Anitha Kurup
Shalini Dixit
Ashwini K
Surbhi Arora

Challenges of Nurturing the Gifted and Talented in Developing Countries

- *Experiences from Rural and Urban India*

National Institute of Advanced Studies
Bengaluru, India

NIAS Project Report NIAS/SSc/EDU/U/PR/18/2019

Challenges of Nurturing the Gifted and Talented in Developing Countries

- Experiences from Rural and Urban India

Supported by Tata Consultancy Services

Anitha Kurup
Shalini Dixit
Ashwini K
Surbhi Arora

School of Social Science
National Institute of Advanced Studies
Bengaluru, India
2019

Published by
National Institute of Advanced Studies
Indian Institute of Science Campus
Bengaluru - 560 012
Tel: 2218 5000, Fax: 2218 5028
E-mail: publications@nias.res.in

NIAS Report: NIAS/SSc/EDU/U/PR/18/2019

Typeset & Printed by
Aditi Enterprises
aditiprints@gmail.com

Table of Contents

Acknowledgements

The Education for the Gifted and Talented Programme is a culmination of the effort and support of several individuals and institutions. First and foremost, we would like to place on record our deep appreciation for the unstinted support given by the present and past Directors of NIAS–Prof. Shailesh Nayak, the late Prof. Baldev Raj and Prof. V.S. Ramamurthy. The programme owes its origin to Prof. R. Chidambaram and the office of the Principal Scientific Adviser to the Government of India for providing the initial grant, way back in 2011.

This programme has gained momentum and stature in the last three years by the generous grant of TCS, allowing us to develop interesting components of the programme, which are critical to the building of the National Model for the Education of the Gifted and Talented in India.

The expansion of the programme has been organic, steadfast, and has gained visibility over the years. The members of the Programme Advisory Committee are Prof. Shailesh Nayak, Director, NIAS, Prof. V.S. Ramamurthy, formerly Secretary, Department of Science and Technology, Government of India and Prof. S. Mohan, Emeritus Professor, Indian Institute of Science, Bengaluru. They have steered and provided critical inputs in shaping the programme during the initial years of its growth.

The TCS grant allowed us to expand the programme from urban to the rural parts of Karnataka. The support of Mr. Ajay Seth and Dr. Shalini Ranjeesh, the previous secretaries of Primary and Secondary Education, Government of Karnataka, and other officers who facilitated the project in rural Karnataka were paramount. The support of DSERT and DIETs of Mysore and Chamrajnagar were critical links to carry out the research at the district levels. We would like to particularly acknowledge the support of Mr. Gopalakrishna, Director DSERT; Mr. Vishwanath, Raghunandan, Principal, DIET Mysore; Mr. Shivram Gowda, BEO Chamrajnagara, and Mr. Ragunath, DSERT office.

The workshop in Chamrajnagar was conducted with the support of JSS Rudset. The rural component of this project would not have been possible without the able assistance of the Field investigators Mr. Mahesh, Mr. Nagaraju, Mr. Thimmaraj, Mr. Mahendra, Mr. Nanjuda Swamy and consultant Ms. Malathi.

The NIAS–EGT team has tirelessly worked on this project. Our team members who are currently not a part of the team, Mr. Ajay Chandra, Ms. Samhita and Ms. Pritha Chakraborty, have contributed in several ways to the project.

Our collaborators from different institutes like IISc, IIT Mumbai, IIT Madras, National College, Baswangudi, Silver Oaks Schools of Hyderabad, and Bengaluru, Vidyashilp Academy, and several other institutions were part of this important journey. Most important of all is the support of students, teachers and parents who have reposed their faith in the programme and supported the NIAS–EGT team. All the above resources would have been impossible without the generous support provided by the TCS Grant.

Executive Summary

Introduction

For the last few years, the National Institute of Advanced Studies (NIAS) has been involved in working on issues of critical importance in education. Students who are gifted and talented often remain neglected in India. Gifted individuals are those who demonstrate outstanding levels of aptitude and competence. Since these children have exceptional abilities, they demonstrate special needs during the course of their development and learning. Gifted children have high cognitive and emotional needs, which are not met in usual classrooms, geared to the average learner. Given the fact that these children are in a minority adds to the problem of alienation and loss of direction. Along with the teachers, parents also struggle to fulfil the learning requirements of the children in terms of information, resources, opportunities and emotional support for them.

Though the Government of India has initiated schemes to identify students who excel or wish to excel in their academic endeavours, the current schemes reflect two major limitations. Firstly, with a population of 1.3 billion, India faces a massive set of challenges for identifying the top layer of the country's talent pool. These programmes are not robust enough to be able to cater to the diverse population of India that has a marked variation in terms of opportunities and experiences which are locally rooted. Secondly, given the vast diversity and the presence of multi-layered differences in terms of caste, religion, schooling, language, socio-economic backgrounds, and marginalised communities, the process of identification of the gifted and talented becomes extremely complex (Kurup and Maithreyi, 2012). Owing to these challenges in fostering India's talent pool, the NIAS-EGT programme was conceptualised with the following objectives:

Objectives

- To formulate alternative mechanisms for identification of the gifted and talented
- To develop culturally sensitive identification tools
- To work towards developing evidence for a national policy for the gifted
- To articulate the role of mentors in sustaining giftedness
- To create networks and popularize channels for the programme

Description of the EGT Programme (Urban and Rural)

The NIAS–EGT programme has grown exponentially in the last three years, with the help of the TCS grant. We have actively advanced the research component and outreach. In order to be inclusive, the programme developed strategies to include the marginalised sections: rural, tribal and urban disadvantaged children, as well. The number of children identified and fostered by the programme has escalated from 47 to 256.

EGT has transformed from an urban privileged programme to a more diverse programme. The work with Parikrma–an organisation working with the underserved population in urban areas and the work with the Government of Karnataka in Chamrajnagar and Mysore districts are cases in point. The team envisions to scale-up the identification protocol, which is reviewed and modified at a national level.

From a single protocol of identification and a handful of mentors, the EGT programme has now expanded to have multiple identification protocols to cater to different sections of the student population. The programme has expanded its services by organising frequent workshops for children and parents, introducing the NIAS supported Advanced Learning Centers (ALCs) and the Residential workshops for rural and tribal population. TCS grant has been instrumental in moving the project from its limited reach to diverse activities at a large scale.

For the parsimony of description, this report is divided into two sections:

1. The urban initiatives
2. The rural initiatives

Urban Initiatives

The urban segment encapsulates the initial groundwork conducted by the team, the urban identification protocol developed as a result of the research learning; the various mentoring programmes that have been integrated into the model; multiple levels of mentor-mentee engagements and the extensive outreach of the segment. It centres on the multilevel, multistage identification protocol developed by the EGT team; which caters to different age groups to create multiple entry points. The evolution of the mentoring initiative is depicted, variation in mentors in line with the mentee and their levels of engagement under various programmes are described. The section enlists various services that are offered to different stakeholders.

Rural Initiatives

The rural segment captures the experimental engagement of the NIAS–EGT programme. The rural and tribal spaces have added new learning to the EGT programme in developing more inclusive identification protocols. A critical review of the programmes available in India and overseas revealed that the children identified through the standard methods of single-point entry through objective-based tests have been biased to mainstream and academically-skilled children. Grounding these research findings, the team continuously has taken efforts in developing indigenous parameters for identification of gifted and talented students. EGT team chose the Chamrajnagar and Mysore districts of Karnataka, which ranks to have a high number of tribal inhabitants and further, the taluks Hunsuru and Heggadadevanakote (HD Kote) from Mysore and Kollegal and Gudlupet from Chamrajnagar for the collaborative research study with the Government of Karnataka.

The report gives an overall impression of growth, new findings and advancements that have incurred over the span of three years. It discusses the crucial role of TCS grant in paving ways for the NIAS–EGT programme.

Snapshot of outreach activities:

- NIAS–EGT selected 110 students in its general pool after reaching out to 60,000 students in the urban schools of south India
- NIAS–EGT-supported Advance Learning

Centers have reached out to a population of 35,700 students, out of which a total of 124 students have been selected

- The NIAS–MAIYA PRODIGY Fellowship programme has reached out to the schools both in urban and rural areas. Since its inception in 2017, the programme has reached a total of 6,000 students, who have scored more than 80% in their 10th and 12th grades. Out of the 6,000 students, a total of 47 students have been awarded fellowship and are provided continuous mentoring

- NIAS–EGT has reached to the teachers who initiated the process of nominations. A total of 1000 teachers including in different schools and Non- governmental Organisations (NGOs) have been trained in different geographical locations in urban areas of South India, largely Bengaluru

- In the rural areas, the EGT team has conducted 18 one-day Teacher Training Workshops (TTW) in Chamrajnagar and Mysore from July to February 2017. Teacher training programmes was the first step in the identification process of gifted children in the rural region. A total of 18 TTW were conducted in all the four taluks. About 1000 teachers, 73 Cluster Resource Persons (CRPs), and 7 Block Resource Persons (BRPs) were trained in the Chamrajnagar and Mysore districts together

- Using the above-mentioned teachers as a resource, the team reached out to 94,868 students in the rural and tribal schools of Karnataka, from which 100 students have been selected and are being provided mentoring

Achievements

The following points summarise the achievements of the programme:

- NIAS–EGT developed Teachers Nomination Behavioural Rating Scale (TNBRS), standardised it, currently a revision of the identification tool is happening with the data from the field

- Developed norms for Torrance Test for Creative Thinking (TTCT) for the age group of 13–16 years, which has filled the existing gaps in the tool

- Additionally, there is a robust protocol of identification in place for the identification and mentoring of children from diverse sections of society

- NIAS–EGT has initiated three different schemes of identification and mentoring of children of different age groups and background

- NIAS–EGT has conducted training and awareness-building programmes for almost 2000 urban and rural teachers across Karnataka

- Established a May-I-Help-You Centre? for Gifted Education through the PRODIGY Website (*www.prodigy.net.in*). Based on the review and feedback of this service, NIAS–EGT has recently revamped the website for a much appealing browsing experience

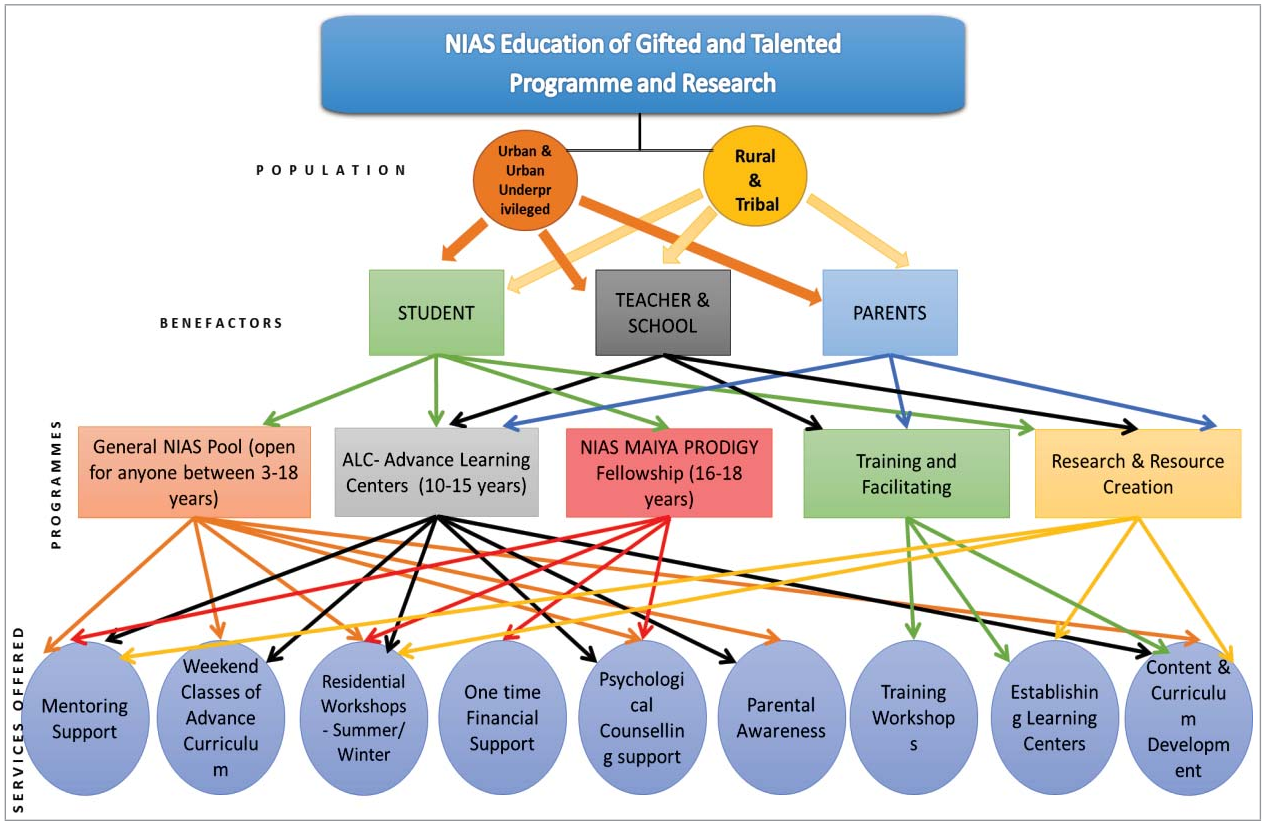
- NIAS–EGT is set to provide services for the identification and mentoring of gifted children through the above centre

- NIAS–EGT is set to provide services

for teachers' training, training of trainers, sensitisation of school principals and administrators

- NIAS–EGT is conducting awareness workshops for parents
- NIAS–EGT is developing a multi-level, multi-stage, mentoring programme
- NIAS–EGT has developed a mentor database, which will include PhD/Postdoctoral scholars, experts including retired faculty of Sciences, Social Sciences and Humanities from premier Educational Institutions
- NIAS has been active as a contributor to curriculum development for the Education of the Gifted and Talented at the state and national level
- Additionally, the team is currently developing collaborative programmes with other individuals and organisations such as the Indian Institute of Science, Bengaluru; Iyengar Foundation; National College, Bengaluru, who are interested in supporting and mentoring the gifted children
- Resources have been developed on gifted education through a critical review of literature and field studies. These materials have been translated to Kannada

Following is a conceptual layout of the different engagements of NIAS–EGT at present:



NIAS Offerings

Following are the different ways in which NIAS is currently equipped to support gifted and talented students:

- Identification protocol for different age groups and sections of students
- Mentoring support in the following different forms:
    - One-to-one mentoring to students in different programmes
    - Mentoring workshops for MAIYA PRODIGY Fellows and ALC students
    - Summer/winter workshop for students in all the programmes
    - Intermittent assistance for doing projects and learning support to all the students in the different programmes
- Guidance and counselling support
- Parenting workshops for the parents of students in our general pool and ALC's
- Teacher training programmes for teachers, facilitators and resource persons
- Support in establishing and designing Advance Learning Centres
- Financial support to NIAS-MAIYA PRODIGY Fellows

Research on Gifted and Talented:

All of the above work has led to research observation in several areas. Following are different areas in which NIAS–EGT is currently writing its findings:

- Identification model for gifted and talented children in India
- Culture and giftedness
- Socio-emotional needs of gifted children
- Gender and giftedness

Way Forward

NIAS–EGT has developed multiple identification protocols. It has received extremely positive responses from schools, NGOs, educators, parents and government officials. Going by the theoretical statement that gifted children are the top 3% of the total population of students, we estimate that India has about 8.5 million of potentially gifted or high ability students in the age group of 6–18years. With the limited resources, so far we have been able to reach only two districts in Karnataka. There is an urgent need to expand the programme to other geographical areas, across diverse populations. India can be a pioneer in developing a robust programme for the education of the gifted and talented through active field engagement. To be able to address the national needs, the programme needs to expand to other states and populations where the protocols currently developed and standardised need to be tested. Towards this end, the programme is looking forward to work in the following directions:

- Develop an online platform for the identification of gifted children so as to increase the outreach of the programme and develop a national database of traits of gifted children
- Increase and expand the EGT programme in different states in India
- Increasing the outreach of the programme to rural and tribal areas

- Increase the mentors' network for online and one-to-one mentoring
- To enhance the mentoring support and network for the gifted students
- Form a panel of counsellors and work to increase counselling support for gifted children

Chapter -1

URBAN INITIATIVES

NIAS–EGT PROGRAMME

1. Urban Identification Protocol

Introduction

For the last few years, the National Institute of Advanced Studies (NIAS) has been involved in working on issues of critical importance in education. Students who are gifted and talented oftentimes remain neglected in India. Gifted individuals are those who demonstrate outstanding levels of aptitude and competence. Since these children have exceptional abilities, they demonstrate special needs during the course of their development and learning. Gifted children have high cognitive and emotional needs, which are not met in the usual classroom geared to the average learner. Given the fact that these children are in a minority adds to the problem of alienation and loss of direction. Along with the teachers, parents also struggle to fulfil the learning requirements of the children in terms of information, resources, opportunities and emotional support for them.

To address these crucial, yet complex needs of the gifted and talented children, NIAS Education for the Gifted and Talented (EGT) programme was conceptualised in 2011. An initiative propelled by the office of the Principal Scientific Advisor to the Government of India, under the Chairmanship of Prof. R. Chidambaram, it is the first collaborative attempt in India to develop a research-based national programme to address the issue of equitable educational opportunities for gifted children and develop talent through a systematic and sustainable mentoring programme. The NIAS–EGT has been working towards developing a robust national model for the Gifted and Talented in India and providing mentoring support to them. The programme at the National Institute of Advanced Studies, Bengaluru, is spearheaded by Prof. Anitha Kurup, steered by the programme advisory committee consisting of the chair – Prof. Shailesh Nayak, Director, NIAS; Prof. V.S. Ramamurthy, former secretary, Department of science and technology, the Government of India and Prof. S. Mohan, Emeritus Professor, Indian Institute of Science, Bengaluru. The previous directors of NIAS, Prof. V.S. Ramamurthy and late Prof. Baldev Raj played a crucial role in providing direction for the expansion of the programme.

Objectives

- To formulate alternative mechanisms of identification of the gifted
- To develop culturally sensitive diagnostic tools
- To work towards developing evidence for a national policy for the gifted
- To articulate the role of mentors in sustaining giftedness
- To create networks and popularisation programmes

The NIAS–EGT programme initiated the identification and mentoring of the gifted and talented students in the urban areas of Bengaluru. In its initial phase, it was necessary to work closely with the team to develop the identification and mentoring programmes. For this reason, Bengaluru was selected as a field experimental site for the programme. Since the initial financial support for the programme was

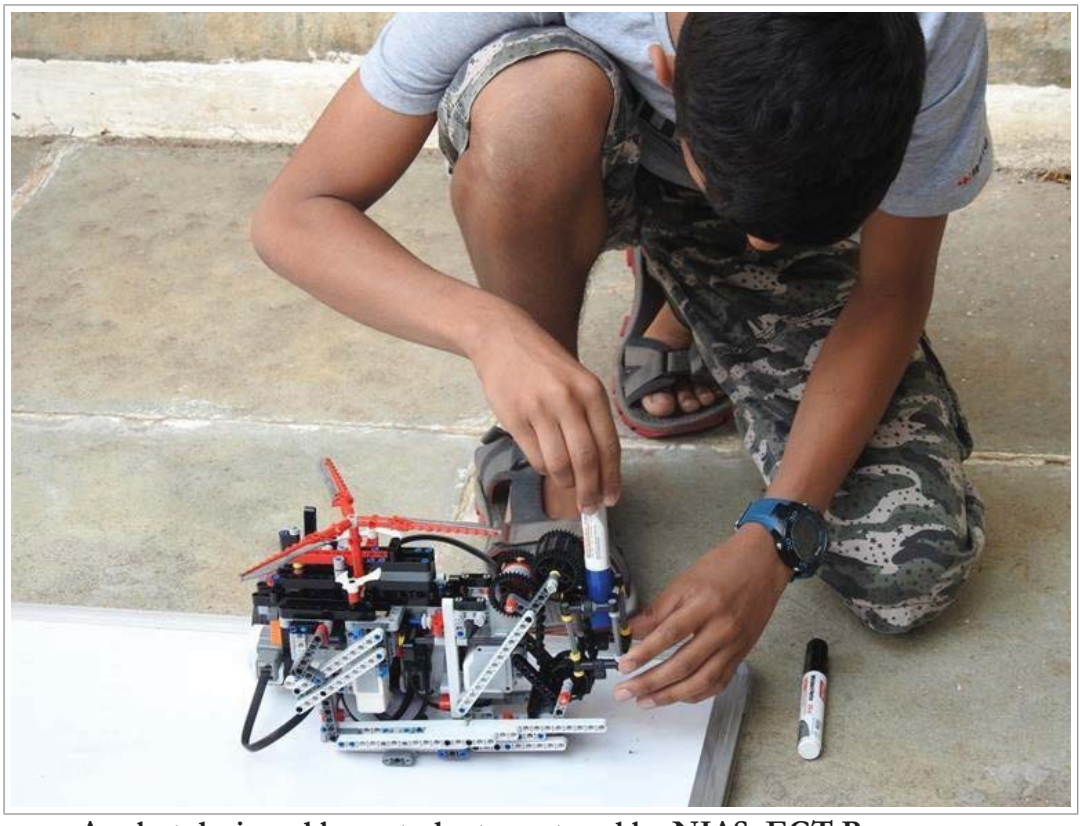
by the Department of Science and Technology, it worked with students gifted in the fields of science and mathematics.

With the support of the TCS grant, during the last three years, the programme has extended to various parts of Karnataka (both urban and rural). With the growing years, NIAS–EGT has extended support to the gifted children in diverse areas of Humanities, Social Sciences, Arts, Mathematics, Science and Sports. Acknowledging the unique culturally diverse setup of India, NIAS–EGT developed contextually suitable protocols, through evidence-based research, to identify gifted children in diverse areas for urban, rural and tribal children in the state. Further, the team developed a multi-stage, multi-level model of mentoring that cater to gifted children from diverse populations. This chapter gives an overview of the initiatives taken in the urban area.

NIAS–EGT programme adopts the following conception of giftedness;

"Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 3% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensory-motor skills (e.g., painting, dance, sports)." (NAGC,2014).

The programme was initiated to develop an identification protocol for students aged between 3 to 12 years. The classroom observations were an important segment of the research to develop the traits demonstrated by gifted children within the school. The team engaged in over 730 hours of classroom observations across different types of schools in Bengaluru to generate the traits that



A robot designed by a student mentored by NIAS–EGT Programme

represent gifted children in the Indian population. The demonstration of the traits was contingent on the opportunity available to display the traits. The traits developed based on this two-year-long study were subjected to several rounds of expert opinions resulting in multiple versions of the teachers/ parents nomination behavioural rating scale. From a 42 item tool, the tool transformed to a 21 item standardised scale, which is currently in use. The team is in the process of standardising this version of the tool through a process of validation with data from the rural population.

The next stage of collecting data about the identified child was carried out by case profiling. Further, the programme used psychometric tests like Torrance Test for Creative Thinking (TTCT) and Raven's Progressive Matrices (RPM) for which the team developed Indian norms. However, the psychometric tests were used for children older than 8 years. The increased number of children in the programme also represented diverse populations in terms of age, socio-economic and cultural backgrounds. Thus, there were different demands based on age and urban/rural background of children leading to the development of different mentoring programmes.

NIAS EGT Programme has developed three different protocols for the purposes of identification of the gifted and talented. The three programmes are:

1. NIAS General Pool (For students between 3 to 16 years of age)
2. NIAS Supported Advanced Learning Centres (For students between 11 to 16 years of age)
3. NIAS–MAIYA PRODIGY Fellowship Programme (For students between 16 to 18 years of age)

The identification protocol for each programme is unique and suitable for the age and background of students. The following section explains in detail the identification protocol for each programme.

1.1 NIAS General Pool

The NIAS general pool programme consists of students between 3 to 16 years. Any potentially gifted child can be nominated by the teacher or parent/guardian throughout the year. The process involves nomination through the Teacher/Parent Nomination Behavioural Rating Scale (TNBRS or PNBRS), which is available on the PRODIGY website; *http//www.prodigy.net.in.* This is followed by case profiles and the administration of RPM and TTCT. The NIAS team has developed Indian-based norms for RPM and TTCT.

Rationale

The research in the area of education for the gifted and talented promotes the need to establish a programme that can be complementary to the formal education system, which provides an opportunity for high ability children to engage in higher-order thinking and problem-solving activities specific to their areas of interest. The children selected in this pool demonstrate exceptional ability in one or more domains beyond their age peers. Most of these children experience alienation and find it difficult to interact with peers in the same age group. Identification of such students becomes necessary in order to support these children through a programme that provides them with an opportunity to engage with areas of their interests, which normally is beyond the curriculum. This, in turn, helps them to address their boredom and realise their full potential.

However, NIAS is conscious that gifted traits demonstrated by these children may just be a response to stimulus/opportunities, which can be different for different children. Further, dealing

with children from disadvantaged families who lack test-taking abilities due to limited exposure and training will result in their exclusion if the assessment does not factor in this aspect. Moreover, children who are young are impacted by several factors that may have a direct bearing on their test scores. Accounting for these challenges, the NIAS model is built on the premise that a single entry point – in terms of a test or a particular point of time defeats the purpose of identifying gifted children, and so has multiple points of shortlisting students to its programmes.

The presence of non-verbal components in the RPM and TTCT test has made it more inclusive. The verbal test examines the child's creativity through language proficiency. The test aims to examine a child's ability to comprehend and express creatively. On the other hand, the non-verbal test examines the child's creativity expressed through visual representation. The programme acknowledges that language proficiency is a result of frequent and deep engagement with books and literature, which only a few families having the social and cultural capital can afford, whereas creativity is independent of language proficiency and can be expressed through other means like building a model, drawing etc. Therefore, the use of the non-verbal part of the TTCT test makes the selection process more inclusive. It gives an opportunity for children who do not have a proficient language and vocabulary but can rather express their ability through visual creativity and imagination.

The NIAS–EGT programme recognises that there is a need for long term engagement with the students to be able to assess their ability in comparison to their peers. Hence, teachers who have the experience of several hundreds of children during their service and perhaps have the opportunity to observe the children for long durations of time are used for the purpose of nomination.

Description

The identification of students on the basis of teachers' observations and understanding becomes the first step in shortlisting the students. However, NIAS-EGT uses portfolios and case study data at the next stage. In principle, NIAS does not administer the psychometric tests for children below 8 years. However, for children older than 8 years, NIAS uses the psychometric tests in addition to case studies and portfolios. Thus, there are different protocols for younger and older children.

Following is a brief of the different identification tools used by NIAS–EGT for different age groups:

Identification Protocol for children in the age group 3–8 years:
For the younger children of in the age group of 3–8 years, NIAS uses the nomination form as an entry point for the identification process. The nomination can be made by the parents or teachers. In the process of shortlisting students into the NIAS General Pool, they are evaluated out of 100 points. Fifty points are for the TNBRS/case profile/portfolio as elaborated in the following pages in the section on the TNBRS and the remaining 50 points are for the observation of the students on the parameters informed by literature in the area of giftedness. Children are asked to engage in several activities and play situations and their cognitive, behavioural and psycho-motor responses are observed for the categories around seven traits. The observation is carried out independently by more than one observer. The seven traits are the following:

A. **Lower cognitive traits** can be defined as the ability to acquire, recall, and perform relevant information and activities accurately and efficiently.
B. **Cognition and metacognition traits** can be defined as the ability to reason, think critically, and solve novel problems, and the ability to control, modulate, and reflect on one's cognition.
C. **Curiosity traits** reflect the ability to be inquisitive and identify relevant information so as to better understand and fill specific knowledge gaps about certain topics of interest.
D. **Language traits** define the ability to acquire language and to use it expressively, flexibly, fluently, comprehensively and appropriately.
E. **Task commitment traits** reflect the ability to turn motivation into actions in terms of perseverance, hard work, endurance, self-confidence, focused form of motivation, being problem specific and the preference for challenging activities.
F. **Creativity traits** show the ability to generate novel yet appropriate responses, often from unusual associations.
G. **Ethical and socio-emotional maturity traits** reflect the ability to understand and effectively manage emotions, along with an understanding of and competence in accepted cultural values and ethics.

A weightage of 50 points for TNBRS/case profiles/portfolios and 50 points for the observation around the above-mentioned traits form the criterion of identification of the gifted children in the age group of 3–8 years. Children are thus, assessed for 100 points; and children who score 90 and above are selected to be part of the NIAS–EGT pool.

Identification protocol for children in the age group 9–16 years:

The first contact point with a child for the identification process, in the age group 9-16 years, is through the nomination form. The nomination

Young Talents of NIAS–EGT Programme

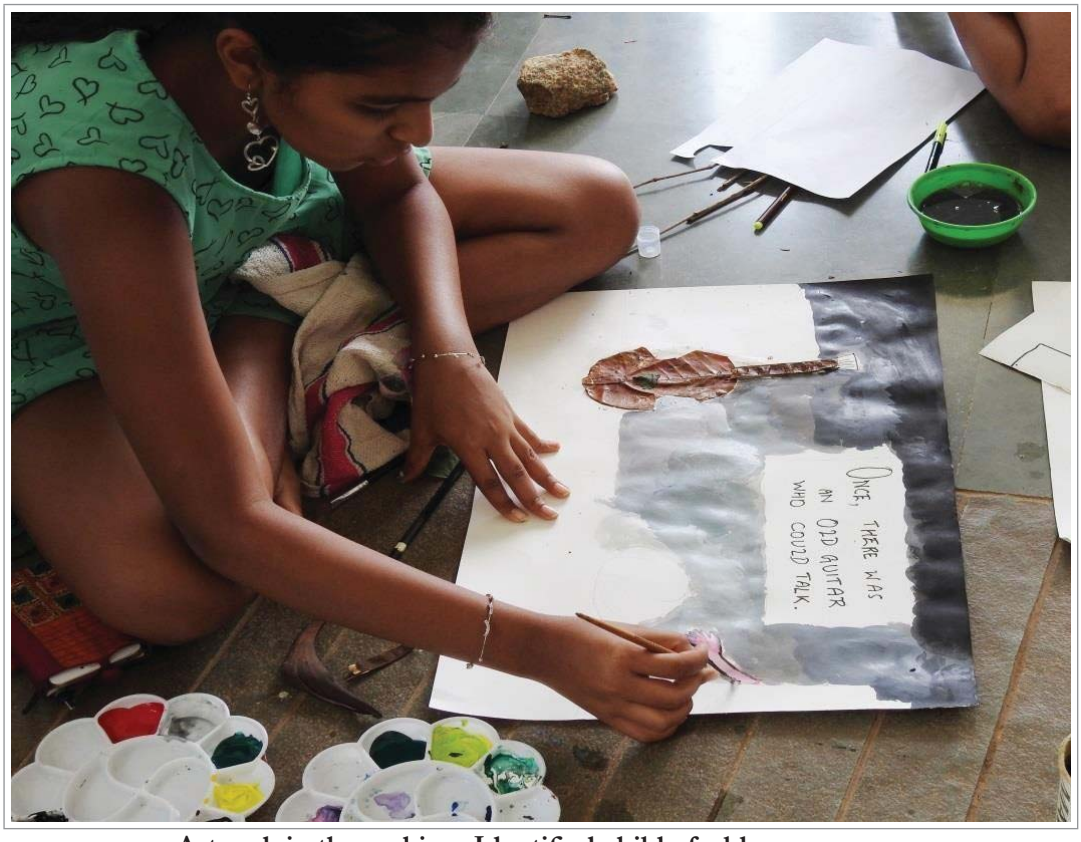
form can be filled in by teachers or parents. Similar to the procedure used for the younger children, the older children are evaluated out of 100 points. Fifty points are for the TNBRS, case profiles and portfolios and the remaining 50 points are for the two psychometric tests (25 points each). Thus, the 50 points for the teacher nomination remains the same with both the age groups but for the remaining 50 points, the older children are administered the TTCT and RPM (with Indian norms) instead of the detailed observations in specific settings. Children scoring 90 and above are selected in the pool. Table one gives the details of the weightage used in the identification protocol.

The procedure to collect evidence and greater detail about the traits exhibited by the nominated children is through in-depth interviews with individuals within the school, home and extended parental network who have been associated with the nominated child. The carefully collected qualitative data consisting of evidence and portfolio provide critical information and authentic data points that aid in shortlisting the children for the psychometric tests. Comparisons of the evidence from children coming from similar backgrounds are used to benchmark the exceptionality of the nominated child.

The following section explains the identification tools in detail.

Step 1. Teacher Nomination Behavioural Rating Scale (TNBRS)

The NIAS–EGT identification protocol emphasises the importance of the teacher and the parent in the nomination process. It has developed a standardised tool, known as the Teacher Nomination Behavioral Rating Scale (TNBRS)



Artwork in the making: Identified child of older age group

Teacher Training Workshop by NIAS–EGT Team in Urban School

and Parent Nomination Behavioral Nomination Scale (PNBRS). Nominations are the initial entry point for children to be a part of the NIAS–EGT. In most cases, the teachers' nomination is preceded by a workshop to train teachers. The workshop provides the broad premise of giftedness as conceptualised by the NIAS–EGT. During the training process, the NIAS team uses examples from the field to facilitate the teachers to differentiate academic achievement and giftedness. Thus, the training sessions questions the already existing conceptions of giftedness, where giftedness is often understood as a well-behaved/achieving boy or a girl. The need to identify gifted children, who may not necessarily be academic achievers, is discussed through live examples in the training workshop. Drawing from the experiences of teacher participants, NIAS team enumerates incidences or activities the teacher can recollect from inside or outside their classrooms, where any of their students have shown unusual creativity, problem-solving skills or leadership qualities. Using real life examples from the field, the trainers focus on developing the skills of the teachers to use the teacher nomination behavioural rating scale. As part of the training, teachers are encouraged to recollect a child, who they think is gifted, and rate the child on the TNBRS.

Following the teacher training workshop, the teachers are given the nomination form called the Teacher Nomination Behavior Rating Scale (TNBRS), to nominate the potentially gifted students. Once the nominations are received, the team contacts the teachers, parents and community members interacting with the child for additional information. This provides additional information/data about the child. While it is recognised that schools provide a wide range

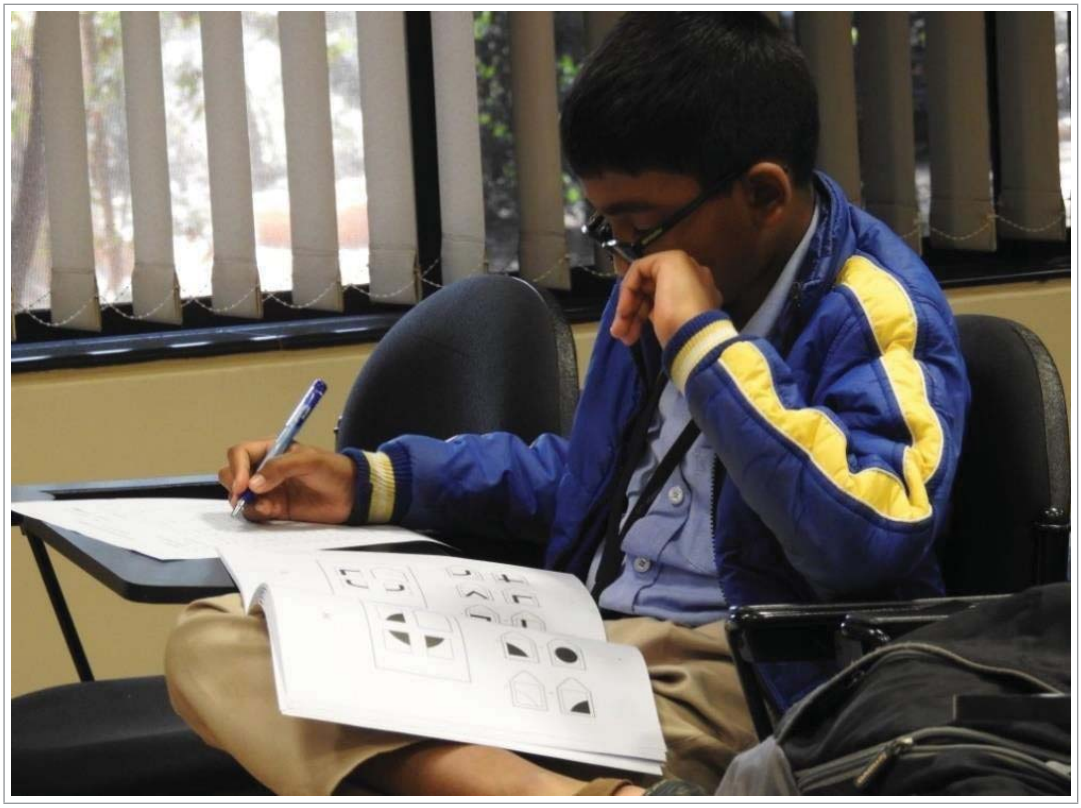
of opportunities, home and community-based activities can also provide additional opportunities. The detailed process of shortlisting students from urban communities is described in the following sections.

Scoring of TNBRS: TNBRS has a well-developed scoring manual. The 21 items are descriptive of students' gifted traits. The responses to these items are marked on a three-point rating scale. The first point implies minimum likelihood of display of the gifted traits and the second and the last point imply maximum likelihood of display of giftedness. In order to have clear segregation between highly gifted children and academically bright children, TNBRS has used an exponential marking on the three-point scale. This means that for each response, a tick on the first point of the scale gets a score of 0.5, and likewise, a tick on the second point gets a score of 1 and a tick on the third point gets a score of 2. For instance, suppose a child is marked/rated on the third point for all the 21 items of the tool, it implies that the child tends to show maximum frequency of gifted behaviour, and thus the child can get a total maximum score of 42 on the TNBRS. In addition, the TNBRS also contains eight open-ended questions. These eight questions tend to provide additional information about the child (which assists in validating the marked traits for the scorers). Each question is assigned one point. Thus, on a whole the TNBRS assigns 50 maximum points; out of which 42 points are assigned for the 21 items of the TNBRS and 8 points are assigned for the eight open-ended questions that are qualitative in form.

After receiving the nomination forms, NIAS team uses a protocol based on the age group of children. The identification process for children in the age group of 3–8 years uses teacher and parents nominations, which are followed by a detailed case profiling. The case profile method is used to collect further evidence/data points for the traits that are reported by the teacher or parents. Psychological tests are not administered for children in this age group. However, the older children in the age group of 9–16 years, after being nominated, are administered the Torrance Test for Creative Thinking and Raven's Progressive Matrices. While TNBRS, RPM, TTCT, case profiling and portfolios comprise the major components of the NIAS–EGT identification protocol, all these components are implemented in different combinations and are assigned differential weightages. The weightages and usability of the above-mentioned components are dependent on the age group to which the gifted child belongs. Thus, there is two separate identification protocol meant for the age groups 3–8 years and 9–16years. The following section provides an overview of the specifics of identification used for these two age groups.

Step 2. Psychometric Tests

In addition to the TNBRS, the NIAS protocol of identification administers the Raven's Progressive Matrices (RPM) and Torrance Test for Creative Thinking (TTCT). RPM is a non- verbal group test generally used in educational settings. RPM contains 60 items that measure abstract reasoning and the test tends to estimate fluid intelligence. The 60 items are multiple- choice questions, which are listed in increasing order of difficulty. RPM can be administered to children from the age of 5 to the elderly. The test measures the reasoning ability and educative component of spearman's '*g*' (general intelligence). The rationale behind using RPM in the NIAS model is to ensure that intelligence (one of the important component of giftedness) is assessed to know the general mental ability of the children. In addition, since RPM is a non- verbal test and culture-fair test, it provides an advantage to administer it across different cultural



RPM being administered to the child

contexts. Children who score above the 95th percentile are considered for subsequent levels of screening. However, clearing the prescribed cut off on RPM is not considered as the sole criteria for selecting gifted children in the NIAS model.

Creativity is another important component of giftedness. Renzulli's three-ring conception of giftedness considers creativity as a critical component of gifted behaviour. The Torrance Test of Creative Thinking was developed by Ellis Paul Torrance. The test is based on Guilford's model of the structure of intellect. TTCT measures the creative thinking ability, which is a collection of general mental abilities, which may involve divergent thinking, inventive thinking, productive thinking and problem-solving skills. TTCT have been used for identification of the creatively gifted and as part of gifted matrices in states and districts in the USA, especially in multicultural settings and for special populations around the world. TTCT contains both verbal and non-verbal tests of creativity. The NIAS model of identification has developed standardised norms for the TTCT (form A of verbal and non-verbal) for the age group of 9–16 years. The following table (Table 1) explains the weightage assigned for each of the components in the NIAS–EGT model for identifying gifted children

Step 3. Case Profiles

The NIAS model recognises the importance of qualitative data, apart from the above mentioned quantitative measures. The Baldwin identification matrix among the several assumptions argues that carefully planned subjective assessment can be effectively used along with quantitative measures (1984). Case profiles provide detailed accounts of longitudinal, development view of the construct of giftedness. It takes into consideration the

Table 1: Weightage for Different Components in the NIAS–EGT Model for Identifying Gifted Children

Age Group	Identification protocol	Weightage	
3-8	• Teacher training • Teacher/Parent Nomination Behavioural Rating Scale (TNBRS/ PNBRS) • Case profile/portfolio • Activity-based behaviour observation	Observation	TNBRS and Portfolios
		50%	50%
9-16	• Teacher training • Teacher/Parent Nomination Behavioural Rating Scale (TNBRS/ PNBRS) • Case profile/ portfolio • Raven Progressive Matrices (RPM) and Torrance Test of Creative Thinking (TTCT) With Indian Norms along with profiling	TNBRS and Portfolios	TTCT+ RPM
		50%	25% + 25%

individual factors (intellectual and cognitive factors, personality factors); and environmental factors (home and school) that influence/ contribute towards the development of giftedness. The data is collected through interaction with key actors that include parents, extended families and their network, teachers, community and peers, who have been significant in providing them with the support needed to pursue their areas of interest, to provide critical qualitative data.

Using the above-mentioned protocol, the NAS–EGT pool currently has 110 students after reaching out to 60,000 students in the urban schools of south India. However, the same protocol cannot be used for the diverse population in India. The multitude of languages, cultural diversity, socioeconomic differences, gender, and caste differences, make the process of identification more challenging in our country. NIAS–EGT has made significant strides in addressing such dynamic diversity and identification of gifted children from the rural parts of Karnataka. The rural initiative has been initiated in rural and tribal areas of Karnataka state in India. So far, NIAS team is using culturally validated TNBRS and profiling as the identification protocol for children in rural and tribal areas. The team plans to further standardise the urban model on these children and come up with a comprehensive identification protocol for India.

1.2 NIAS Supported Advance Learning Centres (NIAS-ALCs)

In June 2017, NIAS collaborated with Silver Oaks, Hyderabad, Silver Oaks, Bengaluru, and Vidyashilp Academy, Bengaluru, to establish the Advanced Learning Centres as part of its Education for the Gifted and Talented Programme. The schools host students, identified as gifted from their respective zones, in the weekends and provide them with a complimentary education programme. ALCs were envisaged as centres that provide early mentoring opportunities for high-ability learners from their neighbourhood schools in order to help tap and develop their potential.

As a first step towards screening the students for the ALC, NIAS conducts a teacher training workshop for teachers from neighbourhood schools. The workshop trains the teacher to fill in the TNBRS while introducing them to the

Experiments by children at ALC Hyderabad Centre

concept of giftedness. It becomesimportant in the workshop to attract the attention of the teachers to this special population. Educating them that contrary to popular belief, these children cannot manage on their own, the teachers are trained to be sympathetic, at least, rather than dismissive of this unique subset of children. In the workshop, the teachers are assured that the training is not aimed at increasing their, already heavy, burden of work, but to participate in the process of nomination. Once the forms are filled, the NIAS–EGT teams take the responsibility of completing the identification process. In the workshop, the teachers were cautioned not to nominate the academically bright children who are not gifted. NIAS recognises that there could be a gifted child who is also academically bright. However, not all academically bright children are gifted. Contrary to the common perception, children who are not academically bright, termed troublesome and bored can potentially be gifted. The giftedness could be in curricular and co-curricular activities too.

Around **200** students were covered in the initial screening and evaluation process. This included a detailed application form and a written an unconventional essay test. The children were assessed on their analytical, creative, innovative, and out-of-box thinking abilities. The selected children were asked to participate in an interaction round that had a wide range of experts from different knowledge domains. The interaction focused on analysing the child's ability to draw on skills already acquired as part of schooling and life experiences to respond to particular situations presented to them. The interaction focused on enumerating the response of the child to a wide

range of questions to assess their motivation and interests in the areas beyond the classroom and their ability to look at unique solutions to everyday problems in their surroundings.

Based on scholarship and evidence-based research work, the programme acknowledges the presence of multiple facets of giftedness and its expressions. Various case studies in the database of NIAS inform that there are various interest areas and manifestations of the abilities and skills that the child inherits. Through the teacher training workshop, the team made an attempt to support the teachers to see beyond the children's academic performance to the personality traits, which the child exhibits in any field of curricular or co-curricular activities. The team elaborated on the personality traits of giftedness, for instance, perseverance, perfection, task commitment, high inclination and visible motivation in topics of their interests, curiosity, creativity and so on. The training was a preparation ground for teachers to look for traits beyond academic performance to identify gifted and talented children.

Identification Protocol for NIAS-ALC:

ALC calls for student applications every year in the month of June. Students become a part of the programme through a rigorous selection process that includes an unconventional essay test as well as an interaction round. The written test tries to assess the ability of the student to connect to problems or topics beyond the classroom. The engagement of the child in areas of their interest is assessed through the lens of creativity and their problem-solving ability. The key to the assessment process is the ability of the child to find a unique innovative solution to any familiar problem presented to them. The programme is open to students studying in any schools in Bengaluru and Hyderabad, in classes 5–8. This year, NIAS is planning to expand this programme to other states, attempting to use technology to provide the necessary training support. TCS has supported the construction of the E-Classroom at NIAS as part of their current grant.

Step 1 Application Form

The identification process starts with a comprehensive teacher training and filling of an application form, which is available both online and offline. The online forms are available on the programme website – *http:\\www.prodigy.net.in,* and the offline forms are sent by the three centres to various schools to identify the potential students. Apart from details of the student, the application form contains two questions meant to understand the applicants' areas of interest and their perceptions towards it. Based on the two descriptive questions, academic and other qualifications, and the letters of recommendation, a weightage of 20 marks is allotted to the application forms. A detailed breakup of marks is provided below:

Criteria for assessing application form of ALC:

- Academic performance: 5 marks
- Certificates and other awards: 5 marks
- Descriptive questions: 5+5=10 marks

Step 2 Written-test

The programme then conducts a written test. The descriptive essay-type test is of three hours duration and conducted in the respective schools where the proposed ALC will be located. Hence the tests were conducted in Bengaluru and Hyderabad. A set of five questions are prepared by different members of the team, keeping in mind the varied areas of interest the children might have. Out of the five questions, the children are instructed to answer any one question of their choice. The questions assessed the following areas in order to evaluate the child's superior cognitive, perceptive and creative aspects:

Children appearing for the written test at ALC centres

Criteria for evaluating the writings of the students:

- Innovation and novelty of thought (15 marks)
- Engagement with the topic (15 marks)
- Creativity (10 marks)

The test also evaluated

- Critical thinking
- Unconventional/out of the box thinking
- The practical applicability of theoretical knowledge
- Problem-solving skills
- Rational thinking and logical reasoning
- A holistic perception in the area of interest
- Imaginative perception and approach to a hypothetical situation
- Sensitivity to social issues
- Involvement in the area of interest
- Observation skills

Based on these criteria; the scripts were evaluated for a total of 40 marks.

Step 3 Interaction with Experts

After having the application forms and the answer scripts evaluated by multiple individuals, the shortlisted students appeared for an interaction session with eminent scientists and academicians and were assessed for 40 marks. The 40 marks were distributed to assess the following characteristics that emerged during the interaction:

- Clear articulation of goals (10)
- Eagerness to work on tough challenges (10)
- Evidence of self-motivation (10)
- Any other justification for inclusion (10)

Distribution of total marks allotted to ALC aspirants:

Application:	20
Essay:	40
Interaction:	40
Total:	**100**

Those students who qualify in the interaction round are eligible to enrol in the enrichment programme conducted by the NIAS supported Advanced Learning Centres (NIAS-ALCs). The classes are conducted over the weekend for 3–5 hours to provide students with additional learning engagements through projects, workshops,

seminars, debates and discussions in different subject areas.

Currently, there are around 60 students registered in the three ALCs including Hyderabad and Bengaluru (2). Students from schools such as National Academy for Learning, Vidyashilp Academy, Global Indian International School, Primus International School, Vidya Mandir, National Public School and Silver Oaks International School are part of the ALCs.

Inclusion of the Urban Underserved Children

The ALCs also extended its programme to include students from the urban underserved population by collaborating with Parikrma centre for Learning. The ALCs host the identified children from their respective neighbourhood during the weekend classes. The ALCs provide the children with foundational knowledge in different domains beyond the classroom. It is believed that additional training in computer programming, calculus, model-making and researching on topics that is of relevance facilitate children for higher-order learning. ALCs provide a platform to students who desire and are capable to learn beyond their school curriculum. The programme aims to provide active mentoring to these children. It also provides students with an opportunity to engage in a project of their choice under the guidance of the mentor. The mentors/facilitators engage in regular conversations that are both one-to-one and via varied active WhatsApp groups. This helps the facilitators track the child's progress. Lecture series has been introduced to provide the

ALC Centre at Vidyashilp Bengaluru
Integrating children identified from urban underserved section

ALC children introductory knowledge on new interdisciplinary subjects like artificial intelligence, philosophy, astronomy and cognitive sciences.

As a capacity-building exercise, the NIAS team trains the facilitators of the ALCs and provides them with resource materials to enhance their knowledge in a wide variety of areas. NIAS conducts facilitator's workshops of a 2-day duration, where a curricular framework for the activities for the next six months is drawn. The facilitators' workshop also provides a platform to critically review the programme and fix gaps that may be present in the programme. The workshop is also used to review the programmes of the ALC centres and share experiences, which are mutually beneficial. The facilitators are provided with the training and feedback to ensure they engage with children in an efficient manner.

In addition, the summer and winter workshops organised for the children of ALCs provide a platform where students from all three centres come together and present their work to a wide range of experts. The children are provided critical feedback and useful leads by the various subject experts. The children display their understanding of cutting-edge ideas in the form of projects, lecture demonstrations and participation in prestigious national and international competitions.

The NIAS supported ALC has successfully completed around two years, with three centres in Vidyaship Academy (Bengaluru East), Silver Oaks International School (Bengaluru South) and Silver Oaks International School (Hyderabad). The feedback from children and parents during the winter workshop and parent's workshop has been extremely positive and there has been a rising demand for such centres from other schools across India.

The following table (Table 2) provides the distribution of children across the three ALCs.

They are Sri Sri Ravishankar Vidya Mandir in JP Nagar and BASE PU College in Mahalakshmi Layout. In line with the preparation routine, a teacher training workshop was organised on 1st September at SSRVM, where the teachers were drawn from neighbouring schools. Till date, NIAS has received around 60 nominations. The team is in the process of shortlisting the students for the essay round.

NIAS is planning to extend these ALCs in two other centres in Bengaluru for the next academic year.

Table 2: Distribution of Students in Advanced Learning Centres

Year	Population	Schools approached	City	Application received	Appeared for essay test	Shortlisted for interaction	Selected
2017 - 2018	35,700	119	Bengaluru	82	77	50	38
			Bengaluru Urban Disadvantaged	60	52	3-day workshop conducted for 12 students	8
			Hyderabad	126	119	55	20
Total				**466**	**394**	**212**	**124**

1.3 NIAS-MAIYA PRODIGY Fellowship Programme

In the year 2016, NIAS–EGT made an attempt to reach out to the gifted students in the age group of 16–18 years. This age is critical in India since children make important choices about their subjects for higher education. Unlike the west, it is extremely difficult for children in India to move across streams, i.e., science, arts and commerce. In other words, the choice of subject at the post-secondary schooling determines the career choices available to each student. The fellowship aims to identify and nurture talented students from a diverse socio- economic background from rural and urban areas. The collaborated effort of NIAS–MAIYA PRODIGY fellowship with Iyengar Foundation, National Education Society, Bengaluru, is to provide financial as well as mentoring support to students who are in a phase of choosing their career paths.

This programme provides the students with an overview of the possible career avenues as well as links them to mentors who act as guides while they are initiated into their disciplines. The students are provided information about the new developments in multiple fields and the possible research groups working on cutting edge research in these specific fields. The programme hopes to mentor the students for at least five years to facilitate appropriate mentorship, which is crucial for children belonging to rural and tribal populations. The student is provided with an opportunity to explore a wide range of knowledge domains so that they could make an informed choice for their respective careers. In the absence of a structured career counselling in schools, the programme plays a critical role in assisting the children to make appropriate career choices.

The programme also gives the students a platform to engage in various projects that helps them gain specialised knowledge and experience in their particular areas of interest. For this, many established professors in diverse fields are part of the mentor's pool of the NIAS– MAIYA PRODIGY programme. The programme also places many student mentors from eminent institutions like IISc, which gives the opportunity to both students as well as mentors to work on a project in close interactions. The mentors stay connected with the mentees on a one-to-one basis both through regular meetings, as well as through online interactions.

Rationale

The high ability students, after completing their grade 10, have to choose a stream to pursue – science, arts, commerce, etc. During this process, the students need to match their interest with the available career options. Decision making in this regard often pose a challenge to students and will benefit from mentorship. Acknowledging the challenges of the gifted and talented students, the programme intends to provide mentoring support to the selected students by connecting them to the experts in their specific areas of interest.

Description

In order to identify the best of the talents from different regions and social backgrounds, NIAS MAIYA PRODIGY fellowship is a highly competitive, but inclusive, selection process. Students who have completed their tenth grade with a minimum of 80% score from across urban and rural areas of the country are eligible to apply for this fellowship. The selection process involves a written-test, which assesses in-depth knowledge in areas of their interests and the preparatory steps taken by them to acquire deeper knowledge in the subject area. The tests are designed to understand the student's specific areas of interest and their awareness and empathetic views on the

social problems they see in their day-to-day lives. The written essays are evaluated for creativity, problem-solving skills, analytical skills, and ability to think out of the box. The shortlisted students are selected for the interaction round.

The interaction round aims at understanding the student's motivation and personal effort made by him/her to advance their understanding in the areas of their interest. Additionally, the ability of the child to synthesise knowledge and provide unique responses and defend the same through a logical, well-constructed argument is tested in the interaction round. The selected students are then felicitated with an award that carries prize money of INR 50,000/- and life- long mentorship. The mentors are experts in a variety of fields drawn from premier institutions from within and outside the country. As a part of the mentoring process, various workshops are organised every year, which provides the students with an opportunity to interact closely with their mentors. Opportunities to work on projects and lab visits are provided as part of the mentorship programme. Every year, the students also get the opportunity to present their progress and seek feedback from the experts.

Identification Protocol

The eligibility for the fellowship is a score of over 80% in the tenth grade of the past academic year. The NIAS team retrieves the list of students from the Education Department, Govt. of Karnataka, who have scored over 95% in the state board exam the previous year. Personal letters with application forms and advertisement are posted to these students. The team personally contacts these students and encourages them to apply for the fellowship programme.

A standardised assessment process was developed to be fair to children from different socio-economic and cultural backgrounds. The assessment process comprises of following steps:

1. A detailed application form containing basic information and two descriptive questions along with certification and awards (20 marks)

2. An essay type descriptive test (40 marks)

Written-test conducted for NIAS-MAIYA FELLOWSHIP at National College, Bengaluru

3. Interaction session (40 marks)

Step 1 Application

In the first round of evaluation, the application forms were graded, and the breakup of the allotted marks was done in the following manner:

- Academic performance: 5marks
- Certificates and other awards: 5marks
- Descriptive questions: 5+5=10marks

Step 2 Written-test

A set of five questions were compiled by the different members of the team, keeping in mind the varied areas of interest of the children in the application pool. Out of the five questions, the children were instructed to answer any one question of their choice. The questions were meant to test the following areas in order to evaluate the child's superior cognitive, perceptive and creative aptitude:

- Innovation and Novelty of Thought (15 marks)
- Engagement with the Topic (15 marks)
- Creativity (10 marks)

Based on these criteria, the essay was evaluated by more than one individual. The students were scored for 40 marks in the essay.

Step 3 Interaction Session/Interview

After the assessment of the application forms and the essay, students were shortlisted to appear for an interaction session. The interaction session drew on experts from diverse fields. The total marks allotted for the interaction was 40. Every expert independently assessed the students. The distribution of marks was based on the following:

- Clear articulation of goals (10)
- Eagerness to work on tough challenges (10)
- Evidence of self-motivation/grit (10)
- Justification for inclusion (10)

The distribution of total marks among the application, essay, and interaction are as follows:

Distribution of the total marks allotted:

Application:	20
Essay:	40
Interaction:	40
Total:	100

Till date, three batches of NIAS-MAIYA PRODIGY fellowship have been awarded and are connected with their mentors. In the period 2016–17, 61 applications were received out of which and 10 fellowships were awarded. In its second year (2017–18), the programme received 431 applications, out of which 15 were shortlisted

First and Second Batch of NIAS MAIYA Prodigy Fellowship Awardees

Third Batch Of NIAS-MAIYA PRODIGY Awardees, January 2019

for the fellowship awards. In order to extend its reach, in the year 2018–19, the programme sent application notifications to the 1,000 SSLC toppers (top 500 Girls and 500 Boys) across Karnataka of which total 22 students were awarded the fellowship. The following table (table 3) explains the detailed process of applications in the three years.

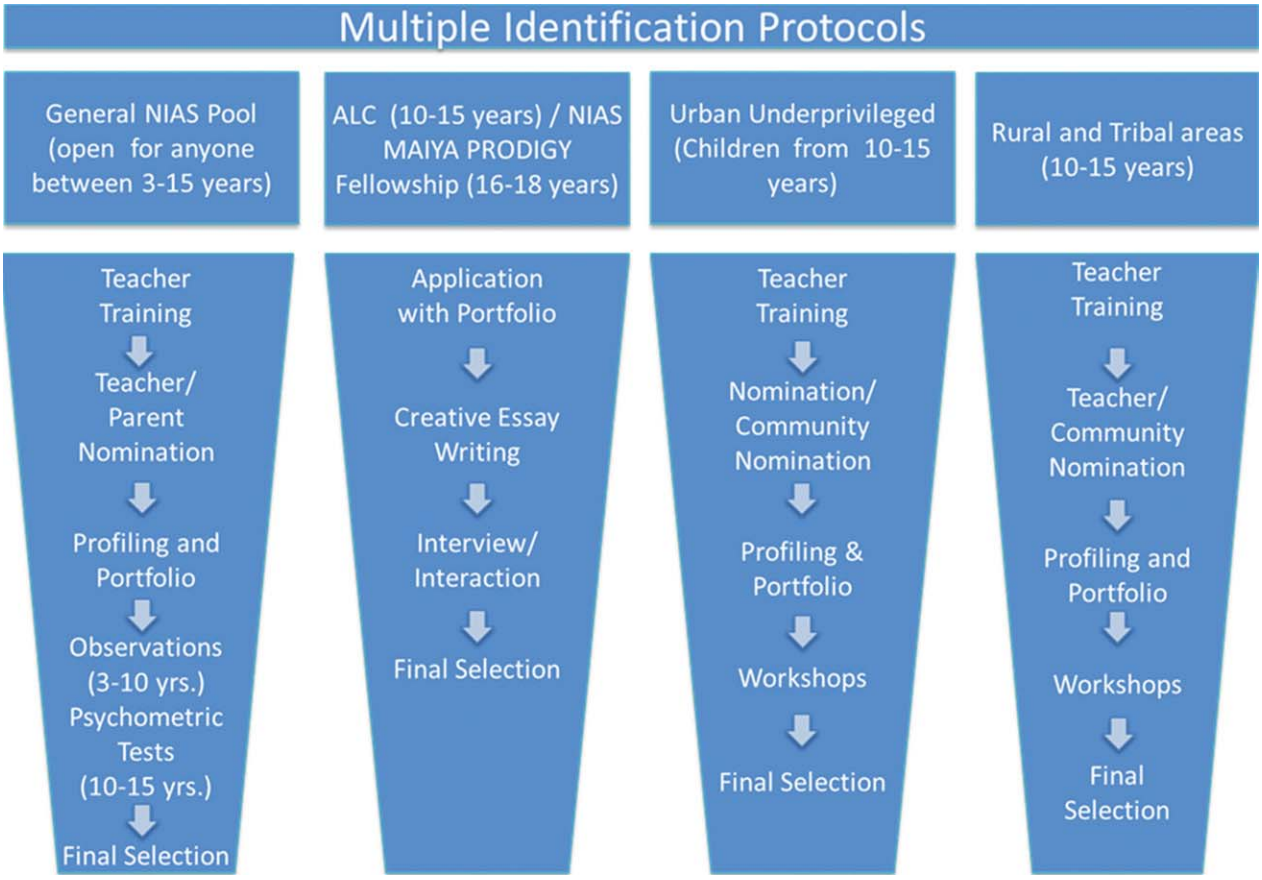
In all the years, the essay test was conducted at the National College, Basavanagudi, Bengaluru. Students from more than 10 districts in Karnataka participated in the essay round. The outreach of the students has to be expanded and steps need to be taken to increase the number of applications for the fellowship. The selection for the fellowship is independent of the availability of the funds. The programme selects only exceptional students who can benefit from the programme. This programme is of one of its kind in India. Table 3 provides the details of the population covered in this programme.

1.4 Snapshot of Multiple Identification Protocols

The above description introduces the different programmes of NIAS–EGT. The conceptual map of the different selection processes is provided below:

Table 3: Population Distribution and Number of NIAS-MAIYA PRODIGY Fellows (2017-19)

Year	Population	Students Notified	Applications received	Appeared for Essay test	Shortlisted for Interaction	Fellowships available	Awarded
2017	13,85,379	2000	61	45	15	10	10
2018	12,66,134	2000	431	289	40	30	15
2019	11,83,936	2000	414	277	77	20	22


Multiple Identification Protocols
General NIAS Pool (open for anyone between 3-15 years)
ALC (10-15 years) / NIAS MAIYA PRODIGY Fellowship (16-18 years)
Urban Underprivileged (Children from 10-15 years)
Rural and Tribal areas (10-15 years)
Teacher Training
Teacher/ Parent Nomination
Profiling and Portfolio
Observations (3-10 yrs.) Psychometric Tests (10-15 yrs.)
Final Selection
Application with Portfolio
Creative Essay Writing
Interview/ Interaction
Final Selection
Teacher Training
Nomination/ Community Nomination
Profiling & Portfolio
Workshops
Final Selection
Teacher Training
Teacher/ Community Nomination
Profiling and Portfolio
Workshops
Final Selection

2. Mentoring

NIAS–EGT has developed a mentoring programme along with the identification of the gifted during the early years. The mentoring programme is continuous and is provided for a minimum period of 5 subsequent years. Each programme has been providing mentoring support to children belonging to different age groups. The NIAS-EGT has attempted to design a specific model of mentoring for each of the sub-segment of the programme that is age- specific. There are multiple models of mentoring adopted by NIAS–EGT for each of its programmes based on the need and feasibility. These multiple models involve

1. One-to-one mentoring
2. Summer-winter workshops
3. Workshops with parents
4. Workshops with teachers
5. Working with mentors
6. Mentorship Collaborations

The following section describes the mentoring programmes in detail.

2.1 One-to-one Mentoring

The one-to-one mentoring programme has focused on providing individualised quality mentoring to each student. This was the first form of mentoring developed by NIAS–EGT. The programme drew on mentors from NIAS and IISc. The programme initiated the process of one-to-one mentoring where each student got the opportunity to closely interact with the individual mentor. One-to-one mentoring involves being in contact with the mentor through regular meetings and through various online options like Skype, emails, WhatsApp, etc. The process has enabled each student to experience learning through a visit to the mentor's laboratory/workplace and being in contact with various other colleagues of the mentors in the field. A student who is a part of the gifted education pool, since the year 2011, has got the opportunity to work with a mentor in IISc, which has enabled him access to the lab. This has supported him in undertaking various projects and learning opportunities under the guidance of the mentor. This is a case in point.

NIAS–MAIYA PRODIGY Fellowship programme (initiated in 2016–17) has also provided one-to-one mentoring to the students in various fields like science, mathematics, social sciences, arts, etc.

2.2 Summer/Winter Workshops

The summer/winter workshops were organised with the objective of nurturing the gifted and talented students identified by NIAS–EGT. The workshops provide the children with an opportunity to engage in active learning. The workshops are intended to be residential as it gives scope for the students to engage with the mentors and peers. The residential workshop also provides an opportunity for the students to engage in an activity for a longer duration. It facilitates a formal and informal environment for learning. The workshops are organised for

One-to-One Mentoring: Nano Science experiments demonstrated

all students selected in the various programmes and are conceived and coordinated by the NIAS–EGT team. The workshops organised under the Advanced Learning Centres (ALC's), NIAS–MAIYA PRODIGY Fellowship programme and the NIAS Gifted Education pool aim to provide a platform to students to engage in areas or topics beyond the regular school curriculum.

NIAS–EGT conducts frequent summer/winter workshops for the children in the NIAS Gifted Education pool. These workshops are intended to provide a challenging and enriching environment to the children through which they can cultivate and develop their creative and critical thinking skills. The workshops also include sessions for the overall personality development of the child and are not limited to the development of the children's cognitive skills.

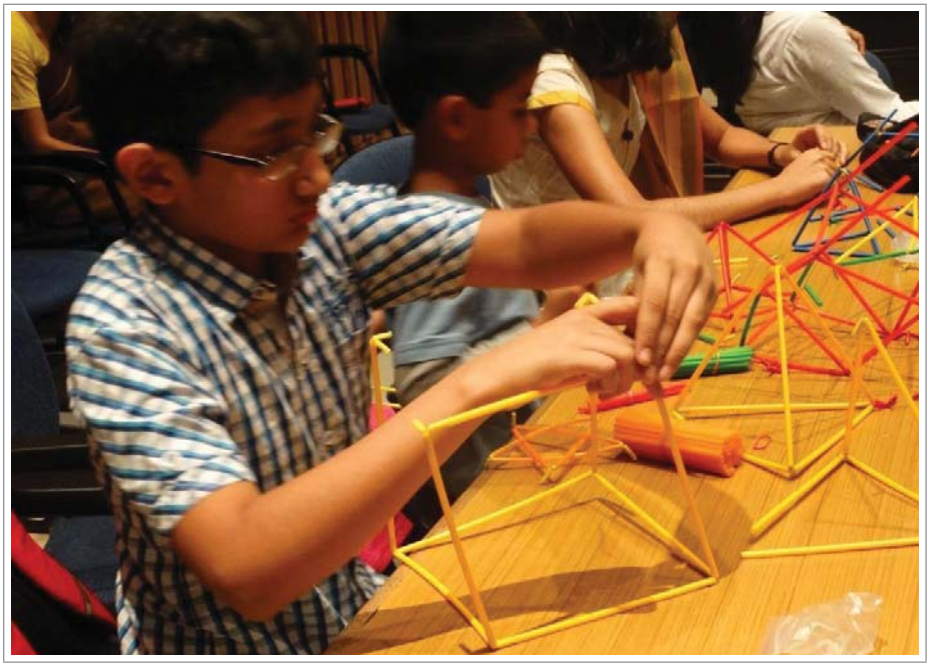
The students develop skills to work independently as well as in groups, developing team- building skills. They present their working projects to their peers and seniors to gain relevant feedback. Following are some important workshops that we organised. The workshops also conduct special sessions to address the socio-emotional needs of the gifted and talented children.

a. Second Summer workshop for children of NIAS Gifted Pool

National Institute of Advanced Studies had organised a second summer workshop, which was held for 3 days from 11th to 13th of May, 2016. The workshop was held for the children who were enrolled for the NIAS Gifted Education Programme 35 children and their parents actively participated in the workshop.

The workshop comprised of the following talks and activities:

- Exploring your neighbourhood as it connects to you



Children Engrossed in Re-Inventing Mathematics Session at NIAS

- How to map what is around you?
- The true tweets: Research with birds
- What is Mathematics?
- Re-inventing Mathematics
- Hands-on science toys with ISPF
- Inward bound: Learning from discovery and reflection

The workshop sessions were highly interactive and enabled the children to engage critically with the concept, along with hands-on experience with scientific toys. These experiences are meant to help the children think beyond their classroom modules and also provide fuel to their fertile curiosity to attain knowledge.

b. Summer Workshop in Collaboration with Agastya International Foundation

NIAS Gifted Education Programme organised its 5th summer workshop 'EXPLORING EXCELLENCE WITH NATURE, SCIENCE AND ART' in collaboration with Agastya International Foundation from 9th to 11th of May, 2017. The workshop was held in Agastya campus, Kuppam, in support of the 'Office of the Principal Scientific Advisor to the Government of India and 'Tata Consultancy Services'.

The workshop revolved around the following specific themes:

- An ecology walk in the morning from 7:00 am to 8:00 am, followed by the inaugural address and orientation, innovation hub workshop and lecture on career pursuits on 9th May 2017
- An ecology walk, followed by intra and inter-personal development through forum theatre, visit to the planetarium and presentation by participants on career goals and ambitions on 10th May 2017
- An ecology walk, media and art lab workshop, followed by a valedictory address and feedback session on 11th May 2017

In the three-days workshop, several activities provided opportunities for children to sharpen their skills and challenge their intellect. The

Ecology walk organised at Agastya Foundation, Kuppam

workshop was attended by a pool of 18 gifted children, parents and by the members of the education programme of NIAS. The members included Dr. Shalini Dixit, Doctoral Scholar Ms. Anupama, and Research Associates Mr. Ajay, Ms. Ashwini, Ms. Surbhi and Ms. Samhita.

c. One-week Robotics workshop at NIAS

On May 2017, NIAS organised a week-long robotics workshop for the children identified in the EGT pool. The workshop was attended by four children who had shown a keen interest in

Artbot Team- Robotics workshop at NIAS

the field of robotics. Mr. Sudarshan instructed the students in preparing a project through collaborative learning. In a span of one week, the children not only learnt about the technicalities involved in making a robot but they also jointly executed their conceptual understanding by creating an Artbot; a robot that can write.

Overall, the workshop was a very engaging and exhilarating experience for the participants as well as the NIAS Team.

d. One-day Advanced Learning Workshop at NIAS

On 26th January 2018, NIAS conducted a one-day advanced learning workshop for the students from the ALCs. The workshop comprised of presentations in the fields of immunology and 3D designing. The sessions were kept interactive and students actively engaged in all the sessions.

The NIAS team also interacted with the parents in order to map the development of the children and also noted the important suggestions and feedback they provided. The team along with the plan to take the journey forward by being active collaborators aims to make the programme a successful one.

e. Two Day Residential workshop for the children of NIAS supported ALCs:

On May 2018, National Institute of Advanced Studies organised a Two-Day Residential Workshop for the students in the NIAS Supported Advanced Learning Centres. Apart from providing students with an opportunity to present their work, the workshops are envisaged as spaces where they are provided enriching inputs by various subject experts. The children display their understanding of cutting-edge ideas in the form of projects, lecture demonstrations and participation in prestigious competitions. Children from all the three centres in Bengaluru and Hyderabad participated in the workshop.

The workshop consisted of an innovative presentation by Ms. Neha M.K, a winner of the NIAS–MAIYA PRODIGY Fellowship 2017, who

Session on immunology conducted on One-day ALC workshop

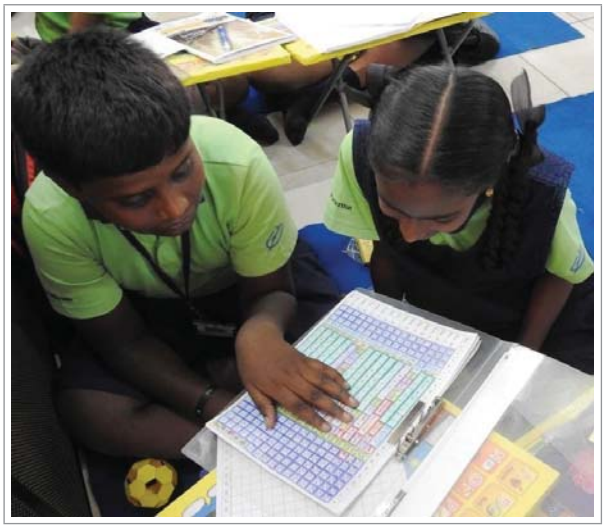
Visit to CeNSE lab, IISc

is currently pursuing her MBBS; she presented an interesting session on neuroscience. Mr Gajanan, a PhD student from the Centre for Product Design and Manufacturing, presented a session on Design Thinking (DT), which emphasised on creative problem-solving methods. Apart from the sessions, a visit to the Centre for Nano Science and Engineering (CeNSE) of IISc was organised as a part of the workshop for the children.

The final round of the workshop comprised of presentations by the children, where the children came forward with the novel and innovative projects that they undertook. The workshop concluded with the awarding of certificates, on a high note of hope for success.

f. Three Day Workshop for the Parikrma Children at ALC, Vidyashilp:

In order to broaden its horizon, the NIAS–team has reached out to Parikrma with the hopes of diversifying the group of students enrolled in it. Following a teacher's training workshop in the month of March, nominations from all the branches of Parikrma, namely; Jayanagar, Nandini Layout, Koramangala and Sahakarnagar, were collected, followed by an essay test on 10th April 2018. Based on the nominations and the scores of the test, twelve students were shortlisted for the workshop.



Children involved in Time Tracker Activity

From 22nd to 24th May 2018, a three-day workshop was organised at the ALC, Vidyashilp Academy. The twelve shortlisted children were observed

Session on immunology conducted on One-day ALC workshop

closely by the NIAS team members, in order to understand their levels of interest, motivation and dedication to tasks. Post the workshop, after comparison of the observations, eight children were shortlisted to be included within the functioning ALCs.

g. Rural Workshops:

NIAS–EGT has initiated residential workshops in rural areas of Chamrajnagar and Mysore in the year 2018. The objective was to be able to provide active learning opportunities to the children selected from rural areas of Karnataka. The details are provided in the chapter on 'Rural initiative'.

2.3 Workshops with Parents

NIAS–EGT works closely with the parents of the shortlisted students to provide them with complete support at home. These workshops intend to actively involve the parents in their child's mentoring, review the NIAS–EGT programme and provide suggestions to improve the programme. In general, the parents have expressed satisfaction and were happy with the NIAS–EGT programmes. The following are a list of programmes organised for parents of the gifted children:

- A one-day feedback session with parents during the second summer workshop, which was held for 3 days from 11th to 13th May 2016
- A design-thinking workshop by IBM held at NIAS on 29th July 2018. The aim of the workshop was to focus on increasing the business and social value of the Education for the Gifted and Talented Programme
- A one-day workshop with the parents of the ALC students on 26th January 2018, at NIAS.
- A workshop with the parents of students from ALCs on 29th December 2018, at NIAS.

Discussion on way forward with Parents

2.4 Workshops with Teachers

The teacher-training workshops were useful for the project in identifying giftedness in its many forms. The workshops also contributed in sensitising the schools and teachers about the issues and needs of the children with high abilities. Simple steps like sharing advanced learning materials with students, facilitating discussions with teachers of higher-grade classes and linking them to a local mentor, if available, were some of the points discussed with the teachers. The workshops were conducted with teachers from various schools in both urban and rural areas. NIAS conducted various workshops in the schools in both urban and rural areas. In urban areas, teacher-training workshops have been conducted with Parikrma centre for learning, Sri Sri Ravishankar Vidya Mandir (SSRVM), Vidyashilp, etc. In rural areas, the workshops were conducted for various government schools in Chamrajnagar and Mysore districts in Karnataka.

The workshop was organised with the objective of identifying and nurturing gifted children. In the workshops, it was important to brainstorm with teachers as well as with parents about the notion of giftedness that they share. This was important to ensure a sustainable and scalable identification method for India since the teachers and parents were the first points of contact in the process of identification. Teachers specifically are our entry point into the education system as well as our most important collaborators in the effort to identify and nurture the gifted children. Teachers spend several hours a day with a large number of children, allowing them to observe the behaviour, abilities, and interests of children and to identify the children with unusual potential. The rigidity of the Indian education system creates, in many teachers, a textbook-and-exam-based definition of giftedness or talent where other talents go unnoticed. In both urban and rural areas, the research data has similar findings where the concept of giftedness among teachers reflected achievements in exams and competitions and 'good' behaviour in the classroom. In contrast, the research in the area of gifted education found that both under-achievement and disruptive

behaviour (for example, questioning the authority or social-adjustment issues) were pretty common among gifted children. These children are often not identified by the teacher and experience social isolation. In order to identify giftedness in its many manifestations, there was a need to orient teachers through training.

The teacher training workshops are an integral part of the identification process in rural and urban areas. In the past three years, NIAS–EGT Team has conducted over 30 teacher-training workshops for rural and urban teachers. The training sessions try to question the already existing conceptions of giftedness, where giftedness is often understood as a 'good' behaved/achieving boy or a girl. This myth had to be removed through live examples. The session then walks the teacher through the 21 traits (discussed in Page -14) by their active participation. The teachers fill one nomination form in the session through consultation with peers and the teacher trainer.

Teachers are encouraged to recall about any incidence of activity inside or outside their classrooms where any of their students have shown unusual creativity, problem-solving skills, leadership qualities or any of the high abilities (mentioned in the nomination form). After the session, teachers were confident to identify children who are gifted in various fields. As an illustrative point, a teacher identified a gifted child of 8 years who had completed the electrical wiring of his house without any formal training.

The teacher training workshops have not just been useful for the project in identifying giftedness in its many forms. It also has contributed in sensitising the schools and teachers towards the issues and needs of the children with high abilities, sharing with them the reading material that helps them to nurture and support such talent even in regular classrooms.

NIAS–EGT has proposed the need to have the module on giftedness in teacher training programmes at the national level. The programme aims to offer support to teachers through training and workshops. NIAS makes available free reading material on the education of the gifted, on the PRODIGY website.

a. One-Day Facilitator's Workshop for ALCs at NIAS

After short-listing of the students for the ALCs, NIAS–EGT trained the facilitators, who will be the crucial link between NIAS and the students. The facilitator's workshop was organised on 14 September 2017 at NIAS. Prof. Anitha Kurup and Mr. Sudarshan gave them detailed presentations about the objective of the ALCs, and the organisation of the sessions in the ALCs. The facilitators constantly interact with the NIAS team during and after the ALC sessions.

One-day Facilitators Training at NIAS

Post the training session, the facilitators developed a curricular framework to guide the activities in the ALCs. The framework provided broad guidelines with enough autonomy to introduce new ideas into the ALCs. The programme had in-built mechanisms to interact with NIAS if there was a need. Since its inception, the teacher trainers

are coordinating effectively between the students and NIAS by providing updates and necessary feedbacks and establishing a high standard of learning experience in the programme.

b. One Day Master-trainer Workshop at NIAS:

On November 2017, NIAS organised a one-day Master teacher-trainer workshop, where enthusiastic master teachers could avail NIAS' resources on Gifted Education in order to implement the identification and mentoring programme in their respective schools. The objective of the workshop was to increase the outreach of the programmes, as well as to increase the mentoring opportunities for the gifted.

One Day Master-trainer Workshop at NIAS

c. Teacher training workshop at Parikrma

The NIAS–EGT Team initiated its collaboration with Parikrma in February 2018 with the aim of making the ALCs more inclusive. As the two ALCs at Silver Oaks and Vidyashilp Academy in Bengaluru were already functioning, the EGT team considered reaching out to the underprivileged sections of the urban areas to make the ALC group more diverse.

The process was initiated with meetings with Ms. Shukla Bose, Director, Parikrma, and other members from all the four branches of the Parikrma schools namely: Jayanagar, Nandini Layout, Koramangala and Sahakarnagar. Subsequently, two consecutive teacher-training workshops were organised at two Parikrma centres –Jayanagar and Sahakarnagar.

In March 2018, NIAS conducted teacher-training workshops to train the teachers in the nomination process. The workshop equipped the teachers with skills to use the Teacher Nomination Behavioural Rating Scale (TNBRS). The workshops had over 50 teachers from different Parikrma centres as participants. They interacted enthusiastically with

Intense group discussion session at Teacher Training workshop, Parikrma

the NIAS team and provided valuable details and feedback about the behaviour of students who were gifted from their schools. The teachers nominated around 60 students who were screened by the NIAS team. These students participated in the essay tests held on 10th April 2018.

d. Teacher Training workshop at SSRVM, Jayanagar

The NIAS–EGT team aims at opening at least 20 Advanced Learning Centres in and around Bengaluru, in order to cater to the needs of the gifted children who are spread over Bengaluru city. These students study in government, public and private schools. With two functioning ALCs in Bengaluru, the third ALC was set up at Sri Sri Ravi Shankar Vidya Mandir, Jayanagar.

On August 2018, the teacher training workshop was conducted at SSRVM, Jayanagar. The workshop had 30 teachers as participants. The NIAS–EGT team conducted the workshop following the procedures laid out to train teachers.

The team explained in detail the socio-emotional needs of the children and the difficulties they often face in a conventional classroom. Recognising this, NIAS developed the ALCs as to conduct enrichment programme for these children. The team discussed in detail selection procedures to enrol in the ALCs.

In addition to the above workshops, the following workshops were done in the last three years, with the help of TCS grant:

- Workshops in Mysore and Chamrajnagar (mentioned in detail in the section on rural initiative)
- Workshop for ALCs at NIAS on 14th September2017
- One day master-trainer workshop at NIAS in November 2017, NIAS
- Teacher-training workshop ITM Global school Gwalior on 18th August 2018

2.5 Working with Mentors

The NIAS–EGT programme recognised that the mentors may require training to interact with young children who are gifted. The team has been organising workshops and feedback sessions with mentors to understand their needs and share

NIAS–EGT Team Training SSRVM Teacher

IISc Student Mentors Workshop

experiences and resources with the mentors. NIAS organised a mentors workshop in IISc on 8th August 2018 to meet the postgraduate/ doctorate/post-doctorate students who had volunteered to become mentors. The workshop was conducted with the objective of introducing the mentoring programme to the students. The workshop was organised in the form of an interactive session conducted by Prof. Anitha Kurup. The discussions that followed provided important leads to motivate students to offer mentoring services to these young children.

2.6 Mentorship Collaborations

The NIAS–EGT team has developed active collaborations with students from IISc, ICTS and NIAS. Undergraduate, postgraduate and doctoral students from Indian Institute of Science (IISc) and young faculty from International Centre for Theoretical Studies (ICTS) and NIAS volunteered to become mentors in the NIAS–EGT programme. The student-mentors are invited to mentor gifted and talented children aged 11 years and above, who share common areas of interest. This initiative intends to make mentoring an efficient and effective tool in strengthening the knowledge base in areas of interest of the gifted children. The initiative also emphasises on developing a symbiotic relationship between the mentor and the mentee.

Interaction at Mentor and mentee Workshop

NIAS–EGT is expanding this student mentor network to include students from natural and social sciences from leading institutions, colleges and universities. The mentors' platform is also being extended to students from institutions that train in performing arts, music, dance and sports.

3. Outreach

With the objective of identifying and mentoring gifted and talented children, the programme has expanded to both urban and rural populations. In the rural areas, the programme has collaborated with the government and NGOs to provide the necessary support to the gifted children. This section describes the outreach programme of NIAS–EGT in the urban areas.

3.1 Programmes

Particularly in urban areas, NIAS–EGT has initiated many programmes to reach the gifted and talented students from various sections of the society, belonging to different age groups. The first contact point to identify the students was the teachers/parents. For all the 3 programmes, NIAS–EGT has worked with the teachers who initiated the process of nominations. A total of 1000 teachers were trained in different schools and NGO's to brainstorm them with the idea of giftedness (used in the programme) and receive fair and unbiased nominations.

NIAS–EGT 'General pool of gifted and talented students' has tried to reach out to children in the age group of 3–16 years. The programme is open for children, both in and out school. This programme is open to students from all over India. Being a pull-out programme, it has supported many students from regular schools and many who were home-schooled. The rigorous identification process (described above) has led NIAS–EGT 'General pool of gifted and talented students' select 110 students in its pool after reaching out to 60000 students in the urban schools of South India.

NIAS–EGT supported ALCs initiated weekend classes and mentoring sessions for students in regular schools in their 6th to 10th grades. For this, the programme collaborated with various schools like Vidyashilp Academy, Silver Oaks International School in Bengaluru and Hyderabad. The programme also collaborated with the NGO, Parikarma Centre for Learning, with the objective to provide mentoring counselling support to students from disadvantaged sections of urban areas. The programme reached out to the population of 35,700 students, out of which a total of 124 students were selected.

The NIAS-MAIYA PRODIGY Fellowship programme initiated the effort to identify and mentor students who have passed their 10th and 12th grades. It provides mentoring support to the students for their future career growth. The programme has reached out to the schools, both in urban and rural areas. Since its inception in 2017, the programme has reached a total of 6000 students who have scored more than 80% in their 10th and 12th grades. Out of the 6000 students, a total of 47 fellowships were awarded. The table below explains the outreach of the programme.

Table 4: Outreach of NIAS–EGT through Different Programmes

Programmes	Population	Shortlisted/Trained
NIAS–EGT General Pool	60,000	**110**
NIAS-MAIYA PRODIGY Fellowship	6000	**47**
Advanced Learning Centres	35,7000	**124**
Teachers Trained		**1000**

3.2 Publications

NIAS–EGT, in its 8 years of existence, has published many books, articles, modules, etc. Some of them are listed below,

Peer-reviewed articles:

- Kurup, A., and Dixit, S. (2016). Gifted with Disabilities: The Twice-Exceptional in India. Indian Educational Review, July. NCERT, New Delhi.
- Kurup, A., Dixit, S., and Chandra, A. (2016) Traits of Gifted Children in India: An analysis of NIAS Gifted Education Programme, NIAS Report. NIAS, Bengaluru, India(R-40-2016).
- Roy, P. and Kurup, A. (2015) A Critical Assessment Of Gifted Education In India In: Gifted Education In Asia: Problems And Prospects. In *Gifted Education in Asia: Problems and Prospects*. Information Age Publishing, Inc.,147-166.
- Kurup, A. (2015). Will Mentoring Bridge the Gender Gap In Indian Science? In *la Physique Au Canada.*vol. 71(2)
- Roy, P. and Kurup, A. (2015). A critical Assessment of Gifted Education in India. In David Yun Dai and Ching ChihKuo (eds.), *Gifted Education in Asia: Problems and Prospects*. Carolina: Information Age Publishing.
- Kurup, A., Ajay Chandra and V.V. Binoy (2015). Little Minds Dreaming Big Science: Are We Promoting Children Gifted in STEM in India? *Current Science*, *108*(5).
- Kurup.A., Sharma J., Basu. A., and Chandra. A. (October 2015). Identification and Mentoring Gifted Children (age 3-15 years). NIAS Report, NIAS, Bengaluru, India (R-37-2015).
- Anitha Kurup (2014).*Gifted Child's Right to Education, Inclusive Education In Learning Curve*, Issue XXIII, October Azim Premji University, Bengaluru, India.
- Kurup, A., and Maithreyi. R. (2012) A Review of Challenges in Developing a National Programme for Gifted Children in India's Diverse Context. *Roeper Review, 34* (4). pp. 215-223. ISSN1940-865X.

NIAS Reports:

- Case profiles of gifted children (Identification of Gifted Children in Maths and Science in the Indian Context 3-15 years)
- An Introductory Reading on giftedness in children
- Identification and mentoring Gifted Children (Age 3-15Years)
- Teacher Training Modules for Identifying Gifted Children (Ages 3-12Yrs) *English and Kannada Version*

Magazine and Newspaper Articles:

- The Twice-Exceptional Learner 2014 Nurturing Gifted Children. Parent Edge 3(4): 64-65
- Parenting Gifted Children-not a Cakewalk 2014 Nurturing Gifted children. Parent Edge 3(5):28-29
- Academic and School Concerns of Gifted Children 2014 Nurturing Gifted Children. Parent Edge 3(6):42-43
- Identifying Potentially Gifted Children 2014 Nurturing Gifted Children. Parent Edge 3(1): 32-33
- What is Giftedness 2013 Nurturing Gifted Children. Parent Edge 2(8): 50-51
- Socio-emotional concerns of gifted children Parent Edge: 55-56; January- February 2015
- Educational Resources for Gifted Children-outside school Parent Edge:27-28, September-October 2014
- Nurturing Gifted Children- Educational Options for Gifted Children Parent Edge: July 2014
- Parenting your Gifted Child Parent Circle:10-13, June 2014

3.3 Social Media Handle

Understanding the needs of the generation, NIAS–EGT programme has extended its reach to various social media platform and created a huge impact. Some of them are listed below

1. **Website**
   NIAS PRODIGY- Promoting the Development of India's Gifted Young
   http://www.prodigy.net.in/

2. **YouTube channel**
   NIAS–EGT has an Active YouTube channel https://www.youtube.com/channel/UCC53s4TzpI0UlcMA-Iif4zQ

3. **Facebook**
   NIAS Prodigy – https://www.facebook.com/NIAS-Prodigy307787353090335/?modal=admin_todo_tour

   NIAS - Gifted Education Programme – https://www.facebook.com/NIAS-Gifted-Education- Programme619909831691763/

4. **Twitter**
   https://twitter.com/niasprodigy

5. **Blog**
   https://paragons432124030.wordpress.com/2018/07/20/welcome

4. NIAS Offerings for Supporting Gifted and Talented

The NIAS–EGT programme, started in 2011, has developed into a well-weaved network, which has also initiated and supported various programmes with the single objective of identifying and mentoring gifted and talented students. In the 8 years of its existence, the programme has worked on to develop different identification and mentoring protocols, which are uniquely designed for the socio-culturally diverse country like India. This section explains in detail different offerings made by the NIAS–EGT programme.

4.1 Identification Protocols

NIAS–EGT has designed unique identification protocols for each programme catering to different age groups and socio-economic backgrounds. Identification Protocol for each programme is discussed in detail in the *Identification Protocol* section above.

NIAS–EGT "General pool for Gifted and Talented children"

To identify the children, the programme uses the teacher/parent nomination forms, psychometric tests (TTCT and RPM) and case profiling. For the younger children, between the age group of 3–8 years, the programme doesn't use the psychometric tests. The nomination form is the entry point for the identification process. In the process of shortlisting students into the NIAS pool, they are evaluated out of 100 points. 50 points are for the TNBRS/case profile/portfolio as elaborated in the section on the TNBRS and the remaining 50 points are for the observation of students on the parameters informed by literature in the area of giftedness. These traits are cognitive traits, cognition and metacognition traits, curiosity, language, task commitment and socio-emotional skills. The programme administers psychometric tests (TTCT and RPM) to the children belonging to the age group of 9–16 years, with the nomination forms and case profiling.

NIAS–MAIYA PRODIGY Fellowship Programme

The programme has designed an identification protocol for the students who are in the age group of 16–18 years. The fellowship programme is open for all students who have scored more than 80% in their 10thgrade. The process starts with the teacher nomination forms for which the teachers have received training (by the programme team) prior to the nominations of potentially gifted and talented students. The programme is open for students from all fields. The annual mentoring workshops are organised for 5 years to facilitate the students to find their mentors through structured and unstructured interactions with experts from different fields. These experts are drawn from reputed institutions, in India and abroad.

NIAS–EGT Supported Advanced Learning Centres

The programme has designed an Identification Protocol for the Advanced Learning Centres, which tests the critical thinking ability, creativity,

problem-solving ability and motivation in students. The three-step process starts with the nominations provided by the teachers for the potentially gifted and talented students. The next screening is by administering an unconventional written essay test, which is evaluated for critical thinking, unconventional/ out-of-the-box thinking, practical applicability of theoretical knowledge, problem-solving skills, and logical reasoning. A comprehensive assessment of the area of interest, imaginative perception and approach to hypothetical situation, sensitivity to social issues, deep involvement in the area of interest and observation skills are assessed in the essay. The shortlisted students are then called for an interaction/interview session with experts from different fields. The interaction session aims to test students' aptitude and higher mental abilities, as well as dedication and motivation to pursue their interests. Students who clear the interaction round are enrolled in the advanced learning program, which serves as an enrichment programme for gifted children.

4.2 Teacher Training Programmes

The first step in the identification protocol is training teachers about the idea of giftedness. NIAS has developed two-day, one-day and half-day training programmes, which are available, both in English and Kannada. The variation in the length of the training programme is in accordance with the field requirement. As part of the NIAS–EGT, several national-level workshops were conducted to train teachers from urban and semi-urban schools in the area of gifted education. This is initiated with a vision to introduce and guide teachers to recognise and provide support for the gifted children. These workshops were conducted across Karnataka, Andhra Pradesh, Kerala and Maharashtra. A total of 2000 teachers were trained.

4.3 Mentoring Programmes

NIAS–EGT organises awareness programmes on giftedness for parents. Networking the parents and providing counselling with regard to socio-emotional problems of the child is an important part of this initiative. Periodic workshops are conducted for the children as well as for parents. We also share useful resources that are available in the public domain. NIAS–EGT has initiated work with other interested groups to broaden the outreach of the EGT. While several initiatives are started by NIAS to provide mentoring support to the gifted children, NIAS is aiming at developing a robust multi-stage multi-level mentoring model for India.

4.4 Developing Resources On Education Of Gifted Children

During the years 2011–2014, NIAS also developed resources on the education of the gifted and talented through a critical review of literature and field studies. Two volumes– Introductory Reading on Gifted education and Case Profiles of Gifted Children have been developed. These materials have been translated to Kannada.

5. Critical Assessment

In the present Indian education system, there was no special support provided to the children who are ahead of their peer group (or classroom) in the curriculum and classroom teaching- learning process. Understanding the gap between the learning ability of high ability children and the formal education support, the NIAS–EGT aimed to initiate an enrichment mentoring programme for the students whose learning and thinking capacity is ahead of their peer group. The targeted age group was 3–18 years. The major challenge in providing such support was the criteria of identification of high ability children. Since the academic grades are affected by several factors, other than ability, it could not be taken as an indicator of ability or talent. Overcoming this challenge, during the last four years, the NIAS–EGT has successfully developed multiple protocols for identification of the gifted children (in the age group of 3–18 years) with a focus on nomination by teachers and parents. The **PRODIGY** website (*www.prodigy.net.in*) has attracted the attention of several parents and teachers who have been approaching NIAS for support through the online teacher/parents nominations.

In its initial phase, there was a need to closely monitor the development of the identification protocols and mentoring programme for the gifted and talented. This needed the programme to be developed within Bengaluru, during the initial years. The programme was initially supported by the Department of Science and Technology, and hence the programme focused on the gifted and talented children in maths and sciences. However, with the support of the TCS grant during the last three years, the programme has extended its reach to various regions of Karnataka (both urban and rural). With the growing years, NIAS–EGT has extended its programme to identify and provide mentoring support to the gifted and talented in social sciences, humanities, arts, music, dance and sports. Acknowledging the unique culturally diverse setup of India, NIAS–EGT developed contextually suitable protocols, through evidence-based research, to identify gifted children in mathematics, science, humanities, social sciences, arts and sports for urban, rural and tribal children. Further, the team has also developed a multi-stage, multi-level model of mentoring that will cater to gifted children from diverse populations.

The programme collaborates with interested schools and NGOs in Bengaluru and Hyderabad. NIAS–EGT has played a critical role to include gifted and talented education in the current curriculum of the teacher training programme of Karnataka under inclusive education, as well as in the 4-year integrated pre-service teacher training programme for India. NIAS–EGT is the only non-IIT participating institution, which is a part of the Ishaan Vikas Udhaan programme launched by the Prime Minister to provide exposure to academically bright children from the North-Eastern states. Apart from the identification of gifted children, NIAS has also engaged itself in several other activities like conducting teacher training workshops, parents workshops, mentor–mentees meetings, summer-winter workshops for children and writing a number of articles and research papers to bring in awareness regarding various issues in the field of gifted education.

Building a national model and policy advocacy for Education of Gifted Children in India

Prof. Anitha Kurup and the team have been engaged with the research in the area. Reviewing the past work on gifted education, the team has engaged in literature review with a focus on arriving at an operational definition of gifted that will represent the diverse student population in rural, tribal and urban regions. The team also engaged in readings and discussion on components of giftedness and its measurement reflective of Indian conditions. So far, in the last several years the group has worked in the urban area; however, now it has expanded its work to rural and tribal areas. The team had a series of meeting with national experts to address the questions of diversity and identification protocol during June–July 2016. After the discussion, the team worked in two districts, namely, Mysore and Chamrajnagar. Two taluks, each, from each of these districts, were identified for intervention. Having carried out detailed exploration, we are working towards proposing a policy framework for the education of gifted children in India.

5.1 SWOT Analysis

Strength

The NIAS–EGT is a unique and crucial programme in India. Through extensive research, the NIAS team has developed tools and Indian protocols to identify gifted children in the urban and rural areas. The team has also worked and developed a multi-stage, multi-level model of mentoring that will cater to gifted children from diverse populations.

Weakness

While there are several strands of research and programme, which has been possible with the help of the TCS support, the team still suffers from limited human resources, given the scope of the programme. There are several activities like short-listing of the students in three different programmes, mentoring network, summer-winter workshops, data collection, data cleaning and organising, which takes place throughout the year. Because of these diversified works, the outreach of the programmes has largely been restricted to Karnataka state.

Threats

So far, the planning and implementation of the NIAS–EGT programme have remained closely supervised. However, as we plan to upscale the programme to the national level, the supervision and monitoring of the programme is going to be a challenge for the team. The need to blend autonomy with an agreed framework is a challenge as the programme expands. The expansion will bring with it new challenges that are local and need to be accounted for as the programme surges ahead. Reflection through periodic workshops and revisiting the framework for identification and mentoring will be a continuous process.

Opportunities

All the different programmes in NIAS–EGT have been very popular among schools, parents, educators and government officials, which indicate the potential and great promise of the programme. India has a plethora of talent to be discovered, especially among marginalised communities. Going by a conservative estimate, the top 3% of the children in the age group of 6–16 years, in India, is roughly 8.5 million. There are critical requirements to mentor the gifted talent of India's youth and children, which provides a huge opportunity for the programme.

6. Way Forward

NIAS–EGT has already developed multiple identification protocols that are specific to different student populations. It has received an extremely high positive response from schools, NGOs, educators and government officials. Going by the theoretical statement that gifted children are the top 3% of the total population of students, we estimate that India has about 8.5 million children in the age group 6–16 years. With limited resources, so far we have been able to reach only two districts in Karnataka. There is an urgent need to expand the programme through collaborations across the country. This is particularly needed for the gifted and talented children in rural and tribal areas of India. The programme needs to be expanded to other states. There is a need to further test and standardise the identification protocols in different local contexts. Looking forward the programme is seeking support to work in the following directions:

- Develop an online platform for identification so as to ease the process of nomination and get national-level data in terms of the traits of gifted children
- Increase and expand the EGT programme to different states in India.
- Increasing outreach in rural and tribal areas
- To use an online platform to reach rural and tribal children. This may include working with BRCs and providing them with a multimedia device like tablets
- Increase the mentors' network for online and one-to-one mentoring
- Enhance mentoring support and network for the gifted students
- Form a panel of counsellors and work with them to increase counselling support for gifted children

6.1 Target Groups/ Clients

The potential beneficiary is the struggling students, who have talents but are deprived of the opportunity of identification and mentoring support. On the one side, India is struggling to make formal education accessible, NIAS is striving to make the education qualitatively fruitful by focusing on the gifted among the children who are part of the formal education system. The programme benefits the children from the marginalised communities in India, who do not have the social capital through parental education and their social network. The identification and mentoring programme devised by NIAS is highly customised, not just for the mainstream educated group, but also in reaching to the marginalised and underprivileged sections of society. Thus, the indirect beneficiary will be the schools and education system, overall.

Chapter -2

RURAL INITIATIVES

NIAS–EGT PROGRAMME

1. Introduction

NIAS–EGT aims to develop a robust national model for identifying and mentoring the gifted and talented children in India. The NIAS–EGT team focuses on creating prototypes at NIAS through active field engagement. The model is piloted at NIAS and subjected to standardisation procedures. The standardised model is tested in different contexts before it is up-scaled at the national level. NIAS is considered as a social lab for the creation of the components of the model. Studies indicate that the current talent search programmes in India favour urban, male candidates from socially and economically privileged groups, studying in public schools that have English as the medium of instruction. More often than not, these children belong to families with high educational and income levels along with social capital. These resources provide children from these families the opportunity and training that give them an edge in any standardised selection process.

To make a paradigm shift from the current practices and create a programme that is inclusive, there is a need to make significant changes that reflect the field realities of diverse India. The challenge to develop a model for the country is an uphill task as India is a land of diverse culture, religion, ethnicity and race.

A critical review of the programmes available in India and overseas point to the fact that the children identified through the standard methods of single-point entry through objective- based tests have been biased to mainstream and academically bright children. That is probably the reason why the efforts to reach out to rural and disadvantaged populations have not witnessed much success. As a result, many gifted children from less-privileged backgrounds, especially from rural areas remain unidentified.

Recognising this as an important concern, NIAS–EGT tasked itself to active field engagement to develop parameters of giftedness that will reflect the diversity of the population in India. Along similar lines, NIAS had to develop context-specific appropriate models for mentoring for the gifted and talented from marginalised communities. The rural initiative was one effort in that direction. Therefore, the model has planned to assess the nature of giftedness and its various forms of manifestation in different socio-cultural groups in India.

Embarking on a new milestone, the NIAS–EGT team extended its reach to a diverse gifted children population. Apart from critically reviewing the urban identification protocols, the team embarked on working with the rural and tribal areas of Karnataka.

The objective of the programme was to reach out to the marginalised and culturally diverse gifted students in the rural and tribal districts of Karnataka. This needed one to understand the nature and diversity of the gifted in rural Karnataka and to develop appropriate protocols for identification. The TCS grant enabled us to reach the difficult terrains and marginalised populations of Karnataka.

Field visit to Hosahalli Tribal Residential School for girls, H D Kote

NIAS–EGT team started its rural initiative through collaboration with the Government of Karnataka to cover larger sections of gifted and talented children. The collaboration started in 2016 with multiple engagements with the State Education Department (DSERT: Department of State Educational Research and Training). This was instrumental for the programme as it paved way to collaborate with the government schools whose primary clientele were children who belonged to the marginalised communities.

This is true of urban India too. Hence, there is an urgent need for the government to adopt this programme at the national level to facilitate the identification of nearly 8.5 million gifted children in India. Only at this scale will the programme be able to create a reasonable impact.

Collaboration with Government of Karnataka: Meeting the DIET (District Institute for Education and Training) Principals July 2016

2. Population Information: Mysore And Chamrajnagar

Based on the discussions with the Secretary, school education in Karnataka, a pilot project was launched in two districts of Karnataka – Mysore and Chamrajanagar, which had the highest tribal population in Karnataka. Further, narrowing the scope of the intervention, the department advised that the research could be carried out in two taluks each from the selected districts. They were Hunsuru and Heggadadevanakote (HD Kote) from Mysore and Kollegal and Gudlupet from Chamrajnagar.

2.1 Chamrajnagar

Chamarajanagar is located at the Southernmost part of Karnataka State. Chamarajanagar, the district headquarters, was previously known as 'Arikotara'. Its present name was bestowed in 1880 by Krishnaraja Wodeyar of Mysore. Gundlupete and Kollegal taluks are ranked 2nd and 3rdwith regards to inhabitations of the tribal populations in Karnataka.

2.2 Mysore

Mysore District is located in the southern part of the Deccan Peninsula and it forms the southernmost district of Karnataka State of the Indian Union. Prior to 1973, Mysore was the name by which the State of Karnataka was known. Mysore district stands third in Karnataka in having tribal populations. The taluks of H D Kote and Hunsuru have the highest number of tribal settlements (Refer Table 2).

Table 1: Distribution of the SCs and STs in selected taluks of Chamrajnagar

Sl. No.	Sub-Districts	Population	SC Population	ST Population	SC (%)	ST (%)
1	Gundlupete	223070	43056	28695	19.3	12.86
2	Kollegal	357853	101505	40072	28.37	11.20
Chamrajnagar		1020791	259445	120219	25.42	11.78

Source: Census 2011

Table 2: Distribution of the SCs and STs in selected Taluks of Mysore District

Sl.No.	Sub-Districts	Population	SC Population	ST Population	SC (%)	ST (%)
1	Hunsur	282963	53399	46689	18.87	16.5
2	HD Kote	263706	73263	62254	27.78	23.61
Mysore		1281768	166333	93871	12.98	7.32

Source: Census 2011

The sample taluks from the two districts were chosen for the pilot study. The next step was to collaborate with the education department at the state, district and taluk level. Multiple engagements and coordination with different individuals in the education department were necessary to carry out the research. The following steps were involved in the process:

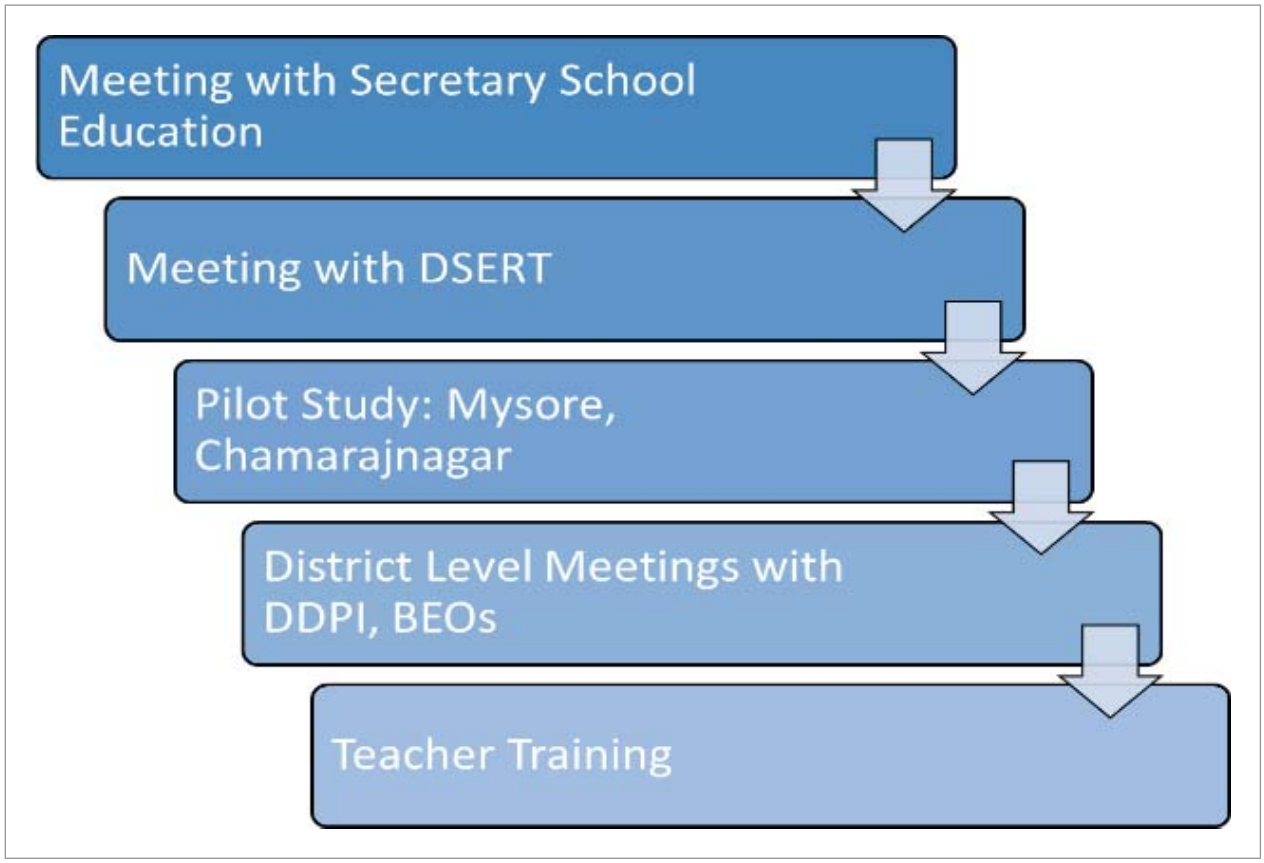


Figure 1: Steps in Collaboration with the Government of Karnataka

3. Developing Rural Identification Protocol

According to the 2011 Census, the number of school-going children (aged 6–16) in India is estimated to be around 284 million and about 70% of these children live in rural and tribal areas. Assuming normal probability, gifted children would comprise approximately 3% of the population, which translates to about **8.5 million** gifted children population in India and further about **6.2 Million** gifted children in rural India. These numbers alone pose a huge challenge for developing a comprehensive and culturally sensitive national programme. To build a robust model it was essential for the EGT team to have extensive field engagement to develop an identification protocol for different geographical and cultural areas in India, using both quantitative and qualitative parameters.

NIAS–EGT had already developed and tested the urban model of identification and in parallel created mentoring programmes for the urban gifted children. However, the challenges in rural areas were very different. The task at hand was to develop a protocol that represented the different communities that comprised the rural population. The differences start from the conception of giftedness among the communities to what is valued as giftedness. These are the central questions in our pursuit to unpack giftedness as reflected amongst the population. This led to rethinking and evaluation of the definition and tools adopted for identification.

Recognising the complexity of giftedness in rural and tribal areas, the definition of giftedness was rearticulated to:

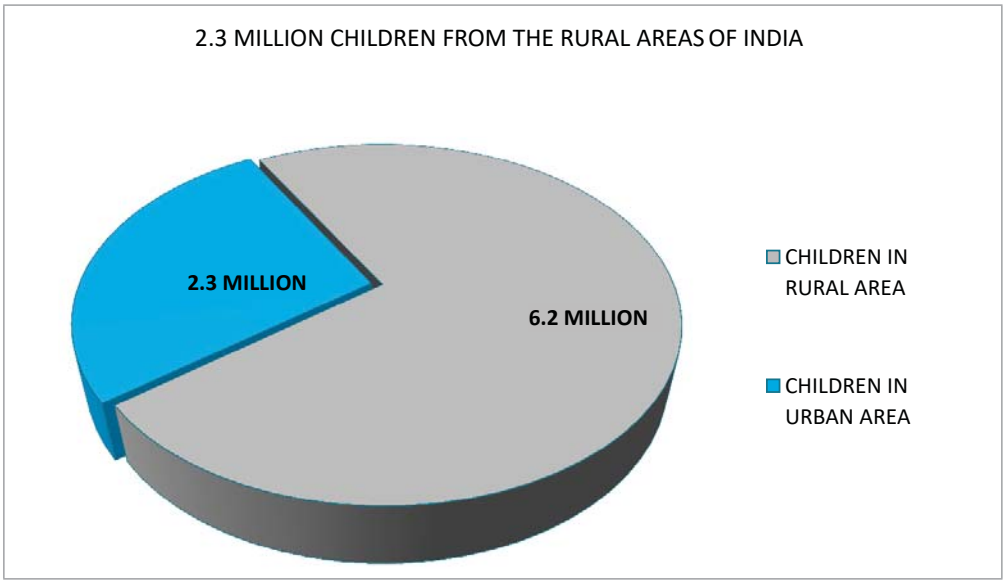


Figure 2: Shows the Population of Gifted Children in Urban and Rural Areas

Art by one of the identified students from tribal school, H D Kote

"*Gifted individuals are those who demonstrate outstanding levels of aptitude (defined as an exceptional ability to reason and learn) or competence (documented performance or achievement in top 3% or rarer) in one or more domains. Domains include any structured area of activity with its own symbol system (e.g., mathematics, music, language) and/or set of sensory-motor skills (e.g., painting, dance, sports)." (Adopted from NAGC,2014).*

Based on this inclusive definition, the team worked on developing a culturally sensitive model that would integrate the diverse and multicultural population of the gifted in the country. In this process, the psychometric testing that was used for identifying the gifted in urban areas was excluded from the rural model. Psychometric tests used in the urban model are RPM (Raven's Progressive Matrices) and TTCT (Torrance Test of Creative Thinking). RPM is a non-verbal test of intelligence, the rationale behind using RPM in the NIAS urban model is to ensure that intelligence (one of the important components of giftedness) is assessed to know the general mental ability of the children. TTCT measures the creative thinking ability, which is a collection of general mental abilities, which may involve divergent thinking, inventive thinking, productive thinking and problem-solving skills.

Though RPM is a culture-fair test, research on under-representation of students in gifted programmes suggests that IQ testing for a culturally diverse and marginalised populations fail to identify children from marginalised communities for the gifted education programmes. Students from cultures that differ from the majority lack test-taking ability. In addition, for a large country like India, with limited resources, psychometric measurements are simply not affordable. India does not have the necessary trained human resources with expertise in psychometric measurements to reach the 8.5 million gifted children in India.

Making a paradigm shift, the programme embarked on the task of using qualitative data and developing categories that could be converted to provide a quantitative dimension. This may be required for the purpose of identification of the gifted when the programme has to scale up. The rural identification protocol was strengthened by emphasising on the importance of qualitative data. It depended on generating actual data points through detailed profiling and observation of

the child in his/her natural context instead of psychometric testing.

Case profiling provided detailed accounts of longitudinal, developmental view of the construct of giftedness. It took into consideration the individual factors (intellectual and cognitive factors, personality factors)and environmental factors (home and school) that influence/ contribute towards the development of giftedness. The data was collected through interaction with key actors that include parents, extended families and their network, teachers, community and peers who have been significant in providing them with the needed support to pursue their areas of interest in order to provide critical qualitative data. The process of identification was designed in a way to increase the probability of identification of students possessing diverse and culturally situated abilities.

3.1 Protocol for Identification of Rural and Tribal Gifted Children

The team reviewed the teacher training sessions to adopt appropriate changes to reflect the rural and tribal schools. The concept of giftedness was introduced through a brainstorming session in the workshop. Drawing from the experiences of the teachers, the workshop illustrated live examples of children who are gifted amongst their communities. The training sessions also focused on analysing the difference between a gifted child and an academic bright child. The workshops were followed by nomination of students who were viewed as gifted and talented not only in academics also in diverse facets by the teachers.

The teacher nominations were shortlisted for detailed case profiling and final selection. The direct profiling of students was based on the interactions with the child, his/her family members, neighbourhood and the community in which he/ she lives. The EGT model is pictorially represented below (Refer Fig. 3). Following is a brief of all the steps used by NIAS–EGT in the identification model for the gifted.

Step1. Teacher Training Workshops

Introduction

Teachers operate at the grass root levels and are the first point of contact for the identification of

Diverse set of students identified by NIAS-EGT

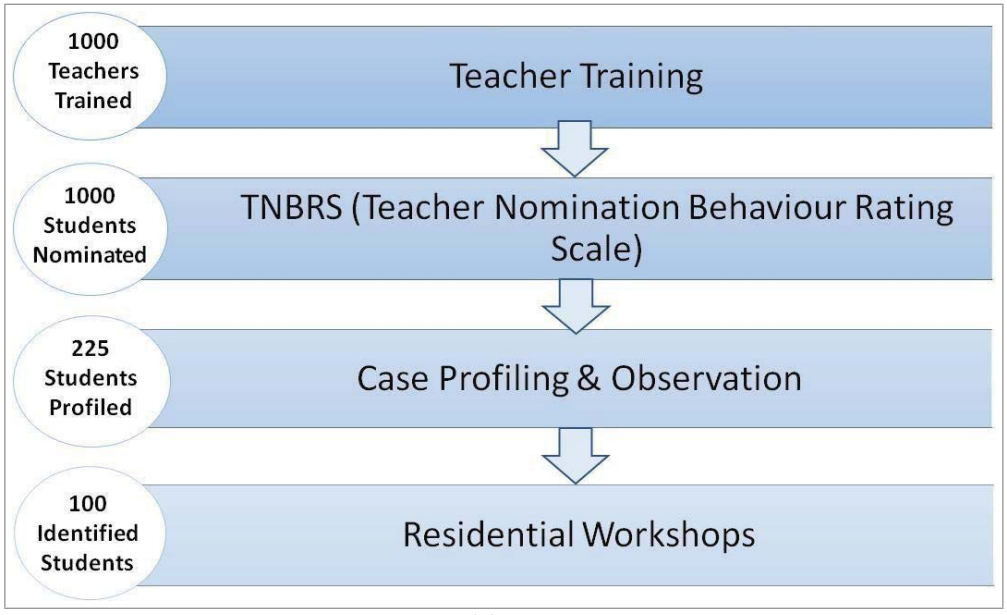


Figure 3: NIAS–EGT Identification protocol

gifted children. The children perhaps spend their maximum waking hours with the teachers in their schools. Teachers also observe several hundreds of children during their service. Hence, they do have a larger database to compare and identify the children who are exceptional. Thus, the teachers are an excellent resource for providing referrals to identify gifted children.

The rationale of conducting teacher training as the first step of identification was to capitalise on the teachers' access to observe students from close quarters. It was also important to recognise that India needed a model for identification that can be scaled and hence teachers and through them, the schools became the first site of intervention for the programme. The review of the literature reveals that gifted children from marginalised cultures fail to get identified as gifted due to teachers' bias, which is one of the primary reasons for underrepresentation. The training was necessary to sensitise teachers and create willingness amongst them to recognise the strengths of students from diverse cultural groups. In most instances, these children have little value for formal schooling. It is our firm belief that teacher training will help reduce this bias. However, it is rather premature to claim that this method is foolproof.

Description

Before the commencement of teacher training workshops in Chamrajnagar and Mysore, the NIAS–EGT team worked on the modification of the teacher-training module. The team included examples of culturally relevant traits for explaining and identifying giftedness. Following this, we started the operations of contacting DSERT, BEOs and DIETs to arrange the logistics for the training including deputing teachers for the training.

The workshops provided a platform to conduct an open-ended discussion with teachers on their ideas and notions of giftedness. The nomination form with culturally relevant traits of giftedness helped teachers to relate better and nominate the students. The process facilitated the nominations of giftedness in its many facets, where the girls outnumbered boys

Objectives of the Workshop

- To introduce the concept of giftedness, discuss common beliefs, conceptions, and issues around the education of gifted children
- To orient school teachers teaching-learning strategies and appropriate content delivery systems for the gifted children in diverse classrooms
- To train teachers to identify gifted children from their environment aged 6–15 years
- To orient school teachers on educational and psychological needs
- To familiarise teachers with the characteristics and types of the gifted and talented
- To train teachers with the skills to identify resources within the school and community to nurture the gifted children

Procedure

The workshops were planned so as to provide ample scope for the teachers to be interactive and exchange perspectives. The teachers were introduced to the concept of gifted children. The NIAS– EGT team used role-plays as a tool to introduce the general characteristics of gifted children. Case studies were also used to familiarise teachers with divergent traits and issues in the field of gifted education. The teacher participants were able to relate to the activities and participated in the discussions by sharing their insights from their field/teaching experience.

Mind mapping activity conducted during a Teacher training workshop in Kollegal July 2016

Module of the Teacher-Training Workshop

The teacher training workshop focused on introducing and familiarising the teachers with the idea of giftedness and equipped them with the ability to identify the gifted and talented

Group discussion during teacher training in Hunsuru, August 2016

Teachers sharing insights of Group discussion in H D Kote, August 2016

children in their classrooms. The introductory session consisted of a brief of the kind of work undertaken by the project. This included the standard definitions of giftedness and the operational definition of giftedness by the NIAS–EGT team. The next session was directed to breaking the stereotypes revolving around 'gifted'. This opened avenues for discussion, rethinking and deconstructing the myths underlying the perception of giftedness. The team generated discussion around the myths and provided clarifications through dialogues and discussions.

During the group discussion, small working groups were organised to facilitate discussions regarding the perceptions of giftedness. Drawing on personal experiences, each group was encouraged to present examples of children who were gifted in their respective schools. Post discussion the teachers were acquainted with the NIAS–EGT nomination protocol. Each item in the scale was elaborated and explained with examples from rural/tribal areas. This allowed the team to interact and make them understand the traits that they should be looking for a gifted child. The training ended with an extensive Question and Answer session.

Thus, the one-day intensive training aimed at orienting the teachers to the concept of gifted children, introducing the traits of gifted children, and having the teachers fill in the Teacher Nomination Behavioural Rating Scale. This enables the teachers to submit nominations from their schools. The training included teachers belonging to all age groups, with the purpose to have them share multiple experiences and create a lively, active and open discussion. The interaction of the teachers during the training session facilitated the active participation of the teachers through discussion and debate that enhanced the quality of the sessions. Feedback from the teacher and facilitators revealed that the teachers were able to relate to the topic and engage proactively in the discussions. They shared anecdotes and their insights from their personal field/teaching experience. A total of 18 one-day teacher training workshops were conducted in Chamrajnagar and Mysore.

Issues Discussed in Teacher-training Workshops

- Difference between gifted and talented children

- Academically bright children and gifted children
- Ability, practice, talent and giftedness
- Gifted children and the context of reference
- Importance of teachers and community participation in the identification of gifted children
- Need for identifying local talent and gifted children across different domains
- Importance of conceptualising giftedness with reference to its context
- Need for national-level policy for gifted children
- Issue of gifted among the dropouts
- Need for cluster/taluk level intervention
- Need for proper training programmes for the teachers to equip them to meet the diverse needs of the student population.

Teachers engaging in an open dialogue at Gundlupete, July 2016

Highlights of the Group Discussions

This section draws a sample of questions and the highlights of the discussion during the small group work.

a. What are some of the traits a gifted child displays?

The teachers described a gifted child as advanced learners, problem solvers, shy, having low self-esteem, jealous, higher thinking skills, supercomputers, good social skills, diplomatic with peers, naughty and problematic in classroom, expert in one or two domains, unusual and unique ways of thinking, creative, asks more questions, good academic performers, individual learners, fast learners, not so keen on talent exhibition, critical and scientific thinkers, all-rounders, more mentally and physically active, engages themselves in all the activities, applies the gained knowledge in their life, good language skills, punctual, etc.

b. Does the child perform well at school? Does he/she like school and classroom activities?

In response to this question, teachers shared that the gifted students remain active only if the tasks are interesting to them or else they exhibit boredom. They make both positive and negative responses and are not good with peer relationships. Gifted children have more expectations from the classroom; being active learners inside and outside school, prior learning of the subject at home adds to the boredom of the gifted child in the classroom. They are good learners in the classroom, have interests in the classroom activities (shows interests only in the subjects the child has interests), and learns all the tasks.

c. How does this child behave in the classroom? How does he/she react to boredom? Does he/she get along with his peers?

The teachers shared that gifted students are generally naughty, never accept failure, unique thinkers, attention-seeking, good at social skills and are well aware of the group dynamics. They display a superiority complex (that I am different from others), these children are more energetic in the class, involve themselves in many activities; when they are bored, they

engage in painting or drawing, they sometimes demonstrate selfishness in order to be an achiever, and they always display a 'never give up attitude'.

d. Does the child have behavioural problems? In what contexts do these problems occur, and what could be causing them?

In response to this question, teachers shared that gifted students generally have superiority complex, do not gel well with peers (more diplomatic), are good leaders, cause problems while teaching by saying that I know the concept, have more expectation from the classroom, are creative in the classroom (academic and non-academic areas), and become emotional when teachers do not react.

e. Do you think the child's educational and other needs have been met?

Teachers shared that the academic needs of gifted students are not sufficiently met in the regular classroom. They shared that usually in practice, gifted children and below-average learners are often ignored in a regular classroom because of practical reasons. The current academic programme is not challenging enough to meet the learning needs of the gifted child. They pointed out that there is a need for support for these children from parents and teachers. It may be useful to engage the child in peer teaching, give them opportunities to lead groups and engage them in extracurricular activities.

f. As a teacher how would you handle him/her? What suggestions would you give his/her parents?

The responses of teachers varied. Among some of the suggestions were that these children could be provided with more challenging activities. Parents must be sensitised so that they play a supportive role by encouraging the child to pursue his/her interest domains. If possible, the parents of these children must provide them with resources and guidance to develop the gift of the child.

Outreach

A total of 18 teacher-training workshops were conducted in all the four taluks. About 1000 teachers, 73 CRPs, and 7 BRP's were trained in Chamrajnagar and Mysore districts together. The details are given in the table below:

Step 2. Nomination and Identification- Teacher Nomination Behavioural Rating Scale (TNBRS)

Introduction

The teachers were provided with multiple copies of the TNBRS, which had the list of 21 items. The 21 items of TNBRS has are descriptors of the student's gifted traits; *Cognitive Abilities,*

Table 3: Teacher Training Workshops in Mysore and Chamrajnagar Districts

Sl. No.	Taluk	Dates	No. of Workshops	No. of teachers	Nominations received
1	Kollegala	26/7/2016 to 29/7/2016	4	200	197
2	Gundlupete	26/8/2016 to 28/8/2016	3	170	181
3	H.D Kote	1/9/2016 to 6/9/2016	6	380	382
4	Hunsur	2/10/2016 to 6/10/2016	5	250	240
Total			**18**	**1000**	**1000**

Teachers being familiarised to TNBRS by EGT team in Gundlupet, July 2016

Memory, Creativity, Language ability, Social and emotional behaviour, Ethical and Moral Behaviour and Task Commitment. The responses to these items are marked on a three-point rating scale. In addition, the TNBRS also contains eight open-ended questions.

These questions seek any additional information of the child, which are not covered in the 21 items. These additional items were useful to expand the research base about items for the TNBRS.

Rationale

The programme considers teachers as building blocks and is the first level of screening for the identification of gifted and talented students in rural areas. Teacher nomination of children is an important aspect of the programme as it is based on long-term observations made by teachers in their classrooms. This is the first step of the screening process to identify gifted children.

Description

The extensive fieldwork carried out, and the analysis of the nominations received during the pilot study provided baseline data that gave us an idea of the conception of giftedness in the targeted cultural context. The data accumulated through nomination protocol served as the main data, which lead to the emergence of many thematic categories through content analysis.

To broaden our conceptual understanding, EGT team carried out a content analysis of the nominations protocol. Qualitative content analysis dealt with 'the objective, systematic and quantitative description of the manifest content of communication' (Berelson, 1952). Content analysis is a research tool used to determine the presence of certain words or concepts within texts or sets of texts. Researchers quantify and analyse the presence, meanings and relationships of such words and concepts, then make inferences about the messages within the texts, the writer(s), the audience, and even the culture and time of which these are a part.

The analysis of the initial data shows that there are gender differences in the identification of the personality characteristics of students. Gender is socially constructed and so are the ascribed gender roles. The differences seen in the research data

Sl. No	BEHAVIORS
1	Is observant of subtle features or differences
2	Is able to think critically; may question convention and authority
3	Has a long attention span for the things he/she is interested in.
4	May be interested in some tasks but disinterested in many others
5	Comes up with creative ways of presenting the set of learned skills, in oral, written, physical or vocal.
6	Has a well- organized knowledge base in topics of interest
7	Uses logic to understand procedures or the relationship between concepts
8	Is observant of subtle features or differences
9	Is interested in hypothetical scenarios
10	Spends time observing activity of interest (some skill, formulations or art form)
11	Prefers to read challenging material intended for older students
12	Speaks fluently, expressively and meaningfully
13	Shows rejection to authority/orders
14	Excels at complex tasks
15	Draws unusual but appropriate connections between ideas
15	Is interested in hypothetical scenarios
16	May be emotionally attached to things related to his/her area of interest.
17	Has a distinct sense of humor, different from peers.
18	Spends long period of time on areas of interest with an urge to master a topic.
19	Pursues one or more topics with intense interest
20	Independently explores areas of interests and tends to possess larger knowledge base- reads books on the topics, attends relevant classes or visits places related to the interest area.
21	Maintains focus on a task until it is finished and may emotional reactions if interrupted.

The 21 Item Scale of TNBRS

are in the concepts that describe the personality characteristics of the students. The differences are in alignment with the gender roles that are socially assigned. The frequency of the participation inside the classroom and in competitions is high in female students and participation outside the classroom is high in male students. The data shows that the in-school and outside-school achievement is higher in female than in male students. The giftedness in the area of language

reflected through reading skills, writing skills, speaking skills, comprehension and vocabulary is higher in females compared to male students. The data shows that girl students are autodidact, employ conventional methods to learn in groups. In contrast, boys learn through practical hands-on learning method.

The challenges faced by the gifted children vary; the challenges for the female students are high in biological/ physical, psychological and emotional, personality, and social realms, while for the male students it's in the curricular, financial/environmental and behavioural areas. The learning characteristics seen in the female gifted students are pro-learning signs, high cognition and problem-solving skills. The social skills of the female gifted students are relatively higher than the male students, which are reflected in the subcategories of interpersonal skills, management skills and peer group interaction. The intrinsic motivation of the female gifted children has revealed through task initiation and tasks perseverance/ task completion. The data reveals that the male gifted students show higher curiosity than females. The content analysis of the data shows that underachievement of the gifted children in the academic context is seen in males when compared to females. The female gifted students show high potentials and perform according to their ability.

Outreach

The collaboration with the government of Karnataka increased the outreach within the selected taluks selected for the research study. The table below gives the numbers the programme was able to reach during this pilot phase. Field investigators provided the necessary field support for the collection of the data. They were trained by the NIAS team.

After receiving the nomination forms, the NIAS team screened the nomination protocol with multiple individuals. The students selected for case profiling was arrived at through a consensus among the individuals based on comparative data. The team then engaged in following-up with the concerned students, teachers and family to collect additional data and render the shortlisting process to be fair. The selection process attempted to provide space and equal opportunity for gifted children from diverse backgrounds.

Step 3. Case Profiling and Observation

Introduction

The third step was to carry out detailed profiling of children who were identified by the teachers.

Table 4: Distribution of Students Identified as Gifted in the Sample Rural and Tribal Districts

Sl. No	Taluk	Student Population	Students nominated	Students nominated (%)	Students shortlisted	Students Shortlisted (%)
1	Kollegal	15,400	197	1.27%	35	0.22%
2	Gundlupet	22,803	181	0.79%	32	0.14%
Chamrajnagar		38,203	378	0.98%	67	0.17%
3	H.DKote	29,941	382	1.27%	90	0.30%
4	Hunsuru	26,724	240	0.89%	68	0.25%
Mysore		56,665	622	1.09%	158	0.27%

NIAS–EGT model recognises the importance of qualitative data, apart from the above-mentioned quantitative measures. The Baldwin Identification Matrix among the several assumptions argues that carefully planned subjective assessment can be effectively used along with quantitative measures (1984). Case profiles provide detailed accounts of longitudinal, development view of the construct of giftedness. It takes into consideration the individual factors (intellectual and cognitive factors, personality factors), and environmental factors (home and school) that influence/contribute towards the development of giftedness.

Understanding the Child, Gundlupete, October 2016

The data is collected through interaction with key actors that include parents, extended families and their network, teachers, community and peers who have been significant to providing them with the needed support to pursue their areas of interest; to provide critical qualitative data. The EGT team conducted intensive field studies and collected the data. The field investigators were trained and proved to be useful since they were familiar with the location, terrain and language of these communities. We conducted the case profiling during December 2016 –November 2017.

Rationale

The case profiling of shortlisted students aimed at understanding about each child's daily life, his/her social relationships, interest areas, etc., through the collective narrations of the family, teachers, neighbours and other community members. The process of case profiling of each child has been insightful to the team as it has built a foundation to understand the distinctiveness of each locality. It helped in understanding the vast cultural diversity, which reflected varied interpretations and conceptions of giftedness.

Description

The process initiated with the training of field investigators led to an extensive field study through which the NIAS team travelled to the villages located in the interior parts of the Mysore and Chamrajnagar districts. The visit and detailed discussions for each child took about 5–6 hours. The community members reported various aspects of each child's life starting from his/her developmental stages, daily activities, eating habits, social relations, interest areas, etc. The objective of understanding each child's life and the talents and giftedness was successfully fulfilled through the detailed discussions with the community members.

a. Case study identification protocol

The case study is a research method involving an up-close, in-depth, and detailed examination of a subject of study (the **case**), as well as its related contextual conditions. The NIAS–EGT identification model used the case study method to profile the children. Following are the pointers used for case profiling the shortlisted students:

Conversing with a family member while profiling in Kollegal, November 2016

Genetic Factors: The decisive factors that help in the identification of giftedness that is present in the family across generations. Here the family history of the child is collected; the child's maternal and paternal lineage is explored to give a picture of the family construction. The child's early history like the prenatal and postnatal developmental milestones are documented. Any precocious development here comes to light.

Individual Factors: The intrinsic factors of the child provides insights into the child's functioning in different zones. Here the child's medical history from birth is recorded through the testimony of the parents. The child's emotional history is collected through diaries, conversations with parents, teachers, peer and community members. The child's behaviour during the interview is keenly noted and verified. The child's daily activities and interests are sketched; this layout helps us draw a bigger picture and enables us to have more data points about the gifted traits of the child.

Socio-Cultural Factors: The child's socio-cultural context helps us comprehend the child in its totality. The child's functioning in these different contexts is documented through reports of parents, teachers, peers, and community. These are the extrinsic factors that play a crucial role. The child's schooling history gives an outline to its behaviour in the school, the relationship maintained, the motivation levels and academic and non-academic achievements. The community report has been added to the protocol as we noticed that this gave us information about factors that played a significant role in the child's development in relation to his immediate community, especially in the rural context.

The data collected in the field, based on observations and interactions with parents and community members resulted in several additional traits. Table: 5 provides a distribution of these traits.

Using the above-mentioned protocol as a framework, NIAS –EGT is revising the current urban protocol so that it is more representative. The NIAS–EGT rural pool currently has 100 students after reaching out to 94,868 students in the rural and tribal schools of Karnataka.

Field investigators interacting with the community members of a Tribal Hamlet, Hunsuru, December 2016

Table 5: Categories of traits identified in rural and tribal area

Cognitive	Socio-Emotional	Kinesthetic	Ethical and Moral
• Attention • Metacognition • Memory • Working memory, long term memory • Meta-memory • Reasoning • Mathematical Reasoning • Divergent thinking • Problem-solving • Hypothetical thinking • Language ability • Vicarious learning	• Over-excitability • Perfectionism • Sociability • Leadership skills • Emotional intelligence • Interpersonal and intrapersonal skills • Understanding of self and others' emotion • Self-regulation • Emotional • Sense of humour	• Gross or fine motor skills • Sports • Dance • Theatre and Drama • Performing Arts • Other areas of dexterity	• Demonstrates integrity without fear • Sense of reason fair judgment • Religious Connections

However, there is an acknowledgement that the multitude of languages, cultural diversity, socioeconomic differences, gender and caste differences, that are fast changing to new forms will be factors that one will have to grapple with changing times. In this process, the high levels of illiteracy and poor school quality in rural and tribal areas contribute significantly to the already existing disadvantage of children from underprivileged communities.

Outreach

The 225 shortlisted students were from 159 different villages. Table 6 provides the details of the villages covered in the research study. The NIAS–EGT team personally went through all the details of the 225 students to finally select 100 students to participate in the mentoring programme.

Step 4. Mentoring through Residential Workshop

Introduction

The first residential mentoring workshop was organised by NIAS–EGT in collaboration with DIET, of Mysore and Chamrajnagar districts. There were several students in these workshops who were travelling out of their village for the first time to a district headquarter. To facilitate their participation, school teachers accompanied these children. For many of the children, parents accompanied them to ensure that their children were safe for the days of the workshop. It can be stated beyond doubt that the mentoring workshop would not have been possible without the support of the educational officers and teachers. Thus, to make an inroad to rural and tribal areas, working with the state government and education department may be the only possibility. The students were exposed to a variety of topics and activities in order to understand their engagement and observe gifted traits that get manifested. These workshops were intended to observe the children in action. These workshops were designed in such a way that it suits the cultural learning context of the child. The resource persons in these workshops have had long experiences with rural and tribal children. The NIAS–EGT team use these workshops to build the database of individual students through observations. As argued earlier, the gifted children display the traits only when they are provided with an opportunity to do so. The workshop was used to bridge their school and home experiences in ways that can facilitate learning.

The summer workshop provided the children with opportunities to engage with subjects beyond the school curriculum for the first time. This draws attention to the fact that there is a wide gap between the opportunities available to urban children, on the one hand, and the rural and tribal children on the other. The workshop facilitated bonding and building interpersonal relationships. Scholarship in gifted and talented education draws attention to the social and emotional problems faced by them in the classrooms. Very often, these children experience alienation and do not have friends among their peers. Underperformance is a recurrent problem among gifted and talented children.

Table 6: Distribution of Students Profiled across Villages

Sl. No	Districts	No. of Villages	No. of villages visited	(%)
1	Kollegal	35	23	16.9%
2	Gundlupete	32	24	28.2%
Chamrajnagar Taluk		221	67	21.26%
3	H D Kote	90	65	26.9%
4	Hunsuru	68	47	24.10%
Mysore Taluk		436	158	25.70%
Total		657	159	24.20%

Children engrossed in a group activity at DIET Mysore, July 2018

Rationale

The aim of the programme of NIAS-EGT is to use evidence-based research to demonstrate the usefulness of a national programme on gifted and talented. The need to develop culture-specific protocols for identification cannot be overemphasised. In addition, there is a need to develop local specific mentoring programmes that reflect the field realities in rural and tribal areas. Thus, NIAS proposes to conduct at least two residential mentoring workshops of longer duration for the gifted children from rural and tribal areas.

Description

NIAS–EGT conducted three residential workshops in the districts of Mysore and Chamarajanagar on the 2nd to 4th July 2018 and 11th to 13th July 2018, respectively. The logistic arrangements for the workshops were made in collaboration with the Department of State Education Research and Training, Govt. of Karnataka. Keeping in mind the convenience of the participating children, venues were arranged in DIET, Mysore and in JSS RUDSET, Chamarajanagar. Facilitators from diverse fields were invited to conduct sessions on biodiversity, theatrical activities, applied scientific and mathematical skills, spatial understanding, concentration, and memory acquisition skills, with the children.

Outreach

NIAS–EGT has successfully conducted its first rural workshop for the selected students in the Mysore and Chamrajnagar districts of Karnataka. The workshop was attended by a total of 66 students out of the 100 identified students. NIAS–EGT Team was ably supported by the block resource persons, facilitators, field investigators and parents that led to the success of its first residential workshop in the rural area. The distribution of students and details of the outreach of the workshop are described below, in the table.

Table 7: Distribution of students across levels of screening

Sl. No	Taluk	Nominations	Shortlisted	Students Mentored
1	Kollegal	197	35	17
2	Gundlupet	181	32	21
Chamrajnagar		378	67	38
3	H.D Kote	382	90	33
4	Hunsur	240	68	29
Mysore		622	158	62

4. Different Programmes of NIAS–EGT

NIAS–EGT Programme commenced in 2011; since then it has grown enormously. The team over the years has built-in various programmes into the model. The different programmes available for the rural and tribal section are elaborated below:

a. NIAS–MAIYA PRODIGY Fellowship Programme
b. Rural Identification Protocol
c. Training to Different Stakeholders
d. Research and Resource creation

1.1 NIAS-MAIYA PRODIGY Fellowship Programme

In the year 2016, NIAS–EGT made an attempt to reach to the high ability students in the age group of 16–18 years. The fellowship aims to identify and nurture talented students from a diverse socio-economic background of class, caste, creed, religion or region. The collaborated effort of NIAS–MAIYA PRODIGY Fellowship with Iyengar Foundation, National Education Society, Bengaluru is to provide financial as well as mentoring support to students who are in a phase of choosing their career paths. This programme provides the students with an overview of the career choices, as well as links them to mentors who act as guides while they are initiated into their disciplines. The students are provided information about the new developments in multiple fields and the possible research groups working on cutting-edge research in these specific fields. The programme hopes to mentor the students for at least five years to facilitate appropriate mentorship, which is crucial for children belonging to rural

Third Batch of NIAS-MAIYA PRODIGY Student Fellows, January 2019

and tribal populations. The student is provided with an opportunity to explore a wide range of knowledge domain so that they could make an informed choice for their careers.

The programme also gives the students a platform to engage in various projects that helps them gain specialised knowledge and experience in their particular areas of interest. For this, many established professors in diverse fields are part of the mentor's pool of the NIAS– MAIYA PRODIGY Programme. The programme also draws on student mentors from eminent institutes like IISc, which gives the opportunity to both students as well as mentors to work along with a project in close interactions. The mentors stay connected with the mentees on a one-to-one basis, both, through regular meetings, as well as through online interactions.

Rationale

The high ability students after completing their grade 10 have to make career choices in India. During this process, the students need to match their interest with the available career options. Decision making in this regard often poses a challenge to students. Mentorship is critical in facilitating the students in making appropriate career choices. Acknowledging the challenges of the gifted and talented students in rural and tribal areas who have limited access to social networks, the programme intends to provide mentoring support to the selected students. The students are connected to the experts of their specific areas of interest.

Description

In order to identify the best of the talents from different regions and social backgrounds, the NIAS–MAIYA PRODIGY Fellowship is highly competitive but has an inclusive application process. Students who have completed their tenth

A S Kiran Kumar handing over the prize money (INR 50,000) to the fellow, Jan 2019

grade with a minimum of 80% score from across urban and rural areas of the country are eligible to apply for this fellowship. The selection process involves a written test, which tests the depth of knowledge in the areas of their interest and the preparatory steps taken by them to acquire deeper knowledge in the subject area. The tests are designed to understand student's specific areas of interest and their awareness and empathetic views on the social problems they experience in their daily lives. Based on the assessment of the written essay, where children are scored on their creativity, problem-solving skills, analytical skills, and ability to think out of the box, the students are selected for the interaction round. The interaction round aims to understand the student's motivation and the measure of personal effort invested to advance in their areas of interest. The ability of the child to synthesise knowledge and provide unique responses and defend the same through a logical constructed argument is tested in the interaction round. The shortlisted students are felicitated with an award that carries prize money of INR 50,000/- and mentoring support from experts in their respective interest areas. These

experts are drawn from premier institutions from within and outside the country. As a part of the mentoring process, various workshops are organised every year where both mentors and mentees choose each other in order to work on a particular project. Every year, the students also get the opportunity to present their progress and seek feedback.

Identification Protocol

Students who are in studying in I and II PUC and have secured 80% and above in their X grade are eligible to apply for the fellowship. NIAS (through the schools) sends copies of the advertisement and application forms to the students who have scored over 95% in the State Board exams. The students are personally followed up to encourage them to apply for the fellowship. This is done to facilitate greater participation of students from the rural and tribal areas of Karnataka.

A standardised evaluation process was developed, which was meant to encompass the cultural and socio-economical variations. The evaluation process comprised of the following steps:

1. A detailed application form containing basic information and two descriptive questions along with certification and awards (20 marks)

2. An essay type descriptive test (40 marks)

3. Interaction session (40 marks)

The details of the selection process are described under the urban initiatives.

Till date three batches of NIAS–MAIYA PRODIGY Fellowship has been awarded and are connected with their mentors. In the year 2016–17, 61 applications were received out of which and 10 fellowships were awarded. In its second year, 2017–18, the programme received 431 applications out of which 15 were shortlisted for the fellowships awards. In order to extend its reach, in the year 2018–19 the programme sent application notifications to the top 1,000 SSLC toppers (500 Girls and 500 Boys) across Karnataka of which 22 students were awarded the fellowship. The following table explains the detailed process of applications in the three years.

Interaction Session held at NIAS, December 2017

Table 8: NIAS–MAIYA PRODIGY Fellowship awarded (2017-19)

Year	No. of students eligible	No. of students notified	Applications received	Appeared for essay test	Shortlisted for interaction	Fellowships available	Awarded
2017	13,85,379	2000	61	45	15	10	10
2018	12,66,134	2000	431	289	40	30	15
2019	11,83,936	2000	414	277	77	20	22

4.2 Rural Identification Protocol

The rural identification protocol is a well-developed indigenous tool, suited for the marginalised population. The rural identification protocol is designed to be comprehensive and inclusive. NIAS–EGT team has been successful in developing this protocol through extensive field studies. The objective of developing this protocol was to make the programme on education of the gifted and talented more inclusive. The need to develop a protocol that reflects the local context was imperative if the process has to inclusive. The programme has been successful in identifying the gifted and talented from different socio- economic backgrounds, including the tribal population.

The NIAS–EGT rural identification model identifies the children through teachers who are the primary contact points. Training workshops for the teachers are the first step leading to nominations. Teachers are familiarised with the TNBRS protocol in the workshop. The team works with the education department officials at the taluk and village level to obtain the nominations from the teachers. Teachers can nominate any number of gifted children in their schools in the age group of 6–16years.

Reaching out to the culturally diverse students

The nominations are screened using triangulation methods for validation. The shortlisted students are profiled through observation and in-depth interviews with parents and community members. The last step of identification is through a workshop where the children are observed by multiple individuals, which provides validation of the observations. The residential workshops allow the team to check the motivation and interest of the child in varied topics. Facilitators act as initial mentors, guiding them in their respective area of expertise.

4.3 Training for Teachers and Resource Persons

NIAS–EGT offers training programmes for teachers, facilitators, master trainers, principals, government officials in the education sector, field investigators, scholars and any interested individual. The training is flexible and can be planned to suit the needs of the group. The training is a residential programme of duration that varies between half a day to two days. Training workshops have been useful for the project in identifying giftedness in its many forms. It also has contributed to sensitising the schools and teachers about the issues and needs of gifted children. The teachers are sensitised to share available resource materials with these children. The teachers are provided with strategies to be adopted to address the learning needs of this special group.

4.4 Research and Resource Creation

Research and resource development is an integral part of the NIAS–EGT programme. The team engages in field research and reviews the identification protocols and the mentoring programmes. The programmes from inception, in 2011, has provided rich learning experiences as we forge in developing the national model for identification and mentoring of the gifted children in India. Adopting a grounded theory approach, the team has been able to develop context-specific protocols for identifying gifted children. During the past several years, the team has developed a multi-level, multi-stage, mentoring mechanism providing a wide range of options to schools, parents, NGOs and interested individuals in India. Most of the resources developed by us are available free on the PRODIGY website; *www.prodigy.net.in*

5. Mentoring Rural Children

Introduction

Unlike the urban areas, the communities and schools in rural areas are located at distances with poor transport connectivity. Hence, mentoring these children using the strategies adopted in urban areas will be inefficient, necessitating the organisation of residential mentoring workshops of longer durations at least twice a year. The challenges of organising the logistics will increase with the expansion of the programme. However, it is imperative that the success of this programme, as it expands, lie in the collaborations with the government in different states.

Rationale

The aim of NIAS Education for the Gifted and Talented (NIAS–EGT) is to identify the gifted children from different parts of India and provide them with continuous mentoring. The need to develop a combination of strategies to mentor these children is imperative if they have to develop their potential. Hence, a combination of residential workshops, interaction with local mentors, and leveraging technology may be the way forward.

Description

NIAS–EGT organised a three-day residential mentoring workshop as the first step to support the gifted children identified through the programme. The workshops were required to be residential as it provided scope to engage students in activities beyond the routine classroom. The workshop provided the students with an opportunity to interact with the resource persons and peers similar to them. The workshop provided for

Mentoring initiative through a residential workshop at Chamrajnagar

several hands-on-activities that helped enhance their learning. It incorporated diverse topics and activities that enabled each participant to choose a field of interest and get connected to the mentors in their respective fields. The workshops provided a platform for the students to work individually and collaboratively on various topics in order to present a creative solution. They were given an opportunity to present their working projects in front of their peers and seniors to gain relevant feedback.

The workshop is designed in a way where multiple activities are conducted in order to provide exposure to the children in various fields including mathematics, sciences etc. The activities are planned in a playful way with theatre, craft, nature walks, etc., that not only provides information but also helps in the overall development of the children personality.

The theatre activity is conducted with an objective to let children think of some social problems and their possible solutions. The activity required the construction of a 'group image', where each group had to create a composite group image based on the command without any communication and within a time-span of 5 minutes. The group had to form the image in a closed set-up, which would form a composite image rather than single individual images. The scenes were treated as 'work in progress', in which one can evaluate the children's perception of the problem as well as their interpretation of it. The situation enabled one to understand the dynamics of thinking within the groups of children and allowed one to delve into the contexts of the problems. The children presented short skils on child labour and child marriage.

A child engaged in "Oxygen Liberation in a Leaf" activity at DIET Mysore, July 2018

The other activities involved a *Tree Study Activity*. The activity consisted of identification and nomenclature of trees and their ecological importance. They were also exposed to the concepts of transpiration, photosynthesis, native and exotic trees, endangered species, keystone species, endemic and invasive species. The session was highly interactive with the children actively contributing to the discussions based on their life experiences. The second activity was a *Food Web Game*, which provided knowledge to the children about the food chain, its components, and its ecological importance. In the next activity, the children were taught the process of calculating *Oxygen Liberation in a Leaf*. They were taught the process in which they can calculate the production of oxygen by one leaf in one day. The activities assessed the observation skills of the children. The children drew references from their contextual ecosystem in order to identify the trees. Most of them were aware of the important functions played by the trees in our ecosystem. It was also encouraging to observe that many of them knew about the complex dynamics of photosynthesis and elements of the food chain. The session also included a screening of a movie titled *Queen of Trees*, which talked about the importance of the Indian Fig Tree and its importance in the ecosystem.

Nature Walk at JSS Rudset Campus, Gundlupete July 2018

For the younger children, the session included an activity to make the strongest table in Mysore and strongest chair in Chamarajanagar, using just newspapers and adhesives. They were allotted limited resources (1kg of paper) and they had to complete the task within three hours. They were instructed that the tables/chairs should consist of a minimum of three legs and should be able to sustain a minimum weight of 1kg without changing its shape. Also, the table should have a minimum height of 30 cm and a chair 15 cm. The children worked together in groups and came up with their own novel ways of completing the task. Initially, many of them had some problems figuring out which structures will retain more weight; but, on a trial-and-error basis, they figured out how to efficiently attain their goals.

Children making a 3D ball at JSS Rudset, Gundlupete, July 2018

Many activities were conducted on enhancing memory and concentration among these children. The workshop introduced an activity to make a 3-D ball, also known as the icosaheadron, to assess the capability of spatial thinking amongst the children and their understanding of changing flat surfaces into volumes.

6. Outreach

NIAS–EGT programme has tried to reach different government and tribal schools, which is explained below in detail.

6.1 Teacher Training Workshops

NIAS–EGT is built around the teachers. The teachers are the first contact point and are a part of a large network, which will be critical to building a sustainable programme for the children who are gifted and talented. They have a wide experience observing children and are a good source of referrals. Table 8 provides the details of the teacher-training workshops conducted in Chamrajnagar and Mysore districts.

Teacher Training Workshop in Chamrajnagar

One-day Teacher Training Workshops (TTW) were conducted from 26th July to 28th July 2016 at the Block Resource Centre (BRC), Gundlupet. A total of 170 teachers, 2 Block Resource Persons (BRP) and 16 Cluster Resource Persons (CRP) participated in the training workshops, across the three days, and they were from more than 20 clusters of Gundlupet.

Around 181 nominations of potentially gifted children were received from the teacher participants.

The training programme for the teachers of Kollegal on Gifted Education was held from 26th to 29th July 2016. 200 teachers attended the training programme. In addition, 10 CRPs and 1 BRP were trained across four days. About 197 children were nominated by the teachers who attended the workshops in Kollegal.

Teacher Training Workshop in Mysore

A one-day Teacher Training Workshops (TTW) was conducted from 2nd August 2016 to 6th

Table 9: Teacher Training Workshops in rural areas

Sl. No	Taluk	No. of Workshops	Teacher Population	Teachers Trained	CRP Trained	BRP Trained	Teachers Trained (%)
1	Kollegal	4	501	200	10	1	39.92%
2	Gundlupet	3	786	170	16	2	21.63%
Chamrajnagar		7	1287	370	26	3	28.75%
3	H.DKote	6	1198	380	20	2	31.72%
4	Hunsuru	5	1009	250	27	2	24.78%%
Mysore		11	2207	630	47	4	28.55%
Total		**18**	**3494**	**1000**	**73**	**13**	**28.62%**

Training Teachers at H D Kote, August 2016

August 2016 at the BRC, Hunsur. A total of 250 teachers, 2 BRPsand 27 CRPsparticipated in the training workshops across the five days. These participants were from more than 25 clusters of Hunsur. Around 240 nominations of potentially gifted children were received from the teachers who participated in the workshop.

The Teacher Training Workshop at HD Kote in Mysore District was held from 1st August to 6th August 2016. A total of 380 teachers, 20 CRPs and 2 BRPs were trained across six days. NIAS received 382 nominations from the teachers who participated in this workshop.

6.2 Training for Different Stakeholders

NIAS–EGT has successfully conducted its first rural workshop for the selected students in the Mysore and Chamrajnagar districts of Karnataka. The workshop was attended by a total of 66 students. The NIAS–EGT team was ably supported by the BRPs, facilitators, field investigators and parents that led to the success of its first residential workshop in a rural area. The details of the outreach of the workshop are described in Table 9.

Table 10: Outreach of training to resource persons in each district

Districts	Teachers/BRP	Facilitators	Field Investigators
Chamrajnagar	4	6	2
Mysore	4	6	2
Total	8	12	4

6.3 Case Profiling

The second process was to profile the children who were identified by the teachers who attend the training workshop. The NIAS–EGT model uses this as an important method to collect data points of the children nominated by the teacher. The data collected is through multiple individuals, which allows authenticating some of the data points. The process of case profiling the children was conducted from September 2016 to January 2017. The team was able to reach 21.26% of the villages in Chamrajnagar and 24.20%of the villages in Mysore. The outreach of the programme has been phenomenal and is a first of its kind in India. The experience of these visits has been insightful to the team as it has built a foundation to understand the distinctiveness of each locality. The vast cultural diversity reflects varied interpretations and conceptions of giftedness.

6.4 Students Selected

A total of 1000 students were nominated across the four taluks; the nominations comprised of 571female and 429 male students. About 225 students were shortlisted for profiling from the nominated students. The government and a tribal school student population of Chamrajnagar and Mysore during the year 2016 was 38,203 and 56,665, respectively, summing up to a total of 94,868. The teacher nominations of the potential students were 378 in Chamrajnagar and 622 in Mysore. Further, the students who were identified by the NIAS– EGT team for case profiling were 67 and 158 from Chamrajnagar and Mysore, respectively.

6.5 Summer Workshop

A first of its kind, a three-day residential mentoring workshop for the children of Mysore and Chamrajnagar was organisedduring2–4 July and 11–13 July, 2018, respectively. The number of children who attended the workshop were 66 (42 Mysore and 24 Chamarajnagar) aged between 10 to 16 years. In Mysore, the workshop was conducted in DIET (District education and Training Centre) and in Chamrajnagar the workshop was conducted in JSS RUSET, Mariyala. DSERT worked closely with the NIAS team to help organise the logistics for the workshop in place.

Table 11: Number of Villages Visited for Case Profiling

Sl. No	Districts	Number of Villages	Villages Visited	(%)
1	Gudlupet	136	23	16.9%
2	Kollegal	85	24	28.2%
Chamrajnagar Taluk		221	47	21.26%
3	H D Kote	241	65	26.9%
4	Hunsuru	195	47	24.10%
Mysore Taluk		436	112	25.70%
Total		**657**	**159**	**24.20%**

Table 12: Students shortlisted through rural identification protocol

Sl. No	Taluk	Student Population	Nominated	Nominated (%)	Shortlisted for Workshop	Shortlis ted (%)	Students shortlis ted	Students shortlisted (%)
1	Kollegal	15,400	197	1.27%	35	0.22%	17	0.11%
2	Gundlupet	22,803	181	0.79%	32	0.14%	21	0.09%
Chamrajnagar		38,203	378	0.98%	67	0.17%	38	0.10%
3	H.D Kote	29,941	382	1.27%	90	0.30%	33	0.11%
4	Hunsuru	26,724	240	0.89%	68	0.25%	29	0.11%
Mysore		56,665	622	1.09%	158	0.27%	62	0.11%

Inaugural speech by Prof Anitha at First Summer Workshop, July 20

7. Offerings for Supporting Gifted and Talented

NIAS–EGT programme was initiated in 2011 with a focus on urban areas. The rural initiative commenced in 2016 and has completed the first phase of its work. The programme now has protocols for identifying the gifted in rural and tribal areas. The identification protocols need to be tested and standardised by replicating the work in other states that are distinctly different than Karnataka. As the programme expands there is a need for a large number of collaborators both within the government and outside. The country needs to evaluate the potential of this programme and adopt it as a national programme. This section explains, in detail, different offerings made by the NIAS–EGT programme.

7.1 Identification Protocol

NIAS–EGT has designed unique identification protocols for each programme catering to different age groups and socio-economic backgrounds.

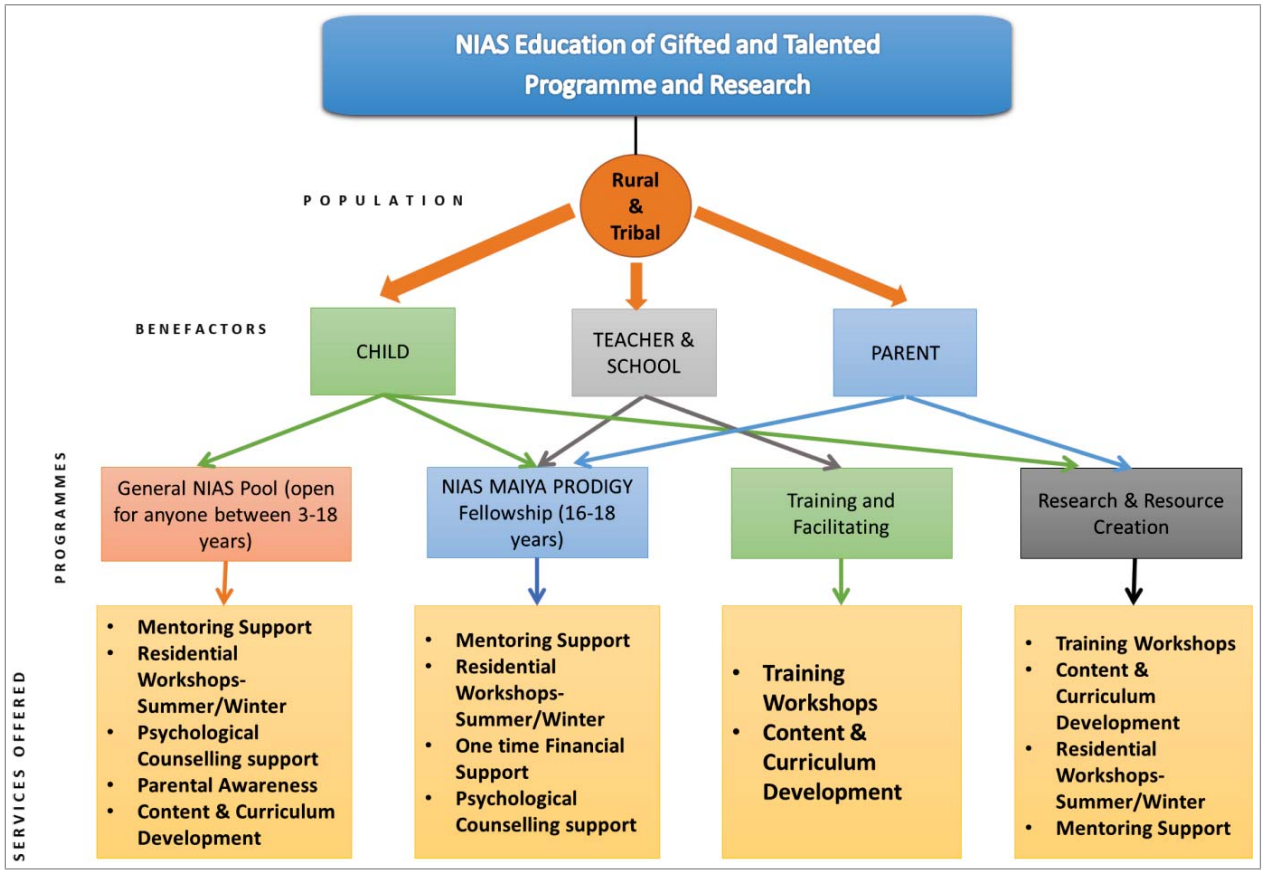


Figure 4: Shows the NIAS–EGT Programme and support offered for the Rural and Tribal

Understanding the uniqueness of the students to design ideal protocols

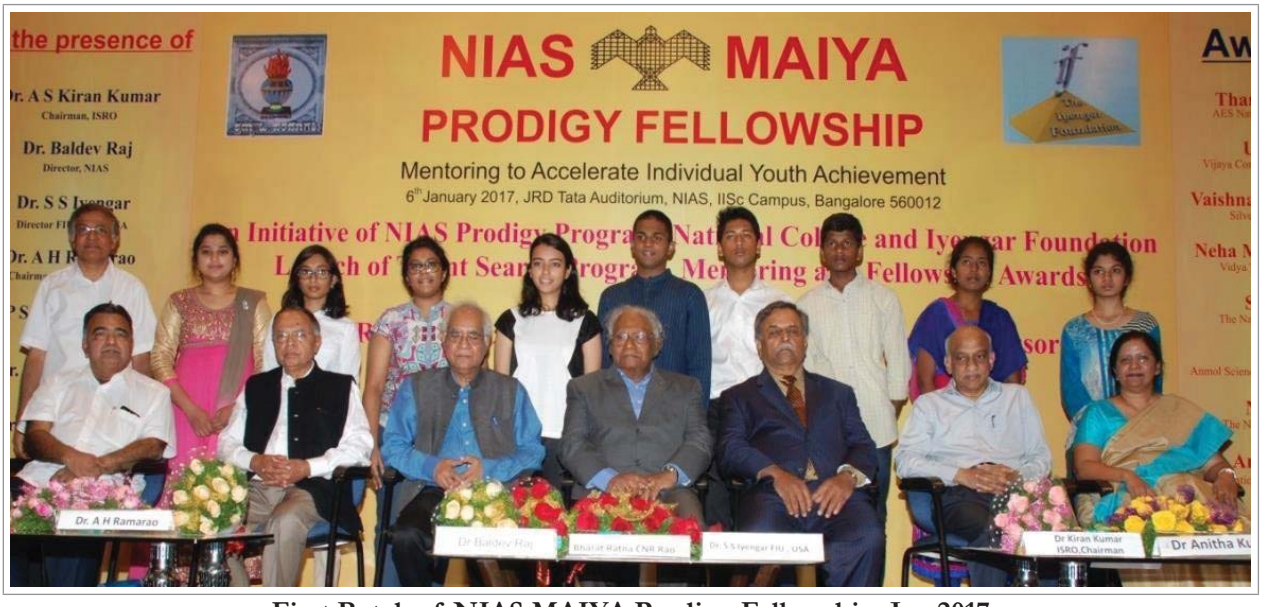
Identification Protocol for each programme is discussed in detail in the Identification Protocol section above. Indigenous identification protocols were developed for the rural and tribal regions.

7.2 NIAS-MAIYA PRODIGY Fellowship Programme

The programme has designed an identification protocol for the students who are in the age group of 16–18 years. The fellowship programme is open for all students who have scored more than 80% in their 10th grade. The process starts with the teacher nomination forms for which the teachers have received training (by the programme team) prior to the nominations of potentially gifted and talented students. The shortlisted students are then called for an interview/interaction session, where the students get the opportunity to propose and talk about their aspirations and dreams and how do they plan to achieve them. The interaction session is open for students from all fields. The session includes an informal dialogue with the students that allows them to share their ideas.

7.3 Teacher Training Programmes

NIAS–EGT has developed two-days, one day and half-day training programmes, both in English and Kannada. The variation in the length of the training programme is in accordance to the group needs. As part of the NIAS–EGT, several district and taluk level workshops were conducted in the area of gifted education. This is initiated with a vision to guide teachers to think beyond



First Batch of NIAS MAIYA Prodigy Fellowship, Jan 2017

Training Programme engaged by the EGT Team

the academic merit of children, and rather focus on their abilities and talents These workshops were conducted across Karnataka. Around 1000 teachers were trained across 4 taluks of H D Kote, Hunsuru, Kollegal and Gundlupete.

7.4 Training for Resource Persons

NIAS–EGT provides training for CRPs, BRPs, field investigators and individuals interested in gifted education. The pilot study has been successfully carried out in two districts, Chamrajnagar and Mysore.

7.5 Mentoring Programmes

NIAS–EGT organises awareness programmes on giftedness for parents. Networking the parents and providing counselling with regard to socio-emotional problems of the child is an important part of this initiative. Periodic workshops are conducted for the children as well as the parents. We also share useful resources that are available in the public domain. NIAS– EGT has initiated work with other interested groups to broaden the outreach of the Education for the Gifted and Talented. NIAS is aiming at developing a robust multi-stage multi-level mentoring model for India.

8. Review

8.1 Snapshot of Outreach Activities:

- NIAS–EGT has selected 110 students in its general pool after reaching out to 60000 students in the urban schools of south India.
- NIAS–EGT-supported Advance Learning Centres have reached out to a population of 35,700 students, out of which a total of 124 students have been selected
- The NIAS–MAIYA PRODIGY Fellowship programme has reached out to the schools, both, in urban and rural areas. Since its inception in 2017, the programme has reached a total of 6000 students who have scored more than 80% in their 10th and 12th grades. Out of the 6000 students, a total of 47 students have been awarded fellowship and are provided continuous mentoring.
- NIAS–EGT has reached to the teachers who initiated the process of nominations. A total of 1000 teachers including in different schools and NGOs have been trained in different geographical locations in urban areas of south India, largely Bengaluru.
- In the rural areas, the EGT team has conducted 18 one-day Teacher Training Workshops in Chamrajnagar and Mysore from July to February 2017. Teacher training programmes were the first step in the identification process of gifted children in the rural region. A total of 18 TTW was conducted in all the four taluks. About 1000 teachers, 73 CRPs, and 7 BRP's were trained in Chamrajnagar and Mysore districts together.
- Using the above-mentioned teachers as a resource the team reached out to 94,868 students in the rural and tribal schools of Karnataka, from which 100 students have been selected and are being provided mentoring.

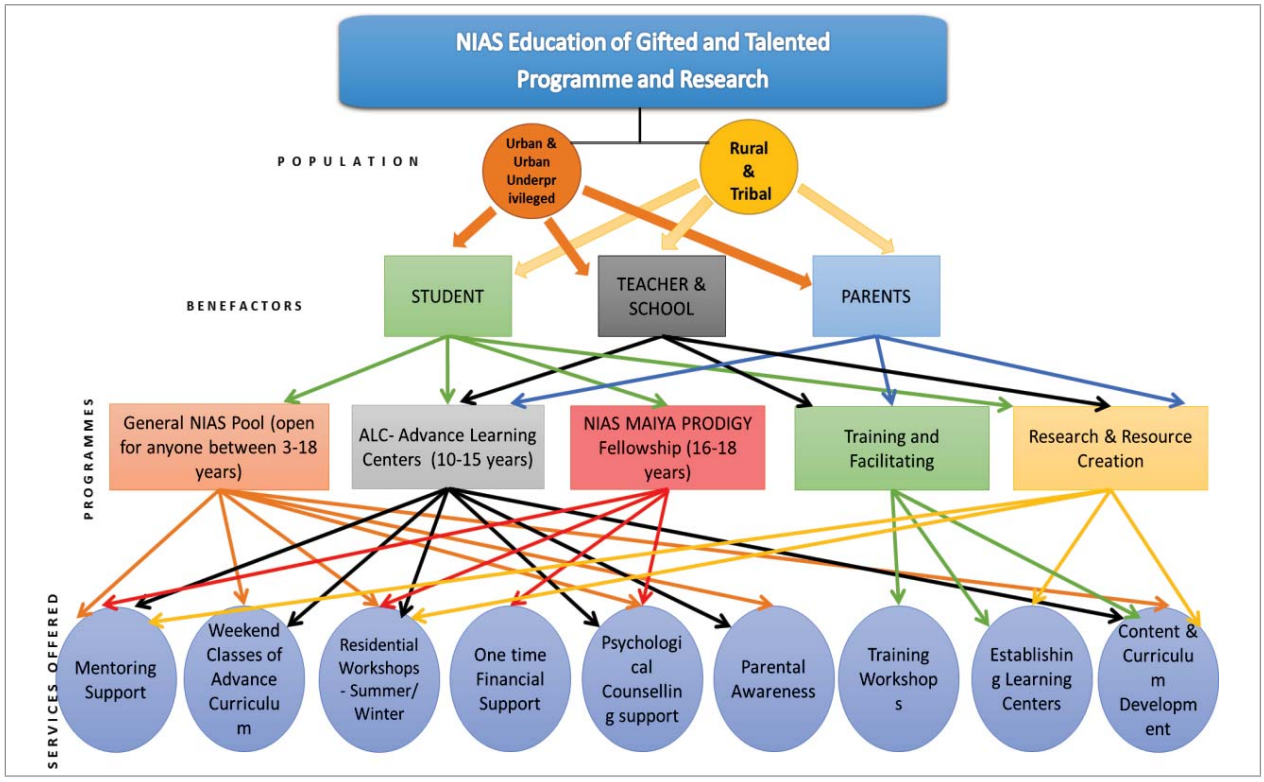
8.2 Achievements

The following pointers summarise the achievements of the programme.

- Developed TNBRS based on classroom observations and has been standardised over different student populations (urban, urban poor, rural and tribal)
- Developed norms for TTCT for the age group13–16 years, which has filled the existing gaps in the tool
- Additionally, there is a robust protocol of identification in place for the identification and mentoring of children from diverse sections of society
- NIAS–EGT has initiated three different schemes identification and mentoring of children of different age groups and background
- NIAS–EGT has done training and awareness building for almost 2000 urban and rural teachers across Karnataka

- Established a May-I-Help-You Centre for Gifted Education through the PRODIGY Website (*www.prodigy.net.in*). Based on the review and feedback of this service, NIAS–EGT has recently revamped the website for a better appealing browsing experience
- NIAS–EGT is set to provide services for the identification and mentoring of gifted children through the above centre
- NIAS–EGT is set to provide services for teachers training, training of trainers, sensitisation of school principals and administrators
- NIAS–EGT is conducting awareness workshops for parents
- NIAS–EGT is developing a multi-level, multi stage, mentoring programme
- NIAS–EGT has developed a mentor database, which will include PhD/Postdoctoral scholars, experts including retired faculty of Sciences, Social Sciences and Humanities from premier educational institutions
- NIAS has been active as a contributor to the curriculum development for the Education of the Gifted and Talented at the state and national level
- Additionally, the team is currently developing collaborative programmes with other individuals and organisations such as Indian Institute of Science, Bengaluru, Iyengar Foundation, National College, Bengaluru, who are interested in supporting and mentoring the gifted children
- Resources have been developed on gifted education through a critical review of literature and field studies. These materials have been translated to Kannada

Following is a conceptual layout of the different engagements of NIAS–EGT at present:



8.3 NIAS Offerings

Following are the different ways in which NIAS is currently equipped to support the gifted and talented students:

- Identification protocol for different age groups and sections of students
- Mentoring support in the following different forms:
  - One-to-one mentoring to students in different programs
  - Mentoring workshops for MAIYAPRODIGY Fellows and ALC students
  - Summer winter workshop for students in all the programmes
  - Intermittent assistance for doing the project and learning support to all the students in different programs
- Guidance and counselling support
- Parenting workshops for the parents of students in our general pool and ALCs
- Teacher training programmes for teachers, facilitators and resource persons
- Support in establishing and designing Advance Learning Centres
- Financial Support to NIAS–MAIYA PRODIGY Fellows

8.4 Research on Gifted and Talented

All of the above work has led to research observation in several areas. Following are different areas in which NIAS–EGT is currently writing its findings:

- Identification model for gifted and talented children in India
- Culture and giftedness
- Socio-emotional needs of gifted children
- Gender and giftedness

9. Way Forward

NIAS–EGT has developed multiple identification protocols. It has received an extremely positive response from schools, NGOs, educators, parents and government officials. Going by the theoretical statement that gifted children are the top 3% of the total population of students, we estimate that India has about 8.5 million of potentially gifted or high ability students in the age group of 6–18 years. With the limited resources, so far, we have been able to reach only two districts in Karnataka. There is an urgent need to expand the programme to other geographical areas and across diverse populations. India can be a pioneer in developing a robust programme for the Education of the Gifted and Talented through active field engagement. To be able to address the national needs, the programme needs to expand to other states and populations where the protocols, currently developed and standardised, need to be tested. Towards this end, the programme is looking forward to work in the following directions:

- Develop an online platform for identification so as to increase the outreach of the programme and develop a national database of traits of gifted children
- Increase and expand the EGT programme in different states in India
- Increasing the outreach of the programme in rural and tribal areas
- Increase mentors network for online and one-to-one mentoring
- Enhance the mentoring support and network for the gifted students
- Form a panel of counsellors and work to increase counselling support for gifted children

Education for the Gifted and Talented Team

Dr. Anitha Kurup
Professor & Head
NIAS EGT

Dr. Shalini Dixit
Assistant Professor
NIAS EGT

Ashwini K
Research Associate
NIAS EGT

Surbhi Arora
Research Associate
NIAS EGT

Sudarshan
Consultant
NIAS EGT

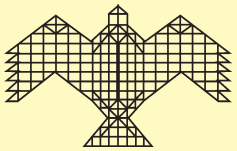
Document control sheet

1.	**Document No. and Year**	:	NIAS/SSc/EDU/U/PR/18/2019
2.	**Title**	:	Challenges of Nurturing the Gifted and Talented in Developing Countries *- Experiences from Rural and Urban India*
3.	**Type of Document**	:	NIAS Project Report
4.	**No. of Pages and Figures**	:	vi pages, 90 pages, 4 figures, 16 tables
5.	**No. of References**	:	None
6.	**Authors**	:	Anitha Kurup, Shalini Dixit, Ashwini K and Surbhi Arora
7.	**Originating school**	:	School of Social Science
8.	**Programme**	:	Education Programme
9.	**Collaboration**	:	None
10.	**Sponsoring Agency**	:	Tata Consultancy Services

11. **Abstract:**

Gifted children are those children with exceptional ability that place them in the top 3% of the peer group. The NIAS-EGT addresses the gifted and talented children in the age group 0-18 years. NIAS-EGT has developed multiple protocols of identification; and mentors the gifted children in rural, urban and tribal population of India. The report documents the challenges and lessons learnt that will be relevant for developing countries.

12.	**Keywords**	:	Gifted children, Mentoring, learning, creativity, identification protocol, teacher training, diversity
13.	**Security Classification**	:	Unrestricted



National Institute of Advanced Studies

The National Institute of Advanced Studies (NIAS) was conceived and established in 1988 by the vision and initiative of the late Mr. J.R.D. Tata primarily to nurture a broad base of scholars, managers and leaders to address complex and important challenges faced by society through interdisciplinary approaches. The Institute also engages in advanced multidisciplinary research in the areas of humanities, social sciences, natural sciences and engineering, as well as conflict and security studies.