



Implementation of Skills Education in Schools

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The National Education Policy (NEP) 2020 defines curricular areas to meet the aims of education through the integration and incorporation of specific sets of skills and values at each stage of learning, from pre-school to higher education.

These include vocational skills, knowledge, and work-related values and dispositions that equip students for both existing jobs and those that may arise in the future. This goal is enabled in the National Curriculum Framework for School Education (NCF-SE) 2023 through making skills education a part of the curriculum for all students from grades 6 to 10 and offering specialisation in grades 11 and 12. The foundation for skills education will be laid in the Foundational and Preparatory stages through the development of prevocational capacities.

Framework for skills education in the curriculum

The design of skills education in the curriculum is marked by the transition from preparation for job-specific roles to preparation for a range of

jobs, including those that may not currently exist.

The NCF-SE 2023 uses a framework of three forms of work - work with life forms, work with machines and materials, and work in human services - so that skills related to multiple vocations are covered, as shown in Figure 1.

The basic consideration for this categorisation is that there is similarity in the basic skills required for most vocations in a form of work across different forms of work, and therefore, students can develop transferable skills within each form of work and across all forms of work as indicated in Figure 1.

The benefit of this approach is that all students develop a broad understanding of a range of vocations and can make informed choices related to selection of a vocational subject in grade 11 as well as related to work later in life. Hence, it is critical that all students take up productive, hands-on work related to each of these forms of work.

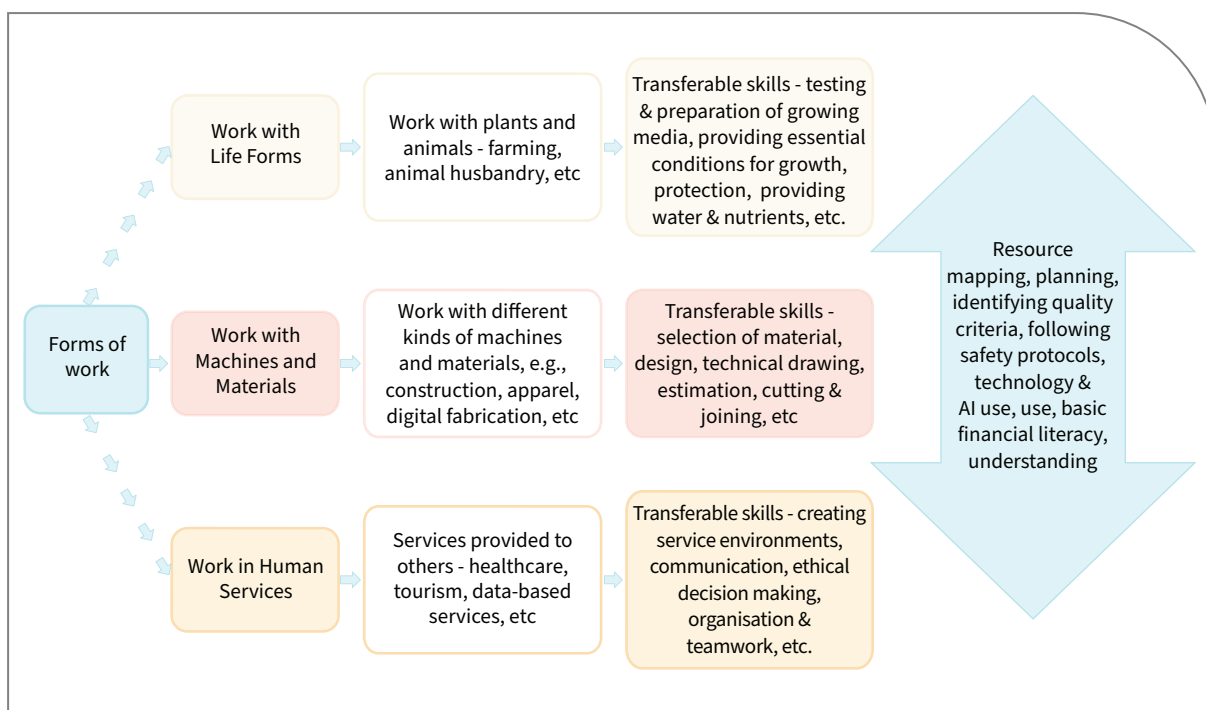


Figure 1: Framework for Vocational Education in the NCF-SE 2023 and illustration of transferable skills

Also, many vocations need interdisciplinary skills. For example, a farmer must be able to work with machinery and ensure a fair price for the produce. Many innovations, such as precision farming that combines agricultural practices with technology, take place at the intersections of different disciplines.

Choice and flexibility based on local considerations

The success of implementation of skills education depends on the availability of resources. The core of skills education is 'doing'. Hence, students must take up authentic work, that is, they must complete the cycle of planning, doing and reflection, leading to productive outcomes.

Given the range of vocations that students must engage with, support is necessary from experts from the community, also referred to as Master Instructors in the NEP 2020. Students will also need access to sites of work to observe and participate, where possible. Hence, the choice of vocation must be locally relevant. Illustratively, choosing crop cultivation or animal husbandry in urban areas will not enable the experiential learning that the NCF-SE 2023 emphasises across

subjects. This decision needs to be made as locally as possible, taking district- or block-level considerations into account.



Kaushal Bodh, the activity book for grade 6, and *Kaushal Vikas*, the textbook for grades 9 and 10 (at the time of writing, only the grade 9 *Kaushal Vikas* is available) are designed to enable choice

by offering details of two vocations and guidelines for several others. The vocations included in the textbooks have been selected to cover a diverse range of schools. However, other vocations can be selected as long as the competencies are met, and the books provide guidance on how this can be done.

Access to resources

A few schools across the country are offering job-role based vocational training under the Samagra Shiksha scheme. These schools will be able to leverage the resources already available by mapping them to the framework of the forms of work. For example, if a school is offering healthcare (work in human services) and IT (work with machines and materials) under the scheme, they will have to acquire additional resources to cater to work with life forms. However, the majority of schools will have to make necessary resources available for students. Initiatives like the composite lab model for grades 6 to 10 in CBSE schools, where students can access resources for a variety of vocations in a single space, and low-cost kits containing basic tools, are some immediate steps towards implementation of skills education. This model has been implemented in Uttar Pradesh.

Till full allocations are made for the transition, a model of shared resources across schools, and even the school and community, will need to be adopted. Examples of models used to share resources across schools for skills education include the hub-and-spoke model, the school cluster/complex model, and the workbench model.

The hub and spoke model comprise a centrally located secondary school that becomes a hub for demonstration and training. This model has been tried out, although for a different purpose, at the district level in Andhra Pradesh, Telangana and Karnataka, among other States. Teachers from the hub school can also serve as master trainers for the State. While eventually the intent must be to equip all schools equally, this model can be used to pilot the implementation of skills education and draw lessons for implementation in schools across the State.

In the school complex/cluster model in the NEP 2020, schools are required to be within a 5-10 km radius, depending on geography. The primary concern is that teachers must be able to travel to other schools easily; similarly, students must be able to travel easily whenever they need to access resources not present in their school.



This model enables a great deal of integration across schools, including sharing of resources and teachers as per set timetables. The sharing of trainers/teachers with different specialisations will increase the choice of vocations that can be offered in the secondary stage in these schools.

The workbench model has been used by schools in Maharashtra, wherein community resources are leveraged to enable students to do work. For example, a farmer could allow students to use 0.5 acres of farmland, while a retail shop owner or workshop owner could enable groups of students to assist with their work for a few hours each week. Similarly, a plumber, an electrician, a construction worker, etc., could come to school with their tools for a few periods a month to support students' learning.

Partnerships with local industries and Industrial Training Institutes (ITIs) are other means of accessing resources otherwise unavailable in schools. The first step would be mapping at the cluster level to create a database that schools can use. This should be done by the Skills Department or equivalent in States along with the Education Department. An advantage of this model is that students are aware of opportunities for vertical mobility while ITIs and industries will be able to attract students for further skilling or employment.

How to assess given choice and flexibility

Given the flexibility in vocational choice, assessment will need to address two broad domains: common skills acquired by all students (see Figure 1) and skills specific to the selected vocation. Situation- and case study-based questions can be used to assess skills like selection of tools and material, following safety protocols, etc. Assessment of competencies specific to selected vocations can be done using demonstration cum viva voce/presentation and portfolio. It must be noted that teacher observations must be used for continuous and formative assessments, especially of values and dispositions.

Particularly with respect to the terminal Board examinations, the design of *Kaushal Vikas*

lends itself to a common paper-pencil test as well as assessment of the vocation students have learnt in each form of work. There are common chapters for each form of work that are mandatory for all students – these can be assessed by a paper-pencil test along with common skills across vocations like planning, creating a bill of materials, etc. Skills acquired in specific vocations must be assessed at the school level with an external examiner, as indicated in the NCF-SE 2023, using tools like demonstration, portfolio and viva voce. Thus, a common paper-pencil test and vocation-specific assessment at the school level will enable comprehensive assessment and certification.

While during the middle stage, the focus is on broad exposure to various vocations, the curriculum is designed to develop transferable skills that can be used across a range of vocations in the secondary stage.

Accommodating students with disabilities

Accommodations must be made for students with disabilities recognised by the Right of Persons with Disabilities Act 2016. First, accommodations in the tasks themselves. For example, if the tasks involve making a shade-net for plant-beds, creating the same protective cover for pots can be an alternative. If the task is making a technical drawing by hand, students with visual disabilities can use computer-aided design for the same. Second, students with disabilities can be offered an alternative vocation. For example, alternatives to construction can be 3D printing of construction material, creating a basic architect's model of construction, testing and quality control, drone operation, etc. However, the range of the three forms of work must be covered for all students.

Time allocation

The NCF-SE 2023 recommends that skills

education be allotted 110 hours per year in both the Middle Stage and in grades 9 and 10, and contains illustrative timetables. This time is to be allotted equally to each form of work. Timetabling at the relevant level must be done with the consideration that block periods of at least two periods each must be allotted to skills education. This is to ensure meaningful engagement with the work that students are supposed to do.

Building capacity within the system

SCERTs will need to take the first step, namely, develop the State Curriculum Framework (SCF) or to adopt the NCF-SE 2023. Once there is clarity related to the policy and approach of skills education in the State, convergence between the SCERT, State Board of Education and Samagra Shiksha would be vital for concerted efforts towards developing an implementation plan and an assessment scheme for the Board examinations in grades 10 and 12. The assessment scheme must provide clarity to all stakeholders, and be accompanied by resource materials like assessment frameworks and samples of tools.

Capacity will need to be built within SCERT and DIETs to orient school heads, teachers and the community to the need and approach of skills education – National Council of Educational Research and Training (NCERT)/Pandit Sunderlal

Sharma Central Institute of Vocational Education (PSSCIVE) may take this responsibility. A dedicated cell for skills education may be considered within the SCERT for developing materials and designing and implementing comprehensive in-depth capacity building programmes.

As part of capacity building, orientation to the purpose of Skills Education and therefore the design of the curriculum must be included.

While DIETs and block level institutions will conduct capacity building programmes, handholding and on-site support will be critical, particularly in the early phase of implementation. Forums like cluster level meetings can be leveraged for peer learning and identifying concerns for further capacity building. DIETs will also have to develop short-term courses to prepare practitioners from the community to engage with students, while the Education Departments will have to develop guidelines for engaging practitioners in teaching school students.



Barring a few States, schools already offering skills education employ trainers who were originally practitioners. In other schools, existing teachers will need to facilitate skills education with support from the community and local industries. Besides capacity building in the principles and approach, and pedagogy and assessment, capacity must be built amongst teachers/trainers to leverage community and industry resources.

The mainstreaming of skills education is a significant transition, particularly since skills education is generally considered suitable for students who are not good in academics. This misunderstanding and the negative connotations of working with hands need to be corrected through appropriate media campaigns.



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