NP26 | I always know what I am doing. (Raskin & Terry, 1988) |
| 27 | NP27 | I can usually talk my way out of anything. (Raskin & Terry, 1988) |
| 28 | NP28 | I think I was born with superiority. (Raskin & Terry, 1988) |
| 29 | NP29 | I would dare to do anything. (Raskin & Terry, 1988) |
| 30 | NP30 | I wish somebody would someday write my biography. (Raskin & Terry, 1988) |
| **Entitlement** | | |
| 31 | NP31 | I expect great things from other people. (Emmons, 1984) |
| 32 | NP32 | I am envious of other people's good fortune. (Emmons, 1984) |
| 33 | NP33 | I insist on getting my due respect. (Emmons, 1984) |
| 34 | NP34 | I will never be satisfied until I get all that I deserve. (Emmons, 1984) |
| 35 | NP35 | I have a strong will to become powerful. (Emmons, 1984) |
| 36 | NP36 | I get upset when people don't notice how I look when I go out in public. (Raskin & Terry, 1988) |
| 37 | NP37 | I think I find it easy to manipulate others. (Raskin & Terry, 1988) |
| 38 | NP38 | I believe I am more capable than other people. (Raskin & Terry, 1988) |
| 39 | NP39 | I want to achieve something in the eyes of the world. (Raskin & Terry, 1988) |
| 40 | NP40 | If I ruled the world it would be a much better place. (Raskin & Terry 1988) |

## SCORING PROCEDURE FOR 'NPRS'

The Narcissism Personality Rating Scale consists of 40 items which comprises of positive items only. The Likert-type responses were used in the inventory. A total of 5 different responses were used. The responses were strongly agree, agree, sometimes, disagree, and strongly disagree. The scores were given as 5 for strongly agree, 4 for agree, 3 for sometimes, 2 for disagree, and 1 for strongly disagree. A total of 200 is the maximum score. From Table 1, it can be seen that there are 10 items for the leadership dimension, 10 items for the entitlement dimension, 10 items for the superiority dimension, and 10 items for the self-admiration dimension.

## EXPERT EVALUATION OF THE NPRS ITEMS AND PRELIMINARY TRY – OUT

To establish the content validity of the tool, the items were subjected to expert scrutiny. The experts were drawn from the fields of education and psychology. Their suggestions were considered and necessary modifications to the scale were made. The items were arranged in random order and administered to a sample of 30 students to check their applicability. Necessary modifications were then made with the experience gained through this preliminary try-out.

## SAMPLE FOR THE STUDY

In the present study, the population constitutes the XI standard students out of which the target population is XI students of select schools of Pudukkottai District. The sample of 321 was taken from 7 schools of Pudukkottai District comprising rural and urban areas. Thus, the representativeness was ensured. The sample distribution based on gender, type of school, school management, medium of instruction, and stream of study is shown in Table 2.

**Table 2 - Sample Distribution**

| Variables | Categories | Frequency | Percentage |
|---|---|---|---|
| Gender | Boys | 166 | 51.7 |
| | Girls | 155 | 48.3 |
| Type of School | Boys' School | 46 | 14.3 |
| | Girls' School | 50 | 15.6 |
| | Co-Education School | 225 | 70.1 |
| School Management | Government | 179 | 55.8 |
| | Aided | 81 | 25.2 |
| | Private | 61 | 19.0 |
| Medium of Instruction | Tamil | 185 | 57.6 |
| | English | 136 | 42.4 |
| **TOTAL** | | **321** | **100** |

| Variables | Categories | Frequency | Percentage |
|---|---|---|---|
| Location of School | Rural | 179 | 55.8 |
| | Urban | 142 | 44.2 |
| Stream of study | Science | 109 | 34.0 |
| | Arts | 171 | 53.3 |
| | Vocational | 41 | 12.8 |
| **TOTAL** | | **321** | **100** |

## ITEM – TOTAL CORRELATION

For tool standardization, one of the basic and important steps is to apply item-total correlation to increase the reliability and validity of items (Balamurugan & Kumaran, 2008). The details of the item total correlation are shown in Table 3. For selecting the valid items required for the factor analysis, item-total correlation coefficients were calculated. Then it was decided to select items that are significant at 0.001 level with a correlation coefficient r-value greater than 0.2. Thus item total correlation yielded 40 out of 40 items with no dropping of items. At this juncture where all 40 items were selected, the investigator decided to check the model fit measurement model of confirmatory factor analysis with or without exploratory factor analysis.

**Table 3 - Item – Total Correlation**

| Item No. | Pearson Correlation (r) | Sig. (2-tailed) | Decision |
|---|---|---|---|
| NP1 | .399** | 0.000 | Selected |
| NP2 | .385** | 0.000 | Selected |
| NP3 | .287** | 0.000 | Selected |
| NP4 | .393** | 0.000 | Selected |
| NP5 | .510** | 0.000 | Selected |
| NP6 | .351** | 0.000 | Selected |
| NP7 | .200** | 0.000 | Selected |
| NP8 | .430** | 0.000 | Selected |
| NP9 | .342** | 0.000 | Selected |
| NP10 | .497** | 0.000 | Selected |
| NP11 | .377** | 0.000 | Selected |
| NP12 | .287** | 0.000 | Selected |
| NP13 | .480** | 0.000 | Selected |

| Item No. | Pearson Correlation (r) | Sig. (2-tailed) | Decision |
|---|---|---|---|
| NP14 | .526** | 0.000 | Selected |
| NP15 | .407** | 0.000 | Selected |
| NP16 | .367** | 0.000 | Selected |
| NP17 | .367** | 0.000 | Selected |
| NP18 | .254** | 0.000 | Selected |
| NP19 | .505** | 0.000 | Selected |
| NP20 | .371** | 0.000 | Selected |
| NP21 | .463** | 0.000 | Selected |
| NP22 | .323** | 0.000 | Selected |
| NP23 | .397** | 0.000 | Selected |
| NP24 | .479** | 0.000 | Selected |
| NP25 | .369** | 0.000 | Selected |
| NP26 | .407** | 0.000 | Selected |
| NP27 | .405** | 0.000 | Selected |
| NP28 | .473** | 0.000 | Selected |
| NP29 | .379** | 0.000 | Selected |
| NP30 | .365** | 0.000 | Selected |
| NP31 | .339** | 0.000 | Selected |
| NP32 | .349** | 0.000 | Selected |
| NP33 | .458** | 0.000 | Selected |
| NP34 | .389** | 0.000 | Selected |
| NP35 | .509** | 0.000 | Selected |
| NP36 | .401** | 0.000 | Selected |
| NP37 | .299** | 0.000 | Selected |
| NP38 | .376** | 0.000 | Selected |
| NP39 | .384** | 0.000 | Selected |
| NP40 | .437** | 0.000 | Selected |

**=significant at 0.01 level

## VALIDATION ANALYSIS WITH EXPLORATORY FACTOR ANALYSIS (FORCED CHOICE)

### Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy provides an index (between 0 and 1) of the proportion of variance among the variables that might be common variance (i.e., that might be indicative of underlying or latent common factors). For the present study, the KMO measure of sampling adequacy was employed to identify the validity of the scale, which was found to be 0.797. For the df of 780, the approx. The chi-square value for Bartlett's Test of Sphericity was identified as 2965.778, which was found to be significant at 0.001 level. This estimation proved to be appropriate for the factor analysis (Balamurugan, 2013).

### Exploratory Factor Analysis (EFA)

After item-total correlation, the 40 items were subjected to the exploratory factor analysis. The investigator had decided to go with the 4 factors, which coincide with the 4 hypothetical factors namely leadership, entitlement, superiority, and self-admiration. Principal Component Analysis with varimax (with Kaiser Normalization) rotation and forced solution of four factors was executed that produced the further refined version, which converged in 0 iterations as shown in Table 4. Exploratory factor analysis revealed that the items on the final version of SBS loaded on 4 factors, which accounted for 32.283 % of the total scale variance.

**Table 4 - Rotated Component Matrix**

| Item No. | Narcissism Personality | | | |
|---|---|---|---|---|
| | Leadership | Entitlement | Superiority | Self-admiration |
| NP10 | 0.634 | | | |
| NP8 | 0.605 | | | |
| NP22 | 0.597 | | | |
| NP2 | 0.555 | | | |
| NP5 | 0.524 | | | |
| NP14 | 0.490 | | | |
| NP6 | 0.474 | | | |
| NP1 | 0.470 | | | |
| NP30 | 0.256 | | | |
| NP16 | | 0.674 | | |
| NP25 | | 0.613 | | |
| NP9 | | 0.581 | | |
| NP15 | | 0.550 | | |
| NP39 | | 0.481 | | |

| Item No. | Narcissism Personality | | | |
|---|---|---|---|---|
| | Leadership | Entitlement | Superiority | Self-admiration |
| NP26 | | 0.403 | | |
| NP32 | | 0.373 | | |
| NP3 | 0.369 | | | |
| NP7 | | 0.335 | | |
| NP24 | | | 0.597 | |
| NP35 | | | 0.586 | |
| NP23 | | 0.217 | | |
| NP37 | | | 0.533 | |
| NP34 | | | 0.484 | |
| NP33 | | | 0.469 | |
| NP27 | | 0.219 | | |
| NP29 | | 0.326 | | |
| NP19 | | | 0.401 | |
| NP38 | | | 0.325 | |
| NP40 | | | 0.303 | |
| NP12 | | | | 0.569 |
| NP13 | | | | 0.497 |
| NP11 | | | | 0.491 |
| NP36 | | | | 0.464 |
| NP18 | | | | 0.448 |
| NP20 | | | | 0.422 |
| NP17 | | | | 0.411 |
| NP21 | | | | 0.347 |
| NP28 | | | 0.265 | |
| NP4 | 0.265 | | | |
| NP31 | | | | 0.263 |

## SCORING PROCEDURE FOR 'NPRS'

Table 4 showed that that there are 11 items for the leadership dimension, 10 items for the entitlement dimension, 9 items for the superiority dimension, and 10 items for the self-admiration dimension chosen.

## Confirmatory Factor Analysis (CFA)

After the KMO measure and factor analysis, the CFA, that is Structural Equation Modelling (SEM) using AMOS (Analysis of a Moment Structures) software ver. 21 can be done for confirmation of factors obtained through EFA. SEM of EFA driven measurement model with 4 constructs

(leadership, entitlement, superiority, and self-admiration) obtained from AMOS achieved absolute model fit, the model is recursive (40 items: No question was dropped due to model fit suggestion) as shown in Figure 1, with CMIN = 1468.431, DF = 734, CMIN/DF = 2.001, CFI = 0.684, SRMR = 0.073 and RMSEA = 0.056 (Hair et al., 2006) and was presented in Table 5, thus NPRS is valid. The opinion is that a value of about 0.08 or less for the RMSEA would indicate a reasonable error of approximation (Browne & Cudeck, 1993).

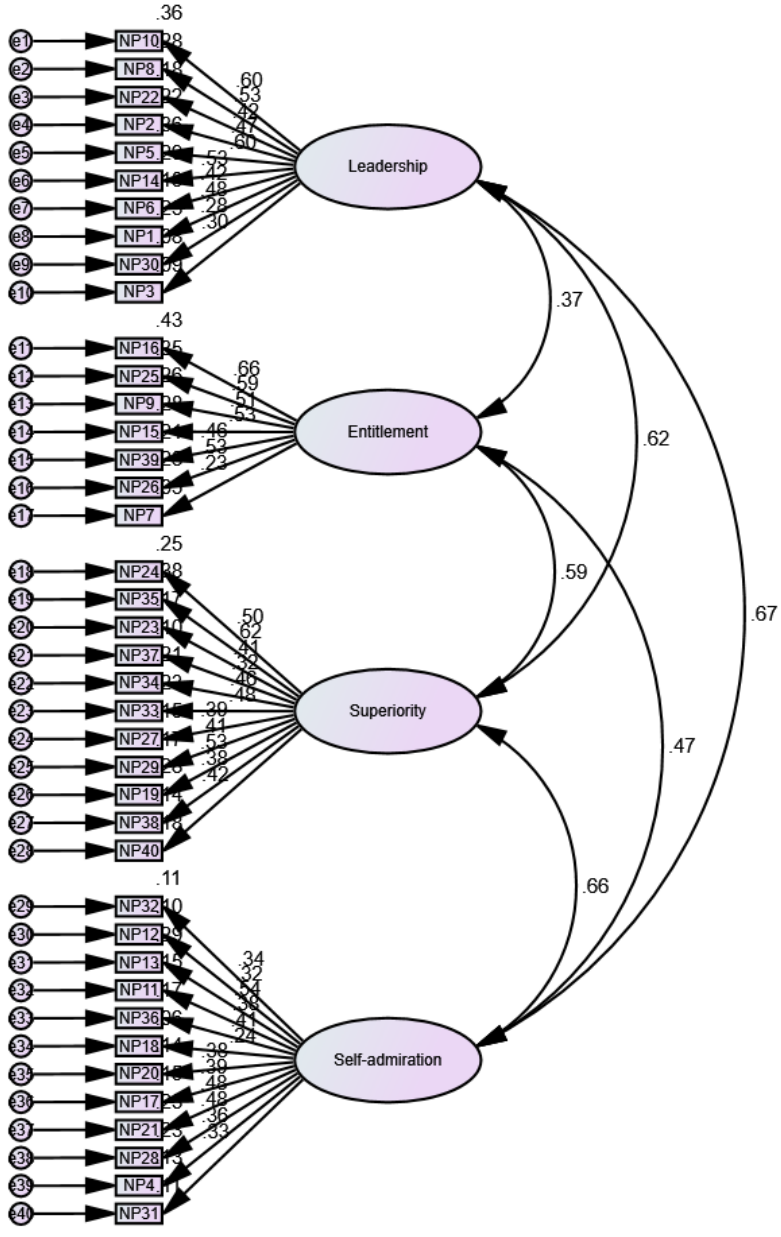


**Fig. 1 - Structural Equation Measurement Model suggested by Forced Choice EFA**

**Table 5 - AMOS Model Fit Estimates SEM with EFA**

| Measure | Estimate | Threshold | Interpretation |
|---|---|---|---|
| Chi-Square (CMIN) | 1468.43 | -- | -- |
| Degree of Freedom (DF) | 734 | -- | -- |
| Discrepancy divided by Degree of Freedom (CMIN/DF) | 2.001 | Between 1 and 3 | Excellent |
| Comparative Fit Index (CFI) | 0.684 | >0.95 | Need More DF |
| Standardized root mean Square Residual (SRMR) | 0.073 | <0.08 | Excellent |
| Root Mean Square Error of Approximation (RMSEA) | 0.056 | <0.06 | Excellent |

**Validation Analysis without Exploratory Factor Analysis**

As earlier discussed by the researcher when no items were dropped after the application of item-total correlation, then tool validation is also possible through a SEM diagram without the factors suggested by forced choice exploratory factor analysis.

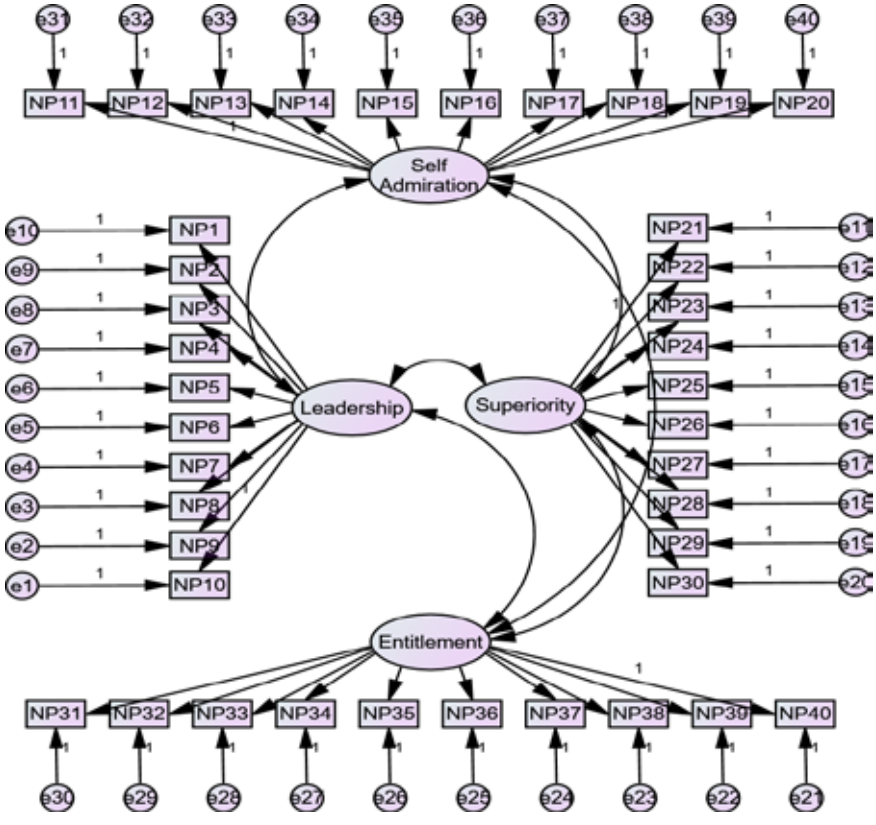


**Fig. 2 - Structural Equation Measurement Model with 4 Hypothetical Constructs**

**Table 6 - AMOS Model Fit Estimates SEM with 4 Hypothetical Constructs**

| Measure | Estimate | Threshold | Interpretation |
|---|---|---|---|
| Chi-Square (CMIN) | 1681.05 | -- | -- |
| Degree of Freedom (DF) | 734 | -- | -- |
| Discrepancy divided by Degree of Freedom (CMIN/DF) | 2.29 | Between 1 and 3 | Excellent |
| Comparative Fit Index (CFI) | 0.592 | >0.95 | Need More DF |
| Standardized root mean Square Residual (SRMR) | 0.079 | <0.08 | Excellent |
| Root Mean Square Error of Approximation (RMSEA) | 0.063 | <0.06 | Acceptable |

SEM of hypothetical measurement model with 4 constructs (leadership, entitlement, superiority, and self-admiration) obtained from AMOS achieved absolute model fit, the model is recursive (40 items: No question was dropped due to model fit suggestion) as shown in Figure 2, with CMIN = 1681.046, DF = 734, CMIN/DF = 2.290, CFI = 0.592, SRMR = 0.079 and RMSEA = 0.063 (Hair et al., 2006) and was presented in Table 6, thus NPRS is valid.

## FINDINGS AND CONCLUSION

It was found that the NPRS with 40 items, in both the SEM forms, of 4 factors through EFA as well as 4 hypothetical constructs was capable of effectively measuring narcissism personality viz – leadership, self-admiration, superiority, and entitlement, among eleventh standard students through confirmatory factor analysis with or without the application of EFA. The NPRS had a Cronbach's Alpha reliability coefficient of 0.859.

The NPRS item selected, modified, and scale validated can be used in the field of education and psychology. Even though the NPRS in this research accounted for nearly 32% of the total variance, still this will be well applicable to any research that needs measurement of narcissism personality. The narcissism personality measurement has become noteworthy in the field of psychology to understand and enhance student behaviour for their personality improvements. The NPRS in the present study has 40 statements that can be very well used in educational psychology, the two SEM models with or without EFA were demonstrated. The forced choice EFA accounted for nearly 24 items correctly classified when compared to the hypothetical constructs. The present study pointed out that more than forced-choice EFA classified items with their factors, the better result was obtained when CFA was applied to the 40 items initially framed with their four hypothetical constructs.

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# MULTIDISCIPLINARY APPROACH AND NEP-2020

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## INTRODUCTION

India has a rich tradition of multidisciplinary forms of Education. Remember the Gurukul system of education where knowledge was imparted by a Guru. No doubt, at that time knowledge was limited but the teachers or Gurus were adopting multiple or divergent approaches to solve a societal problem. The students were prepared to accept the challenges of society and at the same time, they were learning the techniques to critically analyse and solve the problems prevalent in their future occupation. Respect for society was given utmost importance in the learning process. The disciplinary boundary emerged with the growth of knowledge in various areas. Each area expanded exponentially in such a way that a person found much difficulty in crossing the boundary of disciplines. Secondly, the opportunity to make a career in a particular discipline initially encouraged the learner to be compartmentalized within a particular discipline.

The branching of knowledge, no doubt, systematized the knowledge and kept everything in one place, but it was not able to handle societal issues by its own. One discipline must be linked with another to solve a problem of society. Hence, a multidisciplinary approach emerged to connect knowledge with society. Further, the isolation of a discipline created many hindrances in understanding and applying a concept for societal benefit. An interdisciplinary approach was essential to solve such a problem. In this endeavor, various sub-disciplines with much focus on the application part emerged to handle the problems of living organisms. Taking into account such societal needs the National Education Policy – 2020 imparted ample flexibility in the selection of subjects at the school and higher education institutes. It broke the rigid walls of disciplines and provided equal opportunity to interlink various domains of knowledge for the benefit of society. This paper provides a comprehensive analysis of the merits

and demerits of an interdisciplinary and multidisciplinary approach to learning and the reason behind the recommendation of the multidisciplinary approach in the National Education Policy (NEP) 2020 document.

## MULTIDISCIPLINARY APPROACH

The multidisciplinary approach is a separate educational strategy that allows students to learn and explore different courses and curricula from different fields. Here education is not restricted to a single field of study. A student of engineering is allowed to undertake social science or humanities. It is viewing the same object from the viewpoint of different disciplines. In a multidisciplinary approach, the subject under study is investigated from different angles, using different disciplinary perspectives. However, neither the theoretical perspective nor the findings of the various disciplines are integrated in the end. When we speak of the hierarchical educational structure, the concept of learning gets bounded with so many aspects such as curriculum, methodologies, time limitations, and much more. In such case, the vision of education gets compromised. This is the reason National Education Policy 2020 (NEP – 2020) has asked institutions to pay attention on a multidisciplinary approach at all pedagogical stages.

As per the NEP – 2020 education must move towards less content and more towards learning about how to think critically and solve problems, how to be creative and multidisciplinary, and how to innovate, adapt and absorb new material in novel changing fields. It further recommends multidisciplinary and holistic education across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge.

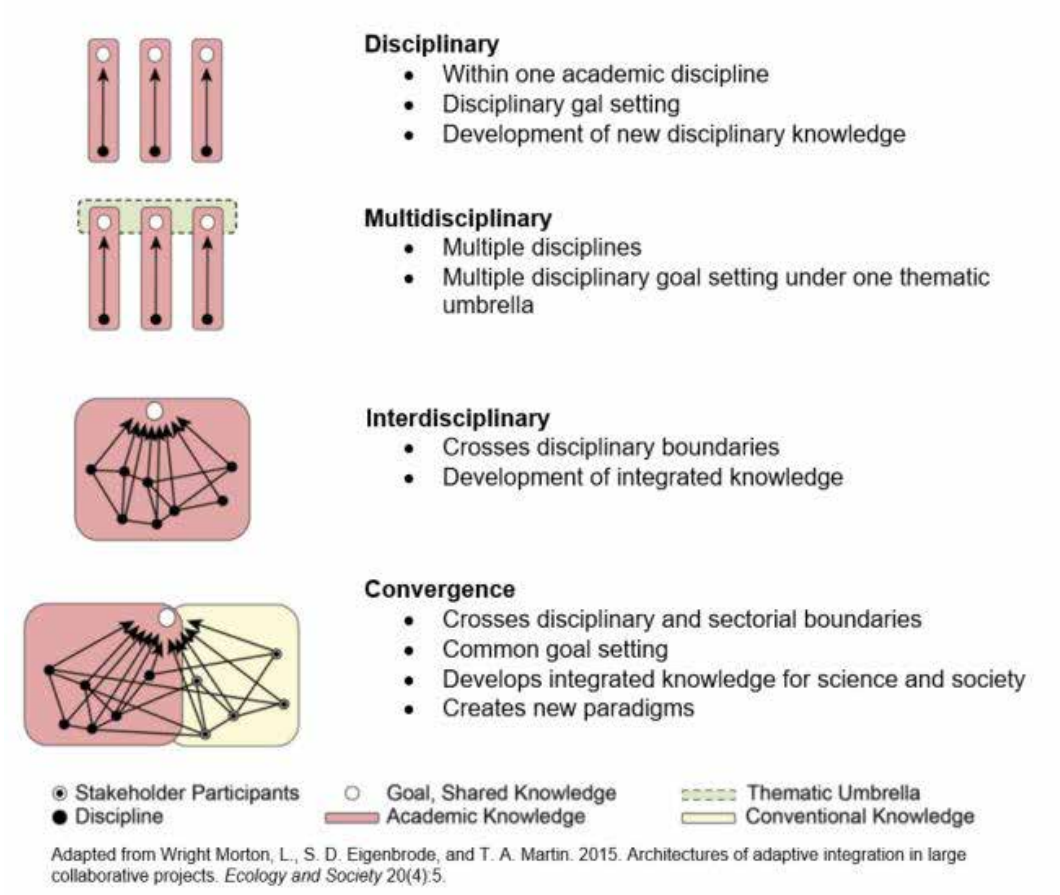
The secondary stage, as per NEP-2020, will comprise of four years of multidisciplinary study, building on the subject-oriented pedagogical and curricular style of the middle stage, but with greater depth and greater critical thinking, greater attention to life aspirations, and greater flexibility and students choice of subjects. The NEP-2020 recommends to phase out single-stream HEIs and suggests them to move towards vibrant multidisciplinary institutions. Multidisciplinary education could aim to develop well-rounded individuals that possess critical 21$^{st}$ Century capacities which will lead the country into the fourth industrial revolution.

All multidisciplinary universities and colleagues have been suggested to establish education departments which besides carrying out cutting-edge research in various aspects of education, will also run B.Ed. integrated programme in collaboration with psychology, physiology, sociology, nanoscience, languages, arts, music, history, literature, physical education, science and mathematics.

## MULTIDISCIPLINARY, INTERDISCIPLINARY AND TRANSDISCIPLINARY APPROACHES

The International Bureau of Education (IBE-UNESCO) specifies three major types of contemporary approaches to curriculum integration such as Multidisciplinary, Interdisciplinary and Transdisciplinary Approaches in Education. Multidisciplinary Approach is a whole or comprehensive method that covers an idea, topic, or content by integrating divergent knowledge domains. It is a very strong and relevant way of teaching that crosses the boundaries of a discipline or curriculum to enhance or develop the area and depth of the learning experience. It is an approach of curriculum integration that focuses primarily on the different disciplines and the diverse perspectives while illustrating a topic, theme or issue. The strength of multidisciplinary is the convergence on the same theme, through multiple fields of knowledge with a form called divergent thinking.

The interdisciplinary Approach is the method of bringing together the knowledge of two different disciplines and implementing into a child's learning. Here, the integration of two different subjects happens which makes a hybrid content or topic or subject in order to enrich the students' learning experiences. The transdisciplinary curriculum is the method of removing the boundaries of different subjects and integrating them to create or construct complete and new sets of knowledge to fulfill the aspiration of the new societal phenomenon. Whereas Interdisciplinary Approaches are characterized by an explicit formulation of a uniform, discipline transcending terminology or common methodology a transdisciplinary approach goes one step further. It is based on common theoretical understanding and must be accompanied by a mutual interpretation of disciplinary epistemologies. In this, a transdisciplinary field has a homogenized theory or model pool. The above three approaches can be projected diagrammatically in the following way.




Adapted from Wright Morton, L., S. D. Eigenbrode, and T. A. Martin. 2015. Architectures of adaptive integration in large collaborative projects. *Ecology and Society* 20(4):5.

**These three contemporary approaches can be illustrated by taking an example of water.**

A person in Chemistry understands water as a molecule made up of 2 molecules of hydrogen and one molecule of oxygen. He may further add its pH value (equal to seven) and join the molecules with hydrogen bonding. A physicist thinks about refraction associated with water, the concept of resonance, surface tension, and viscosity. If the same matter goes to a biologist, then she thinks about water content in the human body or the percentage of water in human blood. If the same problem is posed before musicians they would probably explain the sounds associated with water, such as the soothing gurgle of a stream or the loud angry gushing sounds of a waterfall that could be converted to appreciable tones. Hence, water is understood differently by different compartmentalized disciplines like chemistry, physics, biology etc.

In the Interdisciplinary Approach, the understanding of water combines the views of all disciplines. It thinks about the biochemical importance of water such as how it helps the survival

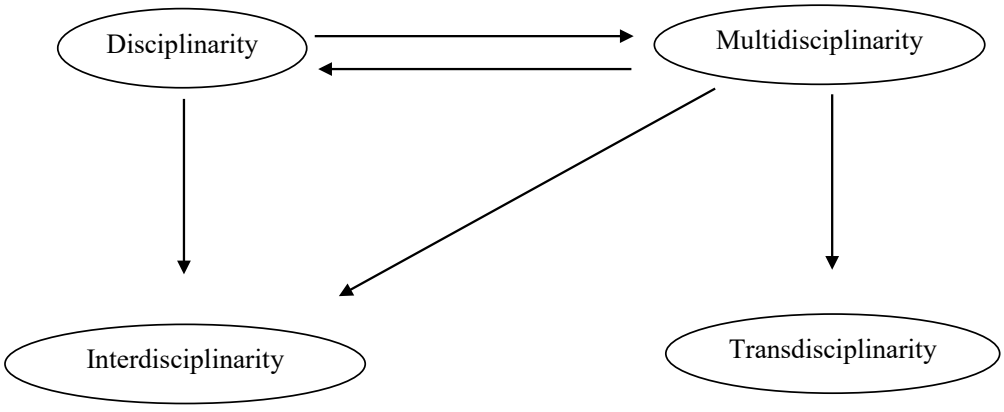
of living beings by its reaction or its importance as a dilutant in the human body. A biophysical explanation could probably be how the blood in the body applies a particular pressure due to its nature of being fluid etc. Pharmaceutical science concentrates on the role of water in the dissolution and absorption of drugs. The multidisciplinary approach towards understanding water cannot be tightened to one discipline or fuse two disciplines in an intimate mixture to make it interdisciplinary. Rather we have to understand it in the context of an issue where various disciplines join hands together to solve the problem. One of the problems may be the management of water resources in town planning. Here people from various disciplines such as geography, architecture, political, and social sciences would all come together to devise an appropriate solution of water for the town, with each still functioning within the purview of their specific disciplines.

The Transdisciplinary Approach is the study of nature across different ideologies or philosophies. It combines the view of art and music of nature with a normal view. The discipline of art or music does not fall into the framework of understanding utilized in physics, chemistry, or biology. While the base framework of all these sciences would be the atomic theory, the artist does not utilize atomic theory to create tunes but utilizes certain principles that converge across these disciplines. In a transdisciplinary approach, the physics of resonance would be utilized in understanding the total quality of sound expressed by a musician in a symphony. With an artist, the concept of refraction in water from physics would converge with their understanding of representing a scenery that includes a water body. In such a way the understanding of nature across disciplines adds value to both. The Transdisciplinary Approach can be applied to understand Panch Mahabhoot with reference to water. When water remains in the form of ice it would represent the Prithvi (Earth) Mahabhuta; when it melts, it would from Jala (water) Mahabhuta. When water converts into water vapor it represents Vayu Mahabhut whereas the boiling water represents Agni Mahabhut. The same water would therefore have completely different characteristics and pharmacological effects on the body based on the principles of Ayurveda, the atomic view of the water would remain constant in all these forms.

## WHY ONLY MULTIDISCIPLINARY APPROACH

The NEP-2020 has recommended a Multidisciplinary Approach to teaching learning and research for both secondary and higher education stages. The term multidisciplinary has been used in many places in the policy document. One has to critically examine the reason behind it. The multidisciplinary method represents the most efficacious way of managing knowledge allowing the practice and evaluation of students' technical and non-technical skills. Multidisciplinary should not be seen as a method as opposed to

disciplinary as the two or more disciplines can be integrated into a new concept or approach. In addition, multidisciplinary can be a real social experiment in which students and teachers join into different levels of organization and make proper interaction. Multidisciplinary approach identifies a problem, brings various disciplines together, collaborate with stake holders and provides solution to the problem. In this approach ample opportunities are provided to think on a common problem and on its solution. It does not confine to a particular solution, rather provides opportunity for critical examination and diversified thinking. Basically interdisciplinary approach may be considered as a subset of multidisciplinary approach. When combination of two disciplines or two thought processes are intimately mixed leading to a completely new concept then that becomes interdisciplinary approach. Now doubt, here the thinking becomes unidirectional. The multidisciplinary can be compared with a physical change. Where various disciplines do not loose their identity. Whereas interdisciplinary resembles a chemical change. Where various disciplines loose their identity to form hybrid disciplines. After ample enrichment this interdisciplinary approach or thinking converts into disciplinary thinking. The disciplinarity has a sensible relation with multidisciplinary, whereas interdisciplinarity is irreversible with disciplinarity. The entire picture can be represented in the following way.




**Diagram**

The transdisciplinary adds societal and epistemological aspects in multidisciplinarity. No doubt it is a holistic way to arrive at the solution of any problem but many a times multidisciplinary approach does not require philosophical aspects to solve any academic, social or curricular problems.

## ADVANTAGES OF THE MULTIDISCIPLINARY APPROACH

The most important advantage of the Multidisciplinary Approach is to gain a comprehensive knowledge of the world. It combines various subjects to have a complete understanding of the subject matter. For example, the knowledge of chemistry can be utilized to determine the age of rocks. The half-life method is utilized to determine the age of any monuments. Hence, chemistry and history can be a better combination for a holistic understanding of the problem. Similarly, to understand the geographical distribution of plants and animals the knowledge of biology becomes very helpful.

The Multidisciplinary Approach assists students in developing a pragmatic approach by allowing them to choose which subject they will study and what rewards they may receive. Many times, they come to know the benefits of the subject during their study. They add that area to their study and earn extra credit for that. For example, a student of mathematics may opt for Biology and can make Biostatistics as his career in the higher study. In IITs and BITS systems of education, much flexibility have been given to earn extra credit in the subject of their choice.

One of the highest advantages of the Multidisciplinary Approach is that it provides an opportunity to see the world practically. After education, individuals have to interact with people from all walks of life. For example, students of medical science must know the socio-economic condition of that area. Similarly, a biotechnologist has to understand the nerves of farmers in that locality. If this is the case then why our schools and colleges will be the tight compartment? It must be flexible to produce a citizen having overall knowledge of societal issues along with their probable solution. Also, this approach promotes collaborative learning. It necessitates the ability to interact successfully with persons from many fields. People from various disciplines share the terminology, beliefs, and diverse ideas and comprehend what drives them. These abilities help in making connections solving complex issues and arriving at the best solution.

## DISADVANTAGES OF THE MULTIDISCIPLINARY APPROACH

There is much debate on implementation of Multidisciplinary Approach at school and higher education levels as per the recommendation of NEP-2020. It will be a kind of paradigm shift to open the doors of tight disciplinary gates and allowing the students to enter into the gates of their choice. A big question is whether the students would not confuse in the selection of right gate? There is human tendency to move towards easier path. But that path must lead to right destination. Secondly, our country is having ample percentage of first generation learner where students do not get appropriate guidance to select right stream leading them valuable in job market.

Actually, choices are many but opportunities are limited, particularly in the field of sports and games, arts and craft, music and dance etc. The socioeconomic condition of learners may not allow them to move towards diversified opportunities. This is the reason that the students are still hesitant to be distracted from the traditional compartmentalization of the streams. This is made more clear from the case study given below:

**Case Study**

The Regional Institute of Education, (RIE), Bhopal has been selected as one of the institutes to run the Integrated Teacher Education Programme (ITEP) by the National Council of Teacher Education (NCTE) on a pilot basis. This is a prestigious and ambitious programme because some IITs and NIT also joined hands in this endeavor to fulfill the dreams of NEP-2020. The students of B.Sc.B.Ed. under ITEP have been divided into three curricular groups as Physical Science (Physics and Chemistry), Biological Scienc (Botany and Zoology) and Mathematics. The students have been given the flexibility to choose their one minor subject across any curricular group. However, it is surprising to observe that no students of the Biological group chose mathematics and vice versa. It reflects the attitude toward tight compartmentalization and a worry about future job opportunities.

The role of the teacher becomes much more crucial under this circumstance. They have to identify the genuine interest and capacity of a student and advise them to move in the appropriate direction accordingly. While solving a problem by a multidisciplinary approach they should save the students from distraction and should track each student with the help of advanced technology. There should not be any confusion in dealing with any discipline and there should be appropriate integration of all disciplines to arrive at the right conclusion.

## CONCLUSION

The multidisciplinary approach was prevalent in ancient India. But, with the expansion of knowledge various disciplines emerged and the education became discipline-specific. The learner was diverted to be unidirectional to get mastery over a particular area. However, this effort was not found appropriate to solve a societal problem that needed the proper union of various disciplines. Hence, a multidisciplinary approach has been identified to be the best way to tackle any problem. Higher flexibility in the selection of disciplines also provides opportunities to nurture skills of analysis, integration, and synthesis and to arrive at the finest product. Though this will be a big challenge this is the biggest requirement to produce a 21$^{st}$ century citizen.

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# JOB POTENTIALS FOR POLYGLOT HIGHER SECONDARY SCHOOL STUDENTS IN RELATION TO BIG FIVE PERSONALITY AND ENTREPRENEURSHIP SKILLS

3

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## INTRODUCTION

Job potential refers to the inherent capacity or likelihood for a job or position to lead to future opportunities, growth, and success for an individual. It encompasses the various factors that contribute to the possibility of a job providing avenues for advancement, skill development, career satisfaction, and professional fulfillment. Job potentials for polyglot students refer to the various employment opportunities and career paths that are available to individuals who possess proficiency in multiple languages. Polyglot students, who have acquired fluency in several languages, often have unique advantages and skills that make them valuable assets in a diverse range of industries and job sectors.

Personality, commonly defined as the combination of characteristics or qualities that form an individual's distinctive character, encompasses individual differences in characteristic patterns of thinking, feeling, and behaving. McCrae and Costa (1983) suggested that a person's personality can be described by five factors, with most individuals scoring near the middle of each trait and only a few scoring at the extremes. The Big Five personalities, describe five broad dimensions of personality: Extroversion, Agreeableness, Conscientiousness, Neuroticism and Openness. Each dimension represents a spectrum along which individuals may vary, and these traits have been extensively studied in psychology for their influence on behavior, preferences, and outcomes (Vineetha Prakash and Bindhu, 2020). Polyglot students, who have proficiency in multiple languages, may exhibit certain characteristics related to the Big Five personalities, which can impact their academic performance, language acquisition, and career paths. Their proficiency in multiple languages, are uniquely positioned to develop

entrepreneurship skills that are essential for success in the global marketplace. Their ability to communicate effectively in diverse linguistic contexts enables them to connect with a wide range of stakeholders and their linguistic versatility and cross-cultural competence provide a strong foundation for entrepreneurial endeavors.

## REVIEW OF LITERATURE

Mahalakshmi and John (2015) conducted a study on the impact of motivational factors on employee job satisfaction, with a special focus on the tea plantation industries of Anamallais, Coimbatore district in India. The respondents chosen for the study were predominantly male. The findings of the study revealed that motivational factors were the primary cause of dissatisfaction among employees with regard to their employer's approaches, timing of work under working conditions, incentives, and compensation structure. The study's conclusion highlights the significant relationship between intrinsic motivational factors and employee job satisfaction, in comparison to other factors such as working conditions, compensation benefits, and fringe benefits.

Chinnaiyan and Vasudevan (2019) conducted a study on the job satisfaction of postgraduate teachers in relation to emotional intelligence, Big Five personality traits, and school climate. The results of this study revealed a strong sense of satisfaction in conducting research that exclusively focused on the job satisfaction, emotional intelligence, Big Five personality traits, and school climate of postgraduate teachers in government, government-aided, and private higher secondary schools in the Namakkal district of Tamil Nadu. The descriptive and differential analysis indicated that postgraduate teachers working in higher secondary schools generally experience an average level of job satisfaction and emotional intelligence. However, variations were observed when these factors were correlated with variables such as gender, age, income, and educational qualifications. Postgraduate teachers reported an average level of job satisfaction in their profession. Additionally, they exhibited a high level of emotional intelligence in their work. However, they demonstrated an average level of school climate and Big Five personality traits in their job roles. The study found a positive and significant relationship between job satisfaction and emotional intelligence, as well as between job satisfaction and school climate. Furthermore, there was a positive and significant relationship between emotional intelligence and school climate, and emotional intelligence and Big Five personality traits.

## OPERATIONAL DEFINITIONS

### Job Potentials

Job Potential refers to the intrinsic qualities and external factors that determine the likelihood of a job or position to serve as a springboard for

future career success and personal growth.

**Polyglot Students**

Polyglot students are individuals who possess proficiency in multiple languages. These students have typically acquired fluency in more than one language through various means such as bilingual upbringing, language immersion programs, self-study, or formal language instruction.

**Big Five Personality Factors**

It refers to the five important personality factors: Extroversion, Agreeableness, Conscientiousness, Emotional stability (neuroticism), and Openness.

**Entrepreneurship Skills**

Entrepreneurship skills include various skill sets such as leadership, business management, time management, creative thinking and problem-solving. These entrepreneur skills are vital for promoting innovation, business growth and competitiveness. Students' can apply these skills in many job roles and industries.

## NEED AND IMPORTANCE OF THE STUDY

Conducting a study on polyglot students and entrepreneurship skills is essential for gaining insights into how linguistic proficiency influences entrepreneurial success. By examining the relationship between language abilities and entrepreneurship, researchers can identify the specific skills and competencies that polyglot students bring to the entrepreneurial landscape. Additionally, understanding the impact of Big Five Personality factors and entrepreneurship can contribute to the career success. Therefore, conducting a study on this topic is crucial for unlocking the full potential of polyglot students as future entrepreneurs in an increasingly interconnected world.

## OBJECTIVES

- To identify the level of Job Potentials, Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students in Krishnagiri district.
- To find out any significant difference in the level of Job Potentials, Big Five Personality and Entrepreneurship Skills among polyglot higher secondary school students based on their Gender.
- To identify if there is any relationship between the Job Potentials and Big Five Personality of polyglot higher secondary school students.
- To identify if there is any relationship between the Job Potentials and Entrepreneurship Skills of polyglot higher secondary school students.
- To identify if there is any relationship between the Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students.

## HYPOTHESES

- The level of Job Potentials, Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students is low.
- There is no significant difference in the level of Job Potentials, Big Five Personality and Entrepreneurship Skills among polyglot higher secondary school students based on their Gender.
- There is no relationship between the Job Potentials and Big Five Personality of polyglot higher secondary school students.
- There is no relationship between the Job Potentials and Entrepreneurship Skills of polyglot higher secondary school students.
- There is no relationship between the Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students.

## METHODOLOGY

The study is conducted by using a survey method. The variables of the study included Job Potentials, Big Five Personality factors and Entrepreneurship Skills. The population of the present study consisted of polyglot higher secondary school students in Krishnagiri district, Tamil Nadu. 802 polyglot higher secondary school students studying in Government, Government-Aided and Private Matriculation schools were selected as samples by using convenience sampling techniques. The investigators developed Job Potentials Scale (JPS) and Entrepreneurship Skills Inventory (ESI), and adopted Big Five Personality Inventory (BFPI) developed by John Lawrence and Sobha, B.C.(2019). The tools were administered and among the sample and the collected data were analysed by Descriptive Analysis (Mean and S.D),m Differential Analysis (Student t-test) and Correlation Analysis.

## ANALYSIS AND INTERPRETATION OF THE DATA

**Hypothesis 1:**

The level of Job Potentials of polyglot higher secondary school students is low.

**Table 1 - The Level of Job Potentials of Polyglot Students**

| Variable | Level | Range of Score | Number of responders | Percentage |
|---|---|---|---|---|
| Job Potentials | Low | 35 to 82 | 56 | 7% |
| | Moderate | 83 to 128 | 428 | 53% |
| | High | 129-175 | 318 | 40% |

The table 1 showed that the level of Job Potentials for polyglot higher secondary school students in Krishnagiri district is moderate. 7% of students were found to be low, 53% of students were found to have moderate, and 40% of

students were found to have high. Thus the hypothesis "the level of Job Potentials of polyglot higher secondary school students is low" is rejected.

**Hypothesis 2:**

The level of Big Five Personality of polyglot higher secondary school students is low.

**Table 2 - The Level of Big Five Personality of Polyglot Students**

| Variable | Level | Range of Score | Number of responders | Percentage |
|---|---|---|---|---|
| Big Five Personality | Low | 33 to 84 | 132 | 16% |
| | Moderate | 85 to 132 | 429 | 54% |
| | High | 133-180 | 241 | 30% |

It is noted from the table 2 that that the level of Big Five Personality of polyglot higher secondary school students in Krishnagiri district is moderate. 16% of students were found to be low, 54% of students were found to have moderate, and 30% of students were found to have high. Thus the hypothesis "the level of Big Five Personality of polyglot higher secondary school students is low" is rejected.

**Hypothesis 3:**

The level of Entrepreneurship Skills of polyglot higher secondary school students is low.

**Table 3 - The Level of Entrepreneurship Skills of Polyglot Students**

| Variable | Level | Range of Score | Number of responders | Percentage |
|---|---|---|---|---|
| Entrepreneurship Skills | Low | 34 to 79 | 47 | 6% |
| | Moderate | 80 to 124 | 479 | 60% |
| | High | 125-170 | 276 | 34% |

It is noted from the table 3 that the level of Entrepreneurship Skills of polyglot higher secondary school students in Krishnagiri district is moderate. 6% of students were found to be low, 60% of students were found to have moderate, and 34% of students were found to have high. Thus the hypothesis "the level of Entrepreneurship Skills of polyglot higher secondary school students is low" is rejected.

**Hypothesis 4:**

There is no significant difference in the level of Job Potentials, Big Five Personality and Entrepreneurship Skills among polyglot higher secondary school students based on their gender.

**Table 4 - Difference in the Level of Job Potentials, Big Five Personality and Entrepreneurship Skills among Polyglot Students based on their Gender**

| Variable | Gender | N | Mean | SD | 't' Value | Level of Significance |
|---|---|---|---|---|---|---|
| Job Potentials | Male | 395 | 123.66 | 22.41 | 1.29 | NS |
| | Female | 407 | 121.53 | 24.27 | | |
| Big Five Personality | Male | 395 | 115.03 | 28.39 | 0.56 | NS |
| | Female | 407 | 113.91 | 28.83 | | |
| Entrepreneurship Skills | Male | 395 | 115.58 | 19.83 | 0.50 | NS |
| | Female | 407 | 114.86 | 21.19 | | |

NS-No Significant

It is revealed from the table 4 that, the calculated 't'-values 1.29, 0.56 and 0.50 are lesser than the table value 1.96 at 0.05 level of significance. It stated that there is no significant difference between male and female students in their level of Job Potentials, Big Five Personality and Entrepreneurship Skills. Thus the hypothesis is accepted.

**Hypothesis 5:**

There is no relationship between the Job Potentials and Big Five Personality of polyglot higher secondary school students.

**Table 5 - Relationship between Job Potentials and Big Five Personality of Polyglot Students**

| Variables | N | 'r' Value | Remark |
|---|---|---|---|
| Job Potentials and Big Five Personality | 802 | 0.444** | Low Positive Correlation |

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

It is inferred from the above table that the calculated 'r' value for the Job Potentials and Big Five Personality is 0.444. Therefore, it is stated that low positive correlation is existed between Job Potentials and Big Five Personality oor polyglot higher secondary school students. Hence the hypothesis is rejected.

**Hypothesis 6:**

There is no relationship between the Job Potentials and Entrepreneurship Skills for polyglot higher secondary school students.

**Table 6 - Relationship between Job Potentials and Entrepreneurship Skills of Polyglot Students**

| Variables | N | 'r' Value | Remark |
|---|---|---|---|
| Job Potentials and Entrepreneurship Skills | 802 | 0.502** | Average Positive Correlation |

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

It is inferred from the above table that the calculated 'r' value for the Job Potentials and Entrepreneurship Skills is 0.502. Therefore, it is stated that an average level of positive correlation existed between Job Potentials and Entrepreneurship Skills of polyglot higher secondary school students. Hence the hypothesis is rejected.

**Hypothesis 7:**

There is no relationship between the Big Five Personality and Entrepreneurship Skills for polyglot higher secondary school students.

**Table 7 - Relationship between Big Five Personality and Entrepreneurship Skills of Polyglot Students**

| Variables | N | 'r' Value | Remark |
|---|---|---|---|
| Big Five Personality and Entrepreneurship Skills | 802 | 0.477** | Average Positive Correlation |

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

It is inferred from the above table that the calculated 'r' value for the Big Five Personality and Entrepreneurship Skills is 0.477. Therefore, it is stated that an average level of positive correlation existed between Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students. Hence the hypothesis is rejected.

**MAJOR FINDINGS**

- There is a moderate level of Job Potentials, Big Five Personality and Entrepreneurship Skills among polyglot higher secondary school students in Krishnagiri district.
- There is no significant difference in the level of Job Potentials, Big Five Personality and Entrepreneurship Skills among polyglot higher secondary school students based on their gender.
- There is a positive correlation between the Job Potentials and Big Five Personality, Job Potentials and Entrepreneurship Skills, and Big Five Personality and Entrepreneurship Skills of polyglot higher secondary school students.

## CONCLUSION

It is revealed from the study that, the polyglot higher secondary school students in Krishnagiri district have moderate level of Job Potentials, Big Five Personality and Entrepreneurship Skills. Though there are no significant differences existed between male and female students in their level of Job Potentials, Big Five Personality and Entrepreneurship Skills, there is a significant positive correlation existed among the selected variables. Hence it is concluded that the Polyglot students, who have proficiency in multiple languages, may exhibit certain characteristics related to the Big Five personalities, which can impact their entrepreneurship skills and leads to career success.

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# SOFT SKILLS OF SECONDARY STUDENTS HAILING FROM LOW, MODERATE AND HIGH SOCIAL STRATA

4

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## INTRODUCTION

Soft skills are the personal qualities and abilities that go beyond technical knowledge or expertise. It enables an individual to socialize effectively with others, solve problems with logical thinking, communicate well, and adapt to different situations. For students to achieve academic success, form wholesome relationships, and get ready for their future careers, they need to have these skills. Students who possess soft skills are better able to cooperate with others, convey their ideas clearly, evaluate facts, make thoughtful choices, control their emotions, and overcome obstacles (Gupta & Shaheen, 2019). Soft skills are described in Social Learning Theory by Bandura in 1977. In soft skill education, children need to be actively involved in dynamic teaching and learning processes.

The effect of different socio-economic backgrounds on students' soft skills is significant. Students from wealthier families usually have more opportunities for activities like sports, drama, or music, which help them develop skills like communication and teamwork. They also get to meet people from various backgrounds, which broadens their understanding of the world. On the other hand, students from poorer families might face various challenges like not having access to a variety of social environments or not being able to afford any special training. Despite these difficulties, they often show resilience and empathy, which are also important soft skills. It's important to make sure that all students, no matter their background, have the chance to develop these skills, as they're crucial for success in school and later in life. Research indicates that children from low Socio-Economic Status (SES) households and communities develop academic skills more slowly compared to children from high SES groups (Morgan, Hillemeier & Maczuga, 2009).

## SOFT SKILLS

Soft skills of students encompass a range of interpersonal, communication, and behavioral abilities that are vital for their personal, academic, and professional development. These skills include traits such as effective communication, teamwork, adaptability, problem-solving, critical thinking, leadership, emotional intelligence, time management, and conflict resolution. Soft skills enable students to interact positively with others, collaborate effectively in group settings, manage their time efficiently, navigate challenges, and demonstrate resilience in the face of adversity (Sternberg & Grigorenko, 2004). Unlike hard or technical skills, which are specific to certain tasks or professions, soft skills are transferable across various contexts and are essential for success in today's dynamic and interconnected world. Developing and honing soft skills can empower students to thrive academically, pursue fulfilling careers, and lead fulfilling lives.

Soft skills are interpersonal, communication, and behavioral abilities essential for navigating social interactions and achieving success in various aspects of life (Adams & Forsythe, 2006). They encompass traits such as emotional intelligence, communication proficiency, adaptability, teamwork, leadership, problem-solving, and time management (Gupta & Shaheen, 2019). Unlike hard or technical skills, which are specific to particular tasks or industries, soft skills are transferable across different contexts and are crucial for overall personal and professional development (Lai & Hu, 2019). They play a vital role in fostering positive relationships, resolving conflicts, and effectively managing responsibilities and challenges (Singh & Jain, 2018).

## SIGNIFICANCE OF THE STUDY

In any educational system, the failure of students is common. One of the reasons for such failure is a lack of skills. Soft skills perceived by the students may be found poor, they are not wholeheartedly involved in the learning process, which in turn, their wellness and interest may also be deteriorate. Academic success is dependent on certain factors like thinking, communication, hard work, emotions, motivation and socio-economic factors. For the academic success of any student soft skills play a vital role. The Socio-Economic Status (SES), is a sociological classification indicating the close relationship between someone's relative wealth and that person's social status. It is one of the key indicators when looking at many issues, including school performance, attitude and well-being. It is most often determined by analyzing family income and assets. The current study finds out the soft skills of secondary students hailing from low, moderate, and high social strata.

## OBJECTIVES

- To find out the level of soft skills in total and its dimension of secondary students hailing from low Socio-Economic Status are not high.

- To find out the level of soft skills in total and its dimensions of secondary students hailing from moderate Socio-Economic Status are not high.
- To find out the significant difference among the boys hailing from low, moderate and high social strata in their soft skills in total and its dimensions.
- To find out the significant difference among government-aided school students hailing from low, moderate and high social strata in their soft skills in total and its dimensions.

## HYPOTHESES

- The level of soft skills in total and its dimension of Secondary Students hailing from low socioeconomic status are not high.
- The level of soft skills in total and its dimensions of Secondary Students hailing from moderate Socio-Economic Status are not high.
- There is no significant difference among the boys hailing from low, moderate and high social strata in their soft skills in total and its dimensions.
- There is no significant difference among government-aided school students hailing from low, moderate and high social strata in their soft skills in total and its dimensions.

## METHODOLOGY

The study was conducted by using the Survey method. The population of the study included students who are studying IX standard in secondary and higher secondary schools in Tirunelveli district. The sample of the study included 1020 students who were selected by random sampling technique. The researcher has constructed a questionnaire on Soft Skills and administered it among the sample to collect the data. In order to analyze the data the researcher applied percentage analysis and ANOVA.

## ANALYSIS AND INTERPRETATION OF DATA

### Hypothesis 1:

The levels of Soft skills in total and its dimensions of Secondary Students hailing from low Socio-Economic Status are not high.

**Table - 1**

**Levels of Soft Skills along with its Dimensions of Secondary Students hailing from Low Socio-Economic Status**

| Soft Skills and its Dimensions | Low | | Moderate | | High | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Personal Skill | 156 | 27.1 | 245 | 42.5 | 175 | 30.4 |
| Critical Thinking Skill | 227 | 39.4 | 215 | 37.3 | 134 | 23.3 |
| Communication Skill | 167 | 29 | 279 | 48.4 | 130 | 22.6 |

| Soft Skills and its Dimensions | Low | | Moderate | | High | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Interpersonal Skill | 184 | 31.9 | 201 | 34.9 | 191 | 33.2 |
| Motivational Skill | 157 | 27.3 | 251 | 43.6 | 168 | 29.2 |
| Problem Solving Skill | 176 | 30.6 | 233 | 40.5 | 167 | 29.0 |
| Aesthetic Skill | 166 | 28.8 | 291 | 50.5 | 119 | 20.7 |
| **Total** | **147** | **25.5** | **311** | **54** | **118** | **20.5** |

It is observed from the table 1 that, 54% of secondary students have moderate level of soft skills. They have an average level in personal skill (42.5%), communication skill (48.4%), interpersonal skill (34.9%), motivational skill (43.6%), problem solving skill (40.5%) and aesthetic skill (50.5%), whereas they have a low level of critical thinking skill (39.4%). Hence, the formulated hypothesis, "The levels of soft skills in total and its dimensions of Secondary Students hailing from Low Socio-Economic Status are not high" is accepted.

**Hypothesis 2:**

The levels of Soft Skills in total and its dimensions of secondary students hailing from moderate socio-economic status are not high.

**Table - 2**

**Levels of Soft Skills along with its Dimensions of Secondary Students hailing from Moderate Socio-Economic Status**

| Soft Skills and its Dimensions | Low | | Moderate | | High | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Personal Skill | 91 | 26.5 | 179 | 52 | 74 | 21.5 |
| Critical Thinking Skill | 138 | 40.1 | 102 | 29.7 | 104 | 30.2 |
| Communication Skill | 88 | 25.6 | 161 | 46.8 | 95 | 27.6 |
| Interpersonal Skill | 103 | 29.9 | 127 | 36.9 | 114 | 33.1 |
| Motivational Skill | 103 | 29.9 | 141 | 41.0 | 100 | 29.1 |
| Problem Solving Skill | 106 | 30.8 | 147 | 42.7 | 91 | 26.5 |
| Aesthetic Skill | 110 | 32 | 121 | 35.2 | 113 | 32.8 |
| **Total** | **92** | **26.7** | **151** | **43.9** | **101** | **29.4** |

It is observed from the table 2 that, 43.9% of secondary students have moderate level of soft skills. Moreover, they have a moderate level of personal skill (52%), communication skill (46.8%), interpersonal skill (36.9%), motivational skill (41%), problem solving skill (42.7%) and aesthetic skill (35.2%); but they have low level of critical thinking skill (40.1%). Hence, the formulated hypothesis, "The levels of soft skills in total and its dimensions of Secondary Students hailing from moderate Socio-Economic Status are not high" is partially verified.

**Hypothesis 3:**

There is no significant difference among the secondary students hailing from low, moderate and high social strata in their Soft skills in total and its dimensions.

**Table - 3**

**Differences among the Boys Hailing from Low, Moderate and High Social Strata in their Soft Skills along with its Dimensions**

| Soft Skills and its dimensions | Level of Socio-Economic Status | Mean | SSb | SSw | Calculated 'F' Value | Level of Significance |
|---|---|---|---|---|---|---|
| Personal Skill | Low | 24.11 | 40.957 | 8344.302 | 2.496 | NS |
| | Moderate | 24.50 | | | | |
| | High | 24.56 | | | | |
| Critical Thinking Skill | Low | 21.48 | 340.671 | 12398.281 | 13.972 | 0.01 |
| | Moderate | 21.97 | | | | |
| | High | 23.46 | | | | |
| Communication Skill | Low | 24.60 | 105.224 | 13374.914 | 4.000 | 0.05 |
| | Moderate | 24.88 | | | | |
| | High | 25.69 | | | | |
| Interpersonal Skill | Low | 25.68 | 8.296 | 10575.856 | 0.399 | NS |
| | Moderate | 25.77 | | | | |
| | High | 25.98 | | | | |
| Motivational Skill | Low | 25.06 | 56.575 | 12327.233 | 2.334 | NS |
| | Moderate | 25.38 | | | | |
| | High | 25.87 | | | | |
| Problem Solving Skill | Low | 24.72 | 110.797 | 14229.920 | 3.959 | 0.05 |
| | Moderate | 25.04 | | | | |
| | High | 25.91 | | | | |
| Aesthetic Skill | Low | 24.90 | 105.205 | 12834.759 | 4.168 | 0.05 |
| | Moderate | 24.90 | | | | |
| | High | 25.98 | | | | |

| Soft Skills and its dimensions | Level of Socio-Economic Status | Mean | SSb | SSw | Calculated 'F' Value | Level of Significance |
|---|---|---|---|---|---|---|
| Total | Low | 171.19 | 3359.563 | 269923.3 | 6.329 | 0.01 |
| | Moderate | 171.79 | | | | |
| | High | 177.45 | | | | |

NS = Not Significant

It is evident from the table 3 that, there is a significant difference among boys hailing from low, moderate and high socio-economic strata in their soft skills and their dimensions except for the dimensions such as personal skill, interpersonal skill, and motivational skill. It is also stated that the students hailing from high socio-economic strata were found to be higher than the students hailing from moderate and low socio-economic strata in soft skills and their dimensions - critical thinking skill, communication skill, problem-solving skill and aesthetic skill.

Hence, the formulated hypothesis, "There is no significant difference among the boys hailing from low, moderate and high social strata in their soft skills in total and its dimensions - critical thinking skill, communication skill, problem-solving skill and aesthetic skill" is rejected; but it is accepted for the dimensions - personal skill, interpersonal skill and motivational skill.

**Hypothesis 4:**

There is no significant difference among government-aided school students hailing from low, moderate and high social strata in their soft skills in total and its dimensions.

**Table - 4**

**Difference among the Students in Government-Aided Schools Hailing from Low, Moderate and High Social Strata in their Soft Skills along with its dimensions**

| Soft Skills and its dimensions | Level of Socio-Economic Status | Mean | SSb | SSw | Calculated 'F' Value | Level of Significance |
|---|---|---|---|---|---|---|
| Personal Skill | Low | 24.09 | 13.527 | 2213.123 | 0.724 | NS |
| | Moderate | 24.37 | | | | |
| | High | 24.79 | | | | |

| Soft Skills and its dimensions | Level of Socio-Economic Status | Mean | SSb | SSw | Calculated 'F' Value | Level of Significance |
|---|---|---|---|---|---|---|
| Critical Thinking Skill | Low | 21.28 | 248.430 | 2836.503 | 10.379 | 0.01 |
| | Moderate | 22.06 | | | | |
| | High | 24.26 | | | | |
| Communication Skill | Low | 24.41 | 80.447 | 2775.536 | 3.435 | 0.05 |
| | Moderate | 25.43 | | | | |
| | High | 25.87 | | | | |
| Interpersonal Skill | Low | 25.29 | 16.896 | 2936.899 | 0.682 | NS |
| | Moderate | 25.73 | | | | |
| | High | 26.00 | | | | |
| Motivational Skill | Low | 24.56 | 74.994 | 2820.940 | 3.150 | 0.05 |
| | Moderate | 25.42 | | | | |
| | High | 26.11 | | | | |
| Problem-Solving Skill | Low | 23.94 | 151.340 | 2771.456 | 6.471 | 0.01 |
| | Moderate | 25.48 | | | | |
| | High | 25.74 | | | | |
| Aesthetic Skill | Low | 23.58 | 211.166 | 3346.767 | 7.477 | 0.01 |
| | Moderate | 25.21 | | | | |
| | High | 26.00 | | | | |
| **Total** | **Low** | **167.94** | **3405.871** | **67200.729** | **6.006** | **0.01** |
| | **Moderate** | **172.92** | | | | |
| | **High** | **178.76** | | | | |

It is evident from the table 4 that, there is a significant difference among secondary students from Government-Aided Schools hailing from low, moderate, and high socio-economic strata in their soft skills and its dimensions, except for the dimensions - personal skill and interpersonal skill. It is also concluded that the secondary students from Government-Aided Schools hailing from high socio-economic strata were found to be higher than moderate and low socio-economic strata in their soft skills and their dimensions, except personal skills and interpersonal skills.

Hence the formulated hypothesis, "There is no significant difference among the secondary students from Government-Aided Schools hailing from low, moderate and high social strata in their soft skills is rejected concerning the dimensions namely critical thinking skill, communication skill motivational skill, problem-solving skill and aesthetic skill, whereas it is accepted for the dimensions –personal skill and interpersonal skill.

## DISCUSSION AND CONCLUSION

From the present study, it can be stated that Socio-Economic Status is the most important factor that highly affects the soft skills of the students at the secondary level. The development of children's skills is influenced directly or indirectly by the social conditions of their parents, friends, and surroundings. If the children's social and environmental conditions are facilitated, it would support the positive growth of the children, and that would reflect in the development of their soft skills. So it can be said that soft skills and socioeconomic status are closely related to each other and students' soft skills are highly affected by their socio-economic status.

In conclusion, the socio-economic status of students plays a significant role in shaping their soft skills. While students from wealthier backgrounds may have more opportunities for skill development, those from less privileged backgrounds often lack soft skills. It is essential for parents, teachers, policymakers, and society as a whole to recognize these disparities and work towards creating inclusive environments where all students have equal access to resources and opportunities for developing essential soft skills. By addressing these inequalities, and providing support, students can develop soft skills that facilitate to reach their full potential.

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# SIMPLE INQUIRY IN PRIMARY SCIENCE CLASSES FOR GREATER STUDENT ENGAGEMENT IN THE LEARNING PROCESS

5

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## INTRODUCTION

Science is not the amount of information to be collected but to be understood and digested well for practice in day-to-day life. The way science is taught in our schools makes science more dull and dreary. There is less emphasis on developing the skills essential to doing science (observing, recording, inferring, reading, and writing) in our present science teaching-learning process which is a major concern for developing scientific temper in students. Further SDG 4.7 reiterates that by '2030 ensure all learners acquire knowledge and skills needed to promote sustainable development…'. Therefore, there is a need for science process-based pedagogy in our schools. A study on student's efficacy in the engagement process in class shows that it depends on factors such as *How do I feel? , Am I Interested? Is this important? Can I do this?* (Marzano, 2011). That means if students feel good, interested in what they do, consider the activity important for learning, and think that they can do the activity then they derive the benefit of learning from such engagements. This demands an approach that takes care of the four key components of student engagement as mentioned by Marzano for teaching Science and an inquiry-based approach is one of the many. An inquiry-based approach to teaching science fits in the shoes of a teacher to inculcate in students that the love for science is inevitable. Simple inquiry experiments can trigger student's process skills such as observation, handling instruments, gathering data, making analysis, and making inferences.

## WHY INQUIRY

Mastery in the subject today is not the number of facts memorized, information recalled, remembering specialized terminologies, and repetition of a theory, rather it is developing proficiency in various scientific investigation skills that are related to our daily life. In Primary classes, students' curiosity and the rate of asking questions is very high. Also, there

is a greater degree of freedom for teachers to focus on the development of interest in science, feeling good about the subject and importance of science, confidence in science, etc. as there is no burden of content that is to be mastered for the examination, unlike secondary classes. These skills allow the students to become critical thinkers, problem-solvers, and connectors for science outside of the classrooms in secondary and tertiary education. The inquiry approach to teaching is a tested and effective mode of teaching science. To make it happen in classes, Inquiry learning process need to be customised and crafted well to suit the learning needs, interests and motivations of students'. In the inquiry, students begin with a question that can be answered in a scientific way, rely on evidence in attempting to answer the question, form an explanation to answer the question based on the evidence collected, evaluate their explanation, and communicate and justify their proposed explanations.

## STEPS FOR INQUIRY

Inquiry steps are the essentials for any student to connect- understand- act the trinity of learning. There are four steps major steps in inquiry. They are *Initiating & planning, performing and recording, analyzing and interpreting, and communicating*. It is not necessary for the teacher to follow all four steps in one class. Rather he can divide the whole four steps into four classes or three classes in a systematic manner as per the level of comfort with students.

## ROLE OF LEARNER IN INQUIRY

"Science as inquiry" consists of a set of abilities and understandings that students need to develop as they contribute their ideas while engaged in the process of scientific investigation. In a sense, it deals with student questions, observation, measurement, experimental design, logical reasoning based on evidence, and communicating results. In primary classes, students are more curious and ask more questions that help them to self-explore the science processes. This allows them to deeply engage in the learning process. Therefore, in each science activity, students should be encouraged to design and conduct experiments by themselves, make and record observations, draw conclusions, and communicate their results. That will give the experience of doing science to each student. That is how student involvement is of utmost importance in the process of inquiry.

## ROLE OF TEACHERS IN INQUIRY

The inquiry-based teaching of science demands deep involvement of teachers as teachers are responsible for developing appropriate instructional strategies, providing numerous hands-on experiences to students so as to refine students' science processing skills, and employing appropriate methodologies for assessing and evaluating students' learning. It is very important that Science teachers also encourage students to ask questions, investigate, reason, explore alternative solutions, to relate and apply

science concepts in the wider context of the world in which they live.

## PRACTICING INQUIRY WITH EXAMPLES (AMAZING CRYSTALS)

**Connecting with Daily Life Experience**- At home, we add salts to vegetables, sugars to milk, raw sea salts (*in Hindi Kachcha samudri namak*) to fodders for cows and buffaloes/prepare pickles. Why is this? They look all white, have many uses. Interestingly all are not used for the same purpose; they are used differently by us.

### Activity 1

Look at a few household crystals to see what you notice about them.

***Inquiry Question -1:*** *What do raw sea salt, table salt, and sugar crystals look like?*

To solve this students need to plan the experiment. Here the role of the teacher is to give minimum instruction and clues to approach the experiment. The students are supposed to devise the procedure for the experiment which is given as follows.

### *Procedure Made by the student with the Help of the Teacher*

Take a black chart paper and keep it on the table and stick three crystal labels on it and place sample crystals of rock salt, sugar and Tata salt on it and observe.

**Observation sheet. (Colour, texture, size)**

| Crystals | Observations | Remarks |
|---|---|---|
| Raw Sea Salt  | | |
| Tata Salt  | | |
| Sugar  | | |

1. What similarities do you notice between three of the known crystals?

   _____

   _____

2. What do you think the salt and sugar crystals are different? If yes which way?

   _____

   _____

***Inquiry Question-2: What will happen to crystals when they are allowed to crush manually, can we identifythem?*** (In this case salt and sugar).

**Activity 2**

The task of the teacher: Ask students to take salt and sugar crystals and crush them. What difference do they have? Is it visible to them? Students need to formulate their experiments. Give a clue.

Students will *formulate* a Procedure for the experiment.

*Procedure:* They will spread a little of each of the three crystals in their labeled areas on the chart paper. Take a tablespoon to press down on each pile of crystals, and listen to the sounds the crystals make as they break. Also, notice any difference in the way the crystals feel when they break

Ask the following questions:

- Can you single out any crystal that makes more cracking sound?
- Do any crystals produce similar sounds on pressing?

***Expected results:*** Although students may have detected slight differences in the crystals during the crushing test,they probably cannot identify which one is sugar and salt with concrete evidence.

Ask students whether comparing the sound, feel, or residue from each crystal is the best way to identify slat &Sugar. Students should conclude that they need more information to identify the crystals of salt & sugar.

1. More observations for Evidence collection (Teacher should ask supplementary questions)

   _____

   _____

2. What is the size of samples of crystals after crushing?

   _____

   _____

What would you do to make sure that you crush each crystal with the same amount of force so that the test isfair?

*Interpretation of observations*

After having conducted the crushing test, students will answer the following questions.

3. Can you single out a crystal that is definitely sugar and salt?

   _____

   _____

4. Which crystal or crystals might require more force to break?

   _____

   _____

**Inquiry Worksheets (Reporting)**

| Test | How did you conduct the test | What did you observe? |
|---|---|---|
| Physical appearance test | | |
| Crushing Test | | |
| Touch and feel | | |

After completing the inquiry worksheet the student can conclude about the findings from each activity in his orher own words. That can either validated by the teacher or graded as learning outcomes of the topic.

**Higher Order Thinking Skills for Crystals (Salt and sugar)**

A. Do animals need salt? If yes how do they take it?
B. What is the name of salt that is recommended by doctors to patients in place of common salt (Sodium Chloride?)
C. How do we get salts?

**Values:** Salt is always less than any vegetable but its impact is always felt. Please be an impactful minority in lifelike salt but the not trivial majority like vegetable whose amount is always many times than salt in curry. Standalone confidently.

**Connecting concepts to the world around us**

Study the history of caves made up of stalactites and stalagmites. How are they formed over a period of time dueto recrystallization? Appreciate the bounty of nature.

More Examples: Take Cadbury Gems and conduct activities like Physical properties, solubility test, colour formationtest, etc.

**CONCLUSION**

Exciting primary students with experience through Inquiry activities involving salts and sugars make the learning of science more fun and enjoyable. They carry forward such experience to their next class and learning of science. Inquiry-based strategies and techniques that teachers use to engage and guide students through scientific investigations to further their scientific temper and scientific attitude are vital for embracing science. Though it may look difficult initially for teachers, yet the results are astounding and more satisfactory. Inquiry for teachers and students can be called as ***in*** (invite) ***query***(questions). Therefore, all science teachers dealing with science in primary classes middle school, or secondary school should go with inquiry-based teaching to make science learning fun and learning by doing in a true sense.

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