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Report on the Consultation with 12-15 experts

for

Module 1 – Critical Thinking Skills and Collaborative Problem-Solving Skills

Module Developed by Symbiosis International (Deemed University)

Introduction & Background

Symbiosis Law School Pune, Symbiosis Teaching Learning Resource Centre and Symbiosis Centre for European Studies, under the aegis of Symbiosis International (Deemed University) as a part of the prestigious project 21 Teach Skills, was required to develop a module of 260 hours on Critical Thinking Skills and Collaborative Problem solving skills, which is meant for e-training the teachers (Pre-service and in-service) of the Secondary and Higher Secondary across Europe, India, China and Cambodia.

In lieu of the same, a roundtable discussion for development of Modules on Critical Thinking Skills (CTS) and Collaborative Problem-Solving Skills (CPSS) was organised on 13th July 2020, from 2.30 pm to 6 pm IST online over Google meet. The recording of the round table discussion is submitted on the common OneDrive link of the Project.

For the roundtable, a concept note and an outline was shared with the experts that were invited to the round table on 10th July 2019. The aim of the roundtable was to deliberate/discuss/debate/explore the following relating to CTS & CPSS in STEM & non-STEM (Arts and humanities):

1. References / Reading Materials
2. Tools / Aids for training
3. Method / Pedagogy of training
4. Assessment tools / rubrics for acquiring content and for acquiring teaching skills
5. Measurement of progress
6. Content on the themes and training materials
7. Educational technology and learning tasks

The draft outline of the curriculum was shared as a term of reference to deliberate on the module. 10 experts deliberated during the round table.

In addition to the discussions in the round table, there were individual consultations by Dr. Shashikala Gurple with other experts such as Dr. K P Mohanan, Dr. Madan, Dr. Pankaj Mittal, Dr. V. N. Jha, Ms. Priya Kher and Pushpaja Nambiar.

In addition to the round table discussion and individual consultations, a workshop was organised on 17th October 2021 for all the partner organisations/institutions for training to be received from experts and to receive inputs from partner institutions to be incorporated in the module that was developed.

After receiving their inputs through meetings the module was aligned to the requirements sent out by Banasthali Vidyapeeth (BV) and also other quality measures were adopted. Further the module was revised for logical flow and bifurcation of 260 hours into contact sessions, practical classes and self study hours.

Table of Chronology and Highlights of some important contributions from the experts

Date	Particulars	Name of Expert/s	Important Contributions
1 st July to 13 th July 2020	Spotting the resource persons from across the world and incorporation of DQ in the module	Dr. Shashikala Gurpur	<ul style="list-style-type: none"> Spotting and listing suitable resources from within India and initial discussions with the resource persons from across the world on the concept of critical thinking and cognitive thinking skills Incorporation of concept of DQ and distribution of tasks among the team members of SLS Pune and STLRC for roundtable discussion on DQ
10 th July 2020	Concept note preparation and outline of the module shared with experts	Dr. Shashikala Gurpur	<ul style="list-style-type: none"> To inspire Innovation, Entrepreneurship, Working On Actual problems (including fine arts, design, technology, sustainability and development), Spotting advanced performers, gifted and leaders Interdisciplinary collaboration - including skills to solve problem of community Collaboration including taking initiative and leadership, compassion
13 th July 2020	Roundtable discussion for development of Modules on Critical Thinking Skills (CTS) and Collaborative Problem-Solving Skills (CPSS)	<ol style="list-style-type: none"> Dr. K. P Mohanan Dr. Sophia Gaikwad Mr. Madan Mohan Mrs. Pushpaja Nambiar Ms. Kamini Saxena Dr. Urvashi Rathod Dr. Jatinderkumar Saini Mrs. Shabari Shetty Mrs. Debjani Rane Priya Kher 	<ul style="list-style-type: none"> Gist of DQ (Digital Intelligence Quotient) Global Standards Report 2019 - Common Framework for Digital Literacy, Skills and Readiness Brainstorming Session on Module (including suggestions to modules – Weightage, interlinking)
14 th July 2020	Email with various aspects included in the draft curriculum received through	Dr. M. Madan Mohan, Pushpaja Nambiar, Devika Kulkarni, Nikita	<ul style="list-style-type: none"> Digital Intelligence Quotient Critical Thinking Concept, Characteristics and Elements Collaborative Problem- Solving Skills

	individual consultation with Symbiosis International School Team	Johnson and Gitanjali Pillai (Team of experts from Symbiosis International School)	<ul style="list-style-type: none"> – Concept, Characteristics and Elements • Method and tools to develop critical thinking skills and collaborative problem solving skills
15 th July, 16 th July and 14 th October 2020	Emails with content on Inquiry, Critical Thinking concept and process received from Dr. K P Mohanan	Dr. K P Mohanan (Founder ThinQ)	<ul style="list-style-type: none"> • Concept, elements of Inquiry and process of Inquiry • Concepts and Examples of Critical Thinking • Strategies to develop Critical Thinking
17 th October 2020	Workshop on Module 1 – Critical Thinking Skills and Collaborative Problem Solving Skills for Partners	Dr. Mohanan with his ThinQ team members Ms. Aditi Ahuja and Ms. Reshmi Jejurikar	<p>Critical Thinking Skills – Inculcating in Teachers (STEM & STEAM Subjects)</p> <ul style="list-style-type: none"> • Process of Inquiry with Activities • Content: Perspectives on Critical Thinking • Skills and Sample Learning Tasks
		Dr. Urvashi Rathod	<ul style="list-style-type: none"> • Critical Thinking Concept and Process • Research and Critical Thinking • Mind Maps • Socratic Method
		Dr. Sophia Gaikwad	<ul style="list-style-type: none"> • Collaborative Problem- Solving Skills – Concept, Characteristics and Elements • Method and tools to develop collaborative problem solving skills • Activities for Problem- Solving Skills
		Dr. M. Madan Mohan, Ms. Pushpaja Nambiar, Devika Kulkarni, Nikita Johnson and Gitanjali Pillai (Team of experts from Symbiosis International School)	<ul style="list-style-type: none"> • How Teachers can Design Activities • How teachers can design Assessments for Students to enable them to use such activities for students to exercise Critical Thinking Skills • Collaborative Problem-Solving Skills: How Teachers can design Activities and How Teachers can design Assessments • STEM and STEAM examples
17 th April 2021	Online Google Meeting with Dr. V N Jha to note his points of views and adding Indian Philosophical points in the Module. The draft syllabus was shared with Dr. V N Jha on 24 th March 2021 by email.	Dr. V N Jha	<ul style="list-style-type: none"> • Indian (Vatsyayana’s) Model of Enquiry in to truth (addresses following 4 aspects to arrive at the truth) • Indian Philosophy – Process of Knowing, Direct Process: Perception, Indirect Process: Inference, Language (Interpretation of Language: Purva Mimansa) • Indian Philosophy - Construction of a system of knowledge
1 st July 2020 till present	Continuous and regular Reviews and Revisions	Dr. Shashikala Gurpur	<ul style="list-style-type: none"> • streamlining of key concepts and double revisions and reviews, proportion allotment and weightage, review and revision of modules, alignment with outcome based model and quality criteria, linking with gap and

			need analysis, periodic strategic re-alignment with other partner's work and overall objective of the project
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Brief Introduction of Experts

1. **Dr. K. P Mohanan**

- co-founder of ThinQ
- PhD in Linguistics from Massachusetts Institute of Technology
- Taught at the University of Texas at Austin; MIT; Stanford University; and at the National University of Singapore (NUS)
- has made significant contributions to linguistic theory
- co-designed with Tara Mohanan an Inquiry-Oriented undergraduate program in Linguistics at NUS
- has worked extensively with the nature of academic knowledge and inquiry, against the backdrop of human beliefs
- He joined the IISER-Pune Faculty in 2011, where he continued his work till he retired at the end of 2016.

2. **Dr. Sophia Gaikwad**

- Head at Symbiosis Teaching Learning Resource Centre, Symbiosis International University
- Been in the field of Education for the past ten years
- Worked as an Assistant professor for students pursuing their Bachelors and Masters in Education and Educational Administration.
- PhD is in the field of Educational Psychology, and her research work is on the theory of Multiple Intelligences.
- Master's in English Literature as well as Masters in Education.
- She has authored two books on 'Teaching Methodology'
- Research papers to her credit which have been published in SCOPUS indexed journals.
- Firm believer in the power of values, and the role of a teacher in transmitting them.

3. **Dr. M. Madan Mohan**

- Vice Principal, Symbiosis International School, Viman Nagar
- Trains, Guides and motivates his team of teachers in new teaching pedagogies and methods including informational skills
- Member, School Advisory Board, Symbiosis
- Member, Faculty Academic Integrity Panel, Faculty of Law, SIU

4. **Mrs. Pushpaja Nambiar**

- ToK (Theory of Knowledge) Coordinator, Symbiosis International School
- An educator for the past 20 years both national and international
- IB Examiner for ToK
- Skilled in Nonprofit Organizations, Secondary Education, Educational Consulting, Lesson Planning, and Educational Technology.
- Masters and Bachelor of Education focused in Education, Biology, English

5. **Mrs. Kamini Saxena,**

- Management Facilitator, Kaveri Group of Institutes (2015 – present)
- More than 15 years – Principal, Kalmadi Shamrao High School
- M.Sc. Chemistry
- Believes in change from knowledge-based to skill-based

- Practical and activity based learning
 - Value based education
6. **Dr. Urvashi Rathod**
 - Director, Symbiosis Centre for Research and Innovation, SIU
 - Professor, Symbiosis Centre for Information Technology
 - Ph.D. from Birla Institute of Technology and Science
 - Broad spectrum of experience ranging from a developer to an entrepreneur (for about 7 years) to a researcher and a teacher.
 - Teaching master level courses since last fourteen years including at the premier institutions.
 - Specialized in the discipline of software engineering and project management, keen and disciplined researcher.
 7. **Dr. Jatinderkumar Saini**
 - Director, Symbiosis Institute for Computer Studies and Research, SIU
 - PhD (Computer Sci.) from IIT Mumbai, MCA [Univ. 1st rank & Gold Medals in all 3 years], BSc (Computer Sci.) [Silver Medal]
 - nearly 150 research publications including those published by Elsevier, Taylor & Francis, ACM, Springer, IEEE and InderScience
 - Prior to joining SICSR, Dr. Saini experience includes:
 - Worked as a State Government University endorsed Professor and Director.
 - Head of Department, University Coordinator, Director of AB Innovation Sankul and Zonal Exam Coordinator for entire South Gujarat under the State government's Gujarat Technological University, Ahmedabad.
 - Worked on the ambitious e-governance project of Govt. of Gujarat as well as the privilege of working at one of the only four licensed certifying authorities under Ministry of Information Technology, Govt. of India.
 8. **Ms. Priya Kher**
 - learning and performance consultant who is the Director at Collective Quest™
 - has been a trainer, facilitator and instructional designer since 1996
 - Collective Quest™ is a learning and development company that partners with organisations to deliver customized
 - Master's in Counselling Psychology from the Adler School of Professional Psychology, Chicago, USA
 - Associate Certified Coach from Erikson College International
 - She has an advanced certification in MBTI® assessment, and has an international certification to administer and interpret psychological instruments like the MBTI®, FIRO-B, and 16PF from CPP, USA.
 - Her team consists of dedicated facilitators who have rich experience in the fields of psychology, psychometric assessment, executive coaching, sociology, journalism, and technology.
 9. **Ms. Shabari Shetty**
 - Visiting Faculty, Symbiosis Law School, Pune
 - BA, MA, Economics, B.Ed
 10. **Ms. Debjani Rane**
 - Visiting Faculty, Symbiosis Law School, Pune
 - Cambridge, UK certified
 - Ph. D English (Advanced) from SIU
 11. **Dr. Pankaj Mittal**

- Secretary General of the Association of Indian Universities (AIU)
- Fulbright Scholar and has been a topper in MSc and PhD in Agricultural Statistics from IARI, New Delhi
- Experience of over three decades in Higher Education in Policy Planning and Management of Higher Education
- Vice Chancellor of Bhagat Phool Singh Mahila Vishwavidyalaya, Khanpur, the first rural women university of North India, in 2008

12. Dr. V N Jha

- Pune University, Director of the Centre of Advanced Study in Sanskrit (1979-2006)
- Founder Chairperson, Special Centre for Sanskrit Studies, Jawaharlal Nehru University, New Delhi (2002-03).
- Authored and edited over 50 books (*Language, Philosophy, Logic and Epistemology; Language, Grammar and Linguistics in Indian Traditions*; etc.)
- Published over 150 research articles in Indian and international journals
- Honoured by a number of academic institutions with honours such as- Mahamahopadhyaya; Vachaspati; Pandita-sarvabhauma; D.Litt.
- Visiting professor in Humboldt University, Germany; Nagoya University, Japan; University of Lausanne, Switzerland; and Mahatma Gandhi Institute, Mauritius; (during 1981 and 2005).

Outcome of the consultations

A robust curriculum on Critical Thinking Skills and Collaborative Problem-Solving Skills of 10 ECTS, 260 hours, with learning objectives aligned to Blooms Taxonomy, and details of 15 Units was prepared for the discussion with partners.

Screen Shots of Consultations

The screenshot shows a Google Meet interface. On the left, a presentation slide titled "Introduction to Project" is displayed. The slide contains the following text:

- Title of Project: Teacher training with specialization on life and information technology skills/21stTS
- In a globalized and multicultural economy and society, young people's horizons are not broad enough to operate accordingly
- Challenges, such as the rapid technological advancements and new patterns of work have created a number of demands on education, making the inculcation of 21st century skills a necessity
- Those skills need to be integrated in the teacher educational programs in order for the teachers to be effective in the 21st century.
- Need to develop student-centered learning environment
- Cover successfully the needs of a growing diverse population of children in China, India and Cambodia with a variety of multi-cultural, multi-linguistics and multi-ability needs
- Respond to the gap in skills set in the labour market and society,
- Shortage of qualified teachers and poor level of student learning

At the bottom of the slide, there is a small notification: "meet.google.com is sharing your screen" with buttons for "Stop sharing" and "Hide".

On the right side of the screen, there is a video feed of a woman, identified as "Shashikala Gurpur", wearing a red and white sari. She is in a room with a desk and some papers.

The Big 6

- task definition
- information seeking strategies
- location and access
- use of information
- synthesis
- evaluation



Shashikala Gurpur

SKILLS (last saved by user) - Word

COGNITIVE SKILLS	COMMUNICATION SKILLS	COLLABORATIVE SKILLS	LEADERSHIP SKILLS	RESEARCH SKILLS
Critical Thinking	Communication	Project Management	Organizational Skills	Information Literacy
Creative Thinking – [Innovation Skills]	Intrapersonal Relationships	Interpersonal Relationships	Speaking Skills	Media Literacy
Transfer / Exchange		Emotional Intelligence	Listening Skills	Ethical Use
Reflection / Metacognition		Social Intelligence	Financial Literacy	Life-Long Learning
Mindfulness Quotient		Spiritual Intelligence	Sustainability Quotient	Academic Integrity
Perseverance Quotient		Negotiation Skills	Civic Literacy	
Emotional Quotient			Environmental Literacy	



Mohanan K P

SKILLS (last saved by user) - Word

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Perseverance Quotient		Negotiation Skills	Civic Literacy	
Emotional Quotient			Environmental Literacy	
Resilience Quotient			Health Literacy	



Dr. Madan Vice-Principal, SIS

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Perseverance Quotient		Negotiation Skills	Civic Literacy	
Emotional Quotient			Environmental Literacy	



**Gist of DQ (Digital Intelligence Quotient)
Global Standards Report 2019
Common Framework for Digital Literacy, Skills and Readiness – Summary**

**2019 Digital Intelligence (DQ) Framework
3 Levels of DQ**



Thinking Skills

Indian Philosophical Approach

Unit 1 : Concept of Truth/Reality

- Language and Reality
- Concept of Reality
- Modeling the Universe through Language

Unit 2 :

Vatsyayana's Model of Enquiry into Truth

- Knower
- Knowable

Knowledge

