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INTEGRATION OF 21ST CENTURY SKILLS INTO THE NEPALESE CURRICULUM

Mina Shrestha
Dhruba Prasad Niure
Ashik Singh

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International Development Research Centre
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ABOUT THE LEARNING CYCLE ON INTEGRATION OF 21ST CENTURY SKILLS IN CURRICULUM

From June to September 2021, the KIX EAP Hub, in partnership with the Australian Council for Educational Research (ACER), delivered two rounds of a four-week course focused on strengthening the link between policy and implementation regarding 21st century skills. 69 participants in 14 country teams participated in the course which addressed the steps required and the challenges faced by policy makers to implement systematic curriculum reform that further emphasizes 21st century skills within learning outcomes and ensures these are connected to relevant assessment measures and pedagogical strategies.

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KIX EAP Hub / NORRAG
20, Rue Rothschild
P.O. Box 1672 1211 Geneva 1 Switzerland
norrag.kix@graduateinstitute.ch

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A BIOGRAPHICAL NOTE ON THE AUTHORS

Dhruba Prasad Niure received his Ph.D. Degree in Special Education from Changwon National University, South Korea, and he received both his Master of Philosophy Degree and Master's Degree in Curriculum Studies from Tribhuvan University, Nepal. He has been working as an Associate Professor in the Curriculum and Evaluation Teaching Department under the Central Department of Education, Tribhuvan University, Nepal, for 13 years. He currently teaches a number of subjects, such as curriculum planning and practice, emerging perspectives in curriculum, and research methodology to students at the M.Ed. level. He has also worked for several years as an expert, a trainer and researcher in the field of special needs and inclusive education. His other work includes designing curricula for higher-level students and implementing the curricula on a routine basis.

Ashik Singh is currently an M.Phil. Scholar in Education Studies at Tribhuvan University. He has been teaching at a constituent college of Tribhuvan University, as well as at other higher education institutions. He is actively involved in various educational research projects. He also works in the non-governmental sector, as well as with international education projects. He has published numerous research articles and books. In the past, he has worked as a facilitator for pedagogical training programmes in different provinces of Nepal and is also involved in local curriculum development.

Mina Shrestha is an M.Phil. Scholar in Education Studies at Tribhuvan University. She works as a secondary-level science teacher. She is a subject expert at the Curriculum Development Centre at the Centre for Education and Human Resource Development in the Education Training Centre of Bagmati province. She has been involved in curriculum and assessment tool development, as well as in the creation of curriculum and resource materials for teacher training in science and technology. As a certified trainer of science and technology, she has conducted trainings at the national level. She has expertise in conducting orientation programmes, seminars and trainings on material development in science and technology, and she has published books in science and technology for formal and non-formal education.

CONTENTS

Tables

Figures

LIST OF ACRONYMS AND ABBREVIATIONS

CEHRD	Centre for Education and Human Resource Development
ERO	Education Review Office
HPE	Health and Physical Education
NCF	National Curriculum Framework
21 CS	21st Century Skills

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The authors would like to sincerely thank the institutions and people who contributed to providing us with a clear insight into 21st Century Skills (21 CS). Our special thanks goes to the ACER team for giving us the opportunity to participate in the training programme of 21 CS. Thanks goes to Claire Scoular and Ian Teo for their guidance, continuous motivation and feedback. The workshop not only taught us concepts related to 21 CS in the curriculum, but helped us to develop basic competencies needed to integrate these skills into real classroom curriculum. The ideas and skills learnt from the workshop have helped us to offer improvements in curriculum development, the instructional process and assessment procedures in Nepal.

EXECUTIVE SUMMARY

In this case study we reviewed the extent to which 21st century skills (21 CS) have been integrated across the education system in Nepal so far and took a deeper look at coverage within elements of the curriculum.

We first conducted a needs analysis to review the necessary steps towards the integration of 21 CS into the Nepalese curriculum. Opportunities for 21 CS were identified in the existing curriculum based on the National Curriculum Framework. Five major skills and 29 soft skills are presented in the curriculum. These skills are not divided into strands or aspects. Rather, they are described as major skills and soft skills. To identify opportunities for skills in assessments, the Education Review Office has been developing standardised tests for grades 5, 8 and 10. A review of existing and potential classroom activities has not yet begun.

The needs analysis highlighted the key issues in implementing the curriculum; (i) mismatch in intention, implementation and learned outcomes, (ii) lack of proper training and orientation to the materials, (iii) lack of professional development programmes, (iv) issues of classroom management, classroom structure and classroom culture, (v) change of mode of assessments from summative to formative, and limited training provided to the teachers and parents about the assessments.

Next, we carried out a skills audit to provide insight into how the skills are currently being integrated into learning goals. The skill audit was done for the curriculum of grade 3 in the topic Mero Serofero or 'Our 'Surroundings'. As this topic is comprised of four subjects, the learning area was divided based on these topics. Analysing the science learning area, we found that there are six topics and 17 learning outcomes. Although there was only one learning outcome related to critical thinking, our team identified five critical thinking skills.

Last, we brought all the elements of analysis together to form a strategic plan for further integrating skills into the curriculum and the system more broadly. The strategic plan consists of ten phases::

1. Formation of a team to design a 21 CS framework
2. Situation analysis
3. Devising a 21 CS framework based on identified needs
4. Determination of vision and mission
5. Developing curricula to achieve vision and mission
6. Outlining the pedagogical process and assessment
7. Piloting of prepared curricula
8. Preparing both physical and human resources
9. Disseminating provisioned curricula, pedagogy and assessment
10. Implementation, monitoring and further step based on feedback

1

TEAM COMPOSITION AND CONTEXT

This case study documents a study that reviewed the extent to which 21st century skills (21 CS) have been integrated across the education system in Nepal which included taking a deeper look at coverage within elements of the curriculum to understand the extent to which skills have been integrated.

This process involved a needs-analysis of alignment components, a brief skills audit to provide insight into how the skills are currently being integrated into learning goals, a review of mission/vision statements and the generation of a heat map to provide a goal for moving forward. Lastly, the team formed a strategic plan for further integrating skills into the curriculum, and the system more broadly.

The team members included the three authors, Dhruba Prasad Niure, Ashik Singh, and Mina Shrestha. The team members represent different educational institutions and have a great deal of experience in teaching, curriculum development and planning.

2

VISION AND MISSION STATEMENTS

Nepal has yet to develop separate official vision and mission statements regarding 21st Century Skills (21 CS). All of the educational activities – from the school to university levels – in Nepal are guided by the national goals of education. The 2019 National Curriculum Framework (NCF) has 12 goals which include skills in creative thinking, citizenship, collaboration, employment, literacy and communication and technology.

Although Nepal has yet to develop separate official vision and mission statements specifically regarding 21 CS, the team devised aspirational vision and mission statements to guide their activities in the Learning Cycle. The proposed 21 CS-specific vision and mission statements include references to certain 21 CS that are also addressed in the NCF and are as follows:

Proposed 21 CS Vision Statement

To develop the full potential of all learners by inculcating critical thinking, creative thinking and collaborative and problem-solving skills through the formal education system and to enable them to contribute to local and global development.

Proposed 21 CS Mission Statement

To embed critical thinking, creative thinking, collaborative skills and problem-solving skills curriculum gradually from lower- to higher-level education.

3

NEEDS ANALYSIS

During the learning cycle, a needs analysis was conducted to review the necessary steps towards the integration of 21 CS into the Nepalese curriculum. The general audit of the existing curriculum was undertaken by teachers' workshops and by teachers at schools selected for piloting. The existing assessments were audited by the Education Review Office (ERO).

The ERO has been playing a leading role in developing, piloting, revising, and using assessment tools for school education for years. But attention has not been paid to whether 21 CS skills are reflected in these tools. However, these skills have been reflected in assessment tools to some extent automatically.

Level-wise and content-wise pedagogical strategies were determined during the curriculum development phase to enhance learning. Opportunities for 21 CS were identified in the existing curriculum based on the National Curriculum Framework (NCF, 2019). Skills are presented explicitly in grades 1–3, but in the upper levels, although skills are present, they are not explicit. Five major skills and 29 soft skills are present in the curriculum. The five major skills are thinking; intrapersonal; interpersonal; information, communication and multi-literacy; and citizenship . Of the 29 soft skills, five are grouped under thinking skills, seven under intrapersonal skills, five under interpersonal skills, five also under information, communication and multi-literacy skills and seven under citizenship skills. These skills are not divided into strands or aspects. Rather, they are described as major skills and soft skills. Any strands and aspects must be given high priority and should be incorporated in defined skills.

To identify opportunities for skills in assessments, the ERO has been developing standardised tests for grades 5, 8 and 10. A review of existing and potential classroom activities has not yet begun. Books and teachers' guides have been developed for grades 1–3, but only the books have been developed for grade 6. Books for grades 4, 7 and 9 are being piloted on selected groups of one hundred students throughout Nepal. Audio-visual and audio resources have been developed by the Centre for Education and Human Resource Development (CEHRD) and uploaded to YouTube and e-learning sites. They are also broadcast by national television and radio for the development of resources. These resources are available for teachers as well as students, but 21 CS are not presented explicitly.

CEHRD and the Development Education Training Centres of the different provinces have been providing training and reviewing pedagogy. Teachers' resource materials have been developed by CEHRD for the professional development of teachers.

The key issues in implementing are as follows:

- Mismatch in intention, implementation and learned outcomes
- Lack of proper training and orientation to the materials
- Lack of professional development programmes
- Issues of classroom management, classroom structure and classroom culture
- Change of mode of assessments from summative to formative, and limited training provided to the teachers and parents about the assessments

4

SKILLS DEFINITIONS AND FRAMEWORK AND TEAM REFLECTIONS

Our team defined the skills covered in this learning cycle in the following ways:

Definition of Critical Thinking

Critical thinking means the ability to make effective decisions and draw conclusions from the information that involves processes like conceptualising, analysing, synthesising and evaluating. Critical thinking helps students deal with complex situations in life and prepare for the real world.

Definition of Creative Thinking

Creative thinking, on the other hand, 'is an active and organised cognitive process carried out to understand ourselves and familiarise ourselves with what is happening around us by being aware of our thinking process, considering others' thinking processes and applying what we have already learned'. Creative thinking is an inventive thought process that generates many innovative ideas to solve problems, analyse raw data and develop new projects.

Team's Reflection on Critical Thinking

Critical thinking is a higher level of thinking that involves different types of thinking. This skill not only plays a vital role in students' effective learning but also helps to prepare for the real world. Critical thinking can also serve as guidance, leading individuals to solutions for social problems. An appropriate classroom environment is vital in encouraging students to become critical thinkers. Aside from modelling critical thinking skills, teachers need to develop an open, nonthreatening climate for the discussion of ideas and issues in class. Like controversial issues, the focus should be on the ideas, viewpoints and supporting arguments, rather than on the person who is presenting them. It is important toincorporate critical thinking into pedagogy and assessment by embedding critical thinking in the classroom.

Critical thinking is one of the most important skills that students should learn. It is important because it provides the capability to analyse available data for decision making. It also develops an attitude of not immediately accepting information that is presented in front of the learners. Due to the lack of this thinking ability, students' learning suffers when they reach higher education.

The classroom interaction in Nepal is teacher-dominated and students are passive. Most people consider a good class to be where students are silent, obedient and disciplined. In most cases, teachers prefer not to oppose this view. Students often show personal expressions differently from teachers and are not welcomed with an open heart in the context of Nepal's teaching–learning scenario.

Traditional classroom settings and teaching pedagogy are ineffective in transferring such skills. Overall, the Nepalese has not been able to explicitly explain such skills. Although such skills have started to be instilled at lower levels, there is a need to incorporate them in higher levels of education as well. There is also the challenge of ensuring suitable pedagogy and assessment processes to ensure critical thinking in alignment with learning outcomes..

5

SKILLS AUDIT, ALIGNMENT TABLE AND HEAT MAP

Skills audit

The skill audit conducted for the learning cycle was done for the curriculum of grade 3 in the topic *Mero Serofero* or 'Our 'Surroundings'. This subject is an integrated subject where four learning areas (science, social studies, creative arts and health) are combined. There are four main criteria for conducting the skills audit: subject learning area, subject topic, learning outcomes and critical thinking aspects.

As this topic is comprised of four subjects, the learning area was divided based on these topics. Analysing the science learning area, we found that there are six topics and 17 learning outcomes. Although there was only one learning outcome related to critical thinking, our team identified five critical thinking skills. We have related critical thinking skills to its aspects including *identifies criteria for decision making and applies logic*.

Similarly, in the learning areas of health and physical education (HPE) and creative arts, not a single critical thinking skill was identified, although there are 16 and 17 learning outcomes in HPE and creative arts, respectively.

In social studies, out of a total of 25 learning outcomes, we found that one learning outcome can be related to critical thinking, and the aspect *identifies criteria for decision making*.

Alignment table

Table 1. Example of an experiential activity for grade 1

Skill	Aspect	Curriculum	Assessment	Pedagogy
		Learning outcome	Assessment Criteria	Teaching strategy
Critical thinking	Identifies criteria for decision making.	**Element:** Analysing. **Sub-element:** Identifying and classifying.	**High:** Analyse the relationship among different characteristics of animals, food and waste. **Mid:** Learners classify animals, food and waste on the basis of given criteria. **Low:** Identify the characteristics of animals and sources of food and waste	Think, Pair, Share. Gallery walk. Concept Learning.
	Applies logic.	**Element:** Logical inferences. **Sub-element:** Relating cause and effect.	**High:** Analyse causes and effects of environmental pollution and different types of climate. **Mid:** Relate the causes and effects of environmental pollution. **Low:** Identify sources of environmental pollution.	Brainstorming. Jigsaw. Socratic questioning.

Heat map

This heat map[1] is based on five learning areas: science, social studies, health and physical education, creative arts and mathematics. The presence of different 21 CS were analysed in each subject. The areas in which the team thought the skills should be in a high range or presented in a high rangeare denoted in green. Yellow indicates that the skills should be moderately present and red has been used to indicate skills that warrant a low presence.

Figure 1. Heat map produced after skills audit

	Science	Social Studies	Health and Physical Education	Creative Arts	Mathematics
1. Critical Thinking Skills 1.1. Identifies gaps in knowledge; 1.2 Applies logic; 1.3 Identifies criteria for decision making	High	Moderate	Moderate	High	High
2. Collaborative Skills (1.1 Communication with others, 1.2 Negotiate roles and responsibilities)	High	High	Moderate	Moderate	Moderate
3. Intrapersonal Skills (self-management; time management; personal goal setting/taking initiative	Moderate	Moderate	Moderate	Moderate	Moderate
4. Interpersonal Skills (communication; collaboration; cross-cultural skills)	High	High	Moderate	Low	Low
5. Information, Communication and Multi-Literacy Skills (basic literacy; technological literacy)	Moderate	Moderate	Moderate	Moderate	High
6. Citizenship Skills	Low	High	Low	Low	Low

1 The heat map outlines where you want to embed skills (and which skills) into key learning areas and where across the schooling years. The 'heat map' allows systems to identify where 21st century skills focus should be in the curriculum, and to identify where additional skills integration might be most useful.

6

STRATEGIC PLAN

Last, the team brought all the elements of analysis together to form a strategic plan for further integrating skills into the curriculum and the system more broadly. The estimated time to implement this plan is 12 months.

1. Formation of a team to design a 21 CS framework

   For the formation of the team, people from different sectors will be selected (for example, curriculum expert, educationist, subject experts, teachers, local stakeholders etc.) All members of the existing team will be included, and international specialists will be hired as needed.

2. Situation analysis

   The team will conduct different workshops, seminars and webinars to identify the needs of the nation. In particular, local parents, teachers and local specialists will be taken into consideration to identify exact needs regarding 21 CS.

3. Devising a 21 CS framework based on identified needs

   Based on the situation analysis and identified needs, 21 CS will be embedded in the framework based on the context.

4. Determination of vision and mission

   The vision and mission will be developed based on the identified needs (see the proposed vision and mission statements in related sections above).

5. Developing curricula to achieve vision and mission

   Identify content of the curricula based on the framework's vision and mission. Developing learning outcomes based on the content and embedding based on the identified 21 CS. Auditing work will be done on a regular basis to identify the content of the curricula.

6. Outlining the pedagogical process and assessment

   Suitable 21 CS will be incorporated into the pedagogical process (pedagogy, such as think pair share, jigsaw, concept learning, gallery walk, mixed freeze pair, one stays other strays, brainstorming) to achieve learning outcomes. Assessment tools will be framed based on 21 CS to evaluate learning outcomes.

7. Piloting of prepared curricula

   Schools will be selected for piloting of the newly framed curricula.

8. Preparing both physical and human resources

   Teacher guides and curricular resource materials will be developed, and teacher training will be organised by authorised bodies.

9. Disseminating provisioned curricula, pedagogy and assessment

   For dissemination of curricula, pedagogy and assessment, teachers and other stakeholders will be presented with information in a planned way, such as teacher workshops, websites, seminars, webinars etc. Required technical and financial support will be provided for dissemination of provisioned curricula, pedagogy and assessment.

10. Implementation, monitoring and further step based on feedback

    Teachers are primarily responsible for implementation of the curriculum, and authorised bodies will monitor and collect feedback for further improvements.

7

LESSONS LEARNED

As a team, we have learned new perspectives regarding 21 CS. At the beginning of the learning cycle, we were hoping to obtain some new insights, and our expectations have been fulfilled.

The most important thing, and the highlight of this learning cycle, is that it has provided many new dimensions and perspectives to look at curriculum in relation to 21 CS. In the context of Nepal, although there was a presence of critical thinking in the past curriculum, it was not mentioned explicitly. The National Curriculum Framework (NCF, 2019) mentioned the different types of skills which include five main skills, categorised into 29 soft skills. Guided by the 2019 NCF grades 1–3 have now adopted an integrated curriculum where different types of skills are embedded in the curriculum.

This learning cycle has provided us with a much more in-depth understanding in relation to 21 CS. Although 29 soft skills are mentioned in the curriculum, this training has provided us with specific strands and aspects in relation to the skills. The best part is explicitly understanding the strands and aspects of skills as they relate to assessment, curriculum and pedagogy.

Another new insight we found from the learning cycle was reviewing alignment components and conducting a need analysis. While doing this, we identified that we need assessments based on different categories provided. For example, for critical thinking, there are different strands, such as knowledge construction, evaluating reasoning, decision making, etc., and aspects, such as identifying gaps in knowledge, discriminating against knowledge, applying logic, identifying assumptions and motivations, justifying arguments etc. We were able to explore the ongoing activities and progress in the school-level curriculum. In addition, we can now identify the existing challenges in the implementation of the current curriculum.

The final lesson learned was in relation to the heat maps, where the embedding and integration of different skills can be analysed and reviewed.

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20, Rue Rothschild I P.O. Box 1672
1211 Geneva 1, Switzerland
+41 (0) 22 908 45 47
norrag.kix@graduatenstitute.ch

@KIXEAP

norrag.network

norrag.org/kix-eap

gpekix.org/regional-hub/kix-eap