RAJIV GANDHI UNIVERSITY OF KNOWLEDGE TECHNOLOGIES
(Established through Act No.18 of 2008)
ANDHRA PRADESH, INDIA
(Catering to the Educational Needs of Gifted Rural Youth of Andhra Pradesh)

ADDRESS

BY

PROF. D.RAJ REDDY

Professor of Computer Science and Robotics
Carnegie Mellon University, Pittsburgh
&
FOUNDER CHANCELLOR, RGUKT

5TH CONVOCATION

FEBRUARY 26, 2022

RK VALLEY CAMPUS

Address by Prof Raj Reddy
Raj Reddy
February 26, 2022

Hon'ble Chief Guest Sri Narayana Murthy, Distinguished Chancellor Prof KC Reddy, Eminent Founders Professor Balakrishnan and SK Joshi, Honorable Minister for education of Andhra Pradesh- Dr Audimulapu Suresh, Members of Governing council and Academic Council,Vice Chancellor, Directors of Campuses, Guests, Parents, and most importantly the Graduating Students

Good morning.

Congratulations on the successful completion of your programs at RGUKT after the Trials and Tribulations of Covid. Also, Congratulations to those embarking on a new life and new careers. And a thank you to the Parents and Family for your support. Covid may have disrupted your life and education. But it may be a silver lining. You now have a new set of learning skills.

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To begin with, I would like to share with all of you the story of the origins of RGUKT.The concept for creating AP IIITs was formulated in April, 2007 at the request of the Dr YSR, the then Chief Minister of Andhra Pradesh. He was dissatisfied with the opportunities available to the rural youth and wanted to set up at least three IIITs in the three regions of Andhra Pradesh which would ensure better opportunities for rural students. A Task Force created under the Chairmanship of Prof. K.C. Reddy produced a report recommending the structure and function of the

proposed institutions. In March of 2008, the AP Government created RGUKT by an act of the Legislature as a full-fledged university which would initially admit roughly the top 1% of the rural students into three residential campuses. We are fortunate to have many of the founders of RGUKT here today, including Prof KC Reddy, Prof Balakrishnan and Shri SK Joshi.

RGUKT was established with an explicit goal of offering opportunities to rural gifted youth. Anyone born to a low-income, rural family in India cannot usually aspire to attend IITs or be selected for IAS because they start with many inherent disadvantages. Selection to these institutions is based on marks and marks have traditionally been used as a measure of merit of students' abilities.

It has been observed that marks are a function of several factors:
- The educational level of the parents
- The quality of the teachers and the facilities in the schools they attend
- The ability to pay for private tutoring, and
- The time on task devoted to study the material

A student born in a low-income rural family is at an inherent disadvantage along each of the above dimensions. Low-income, rural parents tend not to be highly educated. There is often a wide selection of schools and choices in urban areas whereas, in many rural areas there is probably no more than a single, primary school. Because of the undesirability of the location of most rural schools, the only teachers that take up the positions are those that have no other option. Many of the kids in urban areas are also able to afford additional coaching classes. And finally, the rural

student returning home does not have as much time-on-task to study as an urban student.

As a result of all of these limitations, it has been observed that on the average, the marks obtained by the rural students attending government schools are 10%-20% lower than urban students attending private schools. As a result, in any marks-based- competitive evaluation, almost all the available seats in higher education tend to be assigned to students who had the privilege of being born into an educated family with higher income and the ability to pay for private schools and private tuition. Independently of how capable you might be, the educational system does not allow a low-income rural student to get ahead. The goal of the RGUKT is to help remedy this unfortunate situation.

At RGUKT, rather than selecting the students based on a statewide or nationwide rank, a local-best-model is used to select top students from a small community such as a mandal. This Geographic Equity model overcomes the disparity in the selection process between the better-endowed urban environments and the resource-starved rural environments. Thus, the better performance of students in an urban mandal does not have an impact on the selection process of talented students in a neighboring ruralmandal.

The second problem RGUKT attempts to overcome is the issue of early specialization. Once the students go to a junior college for the pre-university program, many of them are routed through coaching factories which drill them on how to take exams to get a high ranking so that they are able to get into good universities. This in turn results in

students that are narrow and uni-dimensional with little understanding of anything other than the few subjects they've been drilled on.

The studentsentering into RGUKT have diverse educational backgrounds. The medium of instruction is almost alwaysTelugu. What is common is that they are selected because they are the best in that community. This, in turn, necessitates remedial programs to be established so that all students are able to go through an educational program in an English medium of instruction.

The education at RGUKT is based on intensive use of Information Technology. Every student is provided access to a laptop from day one and the education uses the latest advances in Learning Sciences such as Learning by Example, Learning by Doing and Problem-Based Learning. The on-line lectures are provided in the tutored video mode and the lectures are immediately followed by problem-solving sessions reinforcing the concepts discussed in the lectures.

The learning process at RGUKT assumes the availability of on-line lectures in the form of a tutored video, on-line content, interspersed with questions to test the understanding of the student followed by a "Learning by Doing" problem-solving session. For each problem the student is expected to solve, there is a separate website providing the relevant resources needed to solve that problem. The content that is necessary to solve the problem which the student should have read and understood, an example of a similar problem solved to illustrate the steps in the problem-solving process and finally a listing of the knowledge the student must have to

solve the problem such as facts or theorems or prior equations.

The learning process at RGUKT uses several cognitive science principles which have been demonstrated to be more effective than conventional lecture-based classroom learning. These are Learning to Learn, Learning by Example, Learning by Doing, Just in Time Learning, Learning by Error Correction and Debugging, Self-Paced Variable Duration Learning and Learning in a simulated, immersive environment. Some of these concepts are already being used and it is hoped over the next few years, these will be implemented to improve the effectiveness of learning.

A fully residential environment is needed at RGUKT because most of the rural students come from a geographically distributed wide area and would not be able to commute to the campus. Thus, it is essential to provide a fully residential campus with all of the facilities. Since the students are joining the institution at the age of 15, where they are undergoing physical transformation and hormonal changes, being away from home adds to their stress. The local Health Clinic must provide for Psychological Counseling and support.

Many rural households tend to be poor and many of the factors of daily living that we take for granted are not always known, such as using a sit-down toilet as opposed to a squatting toilet and significant additional personal education will be needed to facilitate the integration into the larger community.

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Information Technology plays a central role at RGUKT. The fundamental assumption at RGUKT is that the students will learn more effectively if each of them has a laptop connected to the Internet and have been given the skills for accessing and using the resources of the Internet.

For example, the lectures and the text book content and problems to be solved including example problems, are all made available on a server and the student can go back and re-listen or re-reference the material over and over again, unlike a lecture which can only be heard in real time once. The ICT environment also makes it possible for students to work on problems at an individual pace without being left behind in a classroom environment and being lost forever.

Every student is provided with a personal computer (usually a laptop) from day one and much of the educational experience is computer-mediated. Since getting high quality teachers has always been a problem given the lower salaries, the lectures are provided on line by world class teachers and classroom support is provided by domain specialists and home room tutors who play the role of an instructor and teaching assistant in a conventional environment handling a smaller group of students.

It is expected that all the text books for all the subjects will be on-line and each problem will be hyperlinked back to the specific content in the textbook so that the student can quickly review the material needed to solve the problem at hand.

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Advances of the 20th century have been truly amazing. A hundred years ago, there were no cars and highways, no electric utilities, no phone system, no radio or TV, and no airplanes. Most of these inventions happened in the first half of the 20th century.

In the second half of the 20th century, advances in technology, have resulted in the invention of nuclear power, satellite communications, the transistor and computers, landing on the moon, the Internet and World-Wide Web, and the discovery of DNA leading to the decoding of the human genome!

What will the rest of the 21st Century bring? Given the exponential rate of change, the next fifty years will be even more dramatic than the last hundred years.

Soon, self-driving cars with sensors, radar, and GPS will be routinely operational. By 2030, I expect that more than 50% of the cars sold will be self-driving cars.

Unfortunately, half the world does not yet benefit from the technologies we are helping to create because of the Literacy Divide. In the future, spoken language technology will empower people who cannot read or write. They will be able to use spoken dialog systems in their native language to access services such as banking, e-commerce, and telehealth as well as email, messaging, and social media.

In conclusion, the advances of the next fifty years will undoubtedly be more dramatic than the last fifty. And these changeswill transform the way we Live, Learn, Work and

Govern ourselves. You can expect 5 to 10 different careers over a 100-year life span. This will require that each of you adopt a life-long learning model and learning-to-learn skills will become essential to be successful in the new world you will face. You will also have the opportunity to invent the future. I hope that you, the graduating students of the RGUKT, will lead the way towards making the world a better place. Thank you.
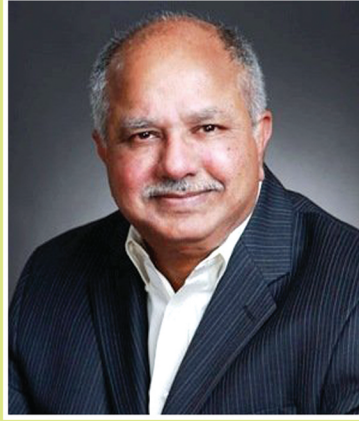
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