

DIRECTORATE FOR EDUCATION  
CENTRE FOR EDUCATIONAL RESEARCH AND INNOVATION (CERI) GOVERNING BOARD

## India-OECD Collaborative Workshop on Education and Innovation

## Summary Report

New Delhi, 9-10 May 2012

*In May 2012, the OECD Centre for Educational Research and Innovation (CERI), the Planning Commission, Government of India, and the Confederation of Indian Industry (CII) organised an India-OECD collaborative workshop on education and innovation in India, with a focus on higher education. The workshop convened participants from government, industry, educational institutions, and non-governmental organisations, coming from all Indian states.*

*This document summarises the workshop discussions.*

*The objectives of the workshop were: 1) to take stock of promising practices in India's education system to foster the skills supporting innovation; 2) to start a discussion on the innovation ecosystem in the education sector in India. The workshop focused on India while building on the international research collected by the CERI Innovation Strategy for Education and Training.*

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### Highlights of the discussion

The discussion at the workshop identified some critical points that should inform future discussion and action towards an Indian Innovation Strategy for Education and Training:

- There is a remarkable similarity between the individual skills that are seen as critical for success in India and in other OECD countries. Given this alignment of objectives, Indian stakeholders can benefit from being part of international discussions on how to best nurture and advance these skills in pupils and students.
- A key aspect of an Innovation Strategy for Education and Training should be to help educational institutions and systems move from the ‘i’ of ‘invention’ to the ‘i’ of ‘implementation’. The government can help bridge this gap by strengthening hard and soft network technologies: IT infrastructure and software standards, education research and evaluation, and professional networks can deliver the required framework conditions to turn inventions into innovations. Rigid regulatory frameworks sometimes hamper innovation at this critical stage; to correctly weigh the benefits and costs of rigid rules, the regulator must make sure that it receives feedback on the opportunities that are missed because of them.
- Fostering endogenous improvement of educational institutions should become a priority for an Indian Innovation Strategy for Education and Training. In higher education, efforts to improve the quality of the system by establishing new elite institutions will hardly produce positive effects on second-tier institutions. An “improvement and innovation prize” may instead highlight unconventional “success stories” and encourage improvement outside of the mainstream and elite. In both higher education and schools, improvement can be encouraged if stakeholders’ perception of institutional quality, from being strongly reputation-based, gradually becomes enlightened by forward-looking data: efforts to measure learning outcomes and to evaluate the quality of instruction (and not just of selection) can produce this shift.
- When positive examples of innovation are presented, or international best practices are highlighted, it is the conditions for innovation rather than the innovations themselves that need to be understood. Too often the innovations that are showcased are seen as examples to follow, when in fact, a system that is open to innovative activities and institutions allows for innovation, rather than for imitation of innovation.
- In higher education, there are many opportunities for India to do things differently than in OECD countries. India has yet to capitalize on the advantage of having so many young institutions and a large under-served demand for education.
- An important ambiguity about what institutional differentiation means needs to be solved. Everyone accepts that there should be greater diversity of types of institutions (and courses) in India as the system expands. However, differentiation is very often expressed in a hierarchical way with respect to quality, and quality is defined by the traditional missions of higher education institutions. Evaluation frameworks and quality assurance mechanisms should support all institutions in their progress towards fulfilling their own mission.
- There is a need for further discussions and experimentations at the state level on how to innovate higher education in terms of pedagogy, undergraduate programmes, research, and, more broadly, institutional and system organisation.

## Summary Report

### INDIA-OECD INITIATIVE COLLABORATIVE WORKSHOP ON EDUCATION AND INNOVATION

Workshop organised by  
the Planning Commission, Government of India,  
the Organisation for Economic Cooperation and Development (OECD),  
and the Confederation of Indian Industry (CII).  
New Delhi, 9-10 May 2012

1. The Collaborative Workshop was the launch event for an India-OECD Initiative on Education and Innovation. The meeting, a joint initiative of the Planning Commission, of the Confederation of Indian Industry (CII), and of the Centre for Educational Research and Innovation (CERI) at the Organisation for Economic Co-operation and Development (OECD), was organized within the framework of CERI's Innovation Strategy for Education and Training, and the discussion followed the two strands of the project with an emphasis on higher education: 1) education for innovation and 2) innovation in education.
2. The workshop was designed to engage Indian stakeholders in a new conversation on education and innovation in India; participants from government, industry, educational institutions, and non-governmental organisations (NGOs) were present, and all Indian states were asked to nominate one to two delegates. The workshop attracted over 160 participants over the two days.
3. The objectives of the workshop were: 1) to take stock of promising practices to foster the skills supporting innovation; 2) to start a discussion on the innovation ecosystem in the education sector in India. The workshop focused on India while building on the international research collected by CERI's Innovation Strategy for Education and Training.

#### Inaugural Session

4. Kaushik Basu (Chief Economic Advisor, Ministry of Finance, Government of India) opened the meeting with a keynote address on the importance of education for India's development and growth strategies. He linked India's remarkable growth performance since 1993-94, driven by the information technology (IT) sector, with the early investment in higher education starting in the 1950s, as world-class institutions such as the Indian Institutes of Technology (IIT) and the Indian Institutes of Management (IIMs) were established. While these elite institutions provided the country – and indeed, the world – with a ready pool of higher educated professionals, at the same time, the abysmal investment in basic literacy over the last decades contributed to the high level of inequality and the social exclusion of large parts of the population. Today, investing in education at all levels is the only way to remain at par with countries such as China and Malaysia that are rapidly overcoming India.
5. Speaking of higher education policy, Kaushik Basu argued for less regulation and more competition (e.g. by allowing the private sector to invest in higher education more freely) as means to

achieve a certain degree of differentiation among the 648 universities of India (some becoming places for research, others specialising in teaching). The governments' role in this sector would then mainly be to ensure informed choices by students through the transparency of ratings. Professor Basu also expressed the dream and aspiration that India become one day a global hub for education, with higher education institutions attracting students from all over the world and contributing to India's soft power.

6. The keynote address was followed by a special address by Vibha Puri Das (Higher Education Secretary, Ministry of Human Resource Development [HRD], Government of India). After complimenting the OECD, CII, and the Planning Commission for the workshop, she introduced the major policy initiatives in the Ministry of HRD. The current initiatives at national level are very much inspired by the priorities of the National Innovation Council, and aim at creating space for collaboration and innovation in a system that is largely seen as over-regulated but under-governed. The government's investment in broadband connectivity, for instance, will make it possible to bring quality e-content to every place: to ensure that such content is available, the government intends to set up "meta-universities", or platforms for universities to collaborate on teaching. The government is also pushing the "Universities for Innovation" bill to set up 14 special universities with a focus on research and innovation, while supporting the creation of centers for training and research in advanced science and technology, research boxes, and intellectual property rights centers within existing institutions.

7. Dirk Van Damme (OECD Directorate for Education) greeted the workshop participants on behalf of the OECD, and described the Organisation's role in the international community as a place for collaborative learning, where countries come together to share best practices, but also to measure and compare their performance in the various domains of policy. The OECD sees education as a driver of economic growth, social progress, and prosperity, and supports countries in their efforts to bring greater efficiency, quality, and equity in education systems. According to OECD analysis, quality and equity are twin objectives that are best pursued together and can be achieved together, as shown by results of the Programme for International Student Assessment (PISA). Similarly, innovation is not just about excellence, but must serve the needs of society at large.

8. The programme of the two days was then presented by Pawan Agrawal (Planning Commission, Government of India), who expressed the wish that conversations and peer-learning beginning at this workshop will inspire similar events at the state level over the next year. In concluding the introductory session, he extended a vote of thanks to all participants and, on behalf of all co-organisers of the event, to all those who made the event possible.

### **Session 1: Perspectives on Education and Innovation**

9. This session, chaired by Sushma Berlia (President, Apeejay Stya and Svrn Group, and Chancellor, Apeejay Stya University), was designed to place the discussion in the context of societal change and the needs of innovation-driven economies.

10. Rajesh Jain (Founder, Netcore Technologies) reflected on his personal experience to underline that the most valuable skills in today's world – critical thinking, persuasion, entrepreneurship skills – are best acquired out of the classroom through informal contact with people and knowledge, and can be acquired in the classroom only when pupils are not afraid of failure. The rote learning system that still prevails in many Indian schools however stands in the way of the development of twenty-first century skills, and the large investments in infrastructure or technology will not solve this problem. He concluded his intervention by advocating that the individual right to education is best promoted when the government funds students instead of schools.

11. Stéphan Vincent-Lancrin (OECD Directorate for Education) used international data sets to illustrate the skills needs of innovation-driven societies. Innovative businesses report that lack of skill is a major obstacle impeding more innovation; but an innovative economy is a diversified economy, and needs a diverse mix of skills. In fact, it may be more important to equip a large number of workers with skills for lifelong learning, skills in thinking and creativity, and social and behavioural skills, in order to create a good climate for organisational learning and user-driven innovation, than to concentrate the role of universities and schools in providing a few highly qualified scientists and technicians for the elite model of innovation.

12. How well are higher education institutions responding to these skill needs? In 2005-07, tertiary educated professionals surveyed by two international studies (Reflex and Hegesco) in most OECD countries did not consider that their tertiary education programme endowed them with the most critical skills for innovation (creativity, persuasion) except for analytical thinking. However, CERI's Innovation Strategy for Education and Training project has identified some promising examples of new institutions (such as Aalto University), curricula and pedagogies (such as design education) that explicitly aim at developing the different sets of innovation skills together. Stéphan Vincent-Lancrin concluded his presentation with the wish that, by the end of the workshop, he would be able to add Indian examples to this list of promising initiatives.

13. In summing up the session, Sushma Berlia asked the two presenters to list three ideas to foster innovation through education. Stéphan Vincent-Lancrin listed three steps towards elaborating an innovation strategy for education: (i) thinking about innovation explicitly; (ii) thinking about innovation in terms of a diffused culture, rather than isolated acts of invention; and (iii) reflecting on the alignment between work organisation, assessment practices, and regulatory frameworks in education. Rajesh Jain formulated specific recommendations, such as (i) creating multidisciplinary learning environments; (ii) encouraging youth entrepreneurship; and (iii) lowering all entry barriers for universities that want to come to India.

## **Session 2: Re-Crafting Undergraduate Education**

14. The second session, chaired by Mr. T.P. Sreenivasan (Vice Chairman, Kerala State Higher Education Council and former Ambassador of India to the United Nations), presented and discussed examples of curriculum reform and of organizational innovation in Indian universities that aimed at developing innovation skills and of fostering excellence in students.

15. Mr. T.P. Sreenivasan highlighted the difficulty of reforming higher education, an established and mature sector where prestige flows from reputation, and the challenge that it represents to re-orient undergraduate pedagogy towards a world class system when the student-teacher ratio is sometimes as high as 170. He then presented Kerala's initiatives for improving the quality of under-graduate education: these include establishing a state-level accreditation and assessment council, to ensure that all institutions are assessed, and to encourage the assessment of individual programmes and teachers by institutions themselves; promoting of a closer dialogue between industry and university; and working towards increasing autonomy by turning universities into corporate bodies.

16. In her presentation, Professor Malashri Lal (Dean, Academic Activities and Projects, Delhi University) showcased the innovative initiatives at Delhi University in the area of undergraduate education, thereby illustrating what can be done in large and tradition-rich institutions (with over 400 000 students). She listed five initiatives, two of which are currently implemented, and three of which are in the planning phase: 1) The newly created "Cluster Innovation Centre", a hub for innovation activities, that also offers very attractive, hands-on instruction in mathematics and information technology, leading to a 4-year

bachelor of technology (B.Tech.) degree; 2) a competition for multi-disciplinary research projects led by undergraduate students (“innovation projects”) among the colleges of Delhi University; 3) the “meta-university” project, currently under development, that gives students the opportunity, within limits, to design their own degree programme by drawing on the offer of four universities in the Delhi area and their different colleges; 4) plans to introduce more 4-years undergraduate programmes, to leave more space for multi-disciplinary learning and enhance students’ technology, language and communication skills; 5) finally, Delhi University intends to organize a train journey through India to increase students’ awareness of the richness and diversity of the country they live in.

17. Professor Nikhil Sinha (Vice Chancellor, Shiv Nadar University) presented the case of a new, philanthropic university, that started operations in 2011. A new university seems to be a privileged place for innovating, but while Shiv Nadar’s organisation of undergraduate studies may appear innovative in the Indian context, in fact it had been designed not with the intention of creating something new and different, or of responding to a new market need, but out of a normative approach.

18. Shiv Nadar University aims to provide students with multi-disciplinary and inter-disciplinary education, leaving room for autonomous exploration and encouraging engagement in experiential learning opportunities. Thus, the four-year curriculum of undergraduate studies, that students can personalise with a credit system, specifies the following minimum requirements: a common core for all students (Indian history, world history, culture and communication, physical and biological systems, cognition and intelligence, technology and society, environment, empirical reasoning and analysis); 120 to 180 credits in the major field of specialisation; university-wide electives outside the major field of specialisation. Under each of these three strands, credits have to be acquired through research, experiential, and applied learning projects (REAL); through international context (IC); and through demonstrating values, ethics, leadership and service to society (VELS). To have the desired flexibility, a four-year undergraduate curriculum organised around eight semesters was chosen.

19. The discussants, Dr. Meenakshi Gopinath (Principal, Lady Shriram College for Women, Delhi University) and Prof. Geetha Venkataraman (Dean, School of Under Graduate Studies Ambedkar University Delhi), underlined the importance of undergraduate education for the development of India: over the next five-year plan (2012-2017), enrolment in undergraduate programmes will increase from 14.7 million to over 21 million. The fact that much reform effort is concentrated in undergraduate education reflects both the dissatisfaction with the current state of undergraduate education, and the fact that this space is vibrant and open to innovation. Both speakers voiced some criticism about the current organisation of undergraduate curricula, perceived as rigid and disconnected: Meenakshi Gopinath pointed out the lack of connection between universities and NGOs, and Geetha Venkataraman complained about the segregation of undergraduate studies from the rest of tertiary education and about the lack of evaluation and review exercises concerning the innovations that are being introduced.

### **Keynote Address: Sushanta Dattagupta**

20. Professor Sushanta Dattagupta (Vice Chancellor, Visva-Bharati University) delivered a keynote speech on the lessons learnt from his experience in setting up the Indian Institute for Science Education and Research (IISER) in Kolkata, and then as a Vice Chancellor at Visva-Bharati University. After some thirty years spent abroad, Sushanta Dattagupta returned to India in the mid 2000s to be appointed first Director of IISER Kolkata: the idea behind IISERs was to create excellent teaching and research centres for basic science, complementary to the IITs. One of the mission of IISER, in fact, is to entice students into a research career in science by integrating research activities into their undergraduate education (whereas traditionally, in India, research institutions are not involved in education), and by allowing them to cross disciplinary boundaries. To turn this ambition into a reality, a critical choice was to start PhD programmes

and undergraduate programmes at the same time. The undergraduate programme was structured as an integrated 5-years programme, with a common core for all fields of two years, and three years of specialisation; students start working on research projects in the fourth year, and have to write a diploma thesis during the fifth year.

21. As Vice-Chancellor of Visva-Bharati University, Sushanta Dattagupta now guards Rabindranath Tagore's legacy. Tagore thought that all students should have exposure to the various aspects of reality, and was eager to build links with local communities and to harness all learning opportunities that can be found in nature and in the interaction with great mentors. Reflecting back on his previous experience, Professor Dattagupta praised the "liberal arts" approach and Tagore's holistic philosophy of education that still infuses Visva-Bharati University, but which is missing from IISERs and IITs.

### **Session 3: Active Learning Environments**

22. This session focused on the renewal of teaching methods and discussed the use of new pedagogies in higher education to stimulate thinking, creativity, collaboration and engagement. The session was chaired by Shyam Menon (Vice-Chancellor, Ambedkar University Delhi).

23. Dr. Geetha Narayanan (Founder-Director, Srishti School of Art Design & Technology) first introduced the Srishti School of Art Design & Technology. Srishti, founded in 1996 and located in Bangalore, conceives itself as a radically innovative institution, rather than as a small incremental step to move beyond the segregated, elite model of most academic institutions. It intends to stay porous to the city and nation and to provide students with a democratic, non-dogmatic, lively learning environment. Srishti highlights the need to learn both from the canonical sources of classical knowledge and from the localised knowledge of the people, and encourages craft and entrepreneurship through project-based learning.

24. Ashish Rajpal (Founder and CEO, iDiscoveri Education), who intervened later on as a discussant, praised Srishti for three things which, according to him, are missing in the mainstream Indian higher education system: the spirit of authenticity, the space for reflection and self-constructed learning, and the exchange and porosity with the real world and society. He criticised the importance that is sometimes given to infrastructures and technologies: the most important things, he said, can be learned, and have always been, under a tree.

25. Dr. Pratibha Jolly (Principal, Miranda House, Delhi University) then described how a traditional institution for women's education, part of Delhi University, is transforming its methods of teaching and learning according to constructivist orientations. She deplored the lack of a research community in India on the science of teaching and learning at tertiary level: the newly established "D.S. Kothari Centre for Research and Innovation in Science Education" is there to fill this gap. New learning environments have to be research-based, but tailored to local circumstances; they have to be active, meaning not just hands-on, but also minds-on. Therefore Miranda House is replacing the traditional classroom with interactive, collaborative learning studios, and uses student projects as instruments for building a new curriculum.

26. In discussing this presentation, Professor Pankaj Jalote (Director, Indraprastha Institute of Information Technology, Delhi) advocated for replacing content-based curricula with competency-based curricula, which have the virtue of focusing the faculty's attention on the learning outcome that students should acquire through a course. He echoed the point on the importance of pedagogical research for improving teaching effectiveness, deploring the lack of teaching and learning centres in universities as a major absence in India.

27. The rich discussion that followed these presentations highlighted different aspects of the higher education system that participants perceived as obstacles for improving teaching and learning. Shyam

Menon, for instance, underlined the regulatory rigidities: currently, land and buildings represent one of the major cost factors of universities, and universities are almost bound to be built as gated communities. Similarly, the rigid examination system is also a constraining force: as long as entry and exit examination will reward rote learning, there is not much hope that better teaching will emerge. A participant from Punjab raised the issue of students entering undergraduate education without being ready for college, as a consequence of massification; this becomes a challenge for teaching. Various participants underlined the difficulty of staffing an expanding system with good faculty, and of ensuring the qualitative development of existing faculty. Whether the semester system could still be considered an innovation, and whether it represented an improvement at all, was also debated.

#### **Session 4: New Paradigms in Assessment.**

28. Session 4, chaired by Paranjoy Guha Thakurta (journalist and educator), was devoted to discussing in depth a point that was raised in the preceding discussion: how assessment frameworks can lead teachers to give more weight to innovation skills, and discourage rote learning.

29. In his opening statement, Dirk Van Damme depicted the assessment of students as one of the most problematic parts of the educational process at the higher education level. Assessment is often not transparent, there is no training or mediation to ensure rigor and consistency, little research exists on assessment practices, and the whole process is sometimes plagued by corruption. In fact, many university professors have not accepted that, as a consequence of massification, higher education is about helping all students succeed, rather than selecting the brightest.

30. The measurement of complex multidimensional skills such as higher order thinking, problem solving skills, or collaborative learning is, obviously, a very difficult task; but because assessment is a steering force in education, this field deserves greater efforts. Active ways of assessment, peer and group assessment, seem best suited to assess these skills; overall, assessment in higher education should become as much as possible embedded in the learning trajectory itself, with a formative role. This seems to be the case with doctoral students; but for some reason, this kind of assessment is largely missing in undergraduate education.

31. Dr. Jacob Tharu (Former Professor, English and Foreign Languages University, Hyderabad) traced back the rigid and competitive nature of the Indian examination system to two origins: the English colonial system, which was designed for the selection of a small elite; and the emphasis put in India on reliability over validity of assessments. Reliability is most easily achieved when measuring stable characteristics, but what we really would like to measure is how much students have learned (a dynamic construct), and not just who is the best. Many of the necessary steps to improve this state were in fact already identified in a 1973 report by the University Grant Commission: teachers should be more trusted for conducting their own assessment (as they are, for instance, in IITs), and it must be acknowledged that not all skills that we want students to master lend themselves to being assessed on a written exam with a limited, and rigid, time-frame (“on the 23<sup>rd</sup> of March”).

32. When it comes to assessment, schools seem to be much more open to innovation than universities, said Sridhar Rajagopalan (Managing Director, Educational Initiatives). He described his aim as moving from “assessment of learning” to “assessment for learning”, and ultimately to “assessment is learning”. Because it is becoming so much easier to collect data and get feedback about students’ learning, assessment is indeed becoming a way to make learning more effective.

33. Formative assessment – assessment for learning – is almost always low-stakes. Educational Initiatives is developing and conducting low-stakes assessments that elicit information at the system,

school, and student level about how well learning outcomes are achieved; and this information can be useful to improve the quality and efficiency of the system. For instance, an assessment of caste prejudices and biases among school children revealed that these are much more widespread among the educated than the uneducated. To measure these non-cognitive outcomes of learning, instruments such as focus groups, discussion, observation are obviously better suited than exam sheets. In the area of cognitive outcomes of learning, good formative assessments reveal the misconceptions of students, and by creating a bank of misconceptions, more effective learning supports can be developed.

34. High stakes examinations however condition strongly what is being taught in schools. For this reason, Educational Initiatives has also started to work with the state of Gujarat on the development of a high-stakes board examination that would be on par with the best exams in the world. The objective is to move beyond measures of enrolment or mechanical learning as indicators of educational quality. As long as we can only rely on such crude indicators, Himachal Pradesh, for instance, appears as a success story in India as regards education; but PISA results show that even in the best states, students on average are at the bottom of international rankings.

#### **Keynote Address: Sam Pitroda**

35. At the end of the first day, Sam Pitroda addressed the participants in the workshop; Pawan Agarwal moderated the conversation. Sam Pitroda, former chairman of the National Knowledge Commission and adviser to the Prime Minister of India, expressed his thoughts on the agenda of innovation for the higher education sector.

36. In his speech, Sam Pitroda made a plea for affordable, scalable, sustainable solutions to bring higher education in line with the skill needs of the economy; these solutions, he said, cannot come from tinkering with the existing system, but only from dismantling it. He described the traditional model, where knowledge is created locally and delivered to a small group of people, as obsolete, and essentially surviving only because of vested interests. The campus experience is an accessory element of higher education, and the essential elements of it – good lessons and content, peer learning, mentoring, and services for certifying knowledge and skills – already can or will soon be delivered remotely to a much wider audience thanks to technology. With the current investment in broadband connectivity, every village in India will have access to these resources. In his opinion, India is in a good place to start this IT revolution in higher education, but must get rid of the many regulations (on acres, class space, etc.) that impede entry into the sector to non-conventional actors.

#### **Session 5: Creating an Innovation Ecosystem in Education: Teachers of the Future**

37. At the beginning of the second day of the workshop, this session addressed both higher education and school education, discussing the needs of India's expanding higher education system in terms of faculty development and the importance of teacher training programmes for raising the quality of the school system. The session was chaired by Professor Seyed E. Hasnain (Indian Institute of Technology, Delhi).

38. In opening the session, Furqan Qumar (Vice Chancellor, Central University of Himachal Pradesh) highlighted the scale of the challenge for higher education: as India plans to increase its total enrolments by 30 million students over the next five years, approximately 1.5 million more teachers will be required in higher education. Yet, today, there are already about 600 000 vacant positions, which higher education institutions have been filling with temporary, guest, or part-time teachers. In fact, the main problem is the lack of supply of well qualified teachers; those who qualify for a position as assistant professor according to the technical requirement are more often than not unprepared for teaching. Thus, it

is urgent to create professional development programmes to provide teaching skills at various levels: for the existing faculty, for all those who meet the technical requirements but not the quality requirement for becoming faculty members, and for current PhD students who envisage an academic career. The real challenge, he said, is to tackle these issues not in the top tier universities of India, but in the 90% of institutions that are not meeting the right standard.

39. Ajay Batra (Senior Leader, Azim Premji Foundation) shifted the focus to school education. The quality of teachers and their commitment, he said, are the single most important factor for the quality of education. While the recent reforms, and the Rights to Education act, have been very successful in expanding access to schools, the quality of education has received too little attention. But the “Right to Education” is only a “right to schooling” if this aspect is not fixed. The challenge is huge: there are 1.3 million schools, 210 million children in school, and about 6 million teachers in India; all this in a country with a rich cultural diversity. Today, there are 523 000 unfilled vacancies for elementary teachers, and 800 000 teachers are not sufficiently trained. Of 100 children entering school in grade 1, about 52 children make it to 8<sup>th</sup> grade, 12 pursue into higher education, and about 8 graduate from higher education. Raising the quality of elementary education will be necessary to prepare a larger fraction of pupils to be ready for college.

40. Azim Premji Foundation promotes a systemic approach to improve teacher quality. Tackling the issue systematically means working on the causes, not the symptoms, and doing so in a coordinated manner, not one facet at a time. Excellent teacher preparation institutions have to be available; the dialogue between universities and teacher education institutions, District Institutes of Education (DIETs), and State Councils of Education Research and Training (SCERTs) has to be fostered; teachers have receive ongoing academic support in their professionalization journey. The establishment of the Azim Premji University, whose primary focus is to create education professionals who will take up the key leadership and research roles in this eco-system, is a step in this direction.

41. The first discussant, Professor P. Sinclair (Director, National Council of Educational Research and Training), focused the attention of the audience on the objective of raising children into adults who are able to think for themselves and to direct their own learning; constructivism and individualised learning for children must translate into a similar approach to teacher education. Today, the emphasis on content-knowledge over pedagogical knowledge in teacher preparation courses inevitably translates into teachers that only value disciplinary excellence. Her second point was related to the opportunity that open and distance learning systems represent for improving the quality of teaching, both as a tool for in-service training of teachers, and as a resource for bringing quality content to all schools in the country.

42. The second discussant, Dr Kavita Sharma (Director, India International Centre), argued in favour of grounding learning in the individual needs of the student, and embedding it in the local community.

### **Session 6: Creating an Innovation Ecosystem in Education: Research and Evaluation**

43. This session discussed the role of research and evaluation in an innovation eco-system for education. Professor K. Kannan (Former Vice-Chancellor, Nagaland University, and Professor of Biotechnology, Indraprastha University, Delhi), opened the session, which he chaired, with a comment on the preceding discussion about teachers. The best teachers, he said, are like stem cells. Much like stem cells, they do not only produce their own breed (as any other cell does), but are also able to produce other breeds. An ideal teacher, in other words, is a mentor who is able to bring out the best from every single student.

44. Dr. Madhav Chavan (Founder and CEO, Pratham) urged the audience to think about the power of evaluation as a driver of change by telling the story of Pratham. When the first United Progressive Alliance

government took power in 2004, it promised to shift the focus in education indicators from outlays to outcomes; since then, however, the creation of an evaluation department has not moved much beyond discussions. It was Pratham, an NGO not affiliated with any of the high institutions, who took up the challenge, and released its first Annual State of Education Report (ASER) in 2005. There were many critiques about the assessment tools and methodology, but it was the first attempt at making hard data available about what children learn in school, and was appreciated as such by the Planning Commission. In fact, it changed the conversation: the burden of coming up with better, or more relevant measures of what is worth measuring was now in the critics' camp. More importantly, the system was now under pressure to improve on this measure of the quality of education.

45. Pratham also shows that the evaluation of policy outcomes, in the domain of education, health, or the environment for instance, can be done with frugal means, and can be an excellent opportunity for enriching the education experience of young undergraduates. Pratham uses voluntary students who are willing to engage with hands-on research to carry out its assessment. Interestingly, these are rarely students of education (except in Andhra Pradesh, where DIETs engage in the process), and more often students of economics or sociology.

46. ASER is a success story, and is now replicated in African countries with the support of USAID. There are so many things out there that are worth measuring, and that can be measured without waiting for the government to do it (such as the quality of water): this could be a task for undergraduate students.

47. The second speaker, Dr Gautam Rajkhowa (Faculty of Business, Enterprise & Lifelong Learning, University of Chester, United Kingdom) underlined the importance of strong links between universities and the outside world. He illustrated, through the case of the University of Chester, how these connections with employers and NGOs can be used to provide experiential learning opportunities for students, how connections with secondary schools can help identify areas in which the curriculum can be improved, and how the university/industry interface helps support innovation in the economy through university research.

48. The first discussant, Professor Marmar Mukhopadhyay (Director, Educational Technology and Management Academy), took a rather provocative stance in his comments; many of the solutions to the problems in school, he said, are based on pure beliefs with little research to back them up. As an example, he took the insistence on the need for teacher training. He proposed instead that information and communications technology (ICT) be moved from its current decorative role to centrepiece in school.

49. Dr Indira Parikh (Founder President, Foundation for Liberal and Management Education - FLAME), talked about the ambition of FLAME of overcoming the rigidity, aridity and empty formalism of a syllabus-bound educational system with pedagogic innovations, to nurture curious, inquisitive, and reflective minds.

### **Keynote Address: Sudhir Jain**

50. Professor Sudhir Jain (Director, IIT Gandhinagar) delivered the last keynote address of the workshop. He presented IIT Gandhinagar, one of the most recently created IITs in India. Because of its recent establishment, Sudhir Jain has had the opportunity to design almost from scratch a world class institution; he presented his vision for making IIT Gandhinagar an exciting place for teaching, learning and research, where learning is an enjoyable and fulfilling experience, and non-formal and informal learning opportunities are allowed to flourish and are harnessed.

51. After the keynote, three short impromptu presentations were added to the programme. Participants from the states of Nagaland and Orissa and from the Andaman Islands presented their institutions of higher education and their innovations.

## **Session 7: Creating an Innovation Ecosystem in Education: Towards a Strategy; Summing Up & Way Forward**

52. Kiran Karnik (former president of the National Association of Software and Services Companies - NASSCOM) chaired the last session that was designed to pull out the lessons from the workshop. In opening the discussion, he distinguished three types of innovation that are typical in the private, for-profit sector: new products, new production processes, new forms of organisation. Most of the innovations that were presented at the workshop, he said, could probably be qualified as process innovation: doing the same things differently, with new pedagogies, new curricula, etc. In education, he said, there is even a fourth dimension along which one might want to innovate: the “inputs”, i.e. the types of students that are admitted to higher education. In India, there are very little opportunities for side-entries and exceptions to the linear, traditional model, according to which higher education starts immediately after the school graduation exam and is highly compartmentalised. Building trust in the system might be necessary to allow for non-conventional approaches to higher education to grow.

53. The two rapporteurs, Gayatri Hasan (social scientist) and Francesco Avvisati (OECD Directorate for Education), then summarised the discussions of the two days.

54. Gayatri Hasan listed the different examples of innovation in education that had been presented at the workshop, and categorised them according to the direction of change: most examples included some features that made institutions less isolated (thanks to collaborations and technology) and more flexible (thanks to academic credit systems), fostering active learning, cultivating democratic values, and favouring research.

55. Francesco Avvisati summarised the two days of discussion in terms of the drivers of innovation that were, or were not, emphasised. Throughout most examples, he said, there was high awareness of the fact innovation can result from channelling knowledge flows that are currently untapped in higher education institutions: examples include links with local communities, collaborations across disciplinary boundaries, and synergies between research and teaching activities. The opportunities and obstacles that regulatory frameworks represent for innovation in higher education were also often emphasised, as was the development of new technological solutions and infrastructure. Less frequently mentioned, or almost absent from the examples, was the role that educational research and a system of monitoring and measurement of outcomes can play in determining the parts of the system that deserve most attention, and in identifying the effective solutions that could be scaled up to new contexts.

56. Stéphan Vincent-Lancrin then introduced a framework for analysing the innovation eco-system in higher education, developed in CERI’s Innovation Strategy for Education and Training project. In a complex, multi-level system, a number of stakeholders can play the role of motors or brakes of innovation in education. Sometimes, there is too little supply of innovative solutions in education: this may result from under-investment in research and development, maybe as a consequence of lack of incentives for private for profit actors (because of market failures), or of tight regulatory frameworks that limit room for experimenting new solutions. But at other levels, the demand for innovative solutions may be the limiting factor for educational innovation: for instance, institutions and teachers may perceive new solutions as risky, especially when accountability policies favour traditional approaches; parents and employers may use reputation as an indicator of quality, and thus have limited appetite for innovation. Finally, an inappropriate knowledge management may impede that demand and supply of innovation meet. Knowledge flows and networks between education professionals and with other stakeholders must be encouraged to facilitate innovation.

57. Stéphan Vincent-Lancrin concluded his intervention by underlining the implications of the “demographic dividend” for innovation. At a time where the large young cohorts of Indians turn adult, the

establishment of a mass higher education system creates many opportunities for educational innovation (thanks to the establishment of new institutions, for instance); at the same time, improvements in the quality of higher education will have a larger and more rapid impact on the Indian society and economy than in other places. It is a historic moment for India, and the OECD stands ready to assist India in its efforts to bring the higher education system in line with the skill requirements of the economy.

58. The general discussion was launched by Pawan Agarwal, of the Planning Commission. He described an effective plan-making process as one that initiates a process of dialogue and creates the conditions for learning among field actors, so that when the plan comes out its objectives and recommendations are already integrated in the conversations among the stakeholders. He therefore expressed his satisfaction with the rich conversation at the workshop and the collaboration with the OECD, and described the next challenge as “bringing the conversation at the state level”.

59. Kiran Karnik then presented the audience with his two take-away points from the workshop summaries. First, he said, when we identify a successful innovation, it may be more important to scale up the enabling conditions for this success than to generalise the solution itself. One should therefore always ask, when confronted with success stories of innovations, “what were the enabling conditions?”, and “how can I recreate these conditions elsewhere?”. The second point that he mentioned was about the importance of measuring the objectives that we value most: objectives that get measured drive our behaviour, and so the Planning commission, for instance, should already start thinking about what indicators will be used for the mid-term review of the 12<sup>th</sup> plan.

60. Mr Narayanan Ramaswamy (Partner and Head, Education Sector, KPMG Advisory Services) identified the desire for global, definitive solutions as one obstacle to innovation. The education system, he said, can be changed more effectively if it is first broken down into manageable parts (curriculum, teaching methods, assessments, etc.). Credit transfer systems, for instance, that introduce more flexibility in curricula and allow education to cross geographic and temporal boundaries, are one way of making the system more flexible. Because no-one has the power to change everything immediately, very often there is a tendency to blame someone else (teachers, regulators, administrators etc.) for the lack of innovation. But if everyone decides to introduce some changes in the domains for which he is responsible, this innovation-friendly climate will, one step at a time, produce a rich innovative eco-system.

61. Dirk Van Damme, as the last discussant, delivered his impressions, as an external observer, on the conversation that took place at the workshop. On the one hand, he felt that the workshop could have encouraged participants to express their dissent in debates: confronting multiple points of view can be a critical component of a sound innovation system. On the other hand, he had sometimes the feeling that the tensions between different objectives for education policies were not completely acknowledged; for instance, the tension between openness and access, and the still very traditional – and elitist – ideal of excellence that dominates the Indian higher education system. He invited therefore the participants to look at international success stories with open and inquiring minds, looking for models to imitate beyond the most established and venerable institutions.

62. At the end of the workshop, participants were invited to make proposals for concrete next steps. The proposals included: a summary report of the workshop under the form of a joint “white paper”; another conference at the end of 2013 which will this time foster an international dialogue between India and other OECD Countries; the organisation of state-level workshops on education and innovation in the coming months, and of two innovation awards for higher education institutions and states, for which the OECD could provide guidelines and assistance in the design phase.

**ANNEX: WORKSHOP PROGRAMME**



**India-OECD Initiative**

**Collaborative Workshop on Education and Innovation**

Multi-purpose Hall, New Conference Block, India International Centre  
New Delhi

**PROGRAMME**

**DAY I – 9<sup>th</sup> MAY 2012, WEDNESDAY**

09:30 – 10:20 Inaugural Session

Keynote Address

**Prof Kaushik Basu**

Chief Economic Advisor,  
Ministry of Finance  
Government of India

Special Address

**Ms Vibha Puri Das**

Secretary, Higher Education  
Ministry of HRD  
Government of India

Special Address

**Dr Dirk Van Damme**

Head-Innovation and Measuring Progress Division,  
Directorate of Education,  
Organisation for Economic Co-operation and Development (OECD)

Vote of Thanks

**Mr Pawan Agarwal**

Adviser (Higher Education),  
Planning Commission  
Government of India

10:20 – 11:15

Session 1: Perspectives on Innovation and Education

This session will set the landscape for the meeting and discuss the challenges of developing skills and education for innovation. What skills are needed for innovation in the economy? How does higher education contribute to innovation? What are the challenges in the Indian business and education contexts?

Chair

**Ms Sushma Berlia**

President, Apeejay Styra and Svrana Group &  
Chancellor, Apeejay Styra University

Presentations

**1. How Education Matters for Innovation**

by **Dr Stéphan Vincent-Lancrin**, OECD Directorate for Education

**2. Developing Skills for Innovation in India: The Challenges**

by **Mr Rajesh Jain**, Founder, Netcore Technologies

Discussion

11:15 – 11:30

Break

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| 11:30 – 13:00 | <p><u>Session 2: Re-crafting Undergraduate Education</u><br/>This session will present and discuss Indian examples of organizational innovations in higher education geared towards developing innovation skills and excellence in higher education students.</p> <p><u>Chair</u><br/><b>Mr T P Sreenivasan</b><br/>Vice Chairman, Kerala State Higher Education Council and former Ambassador of India to the United Nations</p> <p><u>Case Studies</u><br/><b>1. Delhi University</b><br/><b>Prof Malashri Lal</b>, Dean, Academic Activities &amp; Projects, Delhi University<br/><b>2. Shiv Nadar University</b><br/><b>Prof Nikhil Sinha</b>, Vice-Chancellor, Shiv Nadar University</p> <p><u>Discussants</u><br/><b>Dr Meenakshi Gopinath</b><br/>Principal, Lady Shriram College for Women, Delhi University<br/><b>Prof Geetha Venkataraman</b><br/>Dean, School of Under Graduate Studies, Ambedkar University, Delhi</p>  |
| 13:00 – 14:00 | <p><u>Keynote Address and Lunch</u><br/><b>Prof Sushanta Dattagupta</b><br/>Vice Chancellor, Vishwa Bharati University</p>   |
| 14:00 – 15:30 | <p><u>Session 3: Active Learning Environments</u><br/>This session will present an attempt to foster active learning with renewed teaching methods and discuss the use of new pedagogies in higher education to stimulate thinking, creativity, collaboration and engagement. The discussion will touch on the conditions to scale up such initiatives within and across universities.</p> <p><u>Chair</u><br/><b>Prof Shyam Menon</b><br/>Vice Chancellor, Ambedkar University, Delhi</p> <p><u>Case Studies</u><br/><b>1. Miranda House, Delhi University</b><br/><b>Dr Pratibha Jolly</b>, Principal, Miranda House, Delhi University<br/><b>2. Srishti School of Art Design &amp; Technology</b><br/><b>Dr Geetha Narayanan</b>, Founder-Director, Srishti School of Art Design &amp; Technology</p> <p><u>Discussants</u><br/><b>Prof Pankaj Jalote</b><br/>Director, Indraprastha Institute of Information Technology, Delhi<br/><b>Mr Ashish Rajpal</b><br/>Founder &amp; CEO, iDiscoveri Education</p> |
| 15:30 – 16:00 | Tea Break  |

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| 16:00 – 17:30 | <p><u>Session 4: New Paradigms in Assessment</u><br/>The development of active pedagogies or innovative curricula is sometimes hindered by traditional forms of assessments – of students, programmes, etc. This session will discuss the necessity to align assessments and the new emphasis on skills for innovation, and present new approaches to assessment that empower teachers and students to give more weight to other skills such as reflecting, thinking, creativity, presentation or collaboration.</p> <p><u>Moderator of Panel Discussion</u><br/><b>Mr Paranjay Guha Thakurta</b><br/>Journalist and Educator</p> <p><u>Panelists</u><br/><b>Dr Dirk Van Damme</b><br/>Head of Innovation and Measuring Progress Division<br/>OECD Directorate for Education<br/><b>Dr Jacob Tharu</b><br/>Former Professor, English &amp; Foreign Languages University, Hyderabad<br/><b>Mr Sridhar Rajagopalan</b><br/>Managing Director, Educational Initiatives</p> |
| 18:00 – 20:00 | <p><u>Keynote Address (via video-conference) and Reception</u><br/><b>Mr Sam Pitroda</b><br/>Adviser to the Prime Minister on Public Infrastructure, Information and Innovations</p>  |

**DAY II – 10<sup>th</sup> MAY 2012, THURSDAY**

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| 09:30 – 11:00 | <p><u>Session 5: Creating an Innovation Ecosystem in Education: Teachers of the Future</u><br/>This session will discuss the role of universities and teacher training programmes in developing talent and knowledge to facilitate continuous improvement in education and higher education.</p> <p><u>Chair</u><br/><b>Prof Seyed E Hasnain</b><br/>Professor, Indian Institute of Technology, Delhi</p> <p><u>Presentations</u><br/><b>1. Prof Furqan Qamar</b><br/>Vice-Chancellor, Central University of Himachal Pradesh<br/><b>2. Mr Ajay Batra</b><br/>Senior Leader, Azim Premji Foundation</p> <p><u>Discussants</u><br/><b>Prof P Sinclair</b><br/>Director, National Council of Educational Research &amp; Training<br/><b>Dr Kavita Sharma</b><br/>Director, India International Centre</p>  |
| 11:00 – 11:30 | Tea Break  |
| 11:30 – 13:00 | <p><u>Session 6: Creating an Innovation Ecosystem in Education: the Role of Research and Evaluation</u><br/>This session will present and discuss Indian example of collaboration, research and evaluation between universities and schools. One challenge to improve the quality of Indian education lies in better evaluation of existing teaching practices and good knowledge flows within the sector. Universities, foundations and other NGOs can play an important role in this. What are the current state of play and the challenges in India?</p> <p><u>Chair</u><br/><b>Prof K Kannan</b>, Former Vice-Chancellor,<br/>Nagaland University &amp; Professor Biotechnology, Indraprastha University, Delhi</p> <p><u>Presentations</u><br/><b>1. Dr Madhav Chavan</b><br/>Founder &amp; CEO, Pratham<br/><b>2. Dr Gautam Rajkhowa</b><br/>Faculty of Business, Enterprise &amp; Lifelong Learning, University of Chester, United Kingdom</p> <p><u>Discussants</u><br/><b>Prof Marmar Mukhopadhyay</b><br/>Director, Educational Technology and Management Academy<br/><b>Dr Indira Parikh</b><br/>Founder President, FLAME</p> |
| 13:00 – 14:00 | <p><u>Keynote Address &amp; Lunch</u><br/><b>Prof Sudhir Jain</b><br/>Director, IIT Gandhinagar</p>  |

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| 14:00 – 16:00 | <p><u>Session 7: Creating an Innovation Ecosystem in Education: Towards a Strategy: Summing Up &amp; Way Forward</u></p> <p>In this session, we will discuss the different pillars of an innovation strategy in the education and higher education sectors, the different stakeholders, and explore how India could develop its own innovation strategy. What are its current strengths and weaknesses, opportunities and challenges? What are the main motors and brakes? How to measure progress in this area?</p> <p><u>Chair</u><br/><b>Mr Kiran Karnik</b><br/>Former President, Nasscom</p> <p><u>Presentations</u><br/><b>Dr Stéphan Vincent-Lancrin</b><br/>Senior Analyst &amp; Project Leader, OECD Directorate for Education<br/><b>Ms Gayatri Hasan</b><br/>Social Scientist<br/><b>Dr Francesco Avvisati</b><br/>OECD Directorate for Education</p> <p><u>Discussants</u><br/><b>Dr Dirk Van Damme</b><br/>Head of division<br/>OECD Directorate for Education<br/><b>Mr Pawan Agarwal</b><br/>Adviser (Higher Education),<br/>Planning Commission, Government of India<br/><b>Mr Narayanan Ramaswamy</b><br/>Partner &amp; Head, Education Sector<br/>KPMG Advisory Services</p> |
| 16:00 – 16:30 | Tea / Coffee and Close   |