BARBIE DOLL AND JANAKI AMMAL: CAREERS OF WOMEN IN SCIENCE

Varada M. Nikalje
Assistant Professor, DEL

March eight is celebrated as Women's day throughout the world. Numerous schemes for the betterment of women are launched, and the contribution of women to society is lauded. In March 2013, the National Council of Educational Research and Training (NCERT) New Delhi, marked the occasion by re-naming one of the buildings of NCERT. Earlier referred to ubiquituously as the Science Block, the building was henceforth to be known as 'Janaki Ammal Block'. A small, almost innocuous step, but one that had a ripple effect. 'Janaki Ammal who?' was the reaction of most colleagues and friends. We made a beeline for the Internet, firm in the belief "Don't think, just Google!'. We saw the image of a wrinkled, intelligent face, a replica of which would be later embossed on the outer wall of the building. We learnt that Ammal was born in 1897, that she had studied abroad, that she later returned to India to become a Professor of Botany, and that Pandit Nehru, the then Prime Minister of India, invited her to accept an assignment as Special Officer to re-organise the Botanical Survey of India. She devoted her energy and enthusiasm to science, which, to her, was both a profession and a passion. As the poet Robert Frost puts it, if one works at what one loves, life becomes a fulfilment:

"My object in living is to unite
My avocation and my vocation
As my two eyes make one in sight."

Janaki Ammal's choice of vocation was unusual, all the more striking in the pre-independence era. Her work covered speciaised aspects of genetics, evolution, phytogeography and ethnography, at a time when education for girls was still a big no-no.

The 20th century has witnessed changes in access to education: from being confined to the elite, it is now available to the masses; earlier, boys were privelliged, now girls too are sent to school; formerly, education was considered essential, now it is a fundamental right. Yet the glass ceiling remains. In other words, women opt for higher education and a variety of vocations, but as they move upwards, their numbers dwindle. The field of science, as with most fields, is dominated by men. While women have contributed to scientific

discoveries and advancements in various fields such as medicine, mathematics and chemistry, the problem lies in the lack of recognition and popularisation of their achievements.

In India, the issue of gender in the field of science is to be viewed against the backdrop of feudal authoritarianism and patriarchial values. A stereotype regarding girls persists in India, "which encourages the belief that they are not interested in mathematics and science. This perception is grounded in the notion that inferiority and inequality are inherent in gender." (NCF-2005, 23) Since the time when girls first entered school in large numbers, their performance vis-a-vis boys has been the subject of conscious or unconscious evaluation. Although today most liberal-minded persons would deny that there are differences in intelligence between girls and boys, some stereotypes do persist. Dr Ramdadas, in her monthly column on science education in *The Economic Times* says that "A popular idea is that if girls do well in exams, it is due to their hard work and 'cramming'which is, supposedly, a natural result of their docile and conformist nature. If boys do well, their success is more likely to be attributed to natural intelligence." (Ramadas, 15)

Cognitive decisions are influenced by cultural attitudes to learning. Undoubtedly, our society conveys different messages, subtly and not so subtly, to boys and girls about cultural norms. Toys for girls almost automatically translate as dolls, and little girls are encouraged to "play house", exhibiting their nurturing side in preparation for a lifetime of housewife, nurse and child caregiver. Even when girls are fortunate enough to get education, few follow the rigorous disciplines of pure mathematics and science.

Today, careers such as acting, modelling, reality shows, journalism and corporate sector seem more interesting and appealing to young girls who are dazzled by their glamour and lucrative rewards.

Most girls in urban middle-class and elite families have, at one time or the other, owned at least one Barbie. Barbie look-alike abound in lower economic status families. No one seems to mind the incongruous blonde hair and blue eyes.

One begins to wonder:

(i) Does playing with Barbie dolls (and its look-alike) slowly create a negative self-image?

(ii) Are the manufacturers of Barbie aware of the implications of young girls viewing Barbie as a role model?

(iii) Have the manufacturers tried to break the 'girly' stereotype?

Barbie doll is projected as every girl's longing. The blonde haired doll, in pretty pink, with tiny accessories such as shoes and handbags and hairbands is certainly great fun to play with. The trouble arises when it leads to flawed thinking of oneself. The vital statistics of Barbie are unrealistic, and are unobtainable by humans. Research has shown that, if real women were shaped in the same proportions as the doll, they

would have an impossibly small waist, and there would be inadequate space for liver and intestines. The extremely slender neck would ensure that women would never be able to walk with heads held high! More disturbing are the results of a psychological study quoted in Wikipedia. The study selected 162 girls from 5-8 years, and divided them into three groups. The first group was exposed to images of a Barbie Doll; the second to Emme, a new full-figured doll; the third group served as baseline control and were not exposed to any doll. The group that was shown a Barbie doll, it was found, had less self-esteem about their bodies, and quickly developed a strong desire to be thin. Play is a vital part of socialisation of young children, in which they gradually internolise ideals and values. The findings of the study indicated that an early exposure to dolls that epitomise on unrealistically thin body may create a negative self-image in young girls, which could further contribute to an increased risk of disordered eating and an unhealthy preoccupation with body weight. In short, little girls ought to be happily playing, not thinking about size zero.

The latter half of the 20th century saw women stepping out of their homes, into various careers. They entered an ambiguous world: ambitious, guilt ridden, grateful for political equality, yet unsure about handling both home and career. But there was no looking back. In the 1970s, when role models for girls in male-dominated society professions were sorely lacking, advocates of gender equality began to lobby toy makers and book publishers to design products depicting career options for girls, because these materials shape the ideas and ambitions in childhood. In the 1980s, when the feminist movement was soaring, Barbie was a prime hate object for feminists, because the doll seemed to symbolise conventional feminine beauty standards with a mind-set limited to home, accessories and material possessions only, with no other ambition.There was even a song on the theme:

I'm a Barbie girl, in the Barbie world
Life in plastic, it's fantastic!

You can brush my hair, undress me everywhere
Imagination, life is your creation

Make me walk, make me talk,
do whatever you please

I can act like a star,
I can beg on my knees

You can touch, you can play, if you say:
"I'm always yours"

You can touch, you can play, if you say:
"I'm always yours"

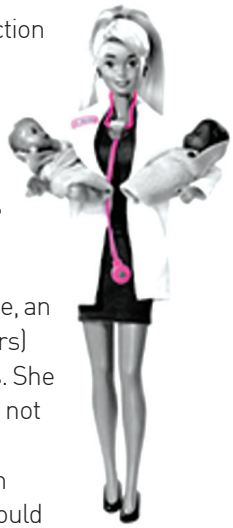
The girl picturised in the video as Barbie is all pink, pretty, fluffy and totally air-brained, symbolising the ultimate male projection of feminine qualities.

Over the next two decades, toy makers gradually began to absorb the changes in the role of women in society. Mattel, the toy company that produces Barbie, brought out the doll in 125 career avatars, with the statement "Barbie career choices are unlimited and so are yours". Thus, started the 'I Can Be' series of Barbie Dolls. Each doll was sold with sets of clothes and accessories suitable to the career being portrayed. The Lifeguard Barbie, for instance, includes an outfit with shoes, a lifeguard chair, a dolphin and a life preserver. The careers are varied. Barbie began as a teenage

fashion model (1959), the flight attendant (1961) and later astronaut (1965). Barbie Miss Astronaut was released in 1965, two years after Soviet Cosmonaut Valentina Tereshkova became the world's first woman to fly into space.

The doll had a silver spacesuit with brown mittens and boots, along with a white helmet and an American flag. Twenty years later, a new Astronaut Barbie was released, after an American woman Sally Ride went into space. This doll had a pink and silver mini-skirt with sparkles and tights. The next few years saw glowing moon rocks and NASA's emblem added to the package.These were aspirational yet relevant, serving as roles of the changing face of women. In fact, Barbie was an astronaut four years before Neil Amstrong!

In 1975, Barbie was portrayed as an athlete, then as a teacher (1985) and a doctor (1988).



Yet, there was still dissatisfaction about the stereotypical imagery of her accessories, and their implications. For instance, the packing says that Barbie is a 'baby doctor', (an unnecessary dumbing-down of padeatrician). Her accessories are a stethoscope, an otoscope (tool to examine ears) two cute babies and lollipops. She wears jean with pink glitters, not professional medical attire. Would it imply that girls, even when they follow careers, should

be beautiful in a picture-perfect way, and always be surrounded by cute pink things?

Just as these efforts seemed to boost careers for women in science, controversy would erupt. In 1992, Mattel brought out 'Teen-Talk Barbie', which had some utterances programmed into her. Each doll could utter four phrases, selected randomly out of 270 phrases by a computer. One such phrase was 'Math class is tough'. The American Association of University Women attacked the phrase stating that young girls may imbibe the potentially negative implications of the phrase. Mattel apologised in writing, and began offering a swap for anyone who brought in a doll that said the offensive phrase.

One far reaching effect of this controversy was that Mattel began to consult women established in their careers prior to launching a new avatar of Barbie. For instance, computer Engineer Barbie had accessories chosen with the help of the Society of Women Engineers and the National

Academy of Engineering, USA. The doll wears a neon-coloured T-shirt with a binary code pattern. She has pink framed glasses, and a laptop, also in pink and carries a Bluetooth headset.

This also marked an important shift in the company policy. Mattel now began to use polling as a strategy to decide on the next career for Barbie. The toy company asked people to vote online for her career, choosing among computer engineer, architect, environmentalist, news anchor and surgeon. Out of more than 6,00,000 votes cast, a surprisingly large number were for adults, including men. The computer engineer version got the highest number of votes. "All the girls who imagine their futures through Barbie will learn that engineers, like girls , are free to explore innite possibilities, limited only by their imagination," says Nora Lin, President, Society of Women Engineers. "As a computer engineer, Barbie will show girls that women can turn their ideas into realities that have a direct and positive impact on people's everyday lives in this exciting and rewarding career."Further anaysis of the results showed that there was a sharp bifurcation: adult voters gave Barbie her new computer scientist version, little girls wanted her to be an anchor woman/journalist. Wisely, Mattel released both versions.

However, sadly enough Environmentalist Barbie hit the dust. The word 'Environmentalist' reminded me of Janaki Ammal.

With so much awareness and exposure to the environment friendly causes such as planting trees, helping animals and saving whales, how is it that environmentalist was not a popular option whether for Barbie or for a career? Should numbers in an opinion poll matter so much to a toy manufacturer? Should the approval of half a dozen family members and two dozen friends matter in a girl's career choice? In the group photograph taken at the Silver Jubilee of the Indian Science Academy, 1960, with Prime Minister Jawaharlal Nehru, it is noteworthy that Ammal was the only lady; numerically speaking, one. But one with a passion that led her to choose Botany, and latter specialised in cytology, in which she undertook chromosome studies of a wide range of garden plants. Ammal was an original thinker. She identified the confluence of Chinese and Malaysian elements in the flora of the northeast India that led to natural hybridisation between these and the native flora, contributing further to plant diversification. Today, the Janaki Ammal Herbarium at RRL, Jammu, houses 25,000 species taken from all over India.

Janaki Ammal was fortunate enough to have had liberal-minded parents. Their ideas regarding education and gender sensitivity were far ahead of their times. It was they who recognised the young Janaki's passion for plants and nurtured it into a career. The tragedy, however, is that there were thousands of women who, had they been educated and encouraged to take up careers, might have contributed to national development. As the poet Gray poignantly says, of wasted talent:

"Full many a gem of purest ray serene,

The deep unfathomed caves of ocean bear;

Full many a flower is born to blush unseen,

And waste its fragrance in the desert air."

I closed my eyes and pictured Janaki Ammal, in a sparsely furnished room, dressed in non-fussy cotton, seated at a table, lost in thought. There is a

pencil laid on notes carelessly bunched together, plant samples are on the sideboard. I pictured the door slowly opening. Barbie enters and stand beside her. Ammal glances at her. 'You are an iconic doll'. Ammal says 'Like it or not, you can send a powerful message to young girls'. But (and here she gives Barbie a disapproving look) 'Why doesn't your suit include GLOVES? And don't you have anything to collect samples with tools to explore with, or do research?'

Janaki Ammal is right. Enthusiasm is all very well, but one should also cultivate a working knowledge of the tools involved, as well as expertise in a chosen discipline. We need to ensure that girls have access to, and are aware of the entire spectrum of opportunities open to them. Anything that sends a positive message in this regard is welcome, including Barbie. And they will need to be, as a society grappling with global problems cannot afford to lose out on the brain power of women.

References

"**Barbie Girl**" is a song by the Danish -Norwegian dance group Aqua. It was released in May 1997. A footnote on the back of their *Aquarium* CD case precisely stated that "The song 'Barbie Girl' is a social comment and was not created or approved by the makers of the doll."

Brownell, K. D. and M. A. Napolitoano. 1995. Distorting reality for children: Body size proportions of Barbie and Ken dolls. International *Journal of Eating Disorders*, 18(3), 295-298.

Dittmar, H., E. Halliwell and S. Ive 2006. Does Barbie make girls want to be thin? The effect of experimental exposure to images of dolls on the body image of 5- to 8- year-old girls. *Developmental Psychology*. 42(2), 283-292.

Jayashree, Ramadas. 'Imagined Stereotypes' in the monthly column "First Principles". *The Economic Times*. Vol. 33. No. 79. 22 May 1993. Web: www.hbcse.tifr.res.in/data/pdf/first-principles.pdf.

National Curriculum Framework-2005. National Council of Educational Research and Training, New Delhi.

Pearlman, Robert Z. 'Mattel's Astronaut Barbie Becomes a Mars Explorer with NASA Help' collect SPACE.com Editor 05 August, 2013 12:39pm ET.

Turkel, A. R. 1998. All about Barbie: Distortions of a transitional object. *Journal of The American Academy of Psychoanalysis*. 26(1), 165-177.