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\*Corresponding author: Paromita Roy,  
Jagadis Bose National Science Talent  
Search (JBNSTS), Kolkata, India  
E-mail: [paromitar@gmail.com](mailto:paromitar@gmail.com)

Reviewing editor:  
Sule Gücyeter, Usak University, Turkey;  
Skylor Zhitian Zhang, University of  
Erlangen-Nuremberg, Germany

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## INTERNATIONAL & COMPARATIVE EDUCATION | REVIEW ARTICLE

# Gifted education in India

Paromita Roy<sup>1\*</sup>

**Abstract:** In the backdrop of India's growing population of 1.21 billion people with diverse, multicultural and multilingual backgrounds, gifted education is yet to be part of a formal educational policy in the country. Research on giftedness in India spans across 50 years, but lacks systematic and empirical grounding. The term "gifted" in the Indian context has not been used till very recently and most Indian studies have focused on creativity. Talented children in India are recognized at both homes and schools but formal identification and nurture of giftedness is sporadic and mostly dependent whether the child has been selected for gifted programs which are far and few. The lack of adequate information and database about programs, policies, practices, and outcomes in gifted education in India make it impossible for accurate review. Through the article, the author attempts to provide an insight about India's views on gifted education and giftedness, the challenges it faces in introducing gifted education as a part of its national educational policy. A commentary on the contributions made by several individuals and institutions to gifted education in India despite a policy and funding vacuum has also been presented.

### ABOUT THE AUTHORS

Paromita Roy is Deputy Director of Jagadis Bose National Science Talent Search (JBNSTS), Kolkata, India's first talent search organization in STEM. She has experience working with high ability students of science for two decades and develops programs for multicultural gifted and high ability science students. Her research interests include talent identification and nurture, developing concepts of giftedness and enrichment programs for such students. She has authored two chapters in *Gifted Education in Asia: Problems and Prospects* published by IAP, USA, and *International Perspectives on Science Education for the Gifted: Key issues and challenges* published by Routledge in 2016. She is the principal investigator from India of two Cross Nation Studies on Teacher Perceptions on Giftedness, conducted by University of Erlangen—Nuremberg, Germany. She has recently completed a study "Conception of Giftedness in India." She has participated and has been invited to international forums in Europe and Asia for her work on gifted Indian students.

### PUBLIC INTEREST STATEMENT

India is a country with 1.21 billion people. With a population this huge, fighting poverty, hunger, and population growth are India's biggest struggle, followed by education and health reforms. Since, gifted children are likely to be demographically spread across the country, valuing and recognizing them is important for national growth. Due to lack of dedicated policies for approximately 3–5% (a percentage that National Association for Gifted Children refers to as gifted) of India's population of children and youth, who are likely to be gifted in domains of science, humanities, sports, music, and performing arts, and without an overarching national framework for gifted children and their education, many gifted and talented children are left unrecognized and unattended to. This article on giftedness and gifted education in the perspective of India and its people will talk about conceptions and notions held by Indians about talent and giftedness, about what research has been conducted in the area, what difficulty India faces in identification and nurture of giftedness and finally how India can serve its gifted people.

**Subjects: Gifted & Talented; International & Comparative Education; Inclusion and Special Educational Needs**

**Keywords: India; giftedness; gifted education**

India is the largest democracy in the world with a population of 623.7 million males and 586.5 million females (Census of India, 2011) with more people than Europe, more than Africa, and more than the entire Western Hemisphere. With a decadal absolute growth of population being 181.46 million, this translates to approximately 1.31 billion people in 2016, a country comprising of diverse sociocultural contexts, disparate economies and widely varying geographical and climatic conditions. Contrary to the perception of India held by a large of people in the world that associate Indian life with teeming megacities, in reality, nearly 60% Indians live in villages. Many Indians living in relatively populated areas are classified as rural because of their high dependence on agriculture and most rural residents in India have lower educational levels, higher mortality and fertility, higher poverty, and fewer modern amenities than urban residents. Also, since India's society is deeply rooted in religion, language, and tradition, conflicts arising from these bear on economic and educational disparities, the traditional role of women, and on the demographic profile of the country.

India has come a long way since the International Conference on Education for All in Jomtien, Thailand in 1990 where India made a pledge to focus on basic education. Subsequently, The World Education Forum, held in Dakar in 2000, reiterated the commitment of the global community and approved a comprehensive set of goals in the areas of quality education for early childhood, primary education, gender, youth and adult education. The steady progress toward India's universal elementary education over two decades led to the enactment of the Right of Children to Free and Compulsory Education (Right to Education) Act 2009 which made it the right of every child between 6–14 years to receive free education for 8 years of elementary schooling. But despite considerable economic progress, the education system in India still faces several challenges as it seeks to further enhance educational access to children in terms of quality of education at all levels. The relatively high drop-out rates, unsatisfactory student learning levels, low number of trained teachers, gender disparities, and number of non-literates continue to cause concern. For example, there is an estimated 60 million school students who come from such disadvantaged backgrounds at any point of time and nearly 8.2 million out-of-school children in the age group of 6–14 years (Census of India, 2011).

India has a huge talent pool but millions remain unidentified and unrecognized. By the year 2020, India is expected to become the world's youngest nation with 464 million youth. The National Curriculum Framework (2005) does not allude to services for gifted students and participation of high ability students in gifted programs because gifted education is not a primary concern in India. Grappling with more mass-based problems like education for all, health and hygiene, poverty and unemployment, a policy for gifted school education and teacher training for the gifted is not a priority yet.

### **1. Primary conception of giftedness in India**

The search for a seemingly simple and genuine question of “what is giftedness” have resulted in hundreds of definitions which, as restrictive they may be, tend to be more straightforward in general and “clear-cut.” On the other hand, a conception which can be broad or narrow, complex or simple, allowing for flexible interpretations and extrapolations. It is perhaps, for this reason that, Renzulli who, initially called his the three-ring model of giftedness a “definition,” later labeled it a “conception,” allowing for empirical scrutiny (Renzulli, 1986, 1990) as well as for allowing developmental space, thus perhaps making it the first developmental conception of giftedness.

Notions about giftedness vary considerably across cultures and the diversity in conceptions lead to varying understanding and interpretations of what constitutes giftedness. Most conceptions of giftedness have focused on academic achievement and a superior level of intellectual ability, measured by IQ tests (Feldman, 1982; Lubart, 2006) which adheres to the conservative view on giftedness

adhering to the gifted child approach (Dai & Chen, 2013). However, the past two decades has embraced multidimensional views and definitions of giftedness that are influenced by broader abilities related to leadership, creativity, and the arts (Gagné, 2004; Gardner, 1983; Lubart, 2006; Sternberg, 1985) and adhere to the talent development approach and the talent differentiation approach.

Giftedness has been conceptualized depending on the needs of the society. In some discourses, the term “gifted” is used to refer to people who are identified as possessing some particular qualities, in some others, it is more contextual, relating to domains or a range of activities (Taber, 2016) while in some others like in the Actiotope Model of Giftedness (Ziegler, Vialle, & Wimmer, 2013) the focus is on interactions between biotopes (biological adaptations), sociotopes (social adaptations) and actiotopes (individual adaptations). Ziegler and Phillipson (2012) is critical of the mechanistic approach to identification of giftedness which breaks giftedness into various components like knowledge, originality, cognitive flexibility, social cognition and many others and advocate a paradigm of systemic gifted education that focuses on the contextual organization of its components and not about the components separately.

A schism between eastern and western philosophies on giftedness exists even today, though, through the global intermingling of research and ideas, this is slowly narrowing. Eastern notions of giftedness accord great importance to environmental influences and believe more in potentialities and capabilities in all children. Western conceptions place greater emphasis on the individual, his/her cognitive-motivational functioning and view creativity as a process within a person (Csikszentmihalyi, 1999). Lubart (1990, 1999) questions the nature of creativity being essentially the same around the world and advocates reviewing cultural perspectives that distinguish western and eastern notions of creativity in terms of promotion of certain domains, social groups and characteristic ways of approaching the world. For example, Sundararajan and Raina (2015), addressing the notion that Asians seem deficient in radical, revolutionary creativity argue that cross-cultural comparisons of creativity are prone to asymmetry of overestimating the influence of social norms on creativity, thereby failing to take into consideration the fact that creativity entails a choice at the individual level even in collectivistic cultures. Bhawuk (2003) suggests that, since creativity is and its expression in giftedness and talent is a sociocultural behavior, taking place in a sociocultural environment, studies should include culturally specific qualities. Until about a century ago, there was a strong relationship between spirituality and giftedness, which holds a strong moral connotation, granting more importance to giftedness being of collective benefit to society as against individual excellence.

Renzulli (1979, 1986) postulates that high potential in any field of activity stems from three components: (1) above-average general intellectual capacities, as measured by traditional tests of intelligence; (2) engagement in the task, which includes factors such as enthusiasm, interest, perseverance, eagerness, openness to criticism; and (3) creativity which includes fluency, flexibility and originality of thought, openness to new experiences, curiosity, risk taking and esthetic sensibility. Professionals working with gifted students recognize that creativity is a salient issue and an important component for giftedness (Besançon, 2013), while some further stress that creativity is actually the highest form of giftedness (Runco & Albert, 1986). Thus, it is common to see that attempts to nurture creative thinking is often a major part of gifted educational programs.

Indian research and understanding of giftedness has been through exploring the concept of creativity and how it manifests itself in individual and cultural context. There is a very hazy line between Indians referring to giftedness and creativity and it is only in recent years that Indian research has included the term giftedness in academic discourse. Giftedness, creativity and talent in the Indian context are understood best through performance and products. Domain specific performance has been the yardstick for labeling an individual as talented/creative/gifted and as a result the process of its development or its interaction with the environment has received little attention, perhaps because the *product* of creativity has been of more interest. For example, students excelling in art and literature are termed creative and those in sports are called talented. In academics and especially in

science, exceptional students are almost always termed as “genius.” With little understanding of why different labels are given to gifted persons, these stereotypes only get strengthened with time (Roy, 2016).

A study by Gakhar and Joshi (1980) supports multidimensional models of creativity taking a *personological* approach which views it as comprising of a unique constellation of traits of personality and measures of creativity that exist with common factors in different combinations. A constructivist inquiry by Sen and Sharma (2011) reveals a multiplicity of implicit theories of creativity available in the Indian culture with generic and domain specific usage of indigenous terms. According to them, creativity is dominantly construed as a faculty of nature, with participants invoking the holistic, cognitive, experiential/emotional, and physical selves to describe creativity. This emphasis on process; novelty being the central issue; the varied meanings of “newness;” expressing creativity as self expression, self-extension, self-fulfillment, and self-actualization reflect implicit theories that have emerged in this study.

## 2. Recognition and development of talent in India

Giftedness in India is more valued in a cultural and societal context and the notion of human potential with unlimited capacity (Raina & Srivastava, 2000) is accepted. Panda and Yadav (2005) argue that the Indian notion of giftedness emphasizes relational, social, and interpersonal aspects rather than cognitive, analytical, or utilitarian aspects. Misra, Srivastava, and Misra have placed greater emphasis on emotional, intra-psychic, personal and intuitive elements as opposed to stressing non-conformity.

In a situation where formal identification and recognition of talent and its nurture limited to only a small fraction of its population within India, many talented students remain unrecognized and may talents remain untapped due to an environment that does not prioritize their needs for an enriching and talent facilitating environment, or adequate support to nurture gifted minds. In India, it is as Subotnik, Olszewski-Kubilius, and Worrell (2011) mention, that the education research, policies, and practices are generally seen to resist addressing academic due to the assumption that academically gifted children will be successful no matter what educational environment they are placed in. It is not uncommon to see parents concerned and at a loss when they notice asynchronous development in their child in terms of underdeveloped competencies in certain domains like social behaviors and conflict resolution (Roy & Kurup, 2016). The notion that creativity, high ability, and giftedness are extra endowments for a child and that he/she is already “the lucky one” is prevalent in Indian society which expects such students to excel on their own with minimum additional support. Teachers and parents tend to believe that just because a child is creative or talented, he/she must be capable to continue being the best not just in the talent domain but in all aspects of life. Sen and Sharma (2013) studied common and specific in patterns of nurture present in the home environments of creative Indian children found commonalities in terms of all the families being cohesive and uniqueness in terms of enhanced motivational levels invested in the parenting process. This study implies that the commonalities were related to providing a “supportive” home environment, whereas specifics were more towards providing a “stimulating” environment as elucidated by Howe (1999).

Society, parents, and teachers treat creativity with a worrisome level of naivety, without being aware of its nuances and its demand on the person. (Roy, 2016). Since parents’ abilities to address their children’s needs is deeply rooted in their educational level, socioeconomic status, their level of awareness and cultural understanding of giftedness, the sheer disparity in literacy rates, especially among the rural population leads to ignorance, inaction and under valuation of giftedness.

A recent research by the author was taken up to explore what citizens of a diverse and plural culture like India, think of giftedness and talent and how opinions, prejudices, and acceptance and rejection of giftedness coexist in the backdrop of common views about gifted and talented education. 2,042 respondents from India (constituting of gifted and general students, teachers, parents, professionals and gifted education experts aged 16–83 years) took part in responding to an inventory

on notions about giftedness. Results indicated a lack of consistency of views on either nature or nurture as the psychological foundation of giftedness that are more in line with a contextual view of giftedness among Indians that point towards beliefs involving both nature and nurture as valid indicators of giftedness. Indians also did not particularly see gifted and talented students having school problems, yet, those believing in the need for gifted identification also tend to see a need to help them with school problems. As to whether Indian education system gives sufficient attention to gifted and talented students, Indians, students, and teachers alike are split in their opinion. This may be because most Indian educators and students are unable to gauge the adequacy of gifted education services and may find it difficult to appreciate academic and social needs of gifted and talented students.

In India the need to develop creativity in the classroom is yet to be emphasized in any major educational policy or planning document. The Indian education system in policy makes no overt recommendations for creativity education to be adopted as an integral part of the schooling experience for a child in India. Therefore, any such initiative can happen only at an individual level and must stem from an ideology or philosophy that believes in creating the space for children to learn creatively (Madan, 2011).

Panda and Yadav (2005) have enumerated that the phenomena of creativity can be analyzed at four levels—creative persons, creative places, creative processes, and creative products. In the Indian context, gifted and creative people seem to be considered as those who can contribute to the betterment of society and who can become leaders and role models for younger generations. Creative places imply those subject domains that are valued in a developing country like India. These domains are mainly science, technology, medicine, and mathematics. Talent in sports, music, and art are also valued, but more at a cultural and social level and less at a national and policy level. Processes and products related to giftedness in India are linked with those that directly bring about changes towards betterment of its large number of people helps fight poverty and are in tune with national education, health and quality of life. On the one hand, indigenous talents in rural areas remain mostly unidentified and on the other hand, students displaying intense curiosity, fertile imagination, and a questioning attitude do not find a creative outlet in a society, where examination scores are still a predominant indicator of ability (Roy, 2016).

### **3. Beliefs Indians have about gifted individuals**

Observations by parents and teachers in natural conditions have been predominant in studying and understanding personality of gifted children as well as the challenges they face on school and society. Due to their advanced cognitive abilities such as memory, information processing, use of higher order thinking skills like convergent and divergent thinking, gifted children are sometimes seen to have less developed social skills which lead to difficulties in relating to, and forming satisfying bonds with other children in their peer group, social isolation from same-aged peers, identification with adult or elder peers and frustration in class. The vulnerability of such children are often overseen by teachers in schools with large classroom sizes, because of a stereotypical believe that gifted and talented students are smarter than others and need less taking care of.

In an attempt to study the inter-relation of motivation, self-concept, and self-portrayal of talented high school students, Roy and Chatterjee (2014) noticed a lack of positive and realistic self-concept coupled with confusion regarding goal orientation and motivational lapses among identified talented children. Their strong needs for affiliation and their anxiety towards achievement seem to find some relation to the big-fish–little-pond effect (Marsh, Chessor, Craven, & Roche, 1995) and positive and negative effects of attending a selective program (Dai & Rinn, 2008).

In a recent study on beliefs about giftedness in India, Roy, Mondal, Bakuli, and Mishra (2016) found that Indians strongly believed that all children are talented, that it was important to support them in realizing their potential. Indians consider talent to be developmental and appreciate talent not beyond school grades, high performance, and eminence. However, they view identification of talent

as based on observable results, especially in academic performance. There are conflicting perceptions about the efficacy of IQ testing to identify gifted and talented students. A majority of respondents felt that the identification and nurture of talent depended on the person's socioeconomic status and felt that it was unethical to label children as talented. Indians in this study, however, did think that all children should be made aware of their talents. More than half of respondents in the study felt that there was a gender bias in favor of males when it came to being included in gifted education programs in India. Responses to domain specificity in giftedness brought about mixed responses as many did not think giftedness was domain specific. Though 73% of Indians in the study agree that gifted children think differently, not as many (nearly 50%) tend to agree that they have different academic needs from general students. They strongly endorsed that such students need support as they faced problems in school and with peers. It was interesting to note that Indians were largely unaware emotional vulnerabilities of gifted children.

Bharaj (2013) studied some intellectual and non-intellectual endowments and characteristics of the intellectually gifted children. It was found that intellectually gifted children were more accomplished than children belonging to the general population and that they had higher self-esteem than general children, superior reasoning ability, and were curious, imaginative and self driven. However, the study also noted that such children tended to be anxious, apprehensive, self-reproaching, worrying, troubled (not relaxed), tense, slightly frustrated, careless of social rules and emotionally vulnerable. Roy and Chatterjee (2014) while studying gifted high school students of science found a lack of positive and realistic self-concept coupled with confusion regarding goal orientation and motivational lapses among talented children. Their being selected for special programs on the basis of academic achievement grades created considerable pressures on these high achieving students.

Khire, Watve, and Gadre (2004) assessed students from non-enriched and enriched school climates, on cognitive and non-cognitive variables. When profiles of school were compared, more differences were noticed in "learning related components" than in physical–infrastructural or psycho–social–interpersonal components. The study concluded that the enriched environment facilitates enhancement of cognitive abilities of both average and gifted; but the gifted in non-enriched environment are at a loss. This lends support to the belief in general that enriched school environments are essential to cognitive development in all children even in the absence of adequate infrastructural support.

In several gender studies on creativity and giftedness between boys and girls, it was reported that males outperformed females on measures of verbal flexibility, figural originality, and figural elaboration (Nayana, 1981), that boys achieved significantly higher mean scores than the girls on the measure of creative thinking (Singh, 1982), that male and female teachers do not differ significantly either in their creativity or its factors of fluency, flexibility and originality (Gohil, 2008). A study by Mattoo (2011) comparing academic achievement and vocational interests in high vs. low creative groups of respondents found that the two groups differ significantly on academic achievement with the high creative group showing higher achievement than the low creative group. Also those with high creativity tended to have distinctly higher levels of interest in science and other exploratory subjects. The study also found that gender did not contribute significantly towards the variance in academic achievement or vocational interests in either of the two groups.

Patwardhan (1994), studied creative thinking processes (concept formation, reasoning, decision-making, problem solving, and creative thinking) of rural and urban women and found that due to maturational, integrative, dynamic, and dialectal thought and fueled by life experience, the performance of illiterates had satisfactory concept formation, reasoning and decision-making skills, but poor problem solving and creative thinking skills. Urban women showed superiority in all these processes. The rural–urban difference, however, tended to decrease with increasing age.

#### 4. Challenges in providing appropriate programs and services for gifted learners

India's contribution research and development for identification and measurement of giftedness has been rather low due to an overarching focus on catering to masses of children and educating "average children." Beyond this, if at all there is some focus, it is usually in the form of special education for disadvantaged learners from low socioeconomic strata and those belonging to minority populations. Because conceptions and understandings regarding giftedness and talent vary greatly, and often depend upon the unique learning opportunities and sociocultural dynamics of the region (Maitra, 2006), gifted education in India has been predominantly restricted to those who can afford special services for their children. The spread of mostly unidentified gifted children across a vast geographical space restricts parents in networking and advocacy for a program that will benefit their children (Roy & Kurup, 2016). For early identification of gifted children from a large segment of economically deprived India, schools in rural areas are far from being equipped to cater for initial identification and intervention. The situation is further exacerbated because of quality of teachers, variations in medium of instruction, curricula, and poor infrastructure and students' sociocultural backgrounds vary widely, which make it difficult to introduce standardized methods and programs (Kurup & Maithreyi, 2011).

Although the Government's Right to Education Act (2009) has brought about a culture of inclusion by providing all children up to 14 years of age with formal educational services, the emphasis is primarily directed at the inclusion of the disadvantaged. Providing free education as a fundamental right for all children till the age of 14 years, has itself posed a colossal challenge in an over populous country like India. As a result of this, gifted education programs at both the state and national levels have so far received scant attention and importance. Gifted education advocates in India argue that the philosophy of inclusive education underemphasizes the needs of gifted and talented children for realizing their full potential and lack of attention to these children is tantamount to a denial of their fundamental right. Though equal schooling opportunities for all is important, advocates of gifted education argue that provisions under the act are not adequate to meet the needs of gifted children. (Kurup & Maithreyi, 2012; Roy & Kurup, 2016).

Poverty and caste affect most issues related to Indian people. The effect of poverty in development of cognitive abilities in children is evident from studies that point out that cognitive deficits that may arise due to malnutrition (Dutta Chowdhury & Ghosh, 2011; Mazumdar, 1998) and that nutritional and socioeconomic status affect intelligence as well as verbal reasoning, comprehension, perceptual and spatial abilities, fine-motor coordination, short-term memory, and academic achievement (Agarwal, Upadhyay, & Agarwal, 1989). Caste is an important institution of social hierarchy and upper-caste children have an advantageous position in the education system, whereas lower-caste students from working-class families lack the economic and cultural resources required to develop merit, which is composed of a particular kind of cultural capital (Upadhyay, 2007). These wide disparities relating to socioeconomic status, caste, language, and ethnicity along with strong gender gaps lead to vast disadvantages in educational opportunities faced by gifted children from such families.

Cultural factors and prejudices against educating women cause a large proportion of girls from rural Indian schools to drop out. India's patriarchal system gives lower status to women than men, which often translates into gender imbalance prominent through higher education. The traditional role of women as caregivers causes a serious challenge for gifted girls to come to the periphery. Their under-representation in educational programs is stark and despite several policies for motivating young girls to higher education, millions of them are unable to progress academically. Gifted girls are often lost in this process due to deep rooted patriarchal notions that keep girls away from actively pursuing their gifts.

Classrooms in India are posed with challenges of rigid curriculum demands, lack of resources, large class sizes, and low motivation levels among teachers due to several reasons ranging from school environment to lack of adequate training. Given the constraints, the pursuit of encouraging

creativity the Indian schooling system seems like a tall order. Sen and Sharma (2009) stress that, in India, talent and creativity are seen as a value-addition rather than as being an integral to the teacher education program implying that it is not consciously planned for. Hence syllabi, lesson plans, and classroom planning and observations do not lend themselves to “creative” teaching and it was only through the educators’ and student–teachers’ intrinsic motivation and interest that such creative teaching sessions took place. Also, with the Indian school system geared towards rote learning and following a rigid and lengthy syllabus geared towards pushing students to value examination grades fails to give children the time, scope, and/or motivation to demonstrate their analytical or reasoning abilities or creativity thinking skills. Classroom interactions and teaching are overburdened with examination oriented discourse, with examination grades being sacrosanct and given overwhelming importance. Evaluation is more memory-based, with very little scope for testing higher order cognitive thinking aspects like, synthesis, analysis, divergent and convergent thinking. Thus, the Indian examination system is unable to provide real challenges to all students, especially those gifted with an evaluation of their higher-level cognitive and academic activities.

Large class room sizes and unrealistic student teacher ratios’ pose as a huge deterrent for teachers and school administration to meet the needs of gifted learners. The low number of qualified teachers has always been a major lacuna of the Indian educational system. It is widely accepted that a low pupil–teacher ratio enables individual attention by teachers and, therefore, can increase student achievement. While the Right to Education Act (RtE) has dictated the number of students per teacher that would serve as the acceptable maximum standard for a school, there are no norms regarding the actual quality of education. Pandey (2006) explains that attention towards recruitment, training, social status, and conditions of work of teacher by means of provisions for appropriate knowledge and skills, professional prospects and motivation are important to improve quality of education. Due to an average student ratio of 40:1 in India (with thousands of rural school having 70–80 students in each class) abilities of many high achieving children remain unrecognized and their need for creative and original work is unmet. The classroom for then becomes an unchallenging and boring place and leads to underutilization of their potential further leading to underachievement.

Since the founding of the earliest educational systems in India, the teacher has been viewed as the ultimate source of knowledge and century old cultural traditions of showing obedience to teachers and elders in the family continues to underline learning and interaction in the Indian society. The quality of omnipotence ascribed to the teacher, has led to educators striving to prepare students for examinations through a culture of conformity, obedience and consideration for others. The basic nature of giftedness which requires exploring new ideas, intellectual openness, and independence lead to conflict under such a regimented and conformist education. Autonomy has been seen as crucial in nurturing creativity in children (Raina, 1991). Due to characteristics such as obedience, discouragement of autonomous decisions, and fear of authority valued in the family context in India, expression of giftedness tends to get thwarted (Jambunathan & Counselman, 2002). In most cases, children are expected to “be guided” by their elders and major life decisions are deeply influenced by elders. This, over centuries has endorsed parenting practices that value submissiveness and children’s non-questioning conformity to parents’ decisions or disapproval of autonomous decision-making (Kurup & Maithreyi, 2012; Roy & Kurup, 2016).

Another big lacuna in India is the lack of a critical body of research, drawing from different fields, for a program on gifted education suited to the Indian context. Approximately three percent of educational and psychological research in the past six decades has involved in the study the concept of creativity (Misra, Srivastava, & Misra, 2007). Few institutions throughout India have pursued independent research in the area of gifted education. The paucity of research efforts in India on gifted education reflect the tendency to be haphazard and lacking in a larger plan. Due to research interest in gifted education being confined to an extremely small number of scholars distributed across the

country, gifted education is yet to find its way into the mainstream of educational research in India among university departments. Gifted educators and researchers in India face multiple challenges, including socioeconomic, sociocultural, schooling, and parenting differences that combine in complex ways, making it difficult to identify giftedness among different groups (Maitra, 2000). Addressing the issue of identification more holistically to represent diverse populations within the country will require the development of a systematic and robust program applying a multidisciplinary approach.

### **5. Contributions to gifted education in India**

From the perspective of India, where national and state policies on gifted education are absent and no funding is available for gifted education at any level, contributions to gifted education by Indian researchers, practitioners, and advocates have been sporadic and mostly localized. No common database exists to enumerate past and existing programs and many local programs that may be contributing to needs of gifted students within the ambit of their programs may be overlooked and unreported. Contributions in India towards gifted education can be broadly classified in terms of programs initiated by the government (either State or Central) and those by non-governmental institutions. The thrust of gifted education in India, however, small has been to identify high ability students and provide them with acceleration and enrichment academic opportunities. Most of the identification has been through performance in scholastic tests and most programs of gifted students have been in areas of Science and Mathematics. Very few institutions exist in India that caters to talent and giftedness in the arts, music, and/or sports. Those that do exist are either mostly private initiatives that are affordable by only a few or are government initiatives that are poorly funded with backdated resource.

India's oldest talent search organization is Jagadis Bose National Science Talent Search (JBNSTS), which established in 1958, is based in Kolkata in eastern India. Modeled after the Westinghouse Science Talent Search program, this institution has worked towards motivating, identifying, and providing out of class acceleration and enrichment programs to nurture gifted and talented students of science since 1960. Over the years JBNSTS has grown to be a leader in the science talent search and nurture in India and has been a nationally recognized body working with gifted students from Science, Technology, Engineering, and Mathematics (STEM). It is the longest State government (West Bengal) funded program for gifted students in India and has been involved in identification and nurture of gifted students in science throughout eastern India ([www.jbnsts.org](http://www.jbnsts.org)). Their programs focus on students from the age groups of 13–21 years and many of their programs are for poor and disadvantaged student from rural schools. With experience of over 55 years, the contribution of JBNSTS to the talent search movement in India is established. With the “First International Conference on Research in Education and Curriculum Planning for Gifted Minds,” organized by JBNSTS in 2014, India witnessed a coming together of various gifted education advocates, groups and institution come together to forge collaborations and work together. While on one hand, it opened windows to global experts for understanding the status and possibilities of gifted education in India, it facilitated interactions and knowledge sharing between Indian stakeholders and with global researchers in the field. Academic exchanges between Indian and overseas researchers have increased significantly and India has been able to step into the world gifted education arena. JBNSTS is the first Indian institution to have become an Associated European Talent Point.

The Jnana Prabodhini Institute of Psychology (JPPI) based in Pune in Maharashtra started a higher secondary school for gifted in 1969 ([www.jpip.org](http://www.jpip.org)). In addition to serving gifted students directly, this organization has also contributed to the structure of gifted education by assisting with issues of selecting gifted students, and promoting general awareness about giftedness. The school provided an altogether different pattern of school education with emphasis on enrichment to nurture multiple facets of intelligence and personality with the aim of nurturing giftedness for the betterment of society.” In addition to academic activities, various field activities were implemented to nurture the

personality of the students. Presently, the JPIP is the only institute to have started a one year full-time gifted education course for teachers in 2015 with the support of University Grants Commission, government of India and is now set to induct the second batch. The JPIP has been a leader in research on giftedness in India and has several researchers in gifted education.

Government institutions like the National Council for Educational Research and Training (NCERT) have organized the National Talent Search Examination (NTSE) since 1963 for identifying academically high ability students throughout India. In the past 15 years, the Department of Science & Technology (DST), government of India, an organization vested with coordinating and promoting science and technology activities throughout the country, has launched the Innovation of Science Pursuit for Inspire Research (INSPIRE) program for attracting talented students to pursue careers in science to build human capital for strengthening and expanding national research and development interests (Roy & Kurup, 2016). Though the programs of INSPIRE does not directly have gifted education as its goal, the launching of the scheme has brought forward a critical mass of nearly a hundred thousand students every year who belong to the top one percent in academic achievement and can be nurtured in STEM areas. The Homi Bhabha Centre for Science Education, another national body setup in 1974, was created for the purpose of promoting equity and excellence in science and mathematics education. This program serves as India's nodal center for Olympiad programs in Mathematics, Physics, Chemistry, Biology, and Astronomy. It is also one of India's premier centers for teacher training in science and mathematics from primary to senior secondary level ([www.hbcse.tifr.res.in](http://www.hbcse.tifr.res.in)).

The Tribal Mensa Nurturing Program (TMNP) started in 2002, which has come a long way in working for underprivileged, especially tribal students from the State of Maharashtra in western India. Their work on tribal and minority children has grown over the years with 50 schools presently under their ambit where they nurture gifted students who come from disadvantaged socioeconomic and ethnic backgrounds. TMNP nurturing model believes in holistic nurturing and more than 160 parameters of Giftedness are assessed through psychological testing. They are now India's first Associated European Talent Centre. Parallel to the event of the 2014 conference by JBNSTS, the Kaveri Gifted Education Center, in Pune was established in 2014 which in the last couple of years is working on creating modules and manuals through research and practice in gifted education as well as identification, assessment, nurture, and mentoring of gifted students and teacher development ([www.tribalmensa.org](http://www.tribalmensa.org)). It is hoped that over the years, this center will provide research-based directions on gifted students and their education in India.

The education department at Delhi University in the national capital has perhaps been the only university department to have had a regular interest in gifted education research. Several research papers have focused on identification and nurture of gifted students, characteristics they display, and their needs. In 1998, the fifth Asia Pacific Conference on Giftedness organized by Delhi University was held in New Delhi, witnessing the participation of 13 countries, including all member countries of the Asia Pacific region. This was followed by the Indo-US Round Table in 2010, when the Indian Government and Delhi University made efforts over the following four years to create indigenous models of identification for gifted children in science and math. Of considerable importance have been the contribution of the National Institute of Advanced Studies (NIAS) based in Bengaluru, southern India which undertook a Gifted Education project in 2010 and commissioned by the Office of the Principal Scientific Advisor, Government of India with the aim to study giftedness in Indian contexts, with the view of developing context appropriate means of identification and nurturance (Kurup & Maithreyi, 2012). Their work has been particularly important in drawing up policy recommendations in favor of gifted education and gifted children of India. The National Association of Gifted Education, India originated from NIAS in 2012, which started a national website called PRODIGY (Promoting India's Gifted Young) for individuals, teachers, parents, mentors, experts, and community members where the nomination scales are available for public access.

## 6. Important research in India on giftedness and gifted education

Research on giftedness in India has been scattered and piecemeal. While many research studies have been done at different university departments of education, a large number of them have remained unpublished. This is perhaps because most work done in universities were for obtaining masters or doctoral degrees and which were not followed up by researchers for further study. Apart from a few universities, which have some published work, most research in India has been done by persons and not groups. Unfortunately, till about 5–6 years back, there was no common platform for researchers and teachers to meet and exchange of ideas. Also because of the number of researchers in gifted education being very small, there is no funding for gifted education in India.

A thorough review of literature in the area of Indian research on giftedness is not possible under the circumstances and therefore by no means exhaustive. However, an account about research in this area is given in three parts; Research in India from 1960 to 1980 from 1981 to 2000, and from 2001 to present.

### 6.1. Indian research on giftedness: 1960–1980

The first 20 years of gifted research focused on study of definitions and correlates of creativity like intelligence, achievement, personality characteristics of Indian students, developing intelligence tests for gifted students and gender comparisons in giftedness. A large percentage of these studies are in the form of doctoral thesis and which have not been published. In these initial years of giftedness research in India, most research was based on the gifted child paradigm which visualizes giftedness as an exclusive category of individuals based on testing (Dai & Chen, 2013). This approach, which occurs mostly under formal educational systems, drives its attention toward a fixed formula for gifted identification.

Passi (1972) developed the verbal and nonverbal tests of creativity, which was followed by the verbal and nonverbal test of creativity by Mehdi (1973, 1985), respectively. However, because of lack of their applicability to the diverse population of India their relevance has diminished and, they are no longer used. In studying correlates of creativity, intelligence, verbal and nonverbal ability and academic achievement were most studied (Badrinath & Satyanarana, 1979; Gakhar, 1975; Khire, 1971; Paramesh & Narayanan, 1976; Passi, 1972; Raina, 1968, 1971). Personality correlates of creative students (the term giftedness was not referred to by researchers in India) were conducted in several studies during this period (Goyal, 1974; Kumari, 1975; Lalithamma, 1979; Suri, 1973). An interest in scientific creativity developed, especially in mathematics and physical sciences and several studies were conducted in this area (Kabu, 1980; Majumdar, 1975; Sandhu, 1979; Singh, 1978).

### 6.2. Indian research on giftedness: 1981–2000

Intelligence testing in India has been one of the most popular academic pursuits for psychologists and educators for a long time now. Kumar (1981) has reported that until 1988 about 43%–45% of doctoral dissertations and institutional studies on test development were related to general intelligence, academic intelligence, and social intelligence. However, several reviewers feel that intelligence test-based assessment has weakened, following a neglect of conceptualization, theoretical analysis, and methodological rigor (Kulkarni & Puhan, 1988; Mukherjee, 1993).

Indian research on IQ testing as well as exploring links between intelligence and creativity have continued during the last 20 years before the new millennium. These studies focused mainly on creativity and intelligence (Khire, 1993; Srivastava & Misra, 1996), achievement (Bawa & Kaur, 1995; Behera, 1998; Bhargava, 1992; Chadha & Chandana, 1990; Jarial, 1981), cognitive styles and thinking (Das & Thapa, 2000; Raj, 1994; Rajagopalan, 1998), adjustment, anxiety, and aspiration (Kaile & Kour, 1987; Saxeena, 1984; Singh & Mehra, 1981) and self concept (Padhi, 1992; Saxena, 1988).

The psychometric tradition in India has not been as much concerned with the sociocultural milieu within which behaviors take place. A few studies during these two decades on psycho-social factors related to creativity and achievement have been conducted by exploring home and family

environments (Chaurasia, 1993; Kaur & Kharb, 1993; Reddy & Gibbons, 1999; Verma, 1997) and those related to cultural aspects and creativity (Raina, 1984, 1999; Srivastava & Misra, 2000). Exploring the play of culture in expression of creativity, some Indian research focused on cross-cultural implications of creativity (Mathur, 1982), western and eastern perspectives (Das, 1994; Misra, Suvasini, & Srivastava, 2000; Raina, 1993) and conceptualization of intelligence (Misra, Suvasani & Srivastava, 2000). Comparisons between creative and noncreative persons in terms of personality, cognitive thinking, and interest patterns have been documented in several studies (Mattoo, 1994; Mondol, 1999; Pathak, 1989; Sudhir & Khiangte, 1997; Sumangala, 1988; Vasesi, 1985). Some studies focused exclusively on studying creativity in women (Bhatnagar & Gulati, 1998; Verma, 1993) and from urban and rural backgrounds (Patwardhan, 1994). Creativity in disadvantaged people from class and caste structures were also studied (Bhargava, 1992; Kumar & Singh, 1999; Nagarkar, 1996).

Studies in this period made no reference to the concept of giftedness, though some studies did use the word “talent.” It was the study of creativity all the way. In these 20 years, a shift occurred with focus no longer only on the gifted child paradigm but also on the talent development paradigm which embraces more diverse, inclusive set of markers for giftedness, and views it as developmental and involving motivation. This shift is evident through a relatively large number of studies focusing on aspects of talent development, teacher preparation, training, curriculum, development, and preparation of instructional material for gifted children (Goyal, 1988; Gulati, 1988; Gupta, 1985; Jarial, 1981; Katiyar & Jarial, 1985; Maitra, 2000; Mandal, 1992; Raina, 1988 and several others). This is in line with the talent development paradigm (Dai & Chen, 2013) which involves continual nurturing of giftedness towards more advanced levels.

During this period a distinct focus on studying scientific creativity also evolved, which tried to understand the relationship between science and creativity (Kapur, Subramanyam, & Shah, 1997; Majumdar, 1996) and cognitive aspects of scientific creativity (Bhawalkar, 1992; Sansanwal & Sharma, 1993). Creativity in mathematics was the focus of several studies, following a worldwide trend of interest in mathematically precocious children (Jyothy, 1997; Singh, 1988; Sumangala, 1995; Vora, 1984). There has been some research on teacher preparation and training in science for creative children (Pandit, 1999; Rao, 1995; Singh, 1991).

### **6.3. Indian research on giftedness: 2000–present**

This millennium has seen systemic changes from previous decades the way giftedness research has progressed. Even though the volume of research in the area in India has not increased significantly, nor has funding for gifted education, the overall depth of studies in terms of research questions and designs have been more empirical and in tune with modern research methodologies. Most of the work has been published and is more accessible to other researchers. Since there doesn't exist any journal on gifted education in India, most published articles are in education and social sciences journals. Some studies have been published in international journals (Kurup & Maithreyi, 2012; Maitra, 2006; Maitra & Gosain, 2009; Maitra & Shama, 2009; Misra et al., 2007; Roy, 2016; Roy & Kurup, 2016; Sen & Sharma, 2009, 2011; Sharma, 2009, 2012). A gradual increase in terms of cross national collaborations project Indian research on giftedness on a global platform.

The terms “giftedness” and “gifted education” have come to the fore in the past 6–7 years with some researchers now focusing more on aspects of giftedness rather than only creativity. This is evident from the shift from IQ testing to providing for able students through cultural, socioeconomic, and psychological approaches. Commentaries on gifted education, conceptions of giftedness and extant programs and research initiatives in India for the gifted have been published in the past few years (Khire, 2013; Maitra, 2006; Roy & Kurup, 2016; Watve, 2013) providing an overall perspective on the subject. India's first large scale study with 2,042 Indians and funded by the Department of Culture, Government of India on conception of giftedness has just been completed and findings will serve as a starting point for more research with different target groups (Roy et al., 2016). Notions about giftedness in the Indian context, its relationship with higher education in India, implicit theories of creativity among Indians, importance of culture in understanding and categorizing

giftedness have been studied to a larger extent in the past 10 years (Misra, Srivastava & Misra, 2007; Panda & Yadav, 2005; Raina, 2004; Sen & Sharma, 2011).

Scientific creativity among Indians have received some attention in research during this period. Gender, sociocultural aspects, psychological aspects, cognitive styles related to scientific creativity have been explored in the Indian context (Mukhopadhyay & Sen, 2013; Roy, 2016; Sharma, 2013; Vidyapati & Prakasa Rao, 2003). Also evolving gradually is research in teacher effectiveness and preparation (Rao, 2003; Sen & Sharma, 2011) in gifted education, their conception of creativity and its nurture in children (Sen & Sharma, 2004), impact of continuous and comprehensive evaluation on creativity (Kalia et al., 2013) and effectiveness of non-formal curriculum for out of school advanced learners (Maitra & Shama, 2009; Sharma, 2009).

For more than three decades 35 years Jnana Prabodhini's Institute of Psychology (JPIP) has been conducting research on the nature of intelligence, giftedness. The sustained work of this institute has been valuable in creating a niche for gifted education research in India. With JPIP starting India's first formal diploma course in gifted education for teachers, it is a forward leap towards increasing the critical mass of researchers and practitioners of gifted education in India. Parallel work in Jagadis Bose National Science Talent Search (JBNSTS) Kolkata in serving a part of India's gifted students in science for more than five decades is a rich source of data for researchers. Recent research collaborations through cross-cultural studies between the author, her institution with international researchers from across the world has opened up new windows of collaborative research which, in the long run will help giftedness research in India as well as increasing interest for other researchers. The Tribal Mensa Nurturing Program(TMNP) has taken great strides in implementing gifted education programs for tribal and minority students of their states and they too have forged academic and research collaborations with overseas researchers. With JBNSTS and TMNP becoming the only two associated European Talent Network organizations from India in 2016, it is hoped that increased exchange of academic ideas will result in meaningful and noteworthy collaborative research.

A group of researchers in Delhi University and the National Innovation Cluster in Delhi have been consistently contributing to research on giftedness in India in the past 10–12 years. Their involvement in the area has enthused several students to work in this area. The three Tier Model of Identification of Gifted Children in India by Delhi University researchers supported by thorough review of research practices and identification theories, provides a comprehensive framework for identification of gifted children. The framework was developed to address the issues of excellence, equality and diversity peculiar to Indian context and gifted traits could best be described as “gifted behaviors which were expressed through actions/behaviors/thought process and expressions in appropriately challenging learning situation.” The responsibility of identification of gifted behaviors, thus lie with the teachers, parents and adult community by challenging the unique potentials of individuals (Sharma, 2016).

The National Institute of Advanced Studies (NIAS), in Bengaluru have made considerable headway in forming policies for India's gifted are poised for advising and implementing national level programs. With the Indian Government's growing concern for retaining talent within India by providing support to its gifted students, it is hoped that some formal national policy for employing gifted education practiced and programs will be initiated in the near future.

## **7. Future directions for research and program development in India**

Until now, gifted education policies in India, have by and large been, suffering from a systematic debate and dialog generated across the nation and mostly individuals and institutions convinced of the national significance of gifted education have been instrumental in introducing programs, but many of which lack research-based frameworks and have limited goals and limited that are too often linked to the availability of funding. In the absence of a dedicated national policy on gifted education in India, it becomes important to review the policies of gifted education of different countries as a starting point (Roy & Kurup, 2016).

In their attempt to define gifted education paradigms to facilitate research and practice, Dai and Chen (2013) argue that a paradigm of gifted education is based on the assumptions (*what*), and purpose (*why*) underlying a programming effort as well as, how targeted students are defined and identified (*who*), and how services are provided (*how*). This paradigm provides a valuable starting point for India to follow when considering a formal gifted education policy for India. Gifted programs and policies and practices of some countries like Israel, South Korea, Scotland, and Singapore would be important to study and learn from. The Actiotope model of giftedness (Ziegler, 2005) would be particularly useful to understand in India's context due to its emphasis on sociotopes which would lend itself well with India's social diversity.

With India's growth as a rapidly developing economy, there is a palpable concern towards higher education and advocacy towards support of gifted students. Especially in science and technology fields, growth has been slow for many decades, resulting in gifted Indian students migrating overseas for better opportunities, India today realizes the need to develop systems and processes by which gifted students will find their niche within the country. India realizes that nurture of gifted children will eventually lead to contributions to India's knowledge bank. As a result, the National Knowledge Commission (2006) realizes the need to retain, promote and attract talent in Science and Mathematics.

If India accepts the challenge for providing specialized educational opportunities for gifted children, a multidisciplinary approach to identification and program development is of paramount importance. The identification process needs to be reliable, defensible, and inclusive of diverse groups (Department of Education and Child Development, Australia, 2012) thus demanding research on and development of varied assessments that look towards identification of the gifted from different populations. Alongside, a multilevel mentoring model through teacher training, sensitization of giftedness within society and appropriate curriculum development will have to be essential development parameters which the policy will have to be part of the policy framework which will synergize research programs to be taken in larger collaborative ventures between academicians, schools, and teachers in groups rather than promoting individual research. As an important first step, Roy and Kurup (2016) proposes that the Government of India form a national committee on gifted education with representation of stakeholders from all regional levels. The primary responsibility of this committee is preparing a draft national policy on gifted education which must provide the impetus and direction for the national program. The committee holds regional level consultations of the draft policy allowing scope for incorporating genuine concerns of all stakeholders including arriving at a broad consensual definition of giftedness. In a specified timeframe, the country must evolve the national policy on gifted education.

A systematic roadmap for implementing a gifted education in India is required. Initially, the most important aspect of this roadmap is to spread awareness about giftedness and its existence in Indian society. An overall ethos of acceptance, value and importance of having gifted individuals in society, educational institutions, and work force should be the goal at every level. Systems must be put in place to identify gifted children from all sub populations and these identification methods should adhere to local environments. Since it is not possible to identify giftedness using a common method or practice, different types of identification processes will have to be planned and designed so that under-representation of gifted students from sub-population is minimized. Simultaneously, a workforce comprising of educators, teachers, counselors must be trained in gifted education so as to ensure their participation in the process of identification and nurture of the gifted. Research from micro (individual child) to macro (Indian society) level on all aspects of giftedness is the need of the hour. The quality and quantity of systematic, scientific and empirical research on giftedness must be driven by the need to provide adequate support to India's gifted people. National funding allocated to the states for gifted education under a common umbrella of norms, procedures, identification and evaluation methodologies as well as research must be made available by the government. This roadmap, nothing short of an educational revolution for the gifted is what India needs and what it must aim at initiating at once.

Interest in India's approach towards gifted education, the plight of India's gifted population, the strengths and weaknesses of its policies, the scope of exploring giftedness in a multicultural and diverse demography has increased manifold in recent times due to the efforts of a small number of gifted education advocates and their institutions in India. By entering the global discourse on giftedness, India hopes to be a part of international debate on this highly pertinent subject in modern times.

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#### Author details

Paromita Roy<sup>1</sup>

E-mail: [paromitar@gmail.com](mailto:paromitar@gmail.com)

<sup>1</sup> Jagadis Bose National Science Talent Search (JBNSTS), Kolkata, India.

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