# दूर शिक्षा

# DISTANCE EDUCATION

विशेषाङ्क

२०६३

# दूर शिक्षा *विशेषाङ्क*

# Distance Education *Special Issue*


सल्लाह

अर्जुनबहादुर भण्डारी

बुनु श्रेष्ठ

सम्पादक

| | | |
|---|---|---|
| सुनीता मालाकार | कमला पोखरेल | तोया खनाल |
| नवीन कुमार सिंह | केशरमोहन भट्टराई | खुविराम अधिकारी |



नेपाल सरकार

शिक्षा तथा खेलकुद मन्त्रालय

**शैक्षिक जनशक्ति विकास केन्द्र**

सानोठिमी, भक्तपुर

२०६३


प्रकाशक :
नेपाल सरकार
शिक्षा तथा खेलकुद मन्त्रालय
शैक्षिक जनशक्ति विकास केन्द्र
सानोठिमी, भक्तपुर





(लेख रचनाहरूमा अभिव्यक्त गरिएका विचार लेखकहरूका निजी विचार हुन्)

आवरण पृष्ठ डिजाइन
- सुमन वज्राचार्य

टाइप सेटिङ तथा डिजाइन
- लक्ष्मी श्रेष्ठ

नेपाल सरकार

**प्रा. डा. मंगलसिद्धि मानन्धर**

शिक्षा तथा खेलकुद मन्त्री

निजी सचिवालय

केशरमहल, काठमाडौं ।

फोन नं. ४४११४९९

४४१४६९०

मिति:- २०६३/०२/१७

**विषय:-** **शुभकामना**

विगत वर्षमा जस्तै यसवर्ष पनि शैक्षिक जनशक्ति विकास केन्द्रले "**दूर शिक्षा विशेषाङ्क**" प्रकाशन गर्न लागेको खबरले मलाई खुशी लागेको छ ।

"**दूर शिक्षा विशेषाङ्क**" दूर शिक्षासम्बन्धी लेख, रचनाको संगालो हो । विज्ञान र प्रविधिको अहिलेको युगमा दूर शिक्षा पनि हासिल गर्ने शसक्त र प्रभावकारी पद्धति हो । विश्वभरमा आज धेरै मुलुकले यो पद्धति अँगालेका छन् । विद्यालय तहदेखि विश्वविद्यालय शिक्षासम्म यसको भूमिका उल्लेखनीय रहन्छ । हाम्रो जस्तो भौगोलिक विषमता भएको विकासोन्मुख मुलुकका लागि यो पद्धतिको आवश्यकता अझ बढी रहेको छ । अहिले विद्यालय तहको प्राथमिकदेखि माध्यमिक तहसम्मको शिक्षक तालिममा यसको प्रयोग भइरहेको छ भने दूर शिक्षा पद्धतिलाई शिक्षा हासिल गर्ने अभिन्न माध्यमका रुपमा प्रयोग गर्नु अहिलेको खाँचो देखिएको छ । यस विशेषाङ्कमा रहेका लेख, रचनाले दूर शिक्षाको प्रभावकारिता वृद्धि गर्ने र प्रयोगक्षेत्र विस्तार सम्बन्धमा यसका पाठकहरुलाई अध्ययन अध्यापन गर्न सहयोग पुऱ्याउने छ भन्ने मैले विश्वास लिएको छु ।

अन्त्यमा, यो विशेषाङ्क उपयोगी हुन सकोस्, आगामी वर्षमा यसको निरन्तरता रहोस् भन्दै पत्रिकासँग सम्बद्ध पक्षलाई हार्दिक धन्यवादसहित पत्रिकाको सफलताको लागि हार्दिक शुभकामना प्रकट गर्दछु ।

(प्रा.डा.मंगलसिद्धि मानन्धर)

**मन्त्री**

**शिक्षा तथा खेलकुद**

# शिक्षा तथा खेलकुद मन्त्रालय

अनुगमन तथा मूल्याङ्कन शाखा

वेवसाइट : www.moe.gov.np
फोन नं. ४४१२१९९
केशरमहल, काठमाडौं ।

पत्र सङ्ख्या :
च.नं.

मिति :–२०६३।०२।१६

## शुभकामना

विगत वर्षमा भैं शैक्षिक जनशक्ति विकास केन्द्रद्वारा दूर शिक्षा प्रकाशन हुन लागेकोमा मलाई खुसी लागेको छ ।

हाम्रो जस्तो विकासोन्मुख तथा भौगोलिक विकटता भएको देशका लागि दूर शिक्षा पद्धतिलाई ज्यादै महत्वपूर्ण माध्यमका रुपमा स्वीकारिएको छ । यस पद्धतिको कार्यान्वयन हाम्रो देशमा विगतदेखि नै हुँदै आएको हो तथापि सूचना र सञ्चार प्रविधिको क्षेत्रमा भएको तीव्र विकाससँगै दूर शिक्षा पद्धतिको पनि विकास तथा विस्तार गर्नुपर्ने चुनौती हाम्रो सामु छ । यस चुनौतीको सामना गर्न शैक्षिक जनशक्ति विकास केन्द्र विगतमा भैं प्रयासरत रहनेछ भन्ने विश्वास लिएको छु ।

यस प्रकाशनमा समावेश भएका लेख-रचनाहरु विद्यार्थी, शिक्षक, अभिभावक, शिक्षाप्रेमी, अनुसन्धानकर्तालगायत सम्बन्धित सबैलाई उपयोगी हुनेछ भन्ने आशा गर्दै प्रकाशनको सफलताको शुभकामना व्यक्त गर्दछु ।

रामसरोबर दुवे
निमित्त सचिव

# सम्पादकीय

वर्तमान विश्वमा दूर शिक्षाको महत्वपूर्ण भूमिका छ । प्राचीन इतिहासमा पनि दूर शिक्षा र खुला सिकाइको अवधारणा लागू भएको थियो । सर्वसाधारण जनतालाई शिक्षा प्रदान गरेर सामाजिक दायित्व पूरा गर्ने जिम्मेवारी सरकारले आफ्नो जिम्मामा लिएपछि शिक्षालाई औपचारिक र अनौपचारिक रूपमा विभाजन गरेर हेर्न थालियो । जनसङ्ख्याको वृद्धि र विस्तारका साथै विज्ञान र प्रविधिको विकासले गर्दा सन् १९६० को दसकपछि दूर शिक्षा/खुला सिकाइ पुन: अस्तित्वमा आउन थालेको कुरा हामी सबैले स्वीकार गर्नैपर्छ ।

आजको एकाइसौँ शताब्दी भनेको शिक्षा क्षेत्रमा दूर शिक्षा र खुला सिकाइको युग हो । दूर शिक्षा/खुला सिकाइको माध्यमबाट सरल र सहज ढङ्गबाट कम लागतमा सबैको घरदैलोमा शिक्षा उपलब्ध गराउन सकिन्छ ।

हाम्रो देश नेपालमा वि.सं. २०३७ मा संस्थागत रूपमा रेडियो शिक्षा शिक्षक तालिम आयोजनाको नामले दूर शिक्षा विकसित भएको पाइन्छ । दूर शिक्षा प्रणालीलाई हामीकहाँ तालिमका अतिरिक्त उच्च तहको शिक्षा हासिल गर्ने क्रममा उपयोगमा ल्याउने कार्यको शुरुवाट भएको छ ।

दूर शिक्षा विशेषाङ्क यस वर्ष पनि शैक्षिक जनशक्ति विकास केन्द्रबाट प्रकाशन हुन गइरहेको छ । यसमा दूर शिक्षासम्बन्धी लेखहरू मात्र समावेश गरिएका छन् । यस पत्रिकालाई प्रकाशन योग्य तुल्याउने कार्यमा सहयोग गर्ने सबै व्यक्तिहरूलाई हार्दिक धन्यवाद ज्ञापन गर्न चाहन्छौं ।

वैशाख, २०६३

शैक्षिक जनशक्ति विकास केन्द्र
सानोठिमी, भक्तपुर ।

# विषयसूची

# दूर हेर्ने कि दूरबाट पनि हेर्ने ?

- डा. विद्यानाथ कोइराला*

## पढ्ने के र कसरी ?

हामीले टाढिन सिक्यौं । टाढिनै सिकायौं । शरीर नपढाएर किताब पढायौं । खाएको कुरा पढाएनौं । खानुपर्ने कुरा पढायौं । पुर्ख्यौंली इतिहास पढाएनौं राजाको इतिहास पढायौं । लडाइको इतिहास । विश्वयुद्धको इतिहास । पढाउने तरिकामा पनि त्यही बुद्धि लायौं । व्याख्या गर्ने रे ? प्रदर्शन गर्ने रे । तर कहिल्यै आफैलाई साध्यैनौं । मैले कसरी सिकें । मलाई के सजिलो भयो ? के अप्ठेरो भयो ? के गरे हुने थियो ? यसरी हामी टाढिन सिकाउँने विज्ञ बन्यौं । टाढिने विषयवस्तु दिने विज्ञ । गुणात्मक अनुसन्धानको भाषामा विषयगत (Subjective) नबनेकाहरू (Denzin of Lincoln, 2005) । मार्सल (सन् 2002) को शब्दमा मिसेल फुकोले बुझे झैं थरिथरिका विषयगत व्यक्तिवादिता (Subjective individuality) नचिन्नेहरू । कुन शक्ति सम्बन्ध (Power relation) मा बाँचेको व्यक्तिले के सिक्छ भनी नबुझेकाहरू । कसरी सिक्छ भनी नजान्नेहरू । अर्थात् व्यक्तिको बनौट नचिन्नेहरू । शक्ति सम्बन्धको बनौट (Micro-physics of power) नखोज्नेहरू । व्यक्तिको परिवारसँगको शक्ति सम्बन्धको बनौट । छिमेकीसँगको शक्तिसम्बन्धको बनौट । शिक्षकसँगको शक्तिसम्बन्धको बनौट । लिङ्गभेदले बनेको शक्ति सम्बन्ध जातिभेदले बनेको शक्ति सम्बन्ध । भाषिक भेदले बनेको शक्तिसम्बन्ध । क्षेत्रभेदले बनेको शक्तिसम्बन्ध, फुकेको शब्दमा भनाइ र शक्ति सम्बन्धको इतिहास (Epistoms) जोडिएको शक्ति सम्बन्ध । ज्ञानको पूरातात्विक अभिलेख (Archeology of knowledge) । ज्ञान बन्ने र रूपान्तरण हुने सामान्य व्यवस्था (General system of formation and transformation of knowledge ) मा व्यक्ति विशेषको सम्बन्ध ।

ज्ञानको पुस्तावली (Geneology) र स्व (Self) को सम्बन्धी यस अर्थमा हाम्रो टाढिने विषयवस्तु र शिक्षणकला (Pedagogy) ले फुकोले भनेझैं सचेत स्वतन्त्रताको अभ्यास (Conscious practice of freedom) दिएन । उनकै शब्दमा Reflection दिएन । यसरी मैले देखें - हाम्रो पढाइमा आफन्तीपन नै रहेन । स्व नै रहेन । शक्ति सम्बन्ध नै रहेन । प्रत्याभूति नै रहेन । त्यसैले दूर शिक्षा दूरकै शिक्षा भयो । दूर किताब । दूर अक्षर । दूर ज्ञान । दूर शिक्षण कला । दूर अभ्यास ।

## आफ्नैमा खोज्ने कि ?

मैले ब्रह्मपूराण खोजें । सुतजी र मुनिजीको कथा । त्यहाँ दूरबाट हेर्न खोजें । किताब पढ्ने दूर शिक्षणकला खोजें । ब्रह्म पूराणले भनिदियो (विजय, सन् १९९७, पृ. ५ ) जिज्ञाशु उत्तम पात्र हो । पढाउँनै पर्ने पात्र । सिकाउनै पर्ने पात्र । मुदगल ऋषिकी पत्नी भागिरथीको प्रश्न बोक्नेहरू । एकपटक विष्णुको

---

* प्राध्यापक, शि.शा.सं., त्रि.वि.वि

दर्शन पाउनेहरू धनी छन् । तर दिनहुँ दर्शन गर्ने हामी किन गरीब छौं भन्ने प्रश्न उही (पृ. ८९) जन्माउनेहरू । यो प्रश्नले पाउलो फ्रेरे (सन् १९७०) सम्झायो । मौनताको संस्कृति (Culture of silence) तोड्ने प्रश्न खोज्न सिकायो । डररिडा (सन्) को विनिर्माणवादी (Deconstructionist) सोच सिकायो । उल्टाई पल्टाई (Subversion) सोच सिकायो । कहीं ब्रह्मपुराणको जातवेदले सादृश्य (Analogical) प्रस्तुति पो सिकायो कि (पृ.७७) । भोवती र सुब्रतको कथाले पुर्वजन्म पो इंगित गऱ्यो कि (पृ. ८०) । विषय प्रवेश गर्दा ब्रम्हबाट शुरु गऱ्यो कि (पृष्ठ ६) । ब्रह्ममाया-महत -अहंकार-पंचमूल -नार (समुद्रको उत्पत्ति) पो सिकायो कि ? ब्रह्म सत्यबाट ज्ञानका स्रोत (Epistemology) खोज्ने व्यक्ति पो बनायो कि ? सोमले मरिसा नामक छोरी प्रचेतालाई दिएर विरोधीको क्रोध शान्त गरेजस्तो पो गऱ्यो कि (पृ. ८) यस्ता कि हरूले आफूले पढेका किताबलाई दूरबाट खोज्न सिकाउँछ । अमैथुनी सृष्टिबाट मैथुनी सृष्टिका जीव जन्मिए (पृ. ६) भन्दा विज्ञानसम्मत कि विज्ञानविमत बुद्धि हो भनी खोज्न । संज्ञा र तत्वको नाकबाट वीर्य लिएर अश्विनी कुमार जन्मेको कथा (पृ. ११) ले सन्तानोत्पादनको विज्ञानको विस्तार खोज्न । पृथ्वीका द्विपहरूको कथा (पृ. २७) ले भूगोलको पाठ खोजे । कश्यपको कडा बोलीले गर्भको शिशु खस्यो । त्यही बालक पछि मार्तण्डय ठहरियो (पृ.४४) भन्ने कथाले गर्भ विज्ञानको बेग खोज्न । गौतम ऋषिको बालकको अकाल मृत्युको कथा (पृ.५२) ले राज्य सञ्चालकबाट बालमृत्यु घटाउन गर्ने उपक्रम खोज्न । जोरबारमा गर्भाधान गरे छोरा जन्मन्छ र विजोर बारेमा गर्भाधान गरे छोरी जन्मन्छ (पृ.१३२) को ज्ञानले उत्पादन विज्ञान (Reproductive science) खोज्न । कामधेनुलाई पृथ्वी मानेर गौतम ऋषिले घुम्दा अहिल्या पाए (पृ.५८) भिन्न कथाले आधुनिकोत्तर (Post modern) सोचको "विश्व" (World view) खोज्न । इन्द्रले अहिल्यासँग यौनक्रिया गर्दा गौतम ऋषिले श्राप दिए परिणामत: इन्द्रको शरीरमा सहस्र योनी भए । तिनै योनीलाई ब्रह्माले सहस्र आँखा बनाइदिए । अनि इन्द्र सहस्रक्ष भएर (पृ.६०) भन्ने जानकारीले अर्थोतावादी (Interpretive) चिन्तन खोज्न । के हो । अर्थोतावाद भन्ने जानकारी लिन । कसरी हर्म्युनिटिकसले अर्थ खोज्यो भनी घोत्लिन । विपन्न कब्व र सम्पन्न गौतम ऋषिको असन्तुष्टि सन्तुष्टिको कहानी (पृ.७०) ले मार्कस र मार्क्सवादी दर्शन खोज्न । त्यही शान्तिको छनक खोज्न । मार्कण्डेयले बालकृष्णको चर्तिकला देखेर प्रार्थना गरेको (पृ. ५०) ले आफ्नो पहिचान (Identity) लाई वयोवृद्ध भए पनि ज्ञानवृद्धको अगाडि विलीन (Blur) हुन् ।

### खोजको क्षेत्र विस्तार गर्ने कि ?

ब्रह्ममा पुगेर हेर्ने (Visualize) पुर्खाले सोच बनाउन पश्चिमी पुर्खाभन्दा भिन्न हुन् । पूर्वीय पुर्खा यस अर्थमा द्रष्टा हुन् । सबै छ हेर भन्ने पुर्खा । सबै थियो बुझ भन्ने पुर्खा । सबै हुन्छ (Being) तर तिमी हुन्नौ भन्ने पुर्खा । भयौ भने पनि भिन्न हुन्छौ भन्ने पुर्खा । पश्चिमी पुर्खाले उही सिकाए । बनाएँ भन्ने अहं । पूर्वी पुर्खाले अहम् समाहित गराए (Blend of cosmic self to the individual self) । यसरी खोजका चारओटा बाटाहरू जन्मिए । द्रष्टा बन्ने बाटो । श्रष्टा बन्ने बाटो । द्रष्टाश्रष्टा एकसाथ बन्ने बाटो । श्रष्टा द्रष्टा एकसाथ बन्ने बाटो । पश्चिमी अर्थेतावादीहरूको शब्दमा पनि देखिने बाटो । हाइडेगर (सन् १९६७) को शब्दमा भएर खोज्ने (Being in the world) . समाजको अंग बनेर खोज्ने (Throwness

of the society) । गाडामेरले भनेझैं क्षितिजको विलय गरेर (Fusion of horizon) गरेर खोज्ने । रिकोयुर (Ricoeur) ले भनेझैं कल्पित दुनियाँमा पुगेर (Being in the proposed world) खोज्ने । हुसरैलले सोचे झैं आफूलाई कोष्ठीकरण (Reduced bracketing or epoche) गरेर खोज्ने । वक्तेतावादी (Narrator) ले बुझेझैं स-साना बक्तेता (Narratives) बाट ठूला सिद्धान्त बुझ्ने । आ-आफ्नै कथा, व्यथा र अनुभवबाट मूलधारको ज्ञान बुझ्ने । मुन्धुमी पुर्खाको माङलिङमा र सिक्कुम निङमा हुनु तथा वैद्धिक पुर्खाको ब्रह्मज्ञान हुनु एउटै रहेछ भनी बुझ्ने । ऐतरेयोपनिषद (३/३ ऋग्वेद) र माण्डोग्य पनिषद (२ अर्थर्वेद) ले क्रमश: प्रज्ञानं ब्रह्म र अयमात्मा ब्रह्म भनेको एकै हो भनी ठम्याउने (योगी, २०६२) । यस्ता खोजहरूले हामीलाई वोद्यू (सन् १९९२) ले भनेको अवस्थिति (Habitus ) खोज्न लगाउँछ । ग्राम्सीले भन्ने गरेको छद्मभेषी विज्ञ (Hegemony) चिनाउँछ । आफ्नै अवस्थितिबाट दूर ज्ञान खोज्न लगाउँछ । दूरज्ञानबाट आफ्नो अवस्थिति चिन्न लगाउँछ ।

## जिज्ञाशु बन्ने कि सन्तुष्ट हुने ?

ब्रह्मपुराणले जिज्ञाशुलाई सुपात्र ठान्यो । शिष्य (Diceple) खोजेन । पत्याइदिने व्यक्ति अन्तुषिकी खोज्यो । प्रश्न गर्ने व्यक्ति, जिज्ञाशा राख्ने व्यक्ति । हामी के बन्ने ? सन्तुष्ट बनेर टुंगिने कि जिज्ञाशु बनेर झ्याङ्गिने ? दूर शिक्षाले टुंगिने विद्यार्थी खोजेन । भक्षांगिने अन्वुषिकी खोज्यो । स्वर्ग र नरक भन्नु वाइयात हो भन्ने विद्यार्थी खोजेन । अधोन्मुखता नरक हो र उभोन्मुखता स्वर्ग हो भन्ने ब्रह्मपूराणीय चिन्तनवाला (विनय, सन् १९९७ पृ.२६) विद्यार्थी खोज्यो । फुकोको शब्दावलीमा पुर्ख्यौली जान्ने पुर्ख्यौली ज्ञानसँग वैज्ञानिक भनिने पश्चिमी ज्ञानसँग नाता खोज्ने डेरिडाको शब्दमा भिन्नता (Difference) पनि बुझ्ने र विभिन्नता (Difference) पनि बुझ्ने विद्यार्थी खोज्यो । यो खोजले जीवनभर सिक्ने विद्यार्थी खोज्यो । ब्रह्मपूराणकै शब्दमा ब्रह्म नदेखेसम्म खोज्ने । ज्ञानको भित्तो । ज्ञानको स्रोत (Epistemology of knowledge) । यो खोजले घर्से बुद्धि (Liner wisdom) लाई अधुरो ठान्यो । एकांगी । वहुपक्षीय ज्ञान खोज्यो । एउटै वस्तुलाई विविध दृष्टिबाट हेर्ने आँखा खोज्यो । मेरो आँखामा ब्रह्म । पश्चिमी आँखामा ब्रह्म । आमाको आँखामा ब्रह्म । बुवाको आँखामा ब्रह्म । ब्रह्म ठगी हो भन्ने हाम्रो आँखामा ब्रह्म । खै जान्दिन तर जिज्ञाशु छु भन्नेको आँखामा ब्रह्म ।

## निचोड के ?

मेरो लेखको पहिलो निचोड हो ज्ञानका स्रोतहरू अनन्त छन् । ब्रह्मपुराणनै ब्रह्मस्रोत हो । ब्रह्मविद्हरू स्रोत हुन्, वक्तेताहरू स्रोत हुन् । आख्यानहरू स्रोत हुन् , अनुभूति स्रोत हो । ब्रह्मकपा (Revelation) स्रोत हो । वर्तमान, भूत र भविष्यको अवस्थिति (Being) स्रोत हो । दोस्रो निचोड हो ती स्रोतसम्म पुग्ने ज्ञानमार्ग (Oritologies) अनन्त छन् । किताब पढ्नु एउटा मार्ग हो । फुकोको शब्दमा मरेको मार्ग । विगतको अनुभूतिको मार्ग । वर्तमान र भविष्यमा नमिल्न पनि सक्ने मार्ग । त्यसैले दूर शिक्षाले अनेकन ज्ञानमार्गको संगमी ज्ञान खोज्छ । लेखकहरू यहाँ मिल्छन् र यहाँ मिलिन्छन् भन्ने ज्ञान । लेखक हो यो कुरा देखेनन् भनी खुच्याउँने मार्क्सीय ज्ञान । जनज्ञान जोडे वा जोडेनन् भनी खोतल्ने जनपक्षीय ज्ञान । मार्क्सकै शब्दमा

दमितहरूको ज्ञान । मान्यता नदिइएकाहरूको ज्ञान । वैज्ञानिक शब्दावलीमा प्रामाणिक ज्ञान, ल्याब प्रामाणिक । तर्क प्रामाणिक । समाज प्रामाणिक । बुझ्ने शब्दावलीमा वस्तुगत एवम् विषयगत प्रमाणहरू मिलेर बनेको ज्ञान । तेस्रो निचोड हो ज्ञान सकार्ने तर कुन पक्षको ज्ञान हो भनी खोज्ने । यो खोजले ज्ञानका तहहरू चिनाउँछ । को कुन ज्ञानको तहमा रहेछ भन्ने जानकारी दिन्छ । ह्म्यूनिटिक्सको तही ज्ञान जस्तो । प्रजालाई आततायी र निरंकुशताबाद बनाउँन मुनिहरूले बेनको हात मथेजस्तो (विनय, सन् १९९७ पृ.७) । बेनको हात मथेको मात्रै देख्ने ज्ञान । मुनिहरूको भूमिका खोज्ने ज्ञान । राष्ट्राध्यक्षको जिम्मेवारी मरेपछि पनि छुट्दैन भन्ने ज्ञान । संरक्षक र संरक्षितबीचको शक्ति सम्बध खोज्ने ज्ञान । आततायी र निरंकुशहरूको पहुँच तथा जनअसरबीचको ज्ञान । बेनलाई ऐतिहासिक मान्ने ज्ञान । बेन काल्पनिक हो भन्ने ज्ञान । बेन लाक्षणिक हो भन्ने ज्ञान । यसरी प्रत्येक धारले आर्जेको ज्ञानलाई परीक्षण गरेर मात्रै पत्याउ भन्ने माओवादी ज्ञान । चौथो निचोड हो बस्तुलाई नजिकबाट हेर्रौं । आफ्नै अनुभूतिले हेर्रौं । आफ्नाहरूको अनुभूतिबाट हेर्रौं । ऐतिहासिक तथ्यबाट हेर्रौं । राजनीतिक शक्ति सम्बन्धबाट हेर्रौं । कितावी प्रमाणबाट हेर्रौं । आफ्नै समाजिक, आर्थिक, सांस्कृतिक सम्मानबाट हेर्रौं । पश्चिमी आँखाबाट हेर्रौं । यस अर्थमा दूरबाट पनि हेर्रौं । नजिकबाट पनि हेर्रौं । नजिक दूर गरेर हेर्रौं । दूर - नजिक गरेर हेर्रौं । यी हेराइहरूबाट खारिएको ज्ञानलाई मात्रै दूर शिक्षाको ज्ञान मानौं ।

## सन्दर्भसामग्री


विनय (सन् १९९७): ब्रह्मपूराण नयाँ दिल्ली, डाइमण्ड पाकेट बुक्स ।

Marshall, J.D (2002): Michel Foucoult: Liberation freedom and education. In Educational Philosophy and Theory vol. 34, No.4, Carfax publishing.

Denzin of Lincholm (2005): Qualitative research. Bourdiew, P. (1972) The Logic of Practice. The polity press.

# दूर शिक्षा तालिम अनुगमनमा लैङ्गिक समानताका प्रश्नहरू

- डा. सुशन आचार्य*

"शिक्षणसिकाइ सामाजिक र राजनैतिक परिवेशमा हुन्छ " (UNESCO, 2004) । यो भनाइ शिक्षाको गुणस्तरमा केन्द्रित भई तयार गरिएको सबैका लागि शिक्षाको विश्वव्यापी अनुगमन प्रतिवेदन सन् २००५ बाट लिइएको हो । सामाजिक र राजनैतिक परिवेश भन्ने वाक्याङ्शभित्र शिक्षणसिकाइमा संलग्न अन्य तत्वबाहेक शिक्षक र विद्यार्थीहरू पनि पर्छन् । तसर्थ शिक्षणसिकाइ प्रक्रियाको कुरा गर्दा को र कस्तो शिक्षक ? को र कस्ता विद्यार्थी ? भन्ने प्रश्नहरू स्वत: उब्जन्छन् । लैङ्गिक दृष्टिकोणमा अझ स्पष्टसँग भन्ने हो भने शिक्षणमा संलग्न व्यक्ति महिला हो वा पुरुष ? सिकाइमा संलग्न व्यक्ति महिला हो वा पुरुष ? सामाजिक र राजनैतिक परिवेशभित्र हुने शिक्षणसिकाइ कार्यमा संलग्न व्यक्तिको सामाजिक लिङ्ग (Gender) ले उसको सहभागिता, लगानी, अवसर तथा उपलब्धि जस्ता चारओटै पक्षलाई प्रभाव पार्छ । यहि तथ्यलाई स्वीकार्दै सबैका लागि शिक्षा कार्यक्रमले शिक्षामा लैङ्गिक समानताको लेखाजोखा गर्न एउटा खाका तयार गरेको छ । उक्त लैङ्गिक समानताको खाकाचाहिँ मानवअधिकारमा आधारित छ (UNESCO, 2004)। उक्त खाकाले औपचारिक शिक्षाभित्र आउनु पर्ने, आइसकेका र औपचारिक शिक्षा पूरा गरेर बाहिर निस्केका सम्पूर्ण महिला तथा पुरुषको स्तर एवम् अवस्था हेर्ने सूचकहरू प्रस्तुत गरेको छ । (आचार्य, २०६२) । सबैका लागि शिक्षा कार्यक्रमको बाहक राष्ट्र हुनाले नेपालले यही खाकाअनुरूप आफ्ना सम्पूर्ण कार्यक्रम तथा अनुगमन प्रक्रियाहरू अघि बढाउनुपर्ने हुन्छ । नेपालले पनि शिक्षामा लैङ्गिक समानता प्राप्त गर्ने लक्षप्रति प्रतिबद्धता जाहेरगरेबाट पनि यो अपेक्षा गर्न सकिन्छ । यही सन्दर्भमा प्राथमिक तहको दूर शिक्षा शिक्षक तालिम कार्यक्रम अनुगमन प्रक्रियालाई विश्लेषण गर्दा कस्तो देखिन्छ त ? यो लेखमा यही प्रश्नको उत्तर खोज्ने प्रयत्न गरिएको छ ।

दूर शिक्षाअन्तर्गतको तालिमका तीन प्रमुख क्षेत्रहरू स्वाध्ययन सामग्री, रेडियो प्रसारण र सम्पर्क सत्र हुन् । अनुगमनका क्रममा शिक्षक सहभागीहरूको शिक्षण पनि अवलोकन गरिन्छ । अनुगमन प्रक्रियाले विविध पक्षहरूबाट तीनओटै क्षेत्रहरूबारे जानकारी लिने चेष्टा गरेको पाइन्छ (NCED, 2005)। शैक्षिक जनशक्ति विकास केन्द्रले नियमित रूपमा गर्ने आफ्ना तालिमहरूको अनुगमन एक तहमा तालिमकै गुणस्तर सुनिश्चित गर्नका लागि तालिम प्रक्रियामा नै केन्द्रित गरेको हुन्छ । अर्को तहमा तालिमको उपयोगमा, अर्थात्, तालिम प्राप्त शिक्षकहरूको शैक्षणिक व्यवहार (Instructional performance) मा आएको परिवर्तनमा केन्द्रित हुन्छ । यो अनुगमनमा आफूले अनुगमनमा गुणात्मक प्रक्रिया (Approaches) अपनाएको दावी गरिएको छ (NCED, 2005) । अनुगमनको खाकाले पनि तालिमको गुणस्तरदेखि शिक्षणसिकाइको गुणस्तरसम्म समेट्न खोजेको देखिन्छ । तसर्थ यो खाकाले शिक्षक शिक्षिका र छात्र

*उप-प्राध्यापक, शि.शा.सं., त्रि.वि.वि.

छात्राको विविध पक्षहरू समेट्न खोजेको छ भन्न सकिन्छ । अर्थात् शिक्षणसिकाइको सामाजिक र राजनैतिक परिवेश यो खाकामा समाहित छ । लैङ्गिक सवाल पनि यिनै सामाजिक एवम् राजनैतिक परिवेशसँग सम्बद्ध पक्ष हो ।

## लैङ्गिक विश्लेषण

लैङ्गिक दृष्टिकोणबाट अनुगमन प्रक्रिया र प्रतिफल विश्लेषण गर्ने क्रममा दूरशिक्षामार्फत् प्राथमिक तहमा कार्यरत शिक्षक शिक्षिका तालिमको अनुगमनको प्रतिवेदनबाट केही उदाहरणहरू लिइएका छन् । यी उदाहरणहरूले देखाउँछन् कि शैक्षिक जनशक्ति विकास केन्द्र लैङ्गिक हिसाबले संवेदनशील पक्षहरूप्रति उदासिन छ । यही उदासिनता वा लैङ्गिक अन्धोपनाको[1] कारण हो अनुगमनबाट प्राप्त सम्पूर्ण जानकारीलाई सङ्ख्यामा मात्र सीमित गरिएको छ । ती सङ्ख्यालाई लैङ्गिक हिसाबले छुट्याइएको छैन । जस्तै रेडियो प्रसारणको समय उपयुक्त र पर्याप्त छ/छैन भन्ने प्रश्नको जवाफलाई शिक्षक तथा शिक्षिकाको दैनिकीले निर्देशित गर्छ । घर परिवारमा शिक्षक तथा शिक्षिकाको भूमिका भिन्न भिन्न हुन सक्ने प्रबल सम्भावना हुन्छ । यो अवस्थामा ती दुईमध्ये रेडियो प्रसारणको समय कसलाई बढी उपयुक्त र पर्याप्त भयो ? कसलाई भएन त ? भन्ने प्रश्न शिक्षक तालिमकर्ताको निम्ति महत्त्वपूर्ण हुन्छ । यही पक्षसँग गाँसिएको अर्को प्रश्न छ - कतिजनाले रेडियो प्रसारण पूरै सुन्छन् ? र कतिजनाले केही मात्रामा मात्र सुन्छन् ? यो प्रश्न पनि लैङ्गिक दृष्टिकोणबाट महत्त्वपूर्ण छ । यी उदाहरणहरूबाट स्पष्ट हुन्छ कि यी प्रश्नहरूको जवाफलाई लैङ्गिक हिसाबमा छुट्याएरै हेर्नुपर्ने हुन्छ । त्यस्तै रेडियो कार्यक्रमको सबल पक्ष भनेको यसले शिक्षणलाई वियोल्दैन किनकि यो घरमै लिइने तालिम हो (NCED, 2005) भन्ने भनाइ पनि लैङ्गिक असंवेदनशीलताको अर्को उदाहरण हो । यो दृष्टिकोणले समाज र घर परिवारमा विद्यमान महिलाको भूमिका तथा जिम्मेवारीलाई उपेक्षा गर्छ । रेडियो सुन्न घरमा कस्को कति फुर्सद हुन्छ ? वा घर परिवारमा रेडियो सुन्न कस्का निम्ति सहज हुन्छ ? भन्ने प्रश्नको उत्तरले पनि तालिमको उपादेयता साथै शिक्षण पेशामा महिला वा पुरुष हुनुको अर्थ खुलाउँदछ । त्यस्तै रेडियो प्रसारणको समय उपयुक्त छैन भन्नेको सङ्ख्या धेरै हुनु एवम् पूरै कार्यक्रम सुन्नेको सङ्ख्या पनि कम हुनुले अनुगमनमा लैङ्गिक दृष्टिकोणको अपरिहार्यतालाई इँगित गर्दछ । रेडियोमा पहुँच र नियन्त्रण कस्को छ ? भन्ने प्रश्न त अझ छलफलको अर्को विषय नै बन्न सक्छ । घर परिवारभित्र गएर खोज्नु पर्ने यो प्रश्नको जवाफले दूरशिक्षामार्फतै पहुँचबारे महत्त्वपूर्ण जानकारी दिन्छ । सोही जानकारी नै शिक्षामा लैङ्गिक समानता र गुणस्तर कायम गर्न उपयोगी हुन्छ ।

शिक्षक शिक्षिकाको लैङ्गिक अवधारणा, तथा सोबाट निर्देशित व्यवहारले उनीहरूको शिक्षण तथा छात्र छात्राहरूको सिकाइलाई सकारात्मक एवम् नकारात्मक दुवैखाले असर पार्छ । तसर्थ शिक्षक र शिक्षिकामध्ये

---

[1] *महिला र पुरुषको आवश्यकतालाई छुट्टाछुट्टै सम्बोधन गर्न नसक्ने एवम् उनीहरूलाई छुट्टाछुट्टै प्रतिनिधित्व गर्न नसक्ने खाले शब्द, शब्दावली वा भावको प्रयोग । यस्तो प्रयोगले महिला र पुरुषबीचको भिन्नता र सो भिन्नताले उनीहरूको जीवनमाथार्ने भिन्न भिन्न असरलाई बेवास्ता गरेको जनाउँछ (आचार्य, २०६२) ।*

कक्षाकोठामा कस्ले के गऱ्यो ? र किन ? भन्ने जस्ता गुणात्मक तथ्य पत्ता नलगाई गरिएको अनुगमन प्रक्रियाले कस्लाई केमा सहयोग वा तालिम चाहिएको रहेछ भन्ने जानकारी कसरी दिन सक्छ त ? अनुभव तथा अध्ययनले भन्न सकिदैन । यो स्थितिमा लैङ्गिक दृष्टिकोण अपेक्षित यस्ता जानकारीहरू विना तालिमको गुणस्तर, उपादेयता, उपयुक्तता र शिक्षाको गुणस्तर सुनिश्चित गर्न प्रायः असम्भव नै हुन्छ । गुणात्मक प्रक्रियाले प्रायः माथिका प्रश्नहरूको उत्तर खोज्छ, अर्थात्, सामाजिक र राजनैतिक परिवेशबारे जानकारी बटुल्छ र व्याख्या गर्दछ । तर यहाँ अनुगमन प्रक्रियामा साँच्चै नै "गुणात्मक प्रक्रिया" प्रयोग गरियो त ? भन्ने प्रश्न भने उब्जिरहन्छ ।

शिक्षिकाको सङ्ख्या बढाउन विशेष महिताहरूलाई नै लक्षित गरी तालिम सुविधा प्रदान गर्ने शैक्षिक जनशक्ति विकास केन्द्रको निर्णय र समाहित शिक्षा लागू गर्ने शिक्षा प्रणालीको निर्णयले अनुगमनमा समेत पनि लैङ्गिक दृष्टिकोण समावेश गर्नुपर्ने तथ्यलाई इंगित गर्दछ । गहिरिएर भन्दा "गुणस्तरलाई समताको ऐनामा राखेर जाँच्नु पर्छ । लैङ्गिक दृष्टिमा असमान र कुनै समूह/जातजाति, सांस्कृतिक समूहप्रति भेदभाव पूर्ण शैक्षिक प्रणालीको गुणस्तर उच्च मानिदैन" (UNECO, 2004, p.35) । यो परिवेशमा शिक्षामा गुणस्तर सुनिश्चित गर्ने वैचारिक खाकाबाट परिचालित अनुगमन प्रक्रियाले लैङ्गिक अन्धोपन देखाउनु विडम्बना हुनजान्छ ।

यदि शिक्षामा लैङ्गिक समानता स्थापित गर्न वा सबैका लागि शिक्षाको लक्ष्य नं. ५ प्राप्त गर्न नेपालको शिक्षा प्रणाली कटिबद्ध छ भने शिक्षक तालिमको अनुगमन तथा मूल्याङ्कन प्रक्रियामा लैङ्गिक समानताका सूचक निश्चित रूपमा समावेश गरिनुपर्छ । सबैका लागि शिक्षाको सन् २००८ मा हुने दशकार्ध (Mid-decade) मूल्याङ्कनप्रतिको जवाफदेहितालाई समेत दृष्टिगत गर्दै लैङ्गिक दृष्टिकोणलाई हरेक कार्यक्रम र अनुगमनमा मूलप्रवाहीकरण गर्नुपर्छ ।

## निचोड

महिला तथा पुरुषको जीवनशैली, अवसरमाथिको पहुँच र निर्णय गर्ने शक्तिबीच भिन्नता हुन्छ भन्ने तथ्य सर्वविदितै छ । विकासोन्मुख मुलुकमा यी भिन्नता धेरैजसो पुरुषको पक्षमा सकारात्मक हुन्छन् । अर्थात्, पुरुषको जीवनशैली महिलाको भन्दा सामाजिक एवम् सांस्कृतिक हिसाबमा सहज हुन्छ । उनीहरूको पहुँच उच्च हुन्छ र निर्णय शक्ति पनि उनीहरूकै बढी हुन्छ । यो अवस्था शिक्षक शिक्षिकाको हकमा पनि लागू हुन्छ । जसरी छात्रछात्राहरू विविध परिवेशबाट आएका हुन्छन् त्यस्तै गरी शिक्षक र शिक्षिका पनि भिन्न भिन्न सामाजिक, सांस्कृतिक तथा आर्थिक परिवेश र अनुभवबाट आएका हुन्छन् । उनीहरूको जीवनको अनुभव, जिम्मेवारी र बहन गर्नु पर्ने भूमिका पनि भिन्न भिन्न हुनु स्वभाविक हो । तसर्थ कुनै पनि कार्यक्रम वा अनुगमनले उनीहरूलाई एउटै टोकरीमा राखेर कार्यक्रम तय गर्नु वा निष्कर्ष निकाल्नु भनेको बास्तविकताको आंशिक पक्षलाई मात्र अंगाल्नु हो । तर दूरशिक्षा तालिमको अनुगमनको विश्लेषणले यही नै देखाउँछ । अर्थात्, शिक्षामा लैङ्गिक समानता स्थापना गर्ने जिम्मा सबैका लागि शिक्षाको लक्ष्य नं. ५ सँग सम्बन्धित कार्ययोजनाको मात्र हो भन्ने शिक्षा प्रणालीभित्रको विद्यमान अवधारणालाई पुष्टि गर्छ । यस

अर्थमा लैङ्गिक सवाल वा विषय Cross cutting विषय हो भन्ने कुरा शिक्षा प्रणालीले अझै पनि नबुझेको आभाष दिन्छ । अझ स्पष्टसँग भन्ने हो भने लैङ्गिक दृष्टिकोणबाट तटस्थ बस्तु लैङ्गिक हिसाबमा न्याय दिनु होइन बरु लैङ्गिक अन्धोपना हो भन्ने कुरा शिक्षाकर्मीहरूबीच अझै प्रष्ट नभइसकेका अवस्था देखिन्छ । एकातिर समाजमा विद्यमान लैङ्गिक असमानताले गर्दा महिला तथा बालिकाहरूको शिक्षामा सहभागिता कम छ भनेर स्वीकार्नु अर्कोतर्फ लैङ्गिक हिसाबले संवेदनशील परिवेशहरूताई वेवास्ता गर्दै निष्कर्षहरू निकाल्नु शिक्षा प्रणालीभित्रको विरोधाभाषपूर्ण व्यवहार हो भन्ने तथ्य पनि टड्कारो देखिन्छ ।

## सन्दर्भसामग्री


आचार्य, सुशन (२०६२): सबैका लागि शिक्षा र लैङ्गिक समानताको सवाल ("महिला शिक्षा" बार्षिक प्रकाशनमा प्रकाशित हुने क्रममा) ।

NCED, (2005): Monitoring Report of Teacher Training Programmes. Sanothimi: Author.

UNESCO, (2004): Education for All: The Quality Imperative. EFA Global Monitoring Report, 2006 (Summary). Paris: Author.

# दूरशिक्षा र भाषाशिक्षण

- रमेश भट्टराई*

## १. विषय परिचय

सूचना प्रविधिमा भएको द्रुततर विकासले भाषा शिक्षणको प्रचलित पद्धतिमा निरन्तर परिवर्तन देखिएको छ । प्रचलित पद्धतिको भाषाशिक्षण निश्चित समय, स्थानमा विद्यार्थी र शिक्षकको प्रत्यक्ष उपस्थितिमा सम्पन्न हुन्छ । शिक्षणको यस पद्धतिका विकल्पमा पछिल्ला दशकहरूमा दूर सिकाइ पद्धतिको व्यापक विस्तार भएको छ । भाषाशिक्षणको यस पद्धतिले शिक्षार्थीहरूले घरमै वा कार्यस्थलमा सहज रूपमा भाषा सिक्ने अवसर प्राप्त गरेका छन् । यसका लागि पाठ्यक्रम निर्माण, शिक्षक तालिम तथा प्रविधि प्रयोग तालिमजस्ता कार्यक्रम सञ्चालन गरिएका छन् र यस्तो सिकाइलाई कसरी शिक्षार्थीकेन्द्रीत बनाउन सकिन्छ भन्ने बारेमा अध्ययन अनुसन्धान पनि भएका छन् ।

भाषाको सिकाइ अन्य सिकाइजस्तै जीवनपर्यन्त सिकाइ (Lifelong learning) हो । सामाजिक कार्य र आर्थिक उपार्जनका लागि मानिसलाई भाषिक ज्ञान आवश्यक पर्छ । अंग्रेजी भाषामा दक्ष नेपाली डाक्टरलाई नेपाली भाषाको ज्ञान आवश्यक पर्छ भने खाडी मुलुकमा गएर काम गर्ने नेपालीलाई अंग्रेजी र अरबीको ज्ञानले काम पाउन र जीवनयापन गर्न सजिलो पर्छ । त्यसैले कक्षाकोठामा आफ्नो भाषिक क्षमता अभिवृद्धि गर्न मात्र होइन आफ्नो कार्य क्षेत्र, अनुसन्धान, ज्ञान आर्जन लगायतका विविध क्षेत्रमा भाषा सिकाइको जरुरत पर्दछ । यस्तो अवस्थामा विविध प्रविधिको प्रयोग गरी भाषाशिक्षण गर्ने कार्यमा दूर सिकाइ पद्धति अत्यन्त उपयोगी पाइएको छ ।

## २. दूरभाषिक सिकाइ पाठ्यक्रमको निर्माण

दूरशिक्षाका आधारमा निर्माण गरिने भाषाशिक्षणका पाठ्यक्रमका विविध रूप पाइएका छन् । यस्ता पाठ्यक्रम परम्परागत मुद्रणमा आधारित पत्राचारमूलकदेखि अन्तर्क्रियाका लागि अनलाइनको प्रयोग, शिक्षार्थी र शिक्षकबीच आपसी पृष्ठपोषण, सहयोग तथा शिक्षार्थी शिक्षार्थीबीच अनलाइन छलफल आदिसम्म विस्तारित छन् । यस्ता पाठ्यक्रममा सिकाइ वातावरण, पाठ्यक्रमको हस्तान्तरण विधि, शिक्षकको भूमिका, शिक्षार्थीका लागि आवश्यक विषयवस्तु, सहयोगका स्रोतहरूको उल्लेख गरिएको पाइन्छ । यसबाहेक, पाठ्यक्रम निर्माण गर्दा निम्न कुराहरूमा ध्यान पुऱ्याएको पाइन्छ ।

---

*उप-प्राध्यापक, शि.शा.सं., त्रि.वि.वि

- शिक्षार्थीको जनसाङ्ख्यिक वितरणको ज्ञान (भौगोलिक, वितरण, मातृभाषा, उमेर, लिङ्ग आदि)
- शिक्षार्थीका आवश्यकता र उद्देश्यहरूको पहिचान
- दूर शिक्षाका शिक्षार्थीहरूले विशेषत: कस्तो विधि, पद्धति र कार्यमा बढी रुचि राख्छन् भन्ने कुराको पहिचान
- शिक्षार्थीका विशेषता र अपेक्षाहरूको निर्धारण प्रविधिको पहुँच (कम्प्यूटर, इन्टरनेट आदि)
- सिक्ने भाषाको पहुँच (भाषिक समुदाय, भाषा शिक्षक आदि)
- शिक्षार्थी दूर सिकाइका भिन्न पक्ष र सन्दर्भसँग कतिको परिचित र जानकार छ भन्ने कुराको ज्ञान उदाहरणका लागि अनलाइन छलफल, च्याट आदिको ज्ञान ।
- आकर्षक र रुचिपूर्ण
- विद्यार्थीकेन्द्रीत आदि

पाठ्यक्रम निर्माण गर्दा उच्च प्रविधि र निम्न प्रविधि (Hi-tech and low-tech) दुवैको प्रयोग गर्न सकिने, मुद्रित सामग्री, पत्राचार लगायतका सामग्रीको समेत प्रयोग गर्ने किसिमले निर्माण गर्नुपर्दछ । यसले शिक्षार्थीले आफ्नो रुचि, समय र अवस्थाअनुसार सामग्रीको प्रयोग गरी सिकाइ कार्य अघि बढाउने अवसर प्रदान गर्दछ । यसबाहेक सबै सीपहरूलाई कसरी संयोजन गर्ने भन्ने विषयमा पनि विशेष ख्याल पुऱ्याउनु पर्दछ । उदाहरणका लागि

- लेखाइ क्रियाकलापका लागि : इमेल, पत्राचार, फ्याक्स आदि
- निश्चित समयमा सम्पन्न गरिने पढाइ र लेखाइ अभ्यासका लागि : च्याट
- व्याकरण अभ्यासका लागि : कार्यपुस्तिका, कम्प्युटर
- सुनाइ र बोलाइ अभ्यासका लागि : टेप, सी.डी, फोन आदि
- पढाइ अभ्यासका लागि : स्रोत सामग्री र सन्दर्भ सामग्रीहरू पाठ्यक्रममा सबै सीपलाई उच्च प्रविधि वा निम्न प्रविधिमा मात्र केन्द्रित नगरी तिनीहरूलाई संयोजित गर्नु आवश्यक हुन्छ जस्तै : इमेल, इन्टरनेटलाई क्यासेट टेप र कार्यपुस्तिकासँग संयोजन गरी सुनाइ बोध क्रियाकलाप गराउन सकिन्छ । यसबाहेक पाठ्यक्रम व्यक्ति विशेष वा समूह विशेष दुवैले सजिलै प्रयोग गर्नसक्ने प्रकृतिको हुनुपर्छ र त्यसैअनुसार सामग्रीहरू पनि निर्माण गरिनु पर्दछ । यसले गर्दा शिक्षार्थीले व्यक्तिगत रूपमा मात्र नभई समूहगत रूपमा पनि छलफल, अन्तर्क्रिया र अन्य कार्य गरी सिकाइ सम्पन्न गर्ने अवसर प्राप्त गर्दछ ।

## ३. दूर अवधारणाहरू

### ३.१ अनलाइन सिकाइ (Online learning) सिकाइ र शिक्षणमा इन्टरनेट प्रविधिको प्रयोग गरिने पद्धतिलाई अनलाइन सिकाइ भनिन्छ । यस पद्धतिमा शिक्षार्थीले इन्टरनेटबाट सूचना, पाठ्यक्रम र पाठ्यविषय मात्र प्राप्त गर्ने नभई अन्य अनलाइन सहभागी तथा शिक्षकसँग अन्तर्क्रिया एवम् सहभागीमूलक कार्य गर्ने अवसर पनि प्राप्त गर्दछ । यस्तो प्रविधिमा पाठ्याङ्श हस्तान्तरण अन्तर्क्रियामूलक र सहयोगी र प्रकार्यात्मक हुन्छ । यसमा भाषाशिक्षकले विविध अनलाइन सामग्रीमार्फत् सिकाइ वातावरणलाई जीवन्तता प्रदान गर्दछन् ।

क्यानाडाको अबलेटा विश्वविद्यालयले सन्चालन गरेको अनलाइन भाषाशिक्षण कार्यक्रम निकै प्रभावकारी रहेको छ भने अन्य देशमा साइबर विद्यालयहरूले अनलाइन सिकाइका माध्यमबाट भाषा शिक्षण कार्यक्रम सम्पन्न गरेका छन् । भाषाशिक्षणको यस प्रक्रियामा आधारभूत भाषा (Basic language) विशिष्ट उद्देश्यका लागि सिकाइने भाषा (Language for specific purposes) माध्यमिक तह (Intermediate level) तथा माथिल्लो तह (Advanced level) सम्मका पाठ्यक्रमहरू समावेश छन् ।

अनलाइन सिकाइ भाषा शिक्षणको उच्च प्रविधियुक्त शिक्षण हो । यो अवधारणा समस्यामुक्त भने रहेको पाइन्न । कम्प्युटरसम्बन्धी उच्च ज्ञानविना यो शिक्षणसिकाइ असम्भव छ । त्यसैले यसमा सर्वप्रथम कम्प्युटरको पूर्णज्ञान आवश्यक हुन्छ । कम्प्युटरको पूर्णज्ञान नहुँदा शिक्षार्थीमा भाषाशिक्षणप्रति वितृष्णा उत्पन्न हुने डर हुन्छ । त्यसै गरी उत्प्रेरणा (Motivation) र समय (Time) पक्ष पनि यसका समस्याहरू हुन् । उत्प्रेरणाविना विद्यार्थीको तहगत उपलब्धि सम्भव हुँदैन भने सबै शिक्षार्थीको समय नमिल्नाले पनि सिकाइमा समस्या उत्पन्न हुन्छ ।

### ३.२ वितरित सिकाइ (Distributed learning)

उत्तर अमेरिकामा वितरित भाषिक सिकाइ अत्यधिक प्रचलनमा रहेको छ । यो भाषा सिकाइको मिश्रित पद्धति हो । यसमा सिकाइका माध्यमबाट सहभागीहरूलाई भाषाशिक्षणको अवसर प्रदान गरिन्छ । अनलाइन छलफल र अन्तर्क्रियादेखि मुद्रित सामग्रीको समेत प्रयोग गरी भाषाशिक्षण गर्ने यस विधिमा शिक्षार्थीले सबै प्रकारका सामग्रीहरूको प्रयोग गर्ने अवसर पाउँछ । यसमा समय समयमा सम्मेलन (Conference) कक्षाहरूको पनि व्यवस्था गरिएको हुन्छ । इटालेली भाषा शिक्षणका क्रममा यस पद्धतिको पहिलो परीक्षण गरिएको थियो । यसमा एउटै पाठ्यक्रमलाई प्रत्यक्ष विधि (Face-to-face method) र दूर शिक्षा पद्धतिमा शिक्षण गरिएको थियो र

यो पद्धति प्रत्यक्ष पद्धतिभन्दा प्रभावकारी पाइएको थियो । यसको मुख्य कारण प्रचलित विधि र अनलाइन विधिको प्राय: सम्मिश्रण पाइनु नै हो । शिक्षार्थीहरूले अन्तर्क्रियामा प्रत्यक्ष सहभागी हुने, आफ्ना कमजोरी र उपलब्धिका बारेमा पृष्ठपोषण प्राप्त गर्ने, सी.डी., रोम, अडियो र भिडियो फाइल, मुद्रित स्रोतसामग्रीको प्रयोग गर्ने र अनलाइन कक्षाहरूमा समेत सहभागी हुन पाउने भएकाले यो अवधारणा बढी प्रभावकारी हुन पुगेको हो । भाषाका सुनाइ, बोलाइ, पढाइ र लेखाइजस्ता अभ्यास र प्रयोगको अवसर हुने हुनाले एसियाका धेरै मुलुकहरूमा पनि भाषा शिक्षणको यस अवधारणाले प्रवेश पाएको छ ।

वितरित सिकाइमा शिक्षार्थी वितरण गरिएका सामग्रीका विषयमा परिचित हुन पाउँछ भने यसमा शिक्षकको प्रत्यक्ष सहयोगको अवसर पनि रहन्छ । यस्तो सहयोग हप्ता, पक्ष वा महिनाको एक दुई पटक गरी निर्धारण गरिएको हुन्छ । यसले गर्दा वितरित सामग्रीमै रहेको अलमलाई पनि हटाउन मद्दत पुग्दछ । बढी लचिलो र अन्तर्क्रियामूलक हुने हुनाले यो सिकाइ उपयोगी पनि रहेको छ ।

### ३.३ अन्य अवधारणाहरू

दूर सिकाइमा भाषाशिक्षण गर्दा अन्य अवधारणाहरू पनि प्रयोगमा आएका पाइन्छन् । त्यसमध्ये टेलिम्याटिक्स (Telematics) र खुला सिकाइ (Open learning) बढी प्रचलित छन् । टेलिम्याटिक्समा अडियो सम्मेलन (Audio conferencing), भिडियो सम्मेलन (Video conferencing) च्याट (Chat), इमेल, भिडियो मेल, अडियो मेल, समाचार समूहहरू (New groups) बुलेटिन बोर्ड प्रणाली, कम्प्यूटर सम्मेलन जस्ता प्रविधिमा आधारित भई कार्यक्रम सञ्चालन गरी भाषाशिक्षण गरिन्छ ।

खुला सिकाइ दूरसिकाइभन्दा केही भिन्न तरिका हो तापनि खुला सिकाइकै दर्शनमा दूर सिकाइ रहेको छ । यसमा भाषाशिक्षार्थी वा विद्यालयकै लागि खुला पाठ्यक्रम (Open curriculum) को निर्माण गरिन्छ र त्यसकै आधारमा दूरसिकाइका माध्यमबाट शिक्षण गरी परीक्षण सञ्चालन गरिन्छ । खुला सिकाइकै पृष्ठभूमिमा अहिले विश्वमा खुला विद्यालय र खुला विश्वविद्यालयको अवधारणा विकसित भएको छ । त्यसैले भाषाशिक्षणमा मात्र नभई विद्यालयीय र विश्वविद्यालयीयस्तरमा पनि खुला सिकाइ लोकप्रिय बन्दै गएको छ ।

## ४. दूरभाषिक सिकाइ र शिक्षार्थी

भाषाशिक्षण के हो ? भन्ने कुराले दूर सिकाइसँग पनि महत्त्वपूर्ण सम्बन्ध राखेको हुन्छ । भाषाशिक्षणका प्रचलित कक्षामा झैं दूरसिकाइमा पनि शिक्षार्थीको भूमिका महत्त्वपूर्ण हुन्छ । यस

पद्धतिमा शिक्षकको भूमिका कम हुने हुनाले व्यक्तिगत रुचि तथा आकर्षण अनाकर्षणमा ठूलो महत्त्व रहन्छ । यति भएर पनि दूरभाषिक सिकाइका लागि शिक्षाका विशेषताका आधारमा दूर सिकाइमा आधारित भाषाशिक्षण कार्यक्रमको संयोजन र व्यवस्थापन गर्नुपर्ने हुन्छ । यसका लागि निम्न कुराहरूमा ध्यान पुऱ्याउनुपर्दछ ।

- भाषिक प्रयोगको क्षमता
- मनोभाषावैज्ञानिक प्रक्रिया
- लिङ्ग
- उमेर
- प्रवृत्ति
- संज्ञानात्मक शैली
- सिकाइ अप्ठ्याराहरू
- व्यक्तित्व
- आत्म/सामाजिक/सांस्कृतिक पहिचान
- संस्था
- प्रचलित विश्वास
- अभिवृत्ति
- सिकाइ वातावरण ।

शिक्षार्थीलाई सिकाइ स्रोतका विषयमा पनि राम्रो जानकारी आवश्यक छ । त्यसबाहेक अन्तर्क्रियाका प्रवृत्ति र प्रकृति, सहयोग, सिकाइ सहजता, लचकता, नियन्त्रण, सिकाइ स्थल, दूर सिकाइ समुदाय आदिका विषयमा पनि राम्रो जानकारी प्रदान गरिनु पर्दछ । शिक्षार्थीलाई सामग्रीको चयन र निर्माणमा कसरी सहयोग पुऱ्याउने भन्ने विषयमा पनि राम्रो जानकारी हुनुपर्दछ ।

शिक्षार्थीको शिक्षणसिकाइमा शिक्षार्थीलाई सहयोग गर्ने शिक्षकको भूमिका पनि महत्त्वपूर्ण हुन्छ । त्यसैले शिक्षकले शिक्षार्थीको निवृत्त सम्पर्कमा रही कार्य गर्नुपर्दछ । तिनीहरूको सिकाइ अनुभवका विषयमा छलफल अनलाइन वा प्रत्यक्ष गरिरहनुपर्दछ । शिक्षार्थीहरूमा समय, शक्ति र मानसिक तयारीका लागि शिक्षक सदैव तयार रहनुपर्दछ । यसका लागि

- शिक्षार्थीका सिकाइ सन्दर्भको विकास र महत्त्वका विषयमा सदैव सचेत हुनुपर्दछ ।
- शिक्षार्थीका लागि सम्भव भएसम्म कस्तो सहयोग गर्न सकिन्छ भन्ने विषयमा आवश्यक तयार गरिरहनु पर्दछ ।
- प्रत्येक शिक्षार्थीको विकास र समयका विषयमा सदैव उत्तरदायी भइरहनु पर्दछ ।
- शिक्षार्थीसँगै रही सहयोग गरिरहेको छु भन्ने अनुभूति सदैव प्रदान गरिनु पर्दछ ।
- सन्दर्भअनुसार शिक्षार्थीका विभिन्न अवस्थामा सुधार ल्याउने योग्यता र क्षमता हुनुपर्दछ ।
- हरेक समयमा निरन्तर अनुगमन र परीक्षण गरी शिक्षार्थीको विकास कसरी भइरहेको छ पत्ता लगाउनु पर्दछ ।

यी कुराहरू पूरा गर्नका लागि दूर सिकाइमा कार्यरत भाषा शिक्षकले शिक्षार्थीका लागि निम्न तीन चरणका कार्य गर्नुपर्दछ :

पूर्व पाठ्याङ्शको चरण : यस चरणमा शिक्षार्थीलाई निम्न किसिमको ज्ञान उपयोगी हुन्छ

- पाठ्याङ्श योजना : पाठ्यक्रम, सामग्री, हस्तान्तरण विधि, प्रविधिको प्रयोग
- सामग्री अध्ययनका लागि पूर्वतयारी
- सेवाहरूको सहयोगको योजना
- पाठ्याङ्श छनोट र योजनाका लागि परामर्श ।

पाठ्याङ्श प्रवेशको चरण : यस चरणमा शिक्षार्थीका लागि निम्न किसिमको ज्ञान उपयोगी हुन्छ ।

- दूरसिकाइका लागि सूचनामूलक सहयोग
- समय र स्थानका विषयमा आवश्यक पक्षको जानकारी
- शिक्षार्थीका अनुभव र अन्तर्क्रियाको हस्तान्तरणका लागि सहजीकरण
- शिक्षार्थीको भिन्न अवस्थाको पहिचान र सहयोग ।

पाठ्याङ्श पठन / सिकाइको चरण : यस चरणमा शिक्षार्थीका लागि निम्न प्रकारको ज्ञान उपयोगी हुन्छ ।

- शिक्षार्थीले पाठ्याङ्शलाई कसरी ग्रहण गरेको छ भन्ने कुराको अनुगमन
- शिक्षार्थी र शिक्षकबीच अन्तरक्रिया र सोझो सम्बन्ध निर्माण
- आवश्यक पर्ने सहयोगका लागि सूचना प्रदान
- भाषिक मूल्याङ्कन र कार्यमा व्यक्तिगत रूपमा पृष्ठपोषण
- सिकाइमा भएको प्रगतिको प्रभावको विश्लेषण, सहयोग र पृष्ठपोषण
- आवश्यकता, अप्ठ्यारा र निराशा भए तिनको निराकरण ।

अन्तिम सहयोग पृष्ठपोषण

दूर सिकाइको आधार भाषा सिक्ने शिक्षार्थीको क्षमता र योग्यता नै हो । त्यसैले दूर सिकाइमा शिक्षार्थी अन्तर्क्रियामुखी, सिकाइ सामग्रीको खोजी गर्न सक्ने इमेल, इन्टरनेटको ज्ञान भएको, अन्य शिक्षार्थीसँग अन्तर्क्रिया र छलफल गर्न तत्पर, भाषा सिकाइको विविध मौखिक पक्षको ज्ञान गर्न सक्षम शिक्षकसँग अन्तर्क्रिया गर्न रुचाउने लगायतका योग्यता भएको हुनुपर्छ । उसमा स्वतन्त्र निर्णय गर्नसक्ने आफूलाई नियन्त्रण गर्न र अवसरहरूलाई प्रयोग गर्ने क्षमता हुनुपर्दछ ।

## ५. नेपालमा दूर सिकाइ र भाषाशिक्षण

बहुभाषिक राष्ट्र नेपालमा नेपालीतगायत सबै भाषाको महत्त्व बढ्दो छ । मानिसहरूमा मातृभाषा र अन्य भाषा सिक्ने इच्छा हुँदाहुँदै पनि दूर सिकाइको अभावमा भाषा सिकाइका अवसरहरू प्राप्त हुन सकेका छैनन् । प्रत्यक्षसिकाइमा रुचि राख्नेहरूका लागि पनि त्यस्ता अवसर कम छन् । त्रि.वि. अन्तर्गतका विश्व भाषा क्याम्पस र नेपाली केन्द्रीय विभागमा प्रत्यक्ष पद्धतिमा नेपाली भाषाको शिक्षण गरिन्छ भने अन्य भाषा वा दोस्रो भाषा शिक्षणका लागि कुनै प्रयास भएका छैनन् । यस्तो अवस्थामा नेपालमा दूर सिकाइका प्रयोग गरी भाषा शिक्षणको पर्याप्त सम्भावना रहेको देखिन्छ । नेपाली भाषाशिक्षणमा शैक्षिक जनशक्ति विकास केन्द्र, दूर शिक्षा/खुला सिकाइ महाशाखाको योगदान महत्त्वपूर्ण रहे पनि यो संस्था मूलत: शिक्षक तालिममै संलग्न रहेको छ । यस्तो अवस्थामा विश्वविद्यालय तथा अन्य निकायहरूले दूर शिक्षा पद्धतिलाई तुरुन्त प्रारम्भ गर्न सके भाषाशिक्षणमा सहयोगी हुन सक्ने देखिन्छ ।

### सन्दर्भसामग्री


Bates, A.W. 1995: Technology, Open Learning and Distance Education Newyork, Routledge.

Brumtit, C. 1984: Communicative Methodology in Language Teaching: Cambridge: CUP.

Cadlin, C. and F . Byrnew 1995: Language in Distance Education Sydney: NCELTR.

Keersley, O. 2000: Online Education: Learning and Teaching in Cyber Space, Belmont, CA: Wadsworth 2003.

White, Cynthia 2003: Language Learning in Distance Education Cambridge: University press.

# खुला विद्यालय सञ्चालन : नीतिगत सोच, परिवेश आवश्यकता र चुनौति

- दीपक शर्मा*

## पृष्ठभूमि

जङ्गबहादुरको बेलायत यात्रासँगै नेपालमा आधुनिक प्रकारको विद्यालयीय शिक्षा भित्रियो । वि.सं. २००७ सालको राजनैतिक परिवर्तनपछि सीमित वर्ग विशेषमा खुम्चिएर रहेको विद्यालय शिक्षाको अवसरमा विस्तार भयो । सन् १९६० को दशकमा विश्वका अर्थशास्त्रीहरूले मानव संसाधनमा विकास गरेर मात्र आर्थिक विकास प्राप्त गर्न सकिन्छ भन्ने अवधारणा अगाडि ल्याए । ठीक त्यसै कालखण्डमा माध्यमिक शिक्षा बेरोजगारी बढाउने किसिमको हुनु हुँदैन भन्ने सुझाव वि.सं. २०११ सालको राष्ट्रिय शिक्षा आयोगको प्रतिवेदनमा लिपिवद्ध गरियो साथै शिक्षाविना हाम्रो आर्थिक अवस्था सुधन सक्दैन भन्ने अवधारणा अगाडि सारियो (रा.आ. प्रतिवेदन २०११) । वि.सं. २०४७ सालमा बहुदलीय व्यवस्थाको पुन:स्थापनापछि विद्यालय शिक्षाको पहुँचमा सुधार गर्ने थप प्रयासहरू भए । २०४७ सालको राजनैतिक परिवर्तनपछि लागू भएको आठौं पञ्चवर्षीय योजनामा शिक्षासम्बन्धी नीतिमा दूर शिक्षा प्रणालीबाट विद्यालय शिक्षा प्रदान गर्न आवश्यक कदम चाल्ने कुरा उल्लेख गरियो (रा.यो.आ. २०४९) । त्यसयताको डेढ दशकमा खुला विश्वविद्यालय स्थापना र सञ्चालन बारे धेर थोर वहस चले पनि खुला विद्यालयीय शिक्षाबारे खासै वहस हुन सकेको पाइएन । हुन त विद्यालय शिक्षाको व्यवस्थापन र सञ्चालनसम्बन्धी शिक्षा ऐन २०२८ को सातौं संशोधनमा अनौपचारिक शिक्षा तथा दूर शिक्षाको सञ्चालन तोकिएबमोजिम हुनेछ भनी उल्लेख गरिएको छ र शिक्षा मन्त्रालयबाट जारी गरिएको दूर शिक्षा सञ्चालनसम्बन्धी निर्देशिका २०५९ मा खुला विद्यालय सञ्चालन गर्न चाहेमा सम्बन्धन दिन सकिनेसम्मको व्यवस्था गरिएको छ । तर पनि यथार्थता के हो भने आठौं पञ्चवर्षीय योजनामा अगाडि सारिएको नीतिले दशौं योजनाको उत्तरार्द्धमा आइपुग्दा पनि मूर्त रूप लिन सकेन । हाल आएर खुला विद्यालयको परीक्षण सञ्चालन गर्ने कुरा उठेको छ । यसै सन्दर्भमा दूर शिक्षा तथा खुला सिकाइको विद्यालयस्तरीय शिक्षामा प्रयोगको नीतिगत आवश्यकता र कार्यान्वयनका चुनौतिहरू बारे यहाँ छलफल गर्न खोजिएको छ । खास गरी एघारौं योजना तर्जुमाको संघारमा र परिवर्तित सन्दर्भमा यस्ता छलफलहरू उपयोगी हुन सक्छन् भन्ने पनि ठानिएको छ ।

## राष्ट्रको योजनामा के छ ?

आठौं पञ्चवर्षीय योजनामा "दूर शिक्षा प्रणालीबाट विद्यालय शिक्षा प्रदान गर्न आवश्यक कदम चाल्ने" कुरा उल्लेख गरिए पनि त्यो कार्यान्वयनमा आउनसकेन । यता रा.यो.आ. २०४९ सिफारिसमा निकट

*शाखा अधिकृत, शै.ज.वि.के., सानोठिमी ।

भविष्यमा नेपाल सरकारले एउटा खुला विश्वविद्यालयको स्थापना गर्नुपर्छ भन्ने कुरा उल्लेख भए पनि खुला विद्यालय शिक्षाका बारेमा केही सुझाव दिएको देखिदैन ।

नवौं पञ्चवर्षीय योजना लागू हुँदा ४५ प्रतिशत बालबालिकाले मात्र माध्यमिक विद्यालयमा प्रवेश पाइरहेका थिए । तसर्थ योजना अवधिमा उक्त दरलाई शतप्रतिशतमा पुऱ्याउने अवधारणा लिनुका साथै शिक्षाको दीर्घकालीन उद्देश्यमा "सबै वर्गलाई समान अवसर प्रदान गर्ने" र "शिक्षालाई गुणस्तरीय बनाई यसलाई राष्ट्रिय विकासको मूलधारको रूपमा विकसित गर्ने" दीर्घकालीन उद्देश्य एकातिर थियो भने अर्कोतर्फ यो उद्देश्य हासिल हुन सहायक हुने "शिक्षा क्षेत्रमा इन्टरनेटमार्फत् आधुनिक शैक्षिक प्रणाली तथा लामो दूरीको शिक्षा र ग्रामीण क्षेत्रमा रेडियो शिक्षालाई विस्तार एवम् प्रभावकारी बनाइने छ" भन्ने कुरा सूचना प्रविधिको खण्ड (पृ.८५) मा उल्लेख थियो । यस योजनामा "खुला विश्वविद्यालय स्थापना गर्ने" (पृ. ५६९) कुरालाई दीर्घकालीन अवधारणाका रूपमा लिई "अवसर विस्तार र लागत प्रभावकारिता (Cost effectiveness) का लागि खुला विश्वविद्यालय र खुला माध्यमिक एवम् उच्च माध्यमिक विद्यालय सञ्चालन गर्ने" कुरा नीति र कार्यनीतिमा उल्लेख गरिएको थियो (पृ.५७३) । तर पर्याप्त र ठोस कार्यक्रमको अभावमा यसतर्फ प्रगति हुन सकेन ।

नवौं योजनामा खुला विश्वविद्यालय स्थापना गर्ने लक्ष्य राखिए तापनि त्यसलाई चाहिने पूर्वाधार विकास हुन सकेन भनेर दशौं योजनामा सामान्य ढङ्गले समीक्षा गरिएको छ । साथै चालु दशौं योजनामा खुला विश्वविद्यालय स्थापना गरी सञ्चालन गर्ने (पृ. ३९०) कुरा उल्लेख छ । तर आठौं र नवौं योजनामा उल्लेख भएको खुला विद्यालयसम्बन्धी कुराले दशौं योजनामा निरन्तरता पाउन सकेन । हुन त यो योजना सकिनै लाग्दा पनि खुला विश्वविद्यालय स्थापनासम्बन्धी ठोस पहल कतैबाट भएको सुनिएको छैन । शिक्षा कार्यदलले २०५६ सालतिरै तयार पारेको खुला विश्वविद्यालयको मस्यौदा विधेयक पनि हालसम्म कतै थन्किएर नै बसेका छन् । दशौं योजनामा शिक्षाको गुणस्तर विकासका लागि विद्यालय तहमा शिक्षक तालिम र अध्यापन इजाजत प्रणाली अनिवार्य कार्यान्वयनका लागि विद्यालय तहमा अनिवार्य शिक्षक तालिम र अध्यापन इजाजत प्रणाली लागू गर्ने र तालिममा पहुँच पुऱ्याउन शिक्षाका सबै तहका तालिम कार्यक्रममा दूर शिक्षाको माध्यमताई समेत उपयोग गर्ने भन्ने उल्लेख छ । त्यस्तै योजना अवधिमा गरिने भनी उल्लेख भएका नीतिगत सुधारका आठओटा बुँदाहरूमध्ये अन्तिम बुँदामा "शैक्षिक प्रविधिको प्रयोगबाट आधुनिक शिक्षाको पहुँच सर्वसुलभ गराउन खुला शिक्षा तथा दूर शिक्षा प्रणाली लागू गर्ने" भन्ने उल्लेख छ । तर उक्त नीतिगत सुधारको प्रयास पनि कार्यान्वयनमा देखिन सकेको छैन ।

### दूर शिक्षा खुला सिकाइ : हालसम्मका संस्थागत प्रयासहरू

२०१५ सालमा अमेरिकी सहयोगमा रेडियो शिक्षा शिक्षक आयोजना कार्यान्वयन भयो । २०३७ सालदेखि दूर शिक्षा प्रणालीका माध्यमबाट रेडियो नेपालबाट प्राथमिक शिक्षक तालिम कार्यक्रम प्रसारण भयो । २०५० सालमा शिक्षा मन्त्रालयअन्तर्गतका निकायको पुनः संरचना गर्दा दूर शिक्षा केन्द्रको स्थापना गरियो । त्यसपछिको एक दशकसम्म यो केन्द्र दूर शिक्षा प्रणालीबाट प्राथमिक शिक्षक तालिम सञ्चालन

गर्ने निकायका रूपमा रहँदै आयो । त्यसभन्दा खासै उल्लेख्य प्रगति हुन सकेन । २०६१ सालमा शिक्षा मन्त्रालयअन्तर्गत तालिम दिने केन्द्रीय निकायहरूको एकीकरण गरिँदा यो केन्द्र शैक्षिक जनशक्ति विकास केन्द्रअन्तर्गत दूर शिक्षा तथा खुला सिकाइ महाशाखाको रूपमा रहन गयो र यसको कार्यक्षेत्र विस्तार गरी निम्नमाध्यमिक तथा माध्यमिक तहका शिक्षकलाई पनि दूर सिकाइका माध्यमबाट तालिम कार्यक्रम सञ्चालन गर्न जिम्मेवार बनाइयो । तर पनि संस्थागत नीति तोकिएको कार्यक्षेत्र, उपलब्ध स्रोत र जनशक्तिको हिसाबले खुला विद्यालय बारे यसले केही गर्न सक्ने स्थिति थिएन ।

हुन त २०५० मा दूर शिक्षा केन्द्रको स्थापना भएपछि यसका उद्देश्यहरूमा प्राथमिक शिक्षकलाई तालिम प्रदान गर्ने, आवश्यकतामा आधारित अनौपचारिक शिक्षा कार्यक्रम प्रसार गर्ने र शिक्षा प्राप्तिमा चासो राख्ने सुविधाविहीन तथा सामाजिक र आर्थिक रूपले कमजोर वर्गका जनसमुदायलाई विद्यालय तह एवम् उच्च शिक्षाको अवसर दूर शिक्षा प्रणालीबाट उपलब्ध गराउनेसम्मका कुरा उल्लेख थिए । खुला विश्वविद्यालयको स्थापनासम्बन्धी आवश्यक पूर्व तयारीको दायित्व विश्वविद्यालय अनुदान आयोगको कार्यक्षेत्रभित्र पर्दछ । तर खुला विद्यालय सञ्चालन गर्ने कार्यक्षेत्र र पद्धतिका बारेमा खासै किटानी भएको पाइँदैन ।

खुला विद्यालय शिक्षाको आवश्यकता परेकै हो त ?

सन् १९९० को दशक यता आधारभूत विद्यालय शिक्षालाई संसारभरि मानव अधिकारका रूपमा लिइएको छ । त्यसैले यो राज्यको प्राथमिकता र दायित्वभित्र पर्दछ । शिक्षा विभागको २०६२ को शैक्षिक तथ्याङ्कअनुसार निम्नमाध्यमिक तहमा सहजै देखिने कुल भर्नादर ७६ प्रतिशत र माध्यमिक विद्यालयको कुल भर्ना दर पनि ५०.४ प्रतिशत देखिन्छ । त्यस्तै २०६१ को शैक्षिक तथ्याङ्कअनुसार निम्नमाध्यमिक विद्यालयको खुद भर्नादर ४३.९ प्रतिशत र माध्यमिक विद्यालयको ३२ प्रतिशत देखिनुले विद्यालय जाने उमेरका प्रति सयजना बालबालिकाहरूमध्ये नि.मा.वि. तहमा ५६ जना र मा.वि. तहमा ६८ जना विद्यालय जान सकेका छैनन् भन्ने देखिन्छ । यो दर विकास क्षेत्रको आधारमा भौगोलिक, आधार, जातजातिको आधारमा र लैङ्गिक आधारमा असमानता छ । हालसम्म सरकारी र नीजि क्षेत्रको प्रयासका वावजुद पनि विद्यालयबाहिरै रहेको बालबालिकाको ठूलो हिस्साका लागि भरपर्दो विकल्प के त ? भन्ने प्रश्न छ र यसको उत्तर खुला विद्यालयको व्यवस्थापन र सञ्चालनमा खोजिनु पर्ने बेला भइसकेको छ ।

दशौं पञ्चवर्षीय योजनाले प्रष्टसँग उल्लेख गरेको कुरा के हो भने देशमा करीब ३८ प्रतिशत मानिसहरू निरपेक्ष गरिबीको रेखामुनि छन् । गरिबीको जटिलता ग्रामीण र दुर्गम भेगमा बढी छ । अति दुर्गम क्षेत्रमा अति गरिबी पनि छ । यस्तो परिवेशमा शिक्षालाई गरिबी निवारणको एक सशक्त माध्यमका रूपमा लिइएको छ । त्यसैले शिक्षा प्राप्त गर्नु भनेको ज्ञान आर्जन गर्नुमात्र नभई वर्तमान सामाजिक र आर्थिक परिवेशमा व्यवहारिक योगदानसमेत गर्न सक्नु हो र गरिबी भनेको आर्थिक गरिबी मात्र होइन प्राविधिक पछौटेपन पनि हो । यी दुवैलाई सुधारेर उत्पादनमा योगदान दिंदा गरिबी घटाउन टेवा पुग्दछ । तर विश्व घटना क्रमले देखाइसकेको छ आर्थिक उन्नतिका लागि प्राविधिक पछौटेपनबाट माथि उक्लनु पर्छ र

विद्यालय शिक्षाको अभावमा यस्तो खुड्किलो पार गर्न सम्भव छैन । करिब ७६ प्रतिशत मानिसहरू कृषिमा आधारित रहेको अवस्थाकै कुरा गर्दा पनि शिक्षाको माध्यमबाट कृषि क्षेत्रको उत्पादन र उत्पादकत्वमा सकारात्मक प्रभाव पार्न सकिन्छ । त्यसैले शिक्षा प्रदान गर्नुलाई मानव पूँजीको विकाससँग जोडिएको छ र विकासोन्मुख देशमा आर्थिक विकासका लागि पनि मेशिनभन्दा मानवमा गरिने लगानी बढी उपयुक्त हुने ठानिएको छ । प्राथमिक तहमा अनौपचारिक शिक्षा र वैकल्पिक विद्यालयका केही प्रयोगहरू भए पनि माध्यमिक तहको शिक्षामा हालसम्म औपचारिक धारमा मात्र सरकारी लगानी र शिक्षाको व्यवस्थापन गरिएको छ । खुला विद्यालयको बाटो पनि हिँड्ने जमर्को नगरिकन विद्यालयको संरचनाभित्र नअटाएका व्यक्तिहरूमा लगानी र शिक्षाका अवसरहरू पुऱ्याउन सकिदैन ।

माध्यमिक शिक्षाको पहुँच पुग्न नसक्नुका धेरै कारणहरू पहिचान भइसकेका छन् भौगोलिक विकटता, अग्ला पहाड, खोंच, यातायातको असुविधा र पातलो वस्ती, आर्थिक दरिद्रता, जात जातिगत छुवाछुत र भेदभाव, लैंगिक भेदभाव आदि यसका परम्परागत कारण हुन् । दश वर्षदेखि देशमा जारी हिंसा र द्वन्द्वको शिकार भएर विस्थापित हुन पुगेका बालबालिकाहरू पनि माध्यमिक विद्यालय शिक्षाको पहुँचबाट टाढा पुगेका छन् । आर्थिक, सामाजिक र अन्य कारणले पनि विद्यालय वा औपचारिक शिक्षण संस्थामा आई नियमित रूपमा पढ्न नसक्नेका लागि खुला विद्यालय एउटा भरपर्दो वैकल्पिक उपाय हो । खुला शिक्षा धेरै अर्थमा सान्दर्भिक छ । महिला शिक्षामा पहुँच नभएका व्यक्तिलाई यसले सेवा दिन्छ । खुला शिक्षाबाट विकासोन्मुख देशलाई चारओटा उपलब्धि हासिल हुने तर्क पनि शिक्षाविद्हरूले गरेका छन् । ती उपलब्धिहरूमा शैक्षिक संस्थामा आउन नसक्नेका निम्ति शिक्षामा पहुँच, उच्च शिक्षा हासिल गर्न खोज्नेलाई अवसर, पेसामा संलग्न व्यक्तिहरूका लागि व्यवसायिक विकास गर्ने मौका र जनस्तरमा काम गर्नेहरूलाई आफ्नो ज्ञान र सीपलाई अद्यावधिक गर्ने अवसर (डा. सुशन आचार्य २०५९) जस्ता कुराहरू पर्दछन् ।

खुला विद्यालय कार्यक्रममा दैनिक कक्षा शिक्षण गर्नुपर्दैन । यसले विद्यार्थीलाई स्वाध्ययन सामग्री, अभ्यास पुस्तिका (Work-book), अडियो क्यासेट, भिडियो, मल्टिमिडिया इमेल, इन्टरनेट जस्ता सुविधाहरू उपलब्ध गराएर उनीहरूलाई आफ्नो क्षमता र गतिअनुसार सिक्ने अवसर प्रदान गर्दछ । त्यसैले "भूत विद्यार्थीलाई यो कार्यक्रम चाहिन्छ, आजीवन शिक्षार्थीलाई यो कार्यक्रम जरुरी छ । विष्फोटित ज्ञान टिप्न खोज्नेलाई यो कार्यक्रम अनिवार्य भएको छ । थप ज्ञान खोज्नेलाई विस्तारित दूर शिक्षाको कार्यक्रम चाहिएको छ, मानवीय सम्पदाको घिस्रिएको दिमाग उजिल्याउन यो कार्यक्रम चाहिन्छ" भनेर शिक्षामा सरोकार राख्नेले आफ्ना तर्कहरू प्रस्तुत गर्दै आएका छन् (डा. विद्यानाथ कोइराला, २०५८)

विगत ५ वर्ष (२०५७ देखि २०६१) सम्मको प्रवेशिका परीक्षा उत्तीर्ण दरलाई हेर्ने हो भने पनि यो दर ३१ प्रतिशतदेखि ४६ प्रतिशतका बीचमा रहेको देखिन्छ । विगत डेढ दशक यता निजी विद्यालयको सङ्ख्यामा उल्लेखनीय रूपमा वृद्धि भए पनि यो सहरी क्षेत्रमा मात्र केन्द्रित छ र यसले गुणस्तरीय शिक्षाको पहुँचमा विस्तार गरे पनि विद्यमान सरकारी र निजी विद्यालयको प्रयोगले शैक्षिक विभेदको खाडल पनि सतहमा प्रष्टै देखिने गरी बढाउँदै लगेको छ । सामुदायिक विद्यालयमा पढाउने जनशक्तिको व्यवस्थापन राम्रो छैन ।

यस्ता विद्यालय समुदायमा हस्तान्तरण गर्दै जाने सरकारी नीति छ तर पातलो वस्ती भएका विद्यालयमा न्यून विद्यार्थी सङ्ख्याको कारण एकातिर सरकारी लगानी उच्च छ भने अर्कोतर्फ दुर्गम क्षेत्रका पातला वस्तीमा मा.वि. र उच्च मा.वि. सञ्चालन र स्थापना गर्ने काममा निजी क्षेत्र पनि अगाडि बढेका छैनन्। गरिबी र पछौटेपन उन्मूलनका लागि मानवपूँजी सर्वोत्तम पूँजी हो। शिक्षा यस्तो पूँजी निर्माणको माध्यम हो। दूर शिक्षा तथा खुला सिकाइमा सूचना तथा सञ्चारका विभिन्न माध्यमहरूको प्रयोग हुन्छ। प्रविधिको प्रयोगबाट लगानीको प्रतिफल अपेक्षित रूपमा पाउन सकिन्छ। प्रविधिको विकास नहुँदा विद्यार्थी ज्ञान आर्जनका लागि पूर्णत: शिक्षकमा भर पर्नुपर्थ्यो भने अब शिक्षा र प्रविधि एक अर्काको परिपूरकका रूपमा स्थापित हुँदै आएको परिवेशमा विद्यार्थीहरू ज्ञान आर्जनका लागि शिक्षकको भर पर्नुभन्दा पनि प्रविधिको उपयोग गर्न सक्दछन्। खुला शिक्षामा शिक्षक वा स्रोतव्यक्ति ज्ञानको एक्लौटी भण्डार नभएर सामान्य सहजकर्ता हुन्। त्यसैले चालु दशौं पञ्चवर्षीय योजना र विशेष प्राथमिकता प्राप्त माध्यमिक शिक्षा सहयोग कार्यक्रमका दस्तावेजमा उल्लेख भएबमोजिम गुणस्तरीय विद्यालय शिक्षाको पहुँच प्रत्येक वर्ग तथा तहका जनसमूहसम्म पुऱ्याउन खुला विद्यालय सञ्चालनको कार्यक्रम अगाडि ल्याइनु पर्दछ।

अबको काम कहाँबाट सुरु गर्नु उपयुक्त होला ?

सर्वप्रथम त हामीकहाँ दूर शिक्षा बारे दूर दृष्टिकै आवश्यकता छ। किनभने २०४९ सालमै रा.यो. आ. ले "अनौपचारिक शिक्षा प्राप्त गर्नेहरूलाई औपचारिक शिक्षाका विभिन्न तहमा प्रवेशका लागि तयार गर्ने खुला विद्यालयहरू सहायक हुन सक्दछन् भने तापनि नेपालभित्र केहीमात्रामा दूर शिक्षा कार्यक्रम विद्यालय शिक्षाको गुणस्तरका निम्ति प्रयोग भएतापनि खुला विद्यालय शिक्षाले संस्थागत रूप लिन सकेको छैन।" यस्तो अवस्थामा दूर शिक्षा तथा खुला सिकाइका लागि व्यवहारिक नीति तर्जुमा हुन सक्यो भने यसले शैक्षिक योजनाकार, व्यवस्थापक, प्रशासक एवम् राजनीतिज्ञलाईसमेत खुला विद्यालय सञ्चालनको दिशा निर्दिष्ट गर्दछ। यसै सन्दर्भमा शैक्षिक जनशक्ति विकास केन्द्रले खुला विद्यालय सञ्चालनको सम्भाव्यता अध्ययन गर्दै र छलफलका लागि दूर शिक्षा तथा खुला सिकाइ नीति मस्यौदा गर्ने तयारी गरिरहेको अवस्थामा ती प्रयासहरूलाई बढी सार्थक बनाउन सके भविष्यका लागि निकै उपयोगी हुने देखिन्छ।

खुला विद्यालय एकैपटक स्थापना र सञ्चालन पर्नुभन्दा पनि यसलाई प्रथमचरणमा एकाध क्षेत्रमा परीक्षणका रूपमा सञ्चालन गर्नु उपयुक्त हुन्छ। यसरी परीक्षणको रूपमा सञ्चालन गर्दा दीर्घकालीन रूपमा यसको संरचना कस्तो हुने ? पाठ्यक्रम र स्वअध्ययन सामग्री कस्तो हुने ? शिक्षक को हुने ? विद्यार्थीको मूल्याङ्कन कसरी गर्ने ? भन्ने बारे यथोचित निर्णय लिन पृष्ठपोषण प्राप्त हुन्छ। यस्तो पृष्ठपोषणले लगानीलाई खेर जानबाट समेत बचाउँछ। खुला विद्यालयको सञ्चालन र समग्र व्यवस्थापन शिक्षा मन्त्रालयभित्रको कुरा गर्दा शिक्षा विभागको कार्य क्षेत्राधिकारभित्र पर्छ तर हालसम्म दूर शिक्षासम्बन्धी काम गरिआएको अनुभवलाई हेर्दा परीक्षणको रूपमा केही विद्यालय सञ्चालन गर्ने काम शैक्षिक जनशक्ति विकास केन्द्रअन्तर्गतको दूर शिक्षा तथा खुला सिकाइ महाशाखालाई दिनु प्राविधिक हिसाबले बढी उपयुक्त हुन सक्दछ।

हामीसँग खुला विद्यालय सञ्चालन गर्नका निम्ति पर्याप्त विज्ञ (Experts) हरू छैनन् र प्राविधिक सचेतना (Technological awareness) पनि हामीकहाँ धेरै कमजोर छ भनिन्छ । देशभर सञ्चार र सूचनाको संयन्त्र (Network) पनि अपेक्षाकृत कमजोर नै छ । तर हामी शुन्यमा भने छैनौं । शिक्षा र सञ्चार दुवै क्षेत्रमा निजी क्षेत्रको संलग्नता बढ्दो छ । छोटै समयमा पनि सूचना र प्रविधिको क्षेत्रमा उल्लेखनीय प्रगति देखिएको छ । नीति निर्माता र उच्च प्रशासकहरूले खुला विद्यालयको आवश्यकता र महत्त्वलाई साँच्चै नै आत्मसात गरेर पर्याप्त समर्थन दिएमा विज्ञहरूले पनि पर्याप्त समय दिएर योजना बनाउन र सामग्री विकास गर्न थाल्दछन् । यस्तो अवस्थामा शिक्षाशास्त्र संकायका क्याम्पस, निजी क्षेत्रमा चिरागजस्ता संस्था र दूर शिक्षा तथा खुला सिकाइ महाशाखाले हालसम्म आर्जन गरेका प्राविधिक ज्ञानलाई योजना निर्माण र सामग्री विकासमा लगाउन सकिन्छ । त्यस्तै जनक शिक्षा सामग्री केन्द्र जस्ता निकायलाई सामग्री उत्पादन र वितरणको भूमिका दिन सकिन्छ । पर्याप्त भौतिक सुविधा भएका तुलनात्मक रूपमा सक्षम विद्यालय वा स्रोतकेन्द्रहरूलाई खुला विद्यालयका लागि समेत स्रोतकेन्द्रका रूपमा काम गर्ने गरी विकास गर्दा निष्कृय स्रोत र साधनको अधिकतम प्रयोग गर्न सकिन्छ । यस्तो व्यवस्था प्रभावकारी हुने नहुने भन्ने बारे अल्पकालमा परीक्षणका रूपमा सञ्चालन गरेर हेर्न पनि सकिन्छ ।

विश्वविद्यालय अनुदान आयोग र शैक्षिक जनशक्ति विकास केन्द्र दुवै संस्था दक्षिण एशियाली क्षेत्रमा स्थापित (SAARC Consortium of Open and Distance Learning) SACODiL का सदस्य छन् । यस संस्थाले दूर शिक्षा तथा खुला सिकाइका क्षेत्रमा पारस्परिक हितलाई बढावा दिन्छ । पारस्परिक सहयोग र साझेदारी अभिवृद्धि गर्ने, गुणस्तरीय शिक्षाका लागि लागत प्रभावकारिताका हिसाबले खुला सिकाइ तथा दूर शिक्षाको प्रयोगलाई अभिवृद्धि गर्ने र यसलाई निरक्षरता र गरिबी उन्मूलनका लागि प्रयोग गर्ने उद्देश्यका साथ SACODiL ले मुख्यत ४ ओटा पारस्परिक सहयोगका क्षेत्र पहिचान गरेको छ । जसमा स्रोत र साधनको साझेदारी, संयुक्त कार्यक्रम र कोर्षको विकास, कार्यक्रम सञ्चालनमा सञ्चार प्रविधि (हार्डवेयर र सफ्टवेयरसमेतको) साझेदारी र यस्तो कोर्ष र कार्यक्रमको प्रमाणीकरण जस्ता विषय पर्दछन् (डा. होमनाथ भट्टराई) । त्यसैले सार्क राष्ट्रमा सञ्चालित कार्यक्रमहरू खासगरी भारतमा सञ्चालित NIOS / IGNOU जस्तो संस्थासँग संस्थागत सम्बन्ध कायम गरेर कार्यक्रमलाई अगाडि बढाउन सकिन्छ । यस्तो सम्बन्धलाई नेपालको हितमा अधिकतम प्रयोग गर्न सकिन्छ ।

**कामको सुरुवातमै आइपर्ने चुनौतिहरू / खुला विद्यालय सञ्चालनका चुनौतिहरू :**

काम गर्ने भन्न जति सजिलो देखिन्छ सुरुवात गर्न त्यतिकै कठीन पनि छ । सबभन्दा पहिलो त पहुँच नपुगेका मात्र भनेर हुँदैन । त्यसभित्र पनि परीक्षणका लागि नै लक्षित समूह कुन हो भनी किटान गर्नुपर्छ । पहिलो सम्बोधन कसलाई गर्ने ? पातलो बस्ती भएका ग्रामीण दुर्गम भेगका बालबालिका जो आर्थिक कारणको अलावा भाइबहिनी हेर्नुपर्ने र गाईवस्तु गोठाला जानुपर्ने कारणले विद्यालय जान सकेका छैनन् । सहरमा सडक बालबालिका, घरेलु कामदार र कुलतको शिकारमा फसेका बालबालिका विद्यालय शिक्षाको पहुँच बाट टाढा छन् त्यस्तै ग्रामीण क्षेत्रमा भएका घरेलु हिंसा र शसस्त्र द्वन्द्वको मारबाट विस्थापित भएका बालबालिका छन्, पढ्ने अवस्थामै विद्यालय छोडेर युद्धमा होमिएका र शान्ति स्थापनाको प्रक्रियासँगै पुनः

स्थापना गरिनुपर्ने युवाहरू छन्, विद्यालय तहको शिक्षा पढे पनि उचित पठन पाठन वातावरणको अभावमा प्रवेशिका परीक्षा अनुत्तीर्ण भएर भड्किएका बालबालिका पनि छन् । यस्तो अवस्थामा पहिलो प्राथमिकता छैन पनि त्यति सहज छैन ।

दोस्रो प्रमुख चुनौति संरचनासँग सम्बन्धित छ । भारतमा राष्ट्रिय खुला विद्यालय (NIOS) छ । यसको देश भर आफ्नै संरचना छ । यसले माध्यमिक तथा उच्चमाध्यमिक तहको शिक्षा प्रदान गर्दछ । यसका आफ्नै स्रोतकेन्द्रहरू छन् । दुईओटा स्रोतकेन्द्र नेपालमा समेत सञ्चालन भएका देखिन्छन् । यसको पाठ्यक्रम, पाठ्यपुस्तक र मूल्याङ्कन प्रणालीसमेत औपचारिक पद्धतिको भन्दा छुट्टै छ । यता नेपालमा पूर्वाञ्चल वि.वि., त्रि.वि.वि. शिक्षाशास्त्र संकायबाट सञ्चालित एक वर्षे वि.एड् को दूर शिक्षा कार्यक्रममा चाहिँ एउटै संरचना, उही पाठ्यक्रम र उही मूल्याङ्कन वा परीक्षा पद्धति छ । यस्तो पद्धति लागू गर्ने हो भने विद्यालयकै संरचना प्रयोग गर्ने औपचारिक शिक्षा पद्धतिकै पाठ्यक्रम र मूल्याङ्कन प्रणालीलाई अनुसरण गर्ने र नियमित विद्यालयकै पाठ्यपुस्तक प्रयोग गर्न सकिन्छ । यसो गर्दा विद्यार्थी विद्यालयमा भर्ना हुन्छन् । बेलाबेलामा भेटघाट सत्र (Contact session) मा भाग लिन्छन् । दिइएका कार्य बुझाउँछन् । थप कार्य लिन्छन् । यसरी निरन्तर मूल्याङ्कनबाट वर्षको अन्त्यमा परीक्षामा समावेश हुन्छन् । देशको भौगोलिक, आर्थिक सामाजिक परिवेशमा यीमध्ये वा यस्तै कुन मोडेल उपयुक्त हुन्छ भनी छनौट गर्नु पनि नीति निर्माताका लागि अर्को चुनौति हो ।

तेस्रो प्रमुख चुनौति लगानीका स्रोतको व्यवस्थापनसँग सम्बन्धित छ । हुन त औपचारिक विद्यालय शिक्षाभन्दा खुला शिक्षा लागतको हिसाबले प्रभावकारी (Cost effective) मानिएको छ । तर पनि वर्तमान यथार्थता के हो भने औपचारिक शिक्षामा गरिएको लगानी कटौती गरेर खुला विद्यालयतर्फ लगाउने स्थिति छैन । यसका लागि थप लगानीकै आवश्यकता पर्दछ । देशको कुल गार्हस्थ्य उत्पादन, राष्ट्रिय आय र राजस्वका स्रोतलाई हेर्दा यसका लागि पनि कम्तीमा ५-७ वर्ष दाताहरूमै भर पर्नुपर्ने हुन्छ । त्यसैले सिंगो राष्ट्रको प्राथमिकता र प्रतिवद्धता आवश्यक पर्दछ । "खुला विश्वविद्यालयलाई नेपाल सरकारले सुरुका ५-७ वर्षसम्म एकमुष्ट अनुदान दिनुपर्छ र उक्त चरण पार पाएपछि पञ्जिका शुल्क, परीक्षा शुल्क र डिग्री शुल्कले नै त्यसलाई आत्मनिर्भर बनाउनुपर्छ" भनेर रा.शि.आ. को प्रतिवेदन ( २०४९) ले सुझाव दिएको छ । तर विद्यालयस्तरको खुला शिक्षामा यो सुझाव लागू हुन्छ भन्न सकिँदैन किनभने उच्च शिक्षा भनेको काम गर्दै पढ्ने अवस्था हो भने विपन्न वर्गका विद्यालय जाने उमेरका बालबालिकाबाट यस्तो अपेक्षा गर्न पनि कठीन छ ।

### निष्कर्ष

शिक्षा नीजि वस्तु (Private goods) हो कि सार्वजनिक वस्तु (Public goods) भन्ने विवाद आफ्नै ठाउँमा रहँदारहँदै पनि यसलाई मानव पूँजीको विकाससँग जोडियो र गरिबी निवारणको एक शसक्त माध्यम ठानियो । १९९० को दशकपछि विद्यालय शिक्षा विश्वमै मानव अधिकारको रूपमा स्थापित भयो र यसलाई लोक कल्याणकारी राज्यको अहम् कर्तव्यको रूपमा हेर्न थालियो । शिक्षामा सबैलाई पहुँच दिने

नाराका साथ केटाकेटीलाई विद्यालय भित्र्याउन अनेकौं प्रयास भयो । थप विद्यालयहरू खोलियो । शिक्षकहरू थपिए । निःशुल्क पाठ्यपुस्तक वितरण गरियो । छात्रवृत्ति प्रदान, विद्यालय पोसाक वितरण र शिक्षक तालिम जस्ता अनेकौं प्रयास भई नै रहे । तर पनि विद्यालय जाने उमेरका सबै बालबालिकाहरूले त्यहाँ प्रवेश गर्न सकेनन् । विहानबेलुका हातमुख जोर्न कामले फूर्सद नहुनेहरू आफ्नै घर आँगनमा विद्यालय भएर पनि जान सकेनन् । उमेर नाघिसकेकाहरूले पनि मनोवैज्ञानिक कारणले जाने इच्छा देखाएनन् । जेनतेन विद्यालय प्रवेश गरेका पनि आर्थिक, सामाजिक र पारिवारिक कारणले नियमित रूपमा दिनभर विद्यालयमा रहन सकेनन् । बीचमै कक्षा छोड्ने वा कक्षा दोहोऱ्याउनेको सङ्ख्या पनि उल्लेख्य नै रह्यो । वर्ष दिनभरि विद्यालय गएर पनि फलामे गेट ठानिएका परीक्षाहरूमा अनुत्तीर्ण हुनेहरूले हिनताबोधका कारण विद्यालय नजाने निर्णय गर्नु नै उपयुक्त ठाने । फलतः विद्यालयमा विद्यार्थी ल्याउने होइन विद्यालयलाई विद्यार्थीकहाँ पुऱ्याउने अर्थात् विद्यार्थीको समय र चाहनाअनुसार शिक्षा दिनुपर्छ भन्ने सोचले खुला तथा दूर शिक्षा प्रणालीको आवश्यकता महशुस गरियो । करीव डेढदशकअघि नै यसको आवश्यकता महशुस गरिए पनि नीतिगत दृढता र निरन्तरता भएन फलतः खुला विद्यालय सञ्चालन बारे प्रष्टता आउन सकेन । एघारौं योजना निर्माणको पूर्वार्द्धमा खुला विद्यालय परीक्षणको रूपमा सञ्चालन गर्नुपर्ने र राष्ट्रले एकीकृत दूर शिक्षा तथा खुला सिकाइ नीति तर्जुमा गर्नुपर्ने वहस चलिरहेको बेलामा प्राप्त अनुभवलाई संस्थागत गर्दै र उपलब्ध संस्थागत क्षमता र सम्बन्धलाई सुदृढ पार्ने हिसाबले ठोस नीति र कार्यक्रम तर्जुमा गरिनु आवश्यक छ । चाहे हामी इच्छा गरौं वा नगरौं खुला विद्यालयलाई मुलुककै शिक्षा प्रणालीको एक हिस्सा नबनाइकन अरू उपाय छैन तर यसो गर्न प्राविधिक, संस्थागत र वित्तीय तीनै हिसाबले दिगोपनको आवश्यकता छ ।

## सन्दर्भसामग्री


आचार्य, डा. सुशन (२०५९) : खुला विद्यालय प्रसंग र परिवेश दूर शिक्षा, २०५९ पृ ३५-३९, सानोठिमी

भट्टराई, डा.होमनाथ (२०५९) : "SACODiL – A Framework for Regional Co-operation: DEC Journal पृ. ९३-९८.

रा.शि.आ. (२०४९) : रा.शि.आ. को प्रतिवेदन

रा.यो.आ. (२०४९) : आठौं योजना

रा.यो.आ. (२०५४) : नवौं योजना

रा.यो.आ. (२०५९) : दशौं योजना

दूर शिक्षा केन्द्र (२०५९) : दूर शिक्षा व्यवस्थापन तथा सञ्चालन निर्देशिका

कोइराला, डा. विद्यानाथ (२०५८) : दुईतर्फी नियमितता : दूर शिक्षामा स्नातकोत्तर तहको आवश्यकता दूर शिक्षा, २०५८ पृ. ६-९, सानोठिमी ।

शिक्षा सातौं संशोधन ऐन (२०५८) : कानुन किताब व्यवस्था समिति

शिक्षा विभाग (२०६२) : शैक्षिक तथ्याङ्क, सानोठिमी, भक्तपुर

माध्यमिक शिक्षा सहयोग कार्यक्रम मूल दस्तावेज

# खुला शिक्षाको सैद्धान्तिक धरातलमा नेपालमा व्यवहारिक उपयोगको भविष्यपरक दृष्टिकोण

- भोजराज काफ्ले*

यस लेखको सुरुआत तदर्थवादमा नै रही विषय प्रवेशबाट उठान गरिएको छ । ज्ञान, सीप, प्रविधि आदिमा भएको विकास र परिवर्तनले मानव जीवनशैलीमा परिवर्तन आयो । परिवर्तित सन्दर्भमा बाँच्न र रहन सबैले शिक्षा आर्जन गर्नुपर्ने भयो । धेरैलाई अवसर प्रदान गर्ने क्रममा विकल्पको खोजी हुँदै जाँदा खुला शिक्षा पद्धतिको उत्पत्ति हुन गयो । साथै गुणात्मक शिक्षाको खोजी गर्न पनि खुला शिक्षालाई गन्तव्य ठम्यायो भनी लेखमा विषयप्रवेश गराइएको छ । नेपालमा खुला शिक्षाले प्रवेश कसरी पायो र अवस्था के छ, राष्ट्रियस्तरका शैक्षिक दस्तावेजहरूले यस सम्बन्धमा के भन्छन् र के भयो भन्ने कुराको चर्चा गर्दै लेखलाई अगाडि बढाइएको छ ।

लेखमा खुला शिक्षा नेपालकै सन्दर्भमा अझ उपयोगी भन्ने कुरालाई पुष्ट्याई गर्ने प्रयत्न गरिएको छ । नेपालका अनुपम विशेषता, बहुलता, यसको सक्षमता (Potentialities), सकारात्मक पक्ष एवम् कमजोर पक्षलाई समग्रतामा खुला शिक्षाले समेट्न सक्छ भन्ने धारणा यस लेखमा छ । राष्ट्रियस्तरका दस्तावेज र अन्य परिवर्तित पक्षले खाँचो औंल्याउँदा औंल्याउँदै अपेक्षित प्रगति हुन नसक्नुका केही कारणहरू प्रस्तुत गरी ती कारणका बारेमा छलफल गर्नुपर्छ भन्ने कुरा पनि यसमा प्रस्तुत गरिएको छ । लेखमा दिइएका सुझावहरू छलफलका लागि मार्ग प्रसस्त गरिएका हुन् र व्यापक छलफल र अन्तरक्रियाबाट यसको मार्ग निर्दिष्ट गर्नुपर्छ भन्ने कुरा उल्लेख गर्दै यसमा अग्रसरता निजी, गैर सरकारी, सरकारी जुनसुकै क्षेत्रले लिंदा पनि हुन्छ तर हाम्रोजस्तो अनुशरणकारी समाजमा शुरुमा सरकारले केन्द्रीय भूमिका र अन्य क्षेत्रको सहयोगतर्फ उन्मुख हुनुपर्छ भन्ने दृष्टिकोण राखी लेखको समापन गरिएको छ ।

## विषय प्रवेश

शिक्षालाई गुणात्मक वस्तु, सार्वजनिक वस्तु र मानवीय पूँजीका रूपमा हेर्ने दृष्टिकोणको विकास हुँदै जाँदा राज्य गतिविधिको अभिन्न अंगका रूपमा शिक्षाले स्थान प्राप्त गर्न शुरु गऱ्यो (Lohani, 2054 B.S.)। राज्यले विकासको प्रमुख आधारका रूपमा शिक्षालाई अंगिकार गर्न थाल्यो । यस प्रकार शिक्षाको क्षेत्र व्यापक हुँदै जाँदा औपचारिक विद्यालयीय । विश्वविद्यालयीय शिक्षाको संरचनाभित्र आवद्ध हुन नसकेकाहरूका लागि अनौपचारिक शिक्षामार्फत् शैक्षिक अवसर उपलब्ध गराउने प्रक्रियाको थालनी भयो । (HMG/UNESCO, 2000).

शिक्षाले उपेक्षा गरेका परिवर्तित सन्दर्भका पक्षहरूमा स्वतन्त्रता, मानव अधिकार र प्रजातन्त्र, संस्कृति र वातावरण संरक्षण, सबैका लागि शिक्षा, सहस्राब्दी विकासका लक्ष्य, सूचना तथा सञ्चार आदि प्रभावि हुन आएको छ । शिक्षाका चार स्तम्भ जान्न (सक्न) का लागि, हुनका लागि, गर्नका लागि र सँगै सहन र बाँच्नका लागि शिक्षाका आधुनिक प्रयासले सम्बोधन गर्नुपर्ने कुरा युनेस्कोले उजागर गरेको छ (Soup,

*पाठ्यक्रम अधिकृत, पा.वि.के.

10000, Malik, 2002, Khana, 2004)। यस प्रकार शिक्षाको परिवर्तित मान्यताले व्यक्ति, समाज र राष्ट्रको पक्षलाई मात्र सम्बोधन गरेर नपुग्ने अवस्था छ। विश्वव्यापी परिवेशलाई समेत समेट्नु पर्ने भएको छ। विश्वव्यापी परिवेश र स्थानीय ज्ञान र सीपका बीचमा सम्बन्ध सूत्र प्रगाढ बनाई यी दुवै पक्षको मिश्रणबाट नयाँ यौगिक ज्ञान र सीपको विकास गर्नु शिक्षाको बदलिंदो उद्देश्य हो। यी समग्र परिवर्तन विद्यमान औपचारिक विद्यालयीय र विश्वविद्यालयीय एवम् अनौपचारिक शिक्षाको यथास्थितिको पहल र प्रयास अपर्याप्त भइसकेका सन्दर्भमा खुला शिक्षाको अवधारणाले विश्वव्यापी व्यापकता पाएको छ। शिक्षणसिकाइ क्रियाकलापको व्यापकता (Enlarging the learning opportunity) लाई यस पद्धतिले उपयुक्त रूपमा सम्बोधन गर्ने गरेका दृष्टान्तहरू पनि देखिएका छन्।

### नेपालको सन्दर्भ

विश्वमा खुला शिक्षाको इतिहास निकै लामो भए तापनि नेपालमा खुला शिक्षाको औपचारिक सुरुवात रेडियो शिक्षा शिक्षक तालिम आयोजनाका रूपमा भएको पाइन्छ। एस.एल.सी. पास नभएका शिक्षकहरूलाई १० महिने शिक्षक तालिम प्राप्त गराउने उद्देश्य लिई २०३५ सालमा स्थापित भएको पाइन्छ। रेडियो शिक्षा शिक्षक तालिम आयोजना (प्रथमचरण), रेडियो शिक्षा शिक्षक आयोजना (दोस्रोचरण) आधारभूत शिक्षक तालिम कार्यक्रम, अन्तरक्रियात्मक रेडियो शिक्षण कार्यक्रम आदि चरणहरू यसले पूरा गरिसकेको छ। नेपाल सरकार शिक्षा तथा खेलकुद मन्त्रालयअन्तर्गत केन्द्रीय तहको प्राविधिक निकाय शैक्षिक जनशक्ति विकास केन्द्रअन्तर्गत दूर शिक्षा/खुला सिकाइ महाशाखाबाट अहिले पनि विविध शैक्षिक गतिविधिहरू सञ्चालन गरिन्छन्।

प्राथमिक शिक्षक तालिम, शैक्षिक कार्यक्रम र चेतनामूलक कार्यक्रम गरी जम्मा तीन किसिमका काम गर्दै आएको तत्कालको दूर शिक्षा केन्द्र (हाल शैक्षिक जनशक्ति विकास केन्द्रअन्तर्गतको दूर शिक्षा/खुला सिकाइ महाशाखा) ले हाल आएर आफ्नो कार्यक्षेत्र विस्तार गरेको छ। माध्यमिक शिक्षा सहयोग कार्यक्रमअन्तर्गत निम्नमाध्यमिक र माध्यमिक तहका शिक्षकहरूका लागि तालिम कार्यक्रम र गणित, अङ्ग्रेजी र विज्ञान विषयमा एस.एल.सी परीक्षामा विद्यार्थीहरू कम उत्तीर्ण हुने गरेको समस्यालाई सम्बोधन गर्न ती तीन विषयमा विशेष कार्यक्रम प्रसारण गर्न सुरु गरेको छ।

सरकारी संयन्त्र र प्रयासबाट भएका उल्लिखित कार्यक्रमका साथसाथै खुला सिकाइले अन्य क्षेत्रमा पनि व्यापकता पाउँदै आएको छ। हाल त्रिभुवन विश्वविद्यालय र पोखरा विश्वविद्यालयबाट वि.एड.को पाठ्यक्रममा आधारित कार्यक्रमहरू सञ्चालन गरिएका छन्। त्यसैगरी विदेशका केही विश्वविद्यालयसँग सम्बन्ध स्थापित गरी कक्षाहरू सञ्चालन हुने गरेको ती विश्वविद्यालयहरूबाट तोकिएका परीक्षा तथा परियोजना कार्य सम्पन्न गरी प्रमाणपत्रहरू प्राप्त गर्ने गरेको पनि चर्चामा आएको छ। तर औपचारिक रूपमा पुष्टि हुन बाँकी छ। त्यसैगरी रेडियो टेलिभिजनहरूबाट कृषि, स्वास्थ्य, वनसंरक्षण, लैङ्गिक पक्ष, भाषा संरक्षण, बालअधिकार आदि विषयमा ज्ञानवर्धक कार्यक्रमहरू प्रसारण गरिएको पाइन्छ।

**दस्तावेजहरूले के भन्छन् र के भयो ?**

प्रजातन्त्रको पुनर्स्थापनापछि गठित राष्ट्रिय शिक्षा समितिको प्रतिवेदन २०४९ ले देशमा खुला शिक्षाको आवश्यकता भएको कुरा औचित्य र महत्त्वसमेत लिपिबद्ध गरेको थियो । त्यसपछि गठित उच्चस्तरीय राष्ट्रिय शिक्षा आयोगको प्रतिवेदन २०५५ ले पनि सो कुरालाई निरन्तरता दिँदै आवश्यकता औल्याइरह्यो । यी दुवै प्रतिवेदनले उच्च शिक्षामा खुला शिक्षालाई जोड दिँदै खुला विश्वविद्यातयको आवश्यकतालाई औल्याएको पाइन्छ ।

आवधिक पञ्चवर्षीय योजनाहरूमा आठौं पञ्चवर्षीय योजना कालदेखि यसको आवश्यकता औल्याइएको थियो । नवौं योजनाले पनि उल्लेख गर्न छाडेन । चालु दशौं योजनाले खुला विश्वविद्यालय स्थापना गर्ने र सञ्चालन गर्ने भनी उल्लेख गरेको छ ।

यसरी राष्ट्रियस्तरका दस्तावेजहरूले सुझाव प्रस्तुत गरी नीतिगत दस्तावेजमा समेत आइसकेको हुँदा खुला विश्वविद्यालय स्थापना हुने कुरामा करिब ढुक्क हुने लक्षण देखिएको भए तापनि हालसम्म प्रगति हुन सकेन । उच्च शिक्षाका सम्बन्धमा मानित विश्वविद्यातय, क्षेत्रीय विश्वविद्यातय, लुम्बिनी विश्वविद्यातय जनक राजर्शी विश्वविद्यातय स्थापना गर्ने तथा छाता विश्वविद्यातय ऐन अध्यादेशका रूपमा कार्यान्वयनमा आउने चर्चा चलिरहेकै बेला लुम्बिनी, बौद्ध विश्वविद्यालय ऐन (अध्यादेश) आइसकेको छ । छाता ऐन र अन्य विश्वविद्यालयहरू स्थापनाका लागि विश्वविद्यातय अनुदान आयोगले आवश्यक गृहकार्य गरी नेपाल सरकारमा प्रतिवेदन बुझाइसकेको समाचार प्रकाशनमा आइसकेको भए तापनि खुला विश्वविद्यालयले प्राथमिकता पाउन सकेनछ ।

ज्ञानको क्षेत्रमा आएको विकास र परिवर्तन, संस्कारमा आएको परिवर्तन प्रविधिमा पनि विशेष गरी सूचना तथा सञ्चार प्रविधिमा आएको अपत्यारिलो र अप्रत्याशित परिवर्तन, समाजिक मूल्य र मान्यतामा आएको परिवर्तनले सिकाइलाई व्यापक बनाउँदै गएको सन्दर्भमा माध्यममा पनि व्यापकता हुनुपर्छ भन्ने कुरामा सहमत हुने हो भने खुला शिक्षाको आवश्यकतालाई पनि नकार्न सकिँदैन । शिक्षाको परिवर्तित मान्यता अनुसार युनेस्कोबाट अध्ययन गराइएको डिलर प्रतिवेदनले सिकाइ जान्न वा सिक्नका लागि (Learning to know or to learn), हुनका लागि (to be), गर्नका लागि (to do) र सँगै बाँच्न र बस्नका लागि (to live together) हुनुपर्ने भनी उल्लेख गरेका कुराताई सबैले स्वीकार गरेको अवस्था छ । यदि हामीले पनि शिक्षाका यी चार स्तम्भहरूलाई स्वीकार गर्ने हो भने खुला शिक्षा पद्धति शिक्षाका चारै स्तम्भले संकेत गरेका पक्षलाई सम्बोधन गर्न आवश्यक देखिन्छ । अझ काममै बसेर सिक्न (Learning by doing) को सन्दर्भमा अत्यावश्यक नै देखिन्छ (Khania, 2058 B.S)।

यसरी हाम्रा आवश्यकता पहिचान गरी भविष्यपरक दृष्टिकोण प्रस्तुत गर्ने राष्ट्रिय दस्तावेजहरू, राष्ट्रिय विकासका योजनाहरूले खुला शिक्षा (खुला विश्वविद्यातयको) आवश्यकता औल्याउने र सैद्धान्तिक र व्यवहारिक रूपमा आवश्यक छ भन्ने कुरामा सहमतिमा पुग्ने हो भने किन आवश्यक छ र आवश्यक

हुँदाहुँदै किन अपेक्षित रूपमा निश्चित दिशा पहिल्याउन अलमल भयो भन्ने कुरामा पनि छलफल गर्न आवश्यक देखिन्छ ।

खुला शिक्षा किन ?

खुला शिक्षाको आवश्यकताका बारेमा माथिल्ला प्रकरणहरूले पनि स्पष्ट गर्ने काम गरेका छन् । यस पद्धतिलाई बहुपक्षीय उपयोगिताका रूपमा अवलम्बन गर्न सकिन्छ । ज्ञान, सीप र प्रविधिमा आएको परिवर्तनले संस्कार, शिक्षाका मूल्य र मान्यता, संरचनाका मूल्य र मान्यता आदि सबैमा परिवर्तन आएको सन्दर्भमा देहायका बुँदाहरूले खुला विश्वविद्यालयको आवश्यकतालाई पुष्टि गर्छ ।

१. कम खर्चिलो शिक्षा
एक पटक सञ्चारका माध्यममार्फत् व्यापक रूपमा प्रसारण गर्न सकिने हुँदा धेरै क्षेत्र र सिकारुलाई सम्बोधन गर्न सकिने हुँदा खर्चका दृष्टिले निकै सस्तो शिक्षा साबित भएको छ । उदाहरणका लागि - थाइल्याण्डमा उच्च शिक्षामा भर्ना भएका मध्ये ७० प्रतिशत विद्यार्थीहरू खुला विश्वविद्यालयमा आवद्ध भएका छन् भने उच्च शिक्षामा गरिएको लगानीमध्ये जम्मा ९.३ प्रतिशत मात्र खुला विश्वविद्यालयमा लगानी भएको छ ।

२. दुर्गम भेगका लागि उपयुक्त शिक्षा
औपचारिक विद्यालयीय र विश्वविद्यालयीय शिक्षा उपलब्ध हुन नसकेका दुर्गम स्थानका बासिन्दाका लागि यो शिक्षा सबैभन्दा बढी लाभप्रद साबित भएको छ ।

३. काममा रहेर ग्रहण गर्नसक्ने, गरेर सिक्ने (Learning by doing) पक्ष यस पद्धतिको सबैभन्दा महत्त्वपूर्ण फाइदा मानिन्छ । समयको सदुपयोग हुन्छ ।

४. अनौपचारिक शिक्षा पद्धतिमा समेत उपयोगी हुने ।

५. आर्जित ज्ञान, सीप र प्रविधिलाई अध्यावधिक गर्न सहज र सरल तरिका

६. बाहिरी संसारसँग परिचित भइराख्न र जानकारी लिन सरल उपाय मानिएको ।

७. औपचारिक अध्ययन (विद्यालयीय र विश्वविद्यालयीय) गर्न छाडेकाहरू (जो सिकाइलाई निरन्तरता दिन चाहन्छ । ) का लागि उपयोगी

८. शिक्षक तालिमका लागि उपयोगी हुने ।

९. परम्परागत अध्ययन अध्यापनलाई सहयोग गर्ने । विकल्पहरूको खोजी गर्न सूचना प्रदान गर्ने ।

१०. समसामयिक संसारको उपलब्धि सूचना तथा सञ्चार प्रविधि (ICT) को उपयोग हुने ।

११. विश्वव्यापीकरण (Globalisation) र स्थानीयकरण (Localization) बीचमा सम्बन्ध प्रगाढ गराउने उपयुक्त माध्यम ।

नेपाल आकारमा सानो देश भए तापनि आफ्नै मौलिक विशेषता, विशिष्टता र पहिचानले ओतप्रोत देश हो । यसका आफ्नै सामाजिक, भौगोलिक, आर्थिक र शैक्षिक विशेषताले विश्वमा पहिचान कायम भएको

छ । नेपालका आफ्ना सबल र दुर्बल पक्षहरू पनि छन् । नेपालका अनुपम विशेषताहरूलाई सम्बोधन गरी विश्वमा पहिचान कायम गर्न यो पद्धति उपयोगी साबित देखिन्छ ।

| | |
|---|---|
| १. | नेपाली समाजको विशेष पहिचान आपसी सद्भाव र सहिष्णुता |
| २. | मन्दिर, गुम्बा, धर्मशाला, पाटीपौवा, चौतारा एवम् ढुंगेधाराजस्ता सम्पदाहरूको आस्था र विश्वास |
| ३. | विभिन्न जातजाति एवम् विविध भाषा समूहका विविध कला, धर्म, भेषभूषा । रहनसहन आदि जस्ता सामाजिक विशेषता |
| ४. | हिउँले ढाकिएका उच्च हिम शृङ्खलाहरूसहितको शीतोष्ण हिमाली भेग, ह्रास वनजंगलसहितको पहाडी एवम् उपत्यकाले भरिएको समशीतोष्ण पहाडी क्षेत्र समतल भू-भाग भएको वनजंगल एवम् उर्वर भूमि उष्ण तराई |
| ५. | उत्तरदेखि दक्षिणसम्मको छोटो दूरीबीच एक आपसमा अति निम्न जलवायु |
| ६. | कृषि र पशुपालन, जडीबुटी, स्थान विशेषका उत्पादनको आदानप्रदान, हाटबजार, पर्वतारोहण, पर्यटन, श्रम आदि विविध आर्थिक क्रियाकलापका आधारहरू |
| ७. | सरल, मैत्रीपूर्ण र आफ्नै संस्कार तथा संस्कृतिमा रमाउने जीवनखेती |
| ८. | विविध सांस्कृतिक संस्कार, चाडपर्वप्रति सदभाव राखी मनाउने प्रचलन धेरै आकांक्षा राख्ने, आफ्नै भाग्य वा कर्ममा विश्वास राख्ने आफ्नैपनमा सन्तुष्टि लिने प्रकृति |
| १० | अतिथिसत्कार, परोपकार मेलमिलाप र सद्भाव जस्ता आदर्श । |

व्यापक क्षेत्रका साथै नेपालको सन्दर्भमा खुला सिकाइका फाइदा विशिष्टीकृत उपयोग क्षेत्रहरूलाई देहायअनुसार पनि प्रस्तुत गर्न सकिन्छ (वज्राचार्य, 2054 B.S., Upadhya, 2061 B.S.) :

१. नेपालमा विद्यालय शिक्षा विशेष गरी माध्यमिक शिक्षा उत्तीर्ण गर्ने विद्यालयहरूमा उच्च शिक्षा आर्जन गर्ने अभिलाषा उत्कृष्ट छ । (माध्यमिक शिक्षा सहयोग कार्यक्रम मूल दस्तावेज, २००२) तर सबैलाई उच्च शिक्षामा पहुँच छैन ।

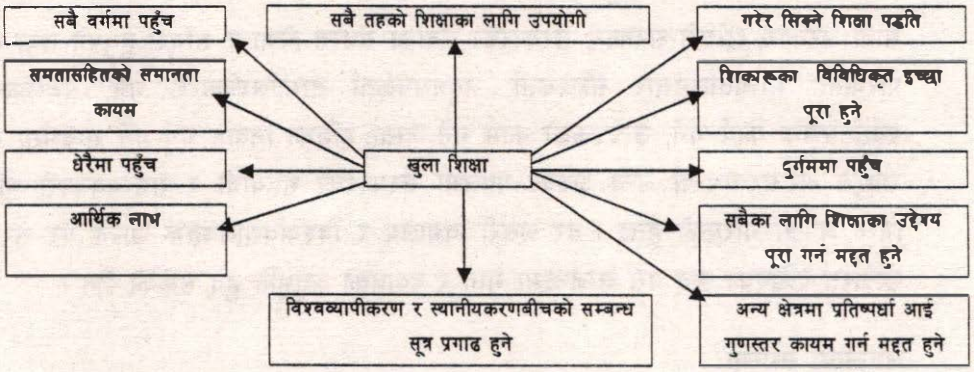
२. वातावरण संरक्षण, कृषिमा आधुनिकीकरण, समाजशास्त्र, संस्कृति व्यवस्थापन, कानुन र भाषा जस्ता विषयमा खुला शिक्षा प्रणाली सहजै लागू गर्न सकिने सम्भावनाहरू देखिएका छन् ।

३. विश्वविद्यालयहरू विशेष गरेर त्रिभुवन विश्वविद्यालयमा विद्यार्थी चाप घटेर अनुशासनको वातावरण कायम हुने सम्भावना कम भएको र शिक्षक विद्यार्थी अनुपात ठीक आकारमा आई पठन पाठनमा गुणात्मक कायम हुने ।

४. अनौपचारिक, औपचारिक (विद्यालयीय र विश्वविद्यालयीय) शिक्षाका क्षेत्रसँग स्वत: प्रतिस्पर्धात्मक वातावरण सिर्जना हुने ।

५. दुर्गम र पिछडिएको वर्गमा शिक्षाको पहुँच पुग्ने ।

खुला शिक्षाको बहुआयामिक उपयोगितालाई देहायबमोजिम चित्रात्मक प्रस्तुतिबाट बोध गर्न सहज पर्ने देखिन्छ ।




यस प्रकार खुला शिक्षाको बहुपक्षीय उपयोगितालाई स्वीकार गर्दा र विश्वका धेरै देशहरू र सार्क राष्ट्रका नै धेरै मुलुकहरूले यस सम्बन्धमा उल्लेखनीय प्रगति हासिल गरिसकेको सन्दर्भमा नेपालमा यसको विस्तार र विकास अपेक्षित रूपमा ठीक हुन सकेन भन्ने सम्बन्धमा कारणहरू पहिचान गर्न सकेमा उपायको खोजीको मार्ग प्रशस्त हुने हुन्छ ।

अपेक्षित रूपमा उपलब्धि प्राप्त हुन किन सकेन ?

(१) अवधारणामा नीतिगत पक्षमा अस्पष्टता

खुला शिक्षाका सम्बन्धमा देहायबमोजिम पक्षमा स्पष्ट दृष्टिकोण आउन नसकेको देखिन्छ ।

- खुला शिक्षा साधारण शिक्षा कि प्राविधिक शिक्षासमेत ?
- औपचारिक पाठ्यक्रममा मात्र सीमित हुने कि अनौपचारिक शिक्षामा पनि ?
- उच्च शिक्षा मात्र कि विद्यालय तहको शिक्षामा पनि ?

यदि दशौं योजनाले लिपिबद्ध गरेअनुसार उच्च शिक्षामा मात्र केन्द्रित हुने हो भने देहाय बमोजिमका विकल्पहरूमध्ये कुन विकल्प छनौट गर्ने :

- एउटै मात्र खुला विश्वविद्यालय खोल्न पाउने ऐनको व्यवस्था र शाखा वा सम्पर्क केन्द्रहरूको व्यवस्था गरी स्थानीय स्वावलम्बन एवम् स्वयम्सेवी संस्थाहरूमार्फत् कार्यक्रम सञ्चालन गर्ने वा सरकारी निकायबाटै वा गैर सरकारी क्षेत्रबाट अथवा सरकारी, गैर सरकारी, निजी क्षेत्र र स्थानीय निकायको समन्वयात्मक प्रयासबाट ।
- वर्तमानका विश्वविद्यालयहरूअन्तर्गत खुला शिक्षा कार्यक्रमहरू विस्तार गरेर ।

- छुट्टै खुला विश्वविद्यालय शिक्षा ऐनको व्यवस्था गरी सो ऐनअन्तर्गत छुट्टै विश्वविद्यालय स्थापना गर्ने र आँगिक वा सम्बन्धन प्राप्त विश्वविद्यालयहरू विस्तार गर्ने ।

२. नागरिक दवाव र गैर सरकारी क्षेत्रको उदासिनता

सानो सरकार, छरितो सरकार, सरकारका सेवाका संयन्त्र होचा र साँगुरा हुनुपर्ने तथा सरकारको परिवर्तित मान्यताअनुसार सहजकर्ता, अनुगमनकर्ता सामाजिकीकरण गर्ने, सबलीकरण गर्ने, प्रवर्द्धनात्मक कार्य गर्न, उत्प्रेरकको काम गर्ने जस्ता भूमिका निर्वाह गर्नु पर्ने सन्दर्भमा सरकारको राष्ट्रिय अग्रसरताभन्दा अन्य क्षेत्रको पहलमा सरकारको सहयोगी र समन्वयकारी भूमिकाभन्दा भिन्न अपेक्षा गरिएको हुन्छ । तर जसरी विद्यालय र विश्वविद्यालयहरू खोल्न गैर सरकारी क्षेत्र उत्प्रेरित देखिएका छन् यस सम्बन्धमा माग र दवावको अनुभूति हुन सकेको छैन ।

३. लगानीमा समस्या

सरकारले प्राथमिक शिक्षालाई प्रथम प्राथमिकता र आधारभूत शिक्षाका रूपमा अर्थात् अधिकारकै रूपमा (Right base approach), माध्यमिक शिक्षालाई साझेदारिता (Cost sharing approach) र उच्च शिक्षालाई लागत अपूरण (Cost recovery approach) मा लाभान्वित गर्ने व्यवस्था गर्दा उच्च शिक्षामा स्वत: लगानी घट्न गएको छ । यस प्रकार खुला शिक्षालाई खुला विश्वविद्यालयअन्तर्गत व्यवस्थित गर्ने गरी अवधारणाको विकास हुँदै जानु तर उच्च शिक्षामा लगानी घट्दै जानाले स्रोतको स्थायी व्यवस्थापनमा अझ जटिलता हुँदै जाने सम्भावना देखिन्छ ।

४. राजनीतिक प्रतिबद्धता

राजनीतिक दलहरूका विचार, घोषणा पत्र, उनीहरूले उठाउने गरेका मुद्दाहरू तथा विद्वान तथा जानकारीवालाहरूको राजनीतिक दिशाबोध गर्ने विश्लेषणात्मक लेख र सुझावहरूसे समेत यस क्षेत्रमा अपेक्षित स्थान पाउन सकेको छैन ।

५. प्रविधि

खुला शिक्षाको प्रमुख आधार प्रविधिको प्रयोग र उपयोग हो । खुला शिक्षालाई सूचना तथा सञ्चार प्रविधिसँग आवद्ध गराएर व्यवस्थित गर्नु पर्ने हुन्छ तथापि यस क्षेत्रमा अपेक्षित प्रगति नहुँदा खुला शिक्षाले गति लिन सकेको छैन ।

६. मानव संसाधन

खुला शिक्षाका बारेमा सतही लेख रचनाहरू देखिन्छन् तापनि यससम्बन्धी विशेषज्ञता प्राप्त प्रतिबद्ध व्यक्तित्वहरूको अभाव भएको अनुभूति सामान्य सन्दर्भ सामग्रीहरूको अध्ययनबाट पनि

अनुमान गर्न सकिने अवस्था छ । खुला शिक्षाका सम्बन्धमा आवश्यक पर्ने मानव संसाधन योजना, विकास, उपयोग र सामाजिकीकरण कुनै पक्षमा पनि संवेदनशीलता देखिएको छैन् ।

अब के गर्ने

नेपालमा खुला शिक्षाको विस्तार र विकासका सम्बन्धमा थुप्रै समस्याहरू देखिए । समावेशी शिक्षाका लागि शिक्षाको गुणस्तर कायम गर्नका लागि र पहुँच विस्तारका लागि आधुनिक एक्काइसौं सताब्दीमा खुला शिक्षा आवश्यक हो कि होइन भन्ने विषयमा छलफल गर्न आवश्यक छैन तापनि नेपालको सन्दर्भमा उपयोगी कसरी गराउन सकिन्छ र व्यवस्थापकीय पक्ष कसरी सुदृढ गर्ने भन्ने बारेमा छलफल र अन्तर्क्रियालाई व्यापक गराउनु पर्ने देखिन्छ । खुला शिक्षालाई शिक्षाको मूल प्रवाहमा कसरी व्यवस्थित गर्ने भन्ने सम्बन्धमा तृणमूमि तह (Grassroot level) देखि उच्च तहसम्म, पेसाकर्मीदेखि कृषक, व्यापारी र राजनीतिज्ञसम्म चरणबद्ध छलफलबाट मात्र दृष्टिकोणलाई नेपालको मौलिकतामोजिम स्पष्ट गर्न सकिने सम्भावना रहन्छ । देहायका बुँदाहरू छलफलका लागि मार्ग प्रशस्त गर्ने आधार हुन सक्छन् ।

खुला शिक्षाको व्यापक अवसरका क्षेत्रलाई कुनै तह (विश्वविद्यालय शिक्षा मात्र) विषय क्षेत्र (साधारण र प्राविधिक) वा अनौपचारिक क्षेत्रमा सीमित गर्न उपयुक्त देखिदैन । सम्भाव्य सबै शैक्षिक क्षेत्रको विकल्प होइन पूरकका रूपमा विकास गर्ने कुरामा स्पष्ट हुने र यसका लागि देहायबमोजिम गर्न सकिन्छ :

१. खुला विश्वविद्यालय प्रतिष्ठान सरकारको तर्फबाट ऐनमा नै व्यवस्था गरी स्थापना गर्ने ।

२. प्रतिष्ठानको प्रमुख पदाधिकारीहरूको चयन र व्यवस्थापनमा देहायबमोजिम गर्ने ।

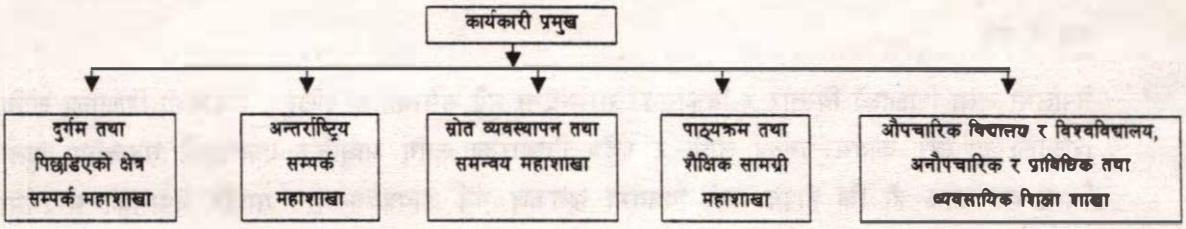
- प्राज्ञिक कार्यदल गठन गर्ने पदाधिकारी चयन गर्ने पूर्ण जिम्मेवारी त्यही कार्यदललाई दिने ।
- कार्यदलले प्राविधिक, व्यवस्थापकीय, आर्थिक प्रस्तावनासहितको आवेदनको आव्हान गरी छनौटका प्रमुख आधार ती पक्षलाई बनाउने ।
- प्रत्येक क्षेत्रमा प्राप्त गरेको अङ्कलाई पारदर्शी रूपमा सरोकारवालासँग प्रस्तुत गर्ने ।
- प्रस्तावनामा उत्कृष्ट अङ्क प्राप्त गर्नेहरूबाट अनुभव, कार्यदक्षताका सम्भावना, दृष्टिकोण आदि पक्षका आधारमा छनोट प्रक्रिया अपनाउने ।

३. संस्थागत संरचनालाई देहायबमोजिम व्यवस्थित गर्ने

- सल्लाहकार सभा १५ देखि २० जनाको हुनुपर्ने जसमा भौगोलिक, जातजातिगत, भाषिक, लैङ्गिक, दलित, अपाङ्ग (विद्यार्थी, शिक्षक) राजनीतिज्ञ, कर्मचारी आदि क्षेत्रबाट संस्थागत स्थायी प्रतिष्ठित गराउने ।

४. प्रतिष्ठानको संरचना र पदाधिकार

प्रतिष्ठानका संरचना व्यवस्था देहायबमोजिम व्यवस्थित गर्ने




५. कार्यदिशा यसरी निर्दिष्ट गर्ने

- प्रतिष्ठानका प्रमुख कार्यकारीको भूमिका समन्वयकारी हुने । उनले ५० प्रतिशत समय स्रोत व्यवस्थापनका पक्षमा बिताउने गरी काम, कर्तव्य र अधिकार निश्चित गर्ने ।
- कार्यक्षेत्र विस्तार आवश्यकताका आधारमा संगठनलाई विस्तार गरी लग्ने ।
- भौतिक पक्ष, शिक्षक तथा प्रशिक्षक एवम् पाठ्यसामग्री (Reflective measure), शिक्षणसिकाइ क्रियाकलाप (Pedagogical measure) का लागि छुट्टै व्यवस्थाका साथै अन्य सरकारी र गैर सरकारी क्षेत्रको साधनलाई समेत उपयोग गर्ने नीति अवलम्बन गर्ने ।
- प्रतिष्ठानलाई शुरुमा सरकारी प्रयत्नमा स्थापना गर्ने क्रमश: स्वायत्त स्वआर्जन र व्यवस्थापन गर्ने संस्थाका रूपमा व्यवस्थापन गर्ने ।
- हालको शैक्षिक जनशक्ति विकास केन्द्र, पोखरा विश्वविद्यालय र त्रिभुवन विश्वविद्यालयका अनुभवलाई समेत प्रतिष्ठानसँगको अवद्धता, समन्वय र सहयोगका बारेमा छलफल प्रारम्भ गर्ने ।
- सहस्राब्दी विकास लक्ष्य, सबैका लागि शिक्षा, शिक्षाका चार स्तम्भजस्ता अन्तर्राष्ट्रिय पक्षलाई र स्थानीय मौलिक ज्ञान, सीप र प्रविधिका पक्षलाई प्रगतिशील र सन्तुलित समन्वय गर्ने मूल उद्देश्य बनाई कार्य गर्नु पर्ने । यस प्रकारको प्रयासले स्रोतको स्थायीत्वमा पनि बल पुग्ने देखिन्छ ।

निष्कर्ष

सिकाइको क्षेत्र व्यापक गराउनु पर्ने कुरा समयको वाध्यात्मक उपज हो । सिकाइलाई व्यापक बनाउन र विद्यमान औपचारिक र अनौपचारिक शिक्षाका पक्षलाई खुला शिक्षाले चुनौती दिन सक्छ । खुला शिक्षाको विस्तारले ती क्षेत्रहरूमा समेत प्रतिष्पर्धात्मक अवस्थाको सिर्जना भई स्वभावत गुणस्तर कायम हुन पुग्छ । यसरी खुला शिक्षाले अप्रत्यक्ष रूपमा शिक्षाका अन्य क्षेत्रको पूरकको कामका साथसाथै सतर्कताको भूमिका निर्वाह गरेको हुन्छ । नेपालको सन्दर्भमा यसका वैशिष्ट्यहरूलाई सम्बोधन गर्न भनै उपयोगी हुने देखिन्छ । नेपालको जलवायु, पर्यटकीय विकासका सम्भावना, ऐतिहासिक धरोहर, सांस्कृतिक संवेदनशीलता जस्ता सकारात्मक पक्षलाई सम्बोधन गर्दै गरिबी निर्वाहमुखी कृषिमा आधारित जीवनशैली एकलकाँटे

(Nonopolistic) पम्परागत सोचाइ र भाग्यमा विश्वास तथा बहुसांस्कृतिक संवेदनशीलता जस्ता कमजोर पक्षलाई सम्बोधन गर्न उपयुक्त उपायका रूपमा यस पद्धतिलाई अवलम्बन गर्न सकेमा सुसंस्कृत संवृद्धशाली, प्रतिष्पर्धी र समतामूलक नेपाली समाजको विकास र स्थापना गर्न महत्त्वपूर्ण आधार प्रदान गर्नसक्ने देखिन्छ ।

यसका लागि आजसम्म हामीले प्राप्त र हैसियत बढाउन नसकेरै पछाडि पर्नाका कारणहरूको पहिचान गरी नयाँ सङ्ख्या जन्मनासाथ त्यसको नेतृत्वमा आउने विवादको संस्कृति सम्बन्धमा पूर्ववत नै सतर्कता अपनाउन सकेमा आरम्भको पक्ष राम्रो हुँदा भविष्य सकारात्मक हुँदै जाने कुराको अपेक्षा गर्न सकिन्छ । नयाँ स्थापना हुने खुला शिक्षा प्रतिष्ठानको अग्रसरता देखाउने संस्था वा व्यक्ति नभएकाले यो क्षेत्र पछाडि पर्न गएको हो भन्ने बौद्धिक व्यक्ति वा समूहले अबेर नगरी यसमा चासो देखाएका केही वर्ष मात्र संवेदनशीलताका साथ मिहेनत गर्दा आफ्नो ल्याकत र हैसियत देखाउने एवम् सामाजिक सत्कर्मसहितको व्यवसाय बन्न जानेछ ।

## सन्दर्भसामग्री


लामिछाने, श्रीराम (२००१) : प्रजातन्त्रको सुदृढीकरणका निम्ति अनौपचारिक शिक्षा, विकासका लागि शिक्षा, ६९- १०१ ।

उच्चस्तरीय राष्ट्रिय शिक्षा आयोग (२०५५): उच्चस्तरीय राष्ट्रिय शिक्षा आयोगको प्रतिवेदन २०५७ काठमाडौं ।

राष्ट्रिय शिक्षा आयोग (२०४९) : राष्ट्रिय शिक्षा आयोगको प्रतिवेदन, २०४९ काठमाडौं ।

Khania, T.R. (2058 B.S.): Open University. Distance Education, pp.60-64.

Sarup, A. (1999): Deregulation of the system of higher education. Journal of Educational Planning and Administration, Vol XVI, pp131-136.

Malik, A.K. (2002): Management of University Resources, Journal of Educational Planning and Administration, Vol XVI, pp.523 – 536.

Khania, T.R (2004): The Concept of multi- university and quality of higher education, Paper presented at the seminar organized by Center for Education Innovation Nepal (CEDIN).

Upadhya, S (2061 B.S): Higher Education and its management. Distance Education, pp.116-126.

Lohani, S.R. (2054 B.S.): खुला विश्वविद्यालय अवधारणा र आवश्यकता विकासको निम्ति शिक्षा, 14-25.

HMG/ MOES/UNESCO (2003): Education for all – National plans of action- Nepal (2003-2015). Kathmandu, Author.

भट्टाचार्य, हृदयरत्न (2054 B.S.): उच्च शिक्षा र समसामयिक समस्याहरू, विकासको निम्ति शिक्षा, 5-131 ।

# बालअधिकारको सन्दर्भमा दूर शिक्षाको भूमिका

- खुवीराम अधिकारी*

## पृष्ठभूमि

बालबालिकाहरूको सर्वाङ्गीण विकासका लागि उनीहरूको इच्छा र चाहनाअनुसारका क्रियाकलापहरू गर्नु आवश्यक हुन्छ । गतिशील समाजमा उनीहरूलाई समायोजना हुन यस्ता क्रियाकलापहरूले सहयोग पुऱ्याउँछन् । त्यसैले यस्ता अवसरहरू विना भेदभाव सृजना गर्नुपर्दछ भन्ने आवाज र प्रयासहरू विश्वभरी नै टड्कारो रूपमा उठाउँदै आएका तथ्यहरू सार्वजनिक भइराखेका छन् ।

बालअधिकारसम्बन्धी अवधारणा सन् १९२३ मा नै शुरु भएको भनिए पनि सन् १९८९ नोभेम्बरमा मात्र संयुक्त राष्ट्रसङ्घको महासभाद्वारा बालअधिकारसम्बन्धी महासन्धि (Convention on the right of the child) पारित भएपछि यस्ले वैधानिक मान्यता पाएको देखिन्छ । यस महासन्धिले बालअधिकार सम्बन्धमा परिवार तथा राज्यको दायित्वसमेत उल्लेख गऱ्यो । बालअधिकारसम्बन्धी महासन्धिमा विश्वका १९० राष्ट्रहरूले आफ्नो प्रतिवद्धता जाहेर गरिसकेका छन् । नेपालले पनि यस महासन्धिमा सन् १९९० को सेप्टेम्बर १४ मा प्रतिवद्धता जनाइसकेको छ । यसअनुरूप नेपालमा पनि बालबालिकाको हितसम्बन्धी विभिन्न कार्यक्रमहरू सञ्चालन भइरहेका छन् ।

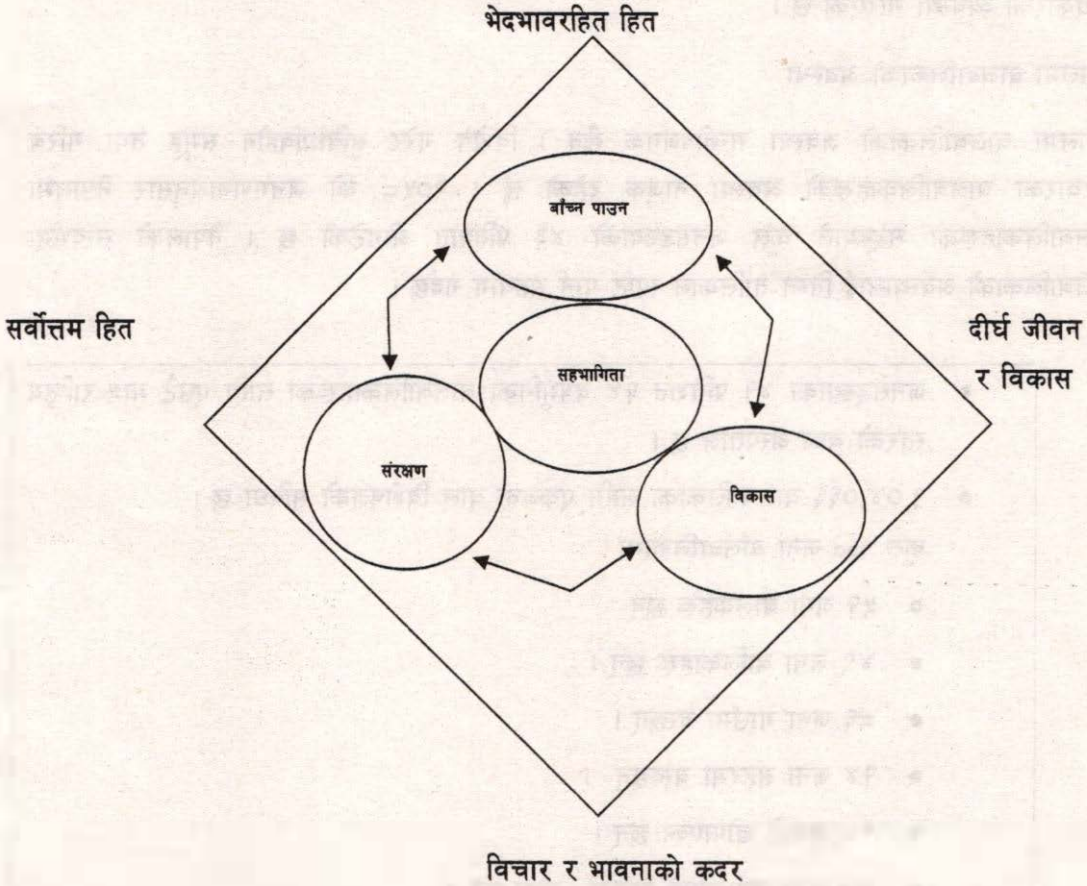
## बालअधिकार र आधारभूत सिद्धान्त

प्रत्येक बालबालिकाले शिक्षा हासिल गर्न पाउनु उसको अधिकार हो । त्यसै गरी पोषणयुक्त खाना खान, लगाउन, बास बस्न, सुरक्षा, शिक्षा, उचित स्वास्थ्य र व्यवहार पाउने पनि उसको अधिकारमा पर्दछ । कुनै बालबालिकालाई जात, रङ, धर्म र अवसरका आधारमा भेदभाव गरी अवसरबाट बञ्चित गर्न हुँदैन । बालबालिकालाई शिक्षा प्राप्त गर्ने लगायत अन्य क्षेत्रका सुरक्षा गर्ने अधिकार प्राप्त गराइनु पर्दछ भन्ने मान्यताअनुरूप हरेक मुलुकले नीतिगत तहमा र कार्यक्रम कार्यान्वयन तहमा दिशाबोधका लागि दस्तावेजहरू कार्यान्वयनमा ल्याएका छन् ।

बालअधिकारसम्बन्धी महासन्धिले पारित गरेका अधिकार आधारभूत सिद्धान्तअन्तर्गत भेदभावरहित, बालबालिका सर्वोतमहित, दीर्घ जीवन र विकास तथा बालबालिकाका विचार र भावनाको कदर गरी चारतहमा वर्गीकरण गरिएको छ र त्यसैगरी बालअधिकार समूहमा बाँच्न पाउने अधिकार, संरक्षण पाउने अधिकार, विकास गर्ने अधिकार र सहभागी हुने अधिकार गरी चार समूहमा विभाजन गरिएको छ ।

* प्राविधिक अधिकृत, शै.ज.वि.के., सानोठिमी ।

तलको चार्टबाट बालअधिकारका चार सिद्धान्त र चार समूहको प्रस्तुतिलाई राम्रोसँग बुझ्न सकिन्छ :




## शिक्षा र बालअधिकार

शिक्षा हासिल गर्न पाउनु बालअधिकार हो । बाँच्नका लागि चाहिने आधारभूत जीवनोपयोगी शिक्षा बालबालिकाले विनाभेदभाव प्राप्त गर्नुपर्दछ । हाम्रो गाउँ समुदायमा रहेका बालबालिकाहरूलाई खान, बस्न, लगाउन, शिक्षा, स्वास्थ, सुरक्षाजस्ता आधारभूत आवश्यकताको अभावले उनीहरूको व्यक्तित्व विकासमा बाधा पुग्नु हुँदैन ।

मानवअधिकारसम्बन्धी विश्वव्यापी घोषणाले शिक्षाको अधिकारको प्रत्याभूति दिएर संयुक्त राष्ट्रसङ्घले नागरिक तथा राजनीतिक अधिकारका साथै सामाजिक, आर्थिक तथा सांस्कृतिक अधिकारहरूसमेतको प्रबर्द्धनको सुरुवात गरेको हो । यी अधिकारहरूलाई एक अर्काबाट छुट्याउन सकिँदैन । यसैले बालबालिकाहरूको आवश्यकतालाई आज उनीहरूको अधिकारका रूपमा स्विकार गरिएको छ । संयुक्त राष्ट्रसङ्घीय महासन्धिको धारा २८ र २९ मा प्राथमिक शिक्षालाई नि:शुल्क र अनिवार्य बनाउनुपर्ने, नियमकानुन बालबालिकाको अस्तित्वमा सम्मान राख्ने हुनुपर्ने, बालबालिकाहरूलाई समझदारी, शान्ति र

सहिष्णुताको भावना बढाउने र व्यक्तित्व विकास गर्ने खालको शिक्षा हुनुपर्ने जस्ता कुराहरू समावेश गरिएको छ । संयुक्त राष्ट्र सङ्घको महासभाद्वारा पारित महासन्धिको धारा २८ र २९ शिक्षासम्बन्धी अधिकारको व्यवस्था गरिएको छ ।

### नेपालमा बालबालिकाको अवस्था

नेपालमा बालबालिकाको अवस्था सन्तोषजनक छैन । विशेष गरेर सुविधाविहीन समूह तथा गरिब परिवारका बालबालिकाहरूको अवस्था नाजुक रहेको छ । २०५८ को जनगणनाअनुसार नेपालमा बालबालिकाहरूको सङ्ख्याले कुल जनसङ्ख्याको ४३ प्रतिशत ओगटेको छ । नेपालको सन्दर्भमा बालबालिकाको अवस्थालाई निम्न तालिकाले स्पष्ट पार्न सहयोग गर्दछ ।

- जनसङ्ख्याको ४१ प्रतिशत १४ वर्षमुनिका बालबालिकाहरूका लागि एउटै मात्र राष्ट्रिय स्तरको बाल अस्पताल छ ।
- १,०४,०६६ बालबालिकाका लागि एकजना बाल विशेषज्ञको सुविधा छ ।

  कुल १०० जना बालबालिकामा
  - ५१ जना बालकहरू छन्
  - ४९ जना बालिकाहरू छन् ।
  - ८६ जना गाउँमा बस्छन् ।
  - १४ जना सहरमा बस्दछन् ।
  - ९० जनाले खोपाएका छन् ।
  - ४७ जना कुपोषणको सिकार भएका छन् ।
  - ८६ जना प्राथमिक तहमा भर्ना हुन्छन् ।
  - ५१ जनाले मात्र प्राथमिक तह पूरा गर्दछन् ।
  - ९० जना बालकहरू र ७८ जना बालिकाहरू प्राथमिक विद्यालयमा भर्ना हुन्छन् ।

### बालअधिकारसम्बन्धी विद्यमान समस्या, नीतिगत व्यवस्था र कार्यक्रमहरू

नेपालमा १६ वर्षभन्दा मुनिको उमेरकालाई बालकको रूपमा लिइएको छ । जसको जनसङ्ख्या करिब ४३ प्रतिशत रहेको छ । नेपालले बालबालिकाको सर्वोत्तम हितका लागि विभिन्न कार्यक्रम सञ्चालन गरेको छ भने ऐन कानुनको तर्जुमा गरी कार्यान्वयनमा ल्याएको छ । बालबालिकाको विकास तथा व्यवस्थापनका लागि बालबालिका मन्त्रालयको पनि स्थापना गरिएको छ । यति हुँदाहुँदै पनि नेपालमा बालबालिकाका सम्बन्धमा विविध किसिमका समस्या तथा चुनौतीहरू विद्यमान छन् ।

बालबालिकाको विकासका लागि बाधकको रूपमा रहेका समस्याहरूमा बालबालिकाहरूको ठूलो सङ्ख्या बालमजदुरका रूपमा कार्यरत रहनु, प्राथमिक तहको शिक्षा हासिल गर्ने उमेरका करिब १४ प्रतिशत बालबालिकाहरू विद्यालयबाहिर रहनु, विद्यालय ऐन कानुनहरूको प्रभावकारी कार्यान्वयन हुन नसक्नु, वास्तविक तथ्याङ्ककको अभाव रहनु, विशेष गरी पिछडिएको सङ्ख्या तथा समुदायका बालबालिकाहरू विद्यालयबाहिर रहनु, चेलिबेटी बेचविखनमा प्रत्येक वर्ष बेचिने चेलीहरूमा करिब २० प्रतिशत बालिकाहरू नै रहनु, वर्तमान द्वन्द्वका कारण बालबालिकाहरूको शिक्षा हासिल गर्ने, सुरक्षित रूपमा बस्न पाउने अधिकार संरक्षण गर्न कठिनाई, बालबालिकाहरूको हितका लागि सञ्चालित कार्यक्रमहरू लक्षित समूहमा पुग्न नसक्नु, सरकारी तथा गैर सरकारी संस्थामार्फत् सञ्चालित कार्यक्रमहरूबीच समन्वयको अभाव रहनुजस्ता कुराहरू समस्या तथा चुनौतीका रूपमा रहेका छन् ।

### बालअधिकारको संरक्षणका लागि गरिएका प्रयासहरू

नेपालले बालअधिकारको संरक्षणका लागि उनीहरूको सर्वाङ्गीण विकास गर्न सहयोग पुग्ने विभिन्न प्रयासहरू गर्दै आएको छ । बालबालिकाको शिक्षा सम्बन्धमा सुरक्षा कार्यहरू गर्न राष्ट्रिय अन्तर्राष्ट्रिय प्रयासहरू भएका छन् । नेपालले गरेका प्रयासहरूमध्ये महिला तथा बालबालिका मन्त्रालय स्थापना गरी बालबालिकासम्बन्धी योजना तथा कार्यक्रम तर्जुमा गर्ने र लागू गर्ने व्यवस्था हुनु, बालबालिकाहरूलाई बालश्रमिकमा राख्न नपाइने व्यवस्था, बालश्रम ऐनको तर्जुमा गरी कार्यान्वयन, प्राथमिक तहको शिक्षा नि:शुल्क गर्ने व्यवस्था, बालबालिकाहरूको विद्यालयमा पहुँच पुऱ्याउन सबैका लागि शिक्षा, माध्यमिक शिक्षा सहयोग कार्यक्रम जस्ता कार्यक्रमहरू सञ्चालन गरी विद्यालय शिक्षालाई सर्वसुलभ बनाउनमा जोड दिइएको, पौष्टिक आहार कार्यक्रममार्फत् विद्यालयमा बालबालिकाहरूलाई पोषणयुक्त खानाको व्यवस्था, विभिन्न छात्रवृत्ति तथा छात्रावासको व्यवस्था, गरिब तथा पिछडिएको समुदायका बालबालिकाहरूका लागि छात्रवृत्ति कार्यक्रम, बालबालिकाहरूको बेचबिखनविरुद्ध चेतनामूलक कार्यक्रम सञ्चालन, बाल कार्यक्रम सञ्चालन गरी उनीहरूको सर्वाङ्गीण विकासमा जोड, बालबालिकाको उचित स्वास्थ्यका लागि भिटामिन ए क्याप्सुल, पोलियो उन्मूलनका लागि पोलियो थोपा खुवाउने कार्यक्रम सञ्चालन र विद्यालयमा छात्रवृत्तिको व्यवस्था जस्ता कार्यक्रमहरूलाई लिन सकिन्छ ।

### बालअधिकार सम्बन्धमा नेपाल सरकारले दसौं योजनामा गरेको प्रतिबद्धता

#### उद्देश्य

बालअधिकारको विकास र संरक्षणको सन्दर्भमा दसौंयोजनाले बालबालिकाको शारीरिक, बौद्धिक, सामाजिक र मनोवैज्ञानिक विकासको अधिकारलाई सुनिश्चित गर्दै शोषण र भेदभावबाट सुरक्षित गरी बालअधिकारको संरक्षण र प्रवर्द्धन गरिनेछ भन्ने उद्देश्य लिइएको छ ।

#### क्षेत्रगत समष्टिगत मुख्य मुख्य लक्ष्यहरू

बालअधिकारको संरक्षण तथा बालबालिकाको सर्वाङ्गीण विकासका लागि दसौं योजनाले बालअधिकार सापेक्ष कानूनी व्यवस्था गर्ने र संस्थागत विकास र संरचनालाई सुदृढीकरण गर्ने, सरकारी, स्थानीय

निकायहरू, गैर सरकारी संस्था, नागरिक समाज र निजी क्षेत्रलाई बालअधिकारमुखी कार्यक्रम सञ्चालन गर्न उन्मुख गराउने, निकृष्ट बालश्रम उन्मूलन गर्ने, शिक्षा र स्वास्थ्य सुनिश्चित गर्ने साथै पोषण स्थिति सुधार गर्ने, करिब ८० प्रतिशत बालबालिकाको जन्मदर्ता सुनिश्चित गर्ने, बालअधिकार तथा बालविकास अभिवृद्धिका सन्दर्भमा बाल सहभागिता वृद्धि गर्ने जस्ता लक्ष्यहरू लिइएको छ । यी लक्ष्यहरू पूरा गर्न सकेमा अवश्य पनि बालबालिकाको विकासमा सहयोग पुग्ने देखिन्छ । यी लक्ष्यहरू हासिल गर्नका लागि अधिकारमुखी अवधारणामा बालअधिकारलाई राष्ट्रिय विकासको मूलधारमा ल्याउने, बालश्रम हटाउने र कठिन तथा हिंसात्मक गतिविधिबाट प्रभावित बालबालिकालाई पुनर्स्थापना गरी उनीहरूको अधिकार सुदृढ गर्ने, बालअधिकारसम्बन्धी जनचेतना अभिवृद्धि गर्ने जस्ता रणनीतिहरू लिई कार्यक्रमहरू सञ्चालन गर्दै आएको छ ।

### नीति तथा कार्यनीतिहरू

बालबालिकाको अधिकारको संरक्षण तथा सर्वाङ्गीण विकासका सन्दर्भमा लिइएका लक्ष्यहरू हासिल गर्न दसौं योजनामा विभिन्न नीति तथा कार्यनीतिहरू लिइएको छ । बालअधिकारको मूल प्रवाहीकरण, बालअधिकार सापेक्ष कानूनी व्यवस्था स्थापना गर्ने, कानूनी संरचनाको विकासका साथै बालबालिकालाई यौन शोषण, बेचविखन र दुर्व्यवहार एवम् हिंसात्मक गतिविधिको मारबाट बचाउन तथा त्यस्ता गतिविधिमा समावेश हुन नदिने वातावरणको सिर्जना गर्ने, बालअधिकार संरक्षण तथा विकासका सबै चरणमा बाल सहभागिता संस्थागत रूपमा अभिवृद्धि गर्ने, अपाङ्ग एवम् दलित वर्गका बालबालिकाहरूको शिक्षा निःशुल्क गर्ने र अपाङ्गहरूका निम्ति विशेष शिक्षालाई प्रभावकारी एवम् विस्तार गर्ने, केन्द्रीय र जिल्ला बाल कल्याण समितिलाई सुदृढ गर्ने, राष्ट्रिय तथा अन्तर्राष्ट्रिय विकास समुदाय एवम् नागरिक समाजसँग बालअधिकार तथा विकास कार्यका लागि साझेदारी पद्धति अपनाउने, बालश्रम हटाउने, निकृष्ट बालश्रमलाई योजना अवधिमा उन्मूलन गर्नुका साथै अन्य प्रकारका श्रमहरूलाई उन्मूलन गरिदै लैजाने र बाल यौन शोषण, दुर्व्यवहार, बेचविखन तथा ओसारपसार कार्यलाई प्रतिकारात्मक, प्रबर्द्धनात्मक तथा पुनर्स्थापनात्मक उपाय अपनाई रोकथाम तथा नियन्त्रण गर्ने, कठिन परिस्थितिका बालबालिकाहरू तथा आतंककारी गतिविधिबाट प्रभावित भई विस्थापित बालबालिकाहरूलाई समुदायमा आधारित पुनर्स्थापना गर्ने । यसका लागि दातृ समुदाय, गैर सरकारी, निजी क्षेत्र र नागरिक समाजलाई परिचालन गर्ने, बालअधिकार सम्वर्द्धनमा चेतना अभिवृद्धि, गैरसरकारी संस्था, सामुदायिक संस्था तथा नागरिक समाजसमेतको संलग्नतामा बालअधिकारसम्बन्धी चेतनामूलक कार्यक्रम सञ्चालन गर्ने । यस्तो कार्यक्रम सञ्चालन गर्दा बालबालिकाको विचार र सहभागितालाई प्रोत्साहन गर्ने जस्ता रणनीति लिने प्रतिवद्धता जाहेर गरेको छ ।

### कार्यक्रमहरू

बालबालिकाको चौतर्फी विकासका लागि लिइएका उद्देश्य तथा लक्ष्यहरू प्राप्तिका लागि नेपाल सरकारले विभिन्न कार्यक्रमहरू सञ्चालन गर्ने निधो दसौं योजनामा गरेको छ । तीमध्ये अपाङ्गसम्बन्धी ऐन कानून

संशोधन गर्ने, बालअधिकारलाई राष्ट्रिय विकासको मूलधारमा ल्याउन सम्बन्धित मन्त्रालयहरूसँग समन्वय गर्ने, बालअधिकार सापेक्ष कानूनी व्यवस्था स्थापना गर्ने, बालबालिकालाई यौन शोषण, बेचविखन र दुर्व्यवहारबाट बचाउन तथा युद्धको मारबाट बचाउन र त्यस्ता युद्धमा समावेश हुन नदिन ऐन कानून निर्माण एवम् सुधार गर्न समिति गठन गरी आवश्यक कार्य गर्ने, अन्तर्राष्ट्रिय स्तरमा दर्शाएका प्रतिबद्धता कार्यान्वयन गर्न राष्ट्रिय कार्ययोजना तयार गर्ने, निकृष्ट बालश्रमलाई योजना अवधिमा उन्मूलन गर्ने साथै अन्य प्रकारका श्रमहरूलाई उन्मूलन गर्न अन्तर्राष्ट्रिय निकायहरूसँग सहकार्य गर्ने, जन्म दर्ता बढाउन र बाल विवाह नियन्त्रण गर्न आवश्यक पहल गर्ने, बाल यौन शोषण, दुर्व्यवहार, बेचविखन तथा ओसारपसार कार्यलाई प्रतिकारात्मक, प्रवर्द्धनात्मक तथा पुनर्स्थापनात्मक कार्यका लागि पहल गर्ने एवम् प्रचार गर्ने, कठिन परिस्थितिका बालबालिकाहरू तथा आतंक गतिविधिबाट प्रभावित बालबालिकाहरूलाई समुदायमा आधारित पुनर्स्थापना गरी आधारभूत शिक्षा, स्वास्थ्यको सुविधा उपलब्ध गराउने । यसका लागि दातृ समुदाय, गैर सरकारी, निजी क्षेत्र र नागरिक समाजसँग सहकार्य गर्ने, बालअधिकारसम्बन्धी चेतनामूलक कार्यक्रमलाई निरन्तरता दिने र यस्ता कार्यक्रममा बालबालिकाको सहभागिता बढाउने, अपाङ्ग बालबालिकाका लागि शिक्षा निशुल्क गर्ने र विशेष शिक्षालाई प्रभावकारी बनाउन र विस्तार गर्न पहल गर्ने, राष्ट्रिय स्रोतकेन्द्र स्थापना गर्ने, पाँचै विकास क्षेत्रमा एक एकओटा पुनर्स्थापना गृह सञ्चालन गर्ने, केन्द्रीय तथा जिल्ला बाल कल्याण समितिलाई क्रमशः साधन र स्रोतबाट सम्पन्न गर्ने, नेपाल बाल संगठन र गैर सरकारी संस्थालाई बाल विकाससम्बन्धी कार्यक्रम सञ्चालन गर्न अनुदान दिने ।

## बालअधिकारको संरक्षणका सन्दर्भमा दूर तथा खुला सिकाइको भूमिका

दूर तथा खुला सिकाइ कार्यक्रम आज विश्वव्यापीरूपमा वैकल्पिक माध्यमका रूपमा विकसित भएको प्रणाली हो । विद्यालय तहदेखि उच्च तहको शिक्षासम्म त्यसैगरी साधारण शिक्षादेखि प्राविधिक शिक्षासमेत दूर तथा खुला सिकाइमार्फत् सञ्चालन गर्ने कार्य विकसित तथा विकासोन्मुख देशहरूले अंगाल्दै आएका छन् । विश्वव्यापी रूपमा यस प्रणालीको माग बढिरहेको छ । भौगोलिक विषमता भएको मुलुकका लागि त यसको महत्त्व अझ बढी रहन्छ । दूर तथा खुला सिकाइमार्फत् औपचारिक शिक्षाका अतिरिक्त अनौपचारिक तथा निरन्तर शिक्षासँग सम्बन्धित विभिन्न कार्यक्रमहरू पनि उत्तिकै प्रभावकारी रूपमा सञ्चालन गर्न सकिन्छ । नेपालमा विद्यालय तहमा कार्यरत शिक्षकहरूका लागि शिक्षक तालिम सञ्चालन एक वर्षे वि.एड. कार्यक्रमका अतिरिक्त वैदेशिक विश्वविद्यालयमार्फत् सम्बन्धन लिएर प्राज्ञिक तथा तालिमसँग सम्बन्धित कार्यालयहरू सञ्चालन गरिँदै आएको छ ।

बालअधिकारको संरक्षण तथा उनीहरूको सर्वाधिक विकास आज देशको प्राथमिकता प्राप्त कार्य भएकोले विभिन्न क्षेत्रहरूबाट सहयोग हुनु जरुरी हुन्छ । बालबालिकाको विकास तथा अधिकारको संरक्षणमा दूर तथा खुला सिकाइको भूमिकालाई निम्नअनुसार उल्लेख गर्न सकिन्छ ।

(१) बालअधिकारको सन्दर्भमा चेतना जागृत गर्न

दूर तथा खुला सिकाइअन्तर्गत आम सञ्चारका साधनहरूमार्फत् देशको कुनाकुनासम्म आम जनसमुदायमा बालअधिकार भनेको के हो ? बालबालिकाको सर्वोत्तम हितका लागि परिवार तथा समाजको दायित्व के हो ? यसका लागि केकस्ता कार्यहरू सञ्चालन भइरहेका छन् भन्ने बारेमा प्रचार प्रसार गर्ने । यसका लागि विभिन्न किसिमका पोष्टर तथा पम्पलेटहरू पनि उपयोगमा ल्याउन सकिन्छ ।

(२) बालअधिकारको संरक्षणका लागि भएका प्रयासहरूको जानकारी गराउने

बालबालिकाको हित तथा बालअधिकारको संरक्षणका लागि सरकारी तथा गैर सरकारी क्षेत्रबाट सञ्चालन गरिएका कार्यक्रमहरू रेडियो तथा टेलिभिजनमार्फत् प्रचार प्रसारण गरी सर्वसाधारणलाई जानकारी गराउन यो सिकाइ प्रभावकारी रहन्छ । यसबाट लक्षित समूहसम्म कार्यक्रम पुऱ्याउन तथा प्रभावकारी बनाउन सहयोग पुग्दछ ।

(३) खुला विद्यालयको स्थापना गरी शिक्षाको पहुँच पुऱ्याउन

विद्यालय शिक्षाबाट बाहिर रहेका बालबालिकाहरूलाई खुला विद्यालय स्थापना गरी दूर शिक्षा तथा खुला सिकाइको माध्यमबाट घरमै बसेर तथा आफू कार्य गर्ने स्थानमा बसेर शिक्षा हासिल गर्ने अवसर प्रदान गर्न सकिन्छ । विशेष गरेर पिछडिएको समुदायमा गरिब परिवारका बालबालिकाहरूलाई शिक्षाको अवसर प्रदान गर्न यो वैकल्पिक माध्यमका रूपमा प्रभावकारी हुन्छ । यसका लागि राज्यले विशेष अनुदान दिनु पर्दछ । जसबाट बालबालिकाले शिक्षा हासिल गर्ने अवसर प्राप्त गर्दछन् भने राज्यलाई सबैका लागि शिक्षा दिने प्रतिबद्धता पूरा गर्न सहयोग पुग्दछ ।

(४) अनौपचारिक तथा निरन्तर शिक्षा प्रदान गर्न

बालबालिकाहरूका लागि उमेरअनुसार विभिन्न किसिमका सीपमूलक तालिम तथा अन्य जीवन उपयोगी सीपका लागि विभिन्न कार्यक्रमहरू प्रसारण गरी उनीहरूलाई आफू बसेको स्थानमा नै व्यक्तित्व विकासमा अवसर प्रदान गर्न सकिन्छ ।

(५) बालबालिकाहरूको खेल्ने तथा मनोरन्जनात्मक कार्यक्रमहरू प्रसारण गर्न

रेडियो तथा टेलिभिजनमार्फत् खेल तथा मनोरन्जनका कार्यक्रमहरू प्रसारण गरी उनीहरूको खेल्ने र मनोरन्जन गर्न पाउने अधिकारको संरक्षण गर्न सकिन्छ । बालबालिकाहरूका लागि विभिन्न किसिमका बौद्धिक विकास हुने खालका च्यानलहरू प्रसारण गरी उनीहरूको अधिकारको संरक्षण गर्ने उपयुक्त माध्यम दूर तथा खुला सिकाइलाई बनाउन सकिन्छ ।

(६) जनशक्ति विकास गर्ने

बालबालिकासँग सम्बन्धित सङ्घसंस्थाहरूका जनशक्तिहरूलाई आफ्नै संस्थामा बसेर आवश्यक ज्ञान तथा सीप हासिल गर्ने अवसर प्रदान गर्ने । यस क्षेत्रमा जनशक्ति विकास गर्न दूर तथा खुला सिकाइ एक प्रभावकारी माध्यम बनाउन सकिन्छ ।

(७) विद्यालयमा कार्यरत शिक्षकहरूका लागि अभिमुखीकरण गर्ने

शिक्षकहरूका लागि विभिन्न माध्यमबाट निरन्तर रूपमा बालअधिकारसम्बन्धी ज्ञान तथा सीप हासिल गराउन सहयोग हुने खालका सामग्री प्रसारण गर्ने । आफू कार्यरत विद्यालयमा बसेर नै यस सम्बन्धमा अभिमुखीकरण गर्ने कार्यका लागि दूर तथा खुला सिकाइको प्रभावकारी भूमिका रहन्छ ।

(८) हिंसारहित शिक्षणका लागि कार्यक्रम सञ्चालन गर्ने

विद्यालयमा शिक्षणसिकाइमा हुने हिंसा विरुद्ध शिक्षक व्यवस्थापन तथा अभिभावकलाई जागृत गराई "Teaching without beating" को भावनाअनुसारको शिक्षणसिकाइ वातावरण तयार गर्नका लागि आवश्यक पर्ने ज्ञान तथा सीप प्रदान गर्ने एक सशक्त माध्यमका रूपमा दूर शिक्षा तथा खुला सिकाइलाई लिन सकिन्छ ।

## निष्कर्ष

बाल्यकाल सम्वेदनशील अवस्था हो । भोलिका विकासका संवाहक आजका बालबालिकाहरू नै भएकोले उनीहरूको सर्वाङ्गीण विकास गर्नु नै बालअधिकारको संरक्षण गर्नु हो । बालअधिकारका लागि लक्षित कार्यक्रमहरू उनीहरूको सर्वोत्तम हितका लागि अनुकूल हुने गरी सञ्चालन गर्नुपर्दछ । संयुक्त राष्ट्र सङ्घको महासभामा पारित बालअधिकारको संरक्षण गर्नका लागि विद्यमान ऐन कानुनलाई प्रभावकारी रूपमा कार्यान्वयन गर्न आजको आवश्यकता हो । बालअधिकारको संरक्षणका लागि दूर तथा खुला सिकाइका माध्यमहरूलाई उपयोग गरी बालबालिकाको विकास तथा बालअधिकारको संरक्षण गर्नु प्रत्येक व्यक्ति, परिवार, नागरिक समाज तथा राज्यको दायित्व हो ।

## सन्दर्भसामग्री


सिविन, (२०६० वि.सं.) : बालअधिकार महासन्धि, नेपाल ।

धिताल, तारा, (२०६२) : बालसुलभ विद्यालय, सिविन, नेपाल ।

दसौंयोजना, (२०५९-६४) : राष्ट्रिय योजना आयोग ।

राष्ट्रियस्तरका विभिन्न पत्रपत्रिकाको लेख ।

शै.ज.वि.के. (२०६२) :स्वाध्ययन सामग्री, सामाजिक अध्ययन शिक्षण माध्यमिक शिक्षक तालिम दोस्रो मोडुल ।

# वैज्ञानिक र प्राविधिक साक्षरता (STL) को अभिवृद्धिमा दूर शिक्षाको भूमिका

- बौधराज निरौला*

## परिवेश

लेखपढ गर्न जान्ने र दैनिक जीवनमा आइपर्ने साधारण गणितीय समस्या समाधान गर्नसक्ने व्यक्तिलाई साक्षर भनिन्छ । मान्छे साक्षर भएपछि जीवनयापन सजिलो हुन्छ भन्ने मान्यता अब क्रमशः बदलिँदै छ । एकातिर साक्षरताको अर्थ जीवनयापन गर्नसक्ने सीपसँग जोडिन थालेको छ भने अर्कोतर्फ बदलिंदो परिस्थितिमा मान्छेले समाजमा सहज तरिकाले जीउनका लागि अक्षर चिन्न र जोड घटाउ गर्नका अतिरिक्त वैज्ञानिक र प्राविधिक साक्षरता (Scientific and Technological Literacy, STL), अन्तरिक्ष साक्षरता (Space Literacy), सूचना तथा सञ्चार प्रविधि साक्षरता (Information and Communication Technology Literacy) र श्रव्यदृश्य साक्षरता (Visual Literacy) हासिल गर्न अति आवश्यक भइसकेको छ ।

यस लेखमा उल्लिखित साक्षरतामध्ये विज्ञान र प्रविधि साक्षरताका बारेमा मात्र चर्चा गरिएको छ । हाम्रो देशको विद्यालय तहको पाठ्यक्रमले कक्षा एकदेखि नै विज्ञान विषयलाई अनिवार्य गरेको भए तापनि हाम्रा विद्यालयहरूबाट उत्पादित जनशक्तिले विज्ञानलाई आत्मसात गरी व्यवहारमा प्रयोग गरेको कम मात्रामा पाइन्छ । जबसम्म मान्छेले विज्ञान तथा प्रविधिलाई व्यवहारमा प्रयोग गर्न सक्तैन र यसका गुण र दोषलाई पहिल्याएर प्रविधिलाई उचित प्रयोग गर्न सक्तैन तबसम्म विज्ञानका जतिसुकै पुस्तक पढे पनि र जुनसुकै डिग्री हासिल गरे पनि उक्त मानिसलाई वैज्ञानिक र प्राविधिक साक्षर मान्न सकिँदैन । विज्ञानका विद्यार्थीहरू नै साक्षर हुन् वा होइनन् भन्ने प्रश्न अहिले जताततै उठिरहेको छ । यो समस्या पूर्वीय र पाश्चात्य समाजमा उत्तिकै विकराल रूपमा खट्किएको हुनाले १९९० को सबैका लागि शिक्षाको जोम्तिन सम्मेलनपछि यो शब्द (विज्ञान र प्राविधिक साक्षरता) को विजारोपण भएको हो । सन् १९९८ पछि नेपालमा पनि वैज्ञानिक र प्राविधिक साक्षरताका विभिन्न अभियानहरू सञ्चालन गरिए । परिणाम स्वरूप आजको दिनसम्म आइपुग्दा यो अभियान शिक्षक तालिममार्फत् शिक्षक विद्यार्थी हुँदै अभिभावकसम्मको यात्रा शुरु गरिसकेको छ ।

## STL के हो ?

STL को अर्थ बुझ्नका लागि STL लाई टुक्र्याएर S, T र L को अर्थ छुट्टाछुट्टै रूपमा बुझ्नु पर्ने हुन्छ । STL को अभियानलाई विश्वभरि फैलाउन लागिपरेको अन्तर्राष्ट्रिय संस्था UNESCO ले S, T र L को अर्थ यसरी लगाएको छ ।

---

*प्राविधिक अधिकृत, शै.ज.वि.के., सानोठिमी ।

S - Scientific (वैज्ञानिक) : विश्वमा विभिन्न घटनाहरू किन घट्छन् ? कुनै घटनाको पछि विज्ञानका के कस्ता धारणाहरू लुकेका छन् भनी बुझ्न खोज्ने प्रवृत्ति नै वैज्ञानिक (Scientific) प्रवृत्ति हो ।

T – Technological (प्राविधिक) : वैज्ञानिक ज्ञानको प्रयोग गरी निर्माण गरिएका सामग्रीहरू कसरी निर्माण गरिएका छन् र यिनीहरूले कसरी कार्य गर्दछन् भनेर प्रक्रिया अर्थात् कसरीको जवाफ खोज्नु नै प्राविधिक (Technological) विषयवस्तु हो ।

L – Literacy (साक्षरता) : विज्ञान र प्रविधिको ज्ञान छैन भने दैनिक जीवनयापनका सिलसिलामा प्रयोगमा आउने सामग्रीहरू सञ्चालन गर्न तथा परिवार तथा समाजमा घटेका विभिन्न घटना तथा समस्याहरूको समाधानका लागि उपयुक्त निर्णय दिन सकिदैन । विज्ञान र प्रविधिको पढाइले उपयुक्त सामाजिक मूल्यमान्यताहरूको कदर गर्दै व्यक्तिगत चाहना र जिम्मेवारीहरू पूरा गर्न परिवर्तित सन्दर्भमा आउन सक्ने चुनौतीहरू सामना गर्न सक्नु नै साक्षरता (Literacy) हो ।

समग्रमा भन्ने हो भने विज्ञानको ज्ञानलाई रचनात्मक ढङ्गले उपयोग गरी दैनिक जीवनमा आइपर्ने समस्याहरूको समाधान गर्नु, निर्णय गर्न र व्यक्तिको जीवनस्तर उकास्न सक्ने क्षमताको विकास गर्नु नै वास्तविक अर्थमा STL हो । यदि त्यसो हो भने कस्तो मानिसलाई वैज्ञानिक र प्राविधिक साक्षर भन्ने त ? कुनै व्यक्तिले ऊ आफू वैज्ञानिक र प्राविधिक साक्षर हो वा होइन भनी छुट्याउने आधार के हो ? यस प्रश्नको उत्तर खोज्न UNESCO ले निर्माण गरेको The Training of Trainers Manual for Promoting Scientific and Technological Literacy for all पल्टाउनु पर्ने हुन्छ । जसको जवाफ यस्तो छ । वैज्ञानिक तथा प्राविधिक साक्षर त्यो व्यक्ति हो जसले,

- विज्ञानले समाजमा खेलेको भूमिका बुझ्दछ, सांस्कृतिक मूल्य मान्यताहरूको सराहना गर्छ र वैज्ञानिक आविष्कारहरूको प्रक्रिया र धारणा जान्दछ ।
- विज्ञान र समाज, नीतिशास्त्र, विज्ञानको प्रकृति लगायत विज्ञानका आधारभूत धारणा र विज्ञान र मानवताबीचको अन्तरसम्बन्ध बुझ्दछ ।
- मानवतावादी ढङ्गले विज्ञानको भूमिकालाई सराहना गर्छ र विज्ञानका बारेमा पढ्दा वा अप्राविधिक स्तरमा अन्य व्यक्तिहरूसँग कुराकानी गर्दा आफूलाई सहज भएको महसुस गर्दछ ।
- घटना र सामग्रीहरूका बारेमा जान्न किन र कसरी भनी सधै उत्सुक हुन्छ । वैज्ञानिकहरूले समय र घटनाहरूका बारेमा गराएको ध्यानाकर्षण सुन्न र पढ्न चाख लिन्छ ।
- कुनै नयाँ वैज्ञानिक सोच तथा विचार दिन नसके तापनि वैज्ञानिक चिन्तन बोकेका विचारहरूसँग परिचित हुन्छ ।

**STL किन ?**

विज्ञान भन्नेवित्तिकै यो कठिन विषयवस्तु हो भन्ने मान्यता संसारभरि नै स्थापित भइसकेको छ । कुनै पनि विषय सजिलो वा अप्ठ्यारो हुँदैन । सजिलो वा अप्ठ्यारो भन्ने कुरा प्रस्तुतीकरणमा भर पर्दछ । त्यसो त

विज्ञानका कतिपय Terminology, सूत्र र समीकरणहरू हुबहु कण्ठ गर्नुपर्ने र विद्यालय तथा विश्वविद्यालय तहमा विज्ञान शिक्षण गर्न प्रयोग गरिने शिक्षण विधिहरू विद्यार्थी केन्द्रितभन्दा शिक्षक केन्द्रित भएको कारणले पनि विज्ञान कठिन हुन्छ भन्ने मान्यता जगाउन सहयोग पुगेको छ । अविकसित तथा विकासोन्मुख देशहरूमा जागिर पाइने लोभले विज्ञानको पढाइमा विद्यार्थीको चाप खासै घटेको नपाइए तापनि विकसित देशहरूमा विज्ञान र प्रविधि अध्ययन गर्ने विद्यार्थीहरूको सङ्ख्या दिनानुदिन घट्दैछ । स्रोत साधन सम्पन्न देशहरूमा विज्ञानका कक्षाहरू खाली हुनु भनेको निश्चय पनि भविष्यका लागि शुभ सङ्केत होइन ।

विज्ञान शिक्षा एकातिर संकट पर्ने स्थितिमा पुगेको छ भने अर्कोतर्फ विद्यालय तहमा विज्ञान प्रविधि शिक्षा (Science and Technology Education) का विषयहरू जस्तै विज्ञान, स्वास्थ्य जनसङ्ख्या तथा वातावरण, गणित, कम्प्युटर विज्ञान, स्वास्थ्य तथा शारीरिक शिक्षा आदिले दैनिक जीवनमा आइपर्ने व्यवहारिक समस्याहरूलाई समाधान गर्न सहयोग पुऱ्याएको छैन । एकातिर प्रविधिको विकास चरमचुलीमा पुगेर त्यसको प्रत्यक्ष प्रभाव समाजका प्रत्येक सदस्यलाई पर्न थाल्यो भने अर्कोतिर त्यही प्रविधिले आविष्कार गरेका सामग्रीहरूको सञ्चालन र सदुपयोग गर्न धौ धौ परिरहेछ । टेलिफोन, विजुली, कम्प्यूटर, टेलिभिजन, वासिङ मेसिन, रेडियो, फ्रिज, हिटर, आइरन इमेल, इन्टरनेट आदि परिवारको अपरिहार्य आवश्यकता भइसकेको वर्तमान परिप्रेक्ष्यमा ती सामग्रीहरूमा सामान्य गड्बढी हुँदा पनि त्यसको मर्मत संभार गर्ने ज्ञान विद्यालयीय शिक्षाले दिएको छैन । त्यसैले विज्ञान लोकप्रिय हुँदाहुँदै पनि आकर्षक बन्न सकेको छैन ।

क्लोरोफ्लोरोकार्वन (CFC) ग्यासको उत्पादनले रेफ्रिजरेसन र एयर कण्डिसनको इतिहासमा आमूल परिवर्तन ल्याइदियो । तर CFC को उत्पादनसँग ओजोन तहलाई पातलो पार्ने क्लोरिन ग्यासको मात्रा वृद्धि हुने भएकाले सूर्यको परावैजनी किरण पृथ्वीमा आएर छालाको क्यान्सर, छाला डढ्ने, आँखा पाक्ने, टाउको दुख्ने जस्ता रोगहरू निम्त्याउने कारण पनि CFC नै बन्यो । यातायातको साधनले मानिसको यात्रालाई सहज त बनायो तर त्यै साधनले प्रयोग गरेको इन्धनको कारणले वायुमण्डलमा कार्वनडाइअक्साइड ग्यासको मात्रा बढ्न गई विश्व तापक्रममा वृद्धि (Global warming) भई ध्रुवीय क्षेत्रको हिउँ पग्लिएकाले समुन्द्री शहरहरू धमाधम डुब्न थाले। बाटोघाटो निर्माण गर्ने सिलसिलामा प्राकृतिक सौन्दर्यता र जैविक विविधता नष्ट भएको कुरालाई ध्यान पुऱ्याएन । यी यस्ता मुद्दाहरू हुन जसको असर दीर्घकालसम्म रहिरहन्छ । त्यसैले दिगो विकासका लागि Science and Technology Education (STE ) भन्ने चिन्तनका बारेमा अहिले विश्वभरि नै बहस हुन थालेको छ । देश निर्माणका लागि विज्ञान प्रविधिमा लगानी गर्नु र प्रविधिको प्रयोगले समाज विकासको कुन पक्षमा राम्रो वा नराम्रो कस्ता असर पारेको छ भन्ने कुराको विवेचना नीति निर्माण तहमा बस्ने व्यक्तिहरूले गर्नु जरुरी हुन्छ । आजका विद्यार्थीहरू भोलिका योजनाविद, मन्त्री, सांसद, राजनेता तथा उच्च पदमा पुग्ने व्यक्तित्वका आधार हुन् । त्यसैले उनीहरूलाई "वैज्ञानिक र प्राविधिक रूपमा साक्षर" बनाउन जरुरी छ । विद्यार्थी साक्षर भएको खण्डमा उनीहरूमार्फत् उनीहरूका अभिभावकहरू पनि साक्षर हुने र समाजको वैज्ञानिक ज्ञान (वंशविद्या) विज्ञान

प्रविधिको क्षेत्रमा र विज्ञान प्रविधिको उपलब्धि समाजसम्म पुऱ्याउन सजिलो हुने भएकाले विज्ञान र प्रविधि साक्षरताको अभियान व्यापक रूपमा सञ्चालन गर्नु पर्ने देखिन्छ । देश विकसित हुँदैमा त्यस देशका सबै नागरिकहरू विज्ञान र प्रविधि साक्षर हुन्छन् भन्ने छैन । त्यसैले STL अभियान अविकसितदेखि विकसित देशहरूसम्म सञ्चालन गर्नु जरुरी छ भन्ने कुरा सन् १९९३ मा अमेरिकी युवा युवतीहरूमा विज्ञान र प्रविधिप्रतिको बुझाइ र प्रकृति कस्तो रहेछ भनी गरिएको अध्ययनका निम्न निष्कर्षले प्रष्ट पार्दछ ।

- 65% do not know that earth moves around the sun in one year.
- 50% believe dinosaurs and humans lived together on the earth before.
- 50% do not believe in evolution, the very foundation of modern biology.
- 50% believe in incarnation that this life is only one of many lives to follow.

**STL को अभियानमा अन्तर्राष्ट्रिय प्रयास**

१९९० को जोम्तिन घोषणापत्रले राम्रो र आधारभूत शिक्षा, उच्च शिक्षाको जग मजबुत बनाउन वैज्ञानिक र प्राविधिक साक्षरता, क्षमता र आत्मविश्वासको विकास गर्नका लागि अपरिहार्य हुन्छ भन्ने कुरा उठायो । सन् १९९२ मा संयुक्तराष्ट्रसंघको आयोजनामा भएको वातावरण र विकाससम्बन्धी RIO Summit, ले वातावरण र गुणस्तरयुक्त मानवजीवनका लागि विश्वव्यापी बहस र चासो हुनुपर्छ भन्यो । १९९३ मा युनेस्कोले International Council of Association for Science Education (ICASE) लगायतका १० ओटा सरकारी तथा गैह्रसरकारी राष्ट्रिय/अन्तर्राष्ट्रिय संघसंस्थाहरूसँग मिलेर २१ औं शताब्दीका लागि कस्तो जनशक्ति तयार गर्नुपर्छ भनेर Science Project २०००+ नाम गरेको एउटा अभियान सञ्चालन गऱ्यो । Science Project 2000+ लाखौं खर्च गरेर कुनै निश्चित परिणाम निकाल्ने कार्यक्रम नभई विज्ञान र प्रविधिको क्षेत्रमा संसारभरिका मानिसहरूलाई सरिक गराउने एउटा महान् अभियान हो । Science Project 2000+ ले विज्ञान र प्रविधिको शिक्षण गर्ने शैलीलाई पुनर्विचार गर्न अनुरोध गर्दै विज्ञान र प्रविधिको शिक्षण सीपसँग जोडिनुपर्छ । यसले समाजका मूल्य मान्यता र समाजमा घट्ने घटनाहरूसँग सम्बन्ध स्थापित गर्नुपर्छ जसले गर्दा व्यक्तिलाई आर्थिक, वातावरणीय, सांस्कृतिक मुद्दाहरूमा निर्णय गर्न सहज होस् भन्ने मान्यता अघि सारियो । त्यसपछि STL सामग्री निर्माणसम्बन्धी धेरैओटा कार्यशालाहरू लाहोर (पाकिस्तान) - १९९७, मनिला (फिलिपिन्स) -१९९७, काठमाडौं (नेपाल) - १९९८, पेनाङ (मलेसिया)- १९९९, दिल्ली (भारत) - २०००, जम्मु (भारत) - २००१, काठमाडौं (नेपाल) - २००५ सञ्चालन गरिए । १९९४ मा जापानको टोकियोमा भएको सम्मेलनले विज्ञान प्रविधिको उत्थान गर्न STE विषयहरू शिक्षण गर्नका लागि व्यापक रूपमा शिक्षणसिकाइ सामग्रीहरू निर्माण गर्न सुझाव दियो ।

सबै ठाउँमा सञ्चालन गरिएका कार्यशालाहरूबाट विद्यार्थीहरूलाई वैज्ञानिक धारणा सजिलै बसाउन महत पुग्ने विभिन्न प्रकारका STL सामग्रीहरू निर्माण गरिएका छन् । उल्लिखित कार्यशालामा निर्माण गरिएका STL सामग्रीहरू नमूना मात्र हुन् । शिक्षकहरूले उक्त नमूना सामग्रीलाई आधार मानेर अन्य STL

सामग्रीहरू निर्माण गरी गराई शिक्षण गरेमा विद्यार्थी हुँदै विज्ञान र प्रविधिको ज्ञान उनीहरूका अभिभावकहरूसम्म पुऱ्याउन सजिलो हुन्छ । यो नै Science Project 2000+ को मुख्य लक्ष्य हो ।

### STL र शिक्षक तालिम

निम्नमाध्यमिक तथा माध्यमिक तहका विज्ञान विषयका शिक्षकहरूका लागि दिइने सक्षमतामा आधारित १० महिने शिक्षक तालिमको पहिलो मोड्युलको तालिम कार्यक्रममा Concept of Scientific and Technological Literacy शीर्षकको २० घण्टाको पाठ्यवस्तु राखिएको छ । शिक्षकहरूले तालिम केन्द्रमा आधारित १ महिनाको तालिममा STL का बारेमा आफ्नो धारणा स्पष्ट पार्नुका साथै विभिन्न उमेर समूहका विद्यार्थीहरू तथा समुदायका लागि उपयोगी हुने सामग्रीहरू निर्माण गर्छन् । यसका अतिरिक्त विद्यालयमा गएपछि STL को अवधारणा आत्मसात गर्दै निर्माण गरिएका STL सामग्रीहरू प्रयोग गरी कसरी शिक्षण गर्ने भन्ने बारेमा योजना तर्जुमा गर्छन् भने विद्यालयमा फर्केपछि तालिम केन्द्रमा गरिएको योजनाअनुसार कक्षा सञ्चालन गर्छन् । शिक्षकले विद्यार्थीहरूलाई वैज्ञानिक ज्ञान, सीप र धारणा दैनिक जीवनमा प्रयोग गर्ने हौसला दिदै वैज्ञानिक सीपहरू उनीहरूको परिवार र समुदायसम्म पुऱ्याउने वातावरणको सिर्जना गर्छन् । शिक्षकले उक्त कार्यका लागि विज्ञानका लोकप्रिय क्रियाकलापहरू जस्तै विज्ञान मेला, विज्ञान प्रतियोगिता, नेचर क्याम्प, विज्ञान प्रदर्शनी, विज्ञान लेख प्रकाशन, नमूना सामग्रीको निर्माण, म्युजियम निर्माण आदि सञ्चालन गर्न विद्यार्थीहरूलाई सहयोग गर्छन् । शिक्षकहरूले तालिम केन्द्रमा STL सामग्री निर्माण गर्दा उक्त सामग्रीको परिचय, सामग्री निर्माण गर्नुको शैक्षिक उद्देश्य, वैज्ञानिक धारणाहरू, विद्यार्थीका लागि निर्देशन (सामग्री निर्माणको परिवेश र विद्यार्थीले गर्नुपर्ने कार्य), शिक्षकका लागि निर्देशन (शिक्षण रणनीति, विद्यार्थी पाठपत्र, शिक्षकका लागि थप जानकारी) आदि कुरा प्रष्टसँग उल्लेख भएको हुनुपर्छ ।

### STL को कार्यान्वयनमा देखा परेका चुनौतीहरू

STL को अभियानलाई सर्वव्यापक बनाएर वैज्ञानिक र प्राविधिक साक्षरहरूको सङ्ख्या बढाउनका लागि विद्यालय (शिक्षक, विद्यार्थी र अभिभावक) को महत्त्वपूर्ण भूमिका रहेको हुन्छ । शिक्षकहरू STL अभियान सञ्चालन गर्ने मुख्य पात्रहरू हुन् । STL शिक्षणको अभिप्राय शिक्षकको कार्यबोझ र विद्यार्थीहरूका लागि पाठ्यवस्तु थप्नु नभई विद्यार्थीहरूले विद्यालयमा अध्ययन गरेका विषयवस्तुका बारेमा आफ्नो धारणा स्पष्ट गरी विज्ञान र प्रविधिको ज्ञान र सीप प्रयोग गरेर व्यवहारिक जीवनमा आइपर्ने समस्याहरू सहज रूपमा समाधान गरुन् भन्ने हो । STL शिक्षणको उद्देश्य स्पष्ट र सुन्दर हुँदाहुँदै पनि STL को शिक्षणमा अर्थात् STL कार्यान्वयनमा निम्न चुनौतीहरू देखिएका छन् ।

(क) शिक्षणसिकाइ गर्ने वातावरण

STL को शिक्षण गर्दा शिक्षकले विद्यार्थीहरूलाई संलग्न गराएर STL सामग्रीहरूको निर्माण गरी पाठ्यक्रम र पाठ्यपुस्तकमा उल्लेख गरेका विज्ञानका तथ्यहरूका बारेमा धारणा स्पष्ट पार्नु पर्ने

हुन्छ । STL को शिक्षणमा शिक्षकले विज्ञान र प्रविधिका तथ्य, ज्ञान र सीपहरू विद्यार्थीहरूलाई पढाउने वा सिकाउने होइन पढ्न र सिक्न सहयोग गर्नुपर्छ । अर्थात् विद्यार्थी केन्द्रित शिक्षण विधि प्रयोग गरी विज्ञान र प्रविधिको ज्ञान उनीहरूको जीवनमा प्रयोग गर्नसक्ने बनाउनु पर्छ । हाम्रो जस्तो धेरै विद्यार्थीहरू, सानो कक्षाकोठा, स्रोत साधनको अभाव, शिक्षकको कार्यबोझ बढी भएको परिप्रेक्ष्यमा STL को शिक्षण गर्न सजिलो छैन ।

(ख) सांस्कृतिक चुनौतीहरू

हामीले मान्दै आएको परिपाटी प्रचलन, तौर तरिकाहरू आ-आफ्नो धर्म संस्कृतिअनुसार फरक फरक छन् । विद्यालयमा विद्यार्थीहरू तीनै फरक फरक मूल्य मान्यताहरू बोकेर आएका हुन्छन् । घर परिवारले बारम्बार दोहोऱ्याएका कतिपय धार्मिक कथा, संस्कार तथा संस्कृतिहरू वैज्ञानिक तथ्यसँग मेल नखाने छन् जसका बारेमा विद्यार्थीमा एउटा छाप परिसकेको हुन्छ । यस्तो अवस्थामा विद्यालयमा शिक्षकले STL शिक्षण गर्न अप्ठ्यारो हुन्छ । अर्थात् शिक्षकले भनेका र प्रमाणित गरेर देखाएका वैज्ञानिक तथ्य तथा सिद्धान्तहरू विद्यार्थीहरूले विश्वास नगर्न सक्छन् जसले गर्दा STL को शिक्षणमा व्यवधान उत्पन्न हुनसक्छ ।

चौरासी लाख जुनीपछि मनुष्यजुनी प्राप्त हुन्छ । पिप र रगतले भिसिएको वैतर्नी नदी पार गर्न गाई दान गर्नुपर्छ । पापीहरू यमलोकका दक्षिण ढोकाबाट छिर्छन् र ८ योजन चौडाइ र १ योजन उचाइ भएको सिमलको रुखमा झुण्ड्याइन्छन् भने धार्मिक व्यक्तिहरू यमराजको दरबारमा पूर्व, पश्चिम र उत्तर ढोकाबाट छिर्छन् र सुखभोग गर्छन् भन्ने कथा गरुड पूराण र परिवारको मान्यजनहरूबाट बारम्बार सुनेको बालकले डार्विनको विकासवादको सिद्धान्त र ग्रेगर मेण्डलको वंशाणुगत गुणहरू आमाबाबुबाट छोराछोरीमा सर्छन् भन्ने नियमहरू कसरी पत्याउला ? हाम्रो समाजमा स्थापित भइसकेका यस्ता थुप्रै मूल्य मान्यताहरू छन् जसले STL शिक्षण गर्न असहज स्थिति सिर्जना गर्छन् ।

(ग) पाठ्यपुस्तकको भूमिका

शिक्षकका लागि सबैभन्दा महत्त्वपूर्ण सहयोगी सामग्री भनेको नै पाठ्यपुस्तक हो । हाम्रा पाठ्यपुस्तकहरूमा दिइएका क्रियाकलापहरूले सीपमा भन्दा ज्ञानमा जोड दिएको पाइन्छ । हाम्रो पाठ्यक्रम र पाठ्यपुस्तकमा दिइएका विषयवस्तुहरू विद्यार्थीहरूको दैनिक जीवनमा आइपर्ने समस्याहरू समाधान गर्न, निर्णय गर्न, सूचनाहरू सङ्कलन गर्ने सीपको अभ्यास गराउनको सट्टा ज्ञान मात्र प्रदान गर्ने र परीक्षा र मूल्याङ्कनलाई सहज बनाउने खालका भएको हुनाले STL को शिक्षण गर्न सहज स्थिति छैन ।

(घ) पारिवारिक चिन्तन

"घोकन्ती विद्या धावन्ती खेती" को चिन्तन हुर्केको हाम्रो समाजमा छोराछोरीले घोक्को सुकुन्जेली कराएर नपढेको खण्डमा पढेको मानिँदैन । यस्तो चिन्तन फस्टाएको हाम्रो समाजमा गरेर सिक्ने र सोहीअनुसारको वातावरण अभिभावकहरूले जुटाईदिने संस्कारको विकास नभइसकेको हुनाले विद्यार्थीले भनेका कुराहरू अभिभावकले मान्न र STL को कार्यान्वयन गर्न निश्चय नै कठिन भएको छ ।

## STL को अभिवृद्धिमा दूर शिक्षाको भूमिका

STL आजको समाजको अपरिहार्य आवश्यकता हो । यसलाई स्कूल, क्याम्पस र शिक्षक तालिमको चौघेराभन्दा माथि उठेर समाज र समुदायका प्रत्येक सदस्यसम्म पुग्न र पुऱ्याउनु पर्ने भएको छ ।

विद्यार्थी, शिक्षक, अभिभावकदेखि लिएर योजनाविद् र नीतिनिर्माता, समाजसेवी लगायत राष्ट्रसेवक कर्मचारीसम्म पुऱ्याउन सकेको खण्डमा मात्र दिगो विकासका लागि विज्ञान प्रविधि शिक्षा भन्ने युनेस्कोको उद्घोषण सफल हुनेछ । यसका लागि दूर शिक्षा खुला सिकाइको छुट्टै स्वतन्त्र संयन्त्रको निर्माण नभइ सकेको वर्तमान परिप्रेक्ष्यमा शैक्षिक जनशक्ति विकास केन्द्रअन्तर्गत रहेको दूर शिक्षा /खुला सिकाइ महाशाखाले अहम् भूमिका निभाउनु पर्ने देखिन्छ । जसका लागि उक्त केन्द्रले नेपालमा दूर शिक्षा/खुला सिकाइका क्षेत्रमा संलग्न संस्थाहरूको साझेदारीमा निम्नबमोजिमका कार्यहरू गर्नुपर्ने देखिन्छ । यी कार्यहरू गरेको खण्डमा STL को उत्थान हुनुको साथै दूर शिक्षा/खुला सिकाइको महत्त्व बढ्न जान्छ ।

(क) राष्ट्रिय तथा अन्तर्राष्ट्रिय तहमा STL सामग्री निर्माणका लागि सञ्चालन गरिएका कार्यशालाबाट उत्पादित सामग्रीहरूमध्ये उपयुक्त सामग्रीहरू छनौट गरी नेपाली भाषामा अनुवाद गराएर न्यूनतम मूल्यमा बिक्री वितरण गर्ने तथा Website मा राख्ने व्यवस्था मिलाउनु पर्ने ।

(ख) विद्यालयहरूमा शिक्षक तथा विद्यार्थीहरूले निर्माण गरेका STL सामग्री तथा विभिन्न क्रियाकलापहरूको श्रव्यदृश्य सामग्री (Audio-Visual) सामग्री निर्माण गरी प्रचार प्रसार गर्नुपर्ने ।

(ग) STL को औचित्य र आवश्यकताका बारेमा रेडियो नाटिकाहरू निर्माण गरी प्रसारण गर्नुपर्ने ।

(घ) नियमित शिक्षक तालिमका अतिरिक्त STL, STE र दिगो विकासको महत्त्व दर्शाउने कार्यक्रमहरू निर्माण गरी पत्रिका, रेडियो, टेलिभिजन र Website मार्फत् शिक्षक, विद्यार्थी र अभिभावकसम्म पुऱ्याउने प्रणालीको व्यवस्था गर्नुपर्ने ।

(ङ) अभिभावक, विद्यार्थी, व्यवस्थापन समितिका पदाधिकारी, स्थानीय निकायका पदाधिकारी, समाजसेवी आदिलाई लक्षित गरी STL र STE को अर्थ र महत्त्व बुझाउने खालका श्रव्य, तथा श्रव्यदृश्य कार्यक्रमहरू निर्माण गरी प्रसारण गर्नुपर्ने ।

(च) जीवन र जगतका बारेमा भएका गलत धारणाहरू निर्मूल पार्दै वैज्ञानिक र प्राविधिक चिन्तनको विजारोपण गर्नका लागि श्रव्य तथा श्रव्यदृश्य कार्यक्रमहरू निर्माण गरी प्रचार प्रसार गर्नुपर्ने ।

(छ) वैज्ञानिकहरूको जीवनी, उनीहरूले गरेका महत्त्वपूर्ण कार्यहरू, निर्माण गरिएका अत्याधुनिक प्रविधियुक्त सामग्रीको कार्य र महत्त्वका बारेमा राष्ट्रिय प्रसारणका टेलिभिजन च्यानलहरूसँग साझेदारीमा डकुमेन्ट्रि निर्माण गरी वा अन्य संस्थाले निर्माण गरेका त्यस्ता सामग्रीहरूको अनुमति लिएर Copy गरी प्रचार प्रसारको व्यवस्था मिलाइनु पर्ने ।

(ज) STL को महत्त्व दर्शाउने वैज्ञानिक र प्राविधिक सूचना तथा समाचारहरू सङ्कलन गरेर जिंगल तथा गीतहरू निर्माण गरेर राष्ट्रिय प्रसारणको रेडियो, टेलिभिजन तथा FM रेडियोहरूबाट प्रसारण गर्ने व्यवस्था मिलाउने पहल गर्नुपर्ने ।

(झ) STL सामग्रीहरू, STL सम्बन्धी विभिन्न क्रियाकलापहरू, विज्ञ तथा वैज्ञानिकहरूका विचारहरू, विज्ञान र प्रविधिले समाजको कल्याण तथा विकासमा पुऱ्याएको योगदानसम्बन्धी Multimedia का CD हरू विभिन्न संघसंस्थाहरूसँगको साझेदारीमा निर्माण गरी सुपथ मूल्यमा स्कूल तथा क्याम्पसहरूमा बिक्री वितरण गर्ने व्यवस्था मिलाउन उपयुक्त हुने ।

(ञ) गाउँ समाजले प्रयोग गर्दै आएको घरेलु औषधि पद्धति, विभिन्न प्रविधिहरू (पानीघट्टको प्रयोग गरी धान चामल कुटेको, काठका ठेकी तथा बट्टाहरू बनाएको, चुनढुङ्गा पोलेर चुन बनाएको, फलामलाई आरनमा गालेर खुकुरी लगायतका हातहतियार बनाएको, उन्नत जातका बालीनाली उत्पादन गरेको, विभिन्न डिजाइनका लुगा तथा जुत्ताहरू तयार गरेको आदि)को झलक तथा घरेलु प्रविधि सञ्चालकहरूका विचारहरू सङ्कलन गरी श्रव्य, श्रव्यदृश्य, मुद्रित सामग्रीमार्फत् प्रचारप्रसार गर्ने गराउने व्यवस्था मिलाउन पहल गर्नुपर्ने ।

निष्कर्ष

STL समयको माग हो । २१ औं शताब्दीका लागि कस्तो वैज्ञानिक र प्राविधिक जनशक्ति उत्पादन गर्ने भन्ने कुरा जनचासोको विषय हो । विज्ञान र प्रविधिको प्रयोगले विकासको गतिलाई तिव्र रूपमा अगाडि बढाएको भए तापनि प्राकृतिक दृश्यहरू नष्ट हुनु, जैविक विविधतामा ह्रास आउनु, प्रदूषणयुक्त ग्यासको उत्पादनले विश्व तापक्रममा वृद्धि हुनुका साथै ओजोन तह प्वाल परी सूर्यको परावैजनी किरणको कारणले विभिन्न रोगहरू लाग्नु जस्ता असरहरू देखिएका छन् । हाम्रा विद्यालयहरूमा विद्यार्थी पढाउने भन्दा पुस्तक पढाउने र विषयवस्तु घोकाउने प्रवृत्ति छुटेको छैन । गाउँ समाजमा हुर्के बढेका प्रविधिहरू संरक्षणको अभावले लोप हुने स्थितिमा पुगिसकेका छन् । यस्तो परिस्थितिमा विद्यालयहरूमा विज्ञान विषयको उपयुक्त शिक्षण विधिको प्रयोग गर्न, गाउँ समाजमा हुर्केका प्रविधिहरूको संरक्षण गर्ने र विज्ञान र प्रविधिले मानव समाजको विकास र उत्थानका लागि पुऱ्याएको योगदान गाउँ समाजसम्म पुऱ्याउन युनेस्कोको नेतृत्वमा

सञ्चालित STL अभियान संजीवनी बुटी बन्न सक्छ । जसका लागि दूर शिक्षा/खुला सिकाइ सञ्चालन गर्ने संस्थाहरूले अहम् भूमिका खेल्नुपर्ने देखिन्छ ।

## सन्दर्भसामग्री


शैक्षिक जनशक्ति विकास केन्द्र, (२०६१) : विज्ञान शिक्षा शिक्षण सक्षमतामा आधारित निम्नमाध्यमिक तथा माध्यमिक शिक्षक तालिम (१ महिने प्रथम मोडुल) प्रशिक्षार्थी स्रोत सामग्री,सानोठिमी, भक्तपुर ।

UNESCO (2001): "The Training of Trainers Manual" for Promoting Scientific and Technological Literacy (STL) for all, Bangkok, Thailand,

UNESCO (1999): UNESCO Resourse Kit, Science and Technology Education, The Association for Science Education,

WWW. Science Project 2000+

UNESCO Connect, (2005): Unesco International Science, Technology and Environmental Education Newsletter, Vol. xxx Paris.

UNESCO (2004): "Education Today, No. 11, Education Section, Unesco 7, place de, Fontenoy, Paris.

NCED, (2004): 10 months Secondary Teacher Training Curriculum, Science, Sanothimi, Bhaktapur.

STL Reports, (1998): Kathmandu Workshop, Nepal.

STL Reports, (2000): Delhi Workshop, India.

STL Reports, (2001): Jammu Workshop, India.

# Scientific and Technical Literacy: Education Perspectives

- A.B. Bhandari*

## Background

Science and Technology as intertwined concept, most important breakthroughs were observed with advancement of scientific investigations on nature. However, increasing truth states that new technologies resulted into new science and disciplines i.e., chemical engineering. R. Nelson (1993) views that this intertwining concept is a principle reason why technology advanced through the work of people who had university education in science and engineering, and university research contributed to advancing technology as university research and corporate labs were essential parts of the innovation system.

The slogan 'Science, Technology, and Society (STS concept) for advancement' has extended towards Science, Technology Society and Personal development (STSP). The Jometein Conference of 1990 was considered to be a milestone for materializing the concept of scientific and technical literacy (STL) and this concept was backed up by UN world conference on environmental development in 1992 which resulted into UNSCO science project 2000+ with first start from Paris, France in 1993, with active coordinating role of UNESCO. Moreover, the role of UNESCO and International Councils of Associations for Science Education (ICASE) towards this endeavor was noteworthy in making campaign accelerated.

The Scientific and Technical Literate denotes the individual capacity in facing the challenges and changes through analysis of scientific reasons (why) and utilization of technology (how). School curriculum, around the globe, has been given considerable focus on science (natural, computer, environment, and population), technology, mathematics, computer science, creative arts, and physical education disciplines in school curriculum to promote STL concept leading to specialization courses in higher education.

Science and technology education in Nepal have been imparting through two streams- general/academic and vocational/technical stream through Ministry of Education and Sports (MOES system) and Council of Technical and Vocational

*Executive Director, NCED

Education and Training (CTEVT system) respectively. The CTEVT has provisioned hundreds of vocational and technical training courses categorizing 'vocational training' which have less than one year duration and 'Technical education' its which have more than one year duration. It has own Technical Institution for Technical Instruction (TITI) with a capacity of regional resource institution which organizes training courses and professional development programmes in a regular basis for technical trainers and professionals at national and international level, ranging from one week to diploma level professional development courses.

**School Curriculum**

International comparative study on school curriculum (NIER, 1999) reported that Subjects like Computer, Information Communication, Electronics, and Mechanics subjects were under 'technical education' category and subjects like Home Economics, Pre-vocational, Business Management, Industrial/ Practical Arts and Services Education were categorized under 'technical vocational' group.

The international trends of science and technology education in school curriculum has indicated as integral part of school curriculum either in the form of distinct subject or integrated subject ranging from primary level to secondary level in broad four areas –

Education for the world of work, Computer information technology, Health Education and Environmental Education as follows:

| Area | Integration | Distinct |
|---|---|---|
| Education for the world of work | Secondary level (Australia, Japan, Sri Lanka, France) | All levels (India, Newzealand, Philippines, USA only in secondary level) |
| Computer Information Technology | Secondary level (China, Australia, Republic of Korea and Germany primary level also) | Secondary level (Fiji, India, Malaysia and USA primary also) |
| Health Education | All levels (Germany, Indonesia, Sri Lanka, Japan) | All levels (China, New-Zealand, USA, India) |
| Environmental Education | All levels (USA, China, Thailand, India) | All levels (Australia, Lao PDR, and Republic of Korea) |

In this connection, poverty alleviation is a broader national policy of Nepal and education policy has been linked with this poverty alleviation agenda which aims at establishing centre of excellence through development of 'Human Resources', as a broader education policy. School curriculum has given due focus on vocational/ technical education as an optional subject in secondary level where student has to choose best one. However, science education has been considered 'core' subject from primary to secondary level and population education has been integrated in Environmental Science at primary level. There are no provisions made for specific technology education in general education stream of school curriculum. The students at lower secondary level have a choice among creative arts and pre-vocational subjects.

Moreover, interested learner, with required qualification, can acquire vocational and technical skills from CTEVT system, ranging one week to 4 years. However, materialization of STL concept in curriculum has been deemed because of inadequate technical and professional exercises which has resulted into low level of understanding, analysing, reasoning and forecasting skills of the students.

**Training Policy for Teacher Development**

The MOES has recently approved training policy for developing competent human resources required for entire ministry system with focus on teacher development, educational manager development and training professionals development through provision of certification training, demand driven training, professional training and capacity building programmes, ranging from one week to three months training courses.

International trends for teacher preparation ranges from certification training to academic courses implemented by training institutions and higher education authority 1- 4 years training/academic courses in the name of pre-service teacher development programmes for perspective teachers as 2 - 4 years Degree programme for 12 Years of Schooling Certificate Holder, 1 year to 5 years Degree Programme for Bachelor/Master Degree Holder, 1 year Diploma for University Graduates and 1 year to 3 years Diploma for University Non-Graduates.

The policy measures for a 10-month training on the top of required qualification implemented, has been guided by national curriculum frameworks. Consequently, integration of STL in training design and delivery has been almost nonexistence. However, there is a process on going for collaborative training programmes between

training authority of MOES and higher education authority in order to define Information Communication Technology (ICT) in education, ICT teacher preparation course, ICT teacher training with the provision of delivery mechanism within university system. Moreover, collaborative scheme has been designed to response training policy of the government which focuses more on pedagogical practice, internship at school, professional course, action research/ workshop/ seminar and case studies as a prerequisite course of academic programmes, with provision of bridge courses, if necessary. The primary pre-service teacher training programmes are being implemented by private institutions in two semesters having 5 months of each, affiliated to government training authority whose quality is assured by needs based training curriculum, effective training resource materials, certified trainer, onsite monitoring support services and external examination.

- **In-service Certification Primary Teacher Training:**
  This course totals 10 months or 1320 hrs. Out of 10 months, two months are allocated for school-based practicum as a part of face-to-face training and they have to attend 20 days in face-to-face interaction at their closest resource centre on holidays in addition to regular teaching in their own school for distance based 5 months or 660 hours training. The technology utilized in this training are, radio broadcast, audio cassette, phone in, web page. Telecast and Video conferencing for training programme are on process and computer and multimedia (constituent training centres) are utilized in training delivery. This whole course expects generic skills rather than subject specific skills. However, it has included population and environmental science teaching skills which is about 80-90 hrs. out of 1320 hrs.

- **Lower Secondary and Secondary Certification Teacher Training**
  This course is a subject specific which covers six core areas of school curriculum and untrained subject teacher has to attend in related subject training. It has been divided into three modules of which 1st and 3rd modules are subject specific having 2.5 months or 330 hours each. This each module is further divided into two segments having one month institution-based (knowledge/skills focus) and 1.5 month school-based practicum (application focus) in their own school. The second module is considered to be distance mode having 660 hours or 5 months (Knowledge focus). They are supported by self-study printed materials, correspondences and technology mediated materials like audio/video cassettes/CD, web page, audio/video conferencing,

and phone-in programme. Moreover, every training centre has been equipped by multimedia lab and library resources. However, science teacher training course has tried its best to link STL within national curriculum frameworks.

- **In-service Management Certification Training**
  This course is mandatory to school heads who wish for becoming head teacher. This course is of 30 working days and is being organized by National Centre for Educational Development (NCED) through its 34 constituent Education Training Centres (ETCs). The participants of this training have opportunity to be benefited from the technology as mentioned before. However, there is much left to be incorporated and readjusted in making training curriculum effective from STL prospective.

- **Demand Driven Training**
  Every working teacher is required to receiving 3 - 7 days resource centre/district centre-based demand driven training. The NCED system has a responsibility of developing trainer development required at local level with focus on generic training skills of Training Needs Assessment (TNA), training design, facilitation skills, and training evaluation. Understanding of science and utilization of technology, even in science specific training, has remained far because of insufficient institutional base including technology and professional base.

**Implementation of Teacher Training**

The NCED by mandate is considered to be an apex body of training and development for developing human resources required for entire education sector with focus on competent teaching force and effective educational managers and training professionals. This system has own networking linked to school level with the provision of Educational Training Centres and Lead Resource Centres (LRCs). 200 LRCs proposed at local level for designing /delivery of in-service teacher training with responsibility of demand-based training.

The institutional capacity building (ICBP) of NCED is a recent innovative endeavor for developing institutional capacity of the NCED covering upto LRCs level which tries to develop 3 levels of capacity development - Institutional level, MOES level, and Societal level. This plan has provisioned institutional linkage with resource intuitions at national, regional and sub-regional level in the form of off-the self courses, tailor-made courses, internship, sharing of expertise and resources in 5

thematic areas where utilization of technology in training, development and implementation has given due considerations.

**Issues and Solutions**

The common barriers in educational attainments in Asia, specifically in South Asia, are equally applicable in Nepal which has severely affected the goal to achieve education for all by 2015 consequently impacted on enhancement of science and technology education for all. The government IT policy of Nepal (a) providing internet facilities gradually to village development committee level (b) using information technology to promote e-commerce, e-education, e-health among other and transferring technology to rural areas and (c) including computer education starting from the school level to upward, has not been implemented yet because of education policy environment and regulating mechanism So, either Ministry of Education and Sports or Ministry of Science and Technology can be suggested to take lead role for materializing IT policy leading to reform in curriculum development and curriculum implementation at school level.

Institutional setup, institutional infrastructure and institutional linkage are critical factors which contribute to institutional development, if established once, can be instructed to explore all possibilities with appropriate linkage and exploration of institutions, professional forums and development partners.

The two world conference on science and technology education i.e., world conference on Science, Technology and Mathematics for Human Development (Goa, 2000) and world conference on science and Technology Education ( Penang, 2003) have identified *"the urgent need to reshape Science and Technology Education, with special emphasis on the most critical needs, problems and expectations of the learners, for example on the formation of open and critical thinking and improving people's ability to meet the challenges of the 21st century."* This global understanding of STL are not well documented, communicated, disseminated and discussed at national level and local level. So, there is a need of having technical and professional exercises to translate policy statements into programme and activities with consultation of stakeholders.

Research study has stated that ICT has contributed a lot in making difference to science and technology education if used it thoughtfully and reflectively in defining ICT education and ICT in education from school level to higher education level. The provision of ICT teacher development in Secondary Education Support Programme (SESP, 2003-2008) has not implemented yet because of low level of commitment of

MOES and University system. MOES and university system need to come up with practical solutions in order to implement ICT programmes as envisioned in SESP.

SESP provisioned national curriculum framework 1-12, expected to be implemented by 2004, being still in the draft stage, has caused serious implications in teacher preparing course with IT skills. This is the appropriate time to look at the national curriculum framework from STL perspectives in order to recognize ICT as visible contributor for making better in science learning and teaching leading to have better teacher preparation course with inclusion of STL components.

UNESCO, Bangkok and IBE (2002) has stated that the paradigm shift in education system has implications in the way to promote science and technology education as follows:

> *"From teaching to learning, from transfer of facts to students construction of knowledge, from memorization to analysis, synthesis and evaluation, from concentration of knowledge to development of knowledge, skills, values and attitudes, from rote learning to applied learning/ context learning, from categorized learning through traditional subjects to integrated learning of boarder learning areas, from schooling to lifelong learning, with focus on inputs to outcomes, from didactic teaching to teaching strategies including interactive methodology, from an assumption that there is only one learning style to a recognition that there are preferred learning styles, and from curriculum as a product to curriculum as a process."*

So, there should be high national commitment in re-orientating / re-engineering of the education system in reference to designing science and technology education programme with provision of Policy and Guidelines, Curriculum and Teaching Learning Resources, Training of Science Teachers and Popularizing Science and Technology Programmes.

**Conclusion**

Science and technology has demonstrated visible changes and development in terms of access and quality in education around the world. The reorganization of the suggestions and recommendations of global conferences on science education, environment and education in preparing citizens with science and technology skills to face the challenges of 21$^{st}$ century is the general concerns of all. So considerable attention of the country is desirable in establishing strong science and technology base with reinforcement of policy, restructure of the institutions and development of sustainable programmes.

"The learning treasurer within" UNESCO document has inspired every country for the basic foundation for general education in general and science education in particular which advocates four pillars of education – Learning to Be, Learning to Know, Learning to Do, and Learning to Live Together, as identified by International Commission of Education for 21st Century. Furthermore, establishing linkage with a network of UNESCO, Bangkok like science teacher's association, national science and regional science education centre could be tangible works towards this direction.

There is a high demand of peoples for having education for employment to reduce poverty which is possible if science and technology education is intervened appropriately within the framework of policy, programmes and actions as and where required through consultation of professionals and experts. There is a urgent need of scientific and technical literate citizens to advance and prosper the country which requires participation and ownership of professionals, experts and stakeholders.

## References


Bhandari, A.B. (2001): Distance Education Emerging Mode of Instruction, DEC, Sanothimi, Bhaktapur.

Bhandari A.B (2005): A Seminar Paper or Teacher Training in Science & Technology Education presented in National Seminar, Organized by NATCOM. Nepal.

L.C. Gregorio (2005): A Seminar Paper on Issues and Challenges in Science of Technology Education: Regional and Global Perspective, presented in National Seminar on Science & Technology Education, organized by NATCOM, UNESCO, Kathmandu, Nepal.

NCED (2004): Secondary Training Curriculum/Trainee's Resource Materials, National Centre for Educational Development, Sanothimi, Bhaktapur.

NIER (1999): An International Comparative Study of School Curriculum, National Institute of Educational Policy Research, Tokyo, Japan.

Rao, D.B. (2001): 'Science and Technology Education for All' and 'Science, Technology and Society. A Curriculum Framework', Discovery Publishing House, New Delhi, India.

UNESCO (2001): The Training of Trainers Manual, STL for All, Bangkok, Thailand

# The Role of Information and Communication Technology in Education

- Dr. Subarna Shakya*

**Abstract**

Today, information can come from anywhere and in this era of information explosion, skills like problem solving, critical thinking, complex reasoning, collaboration and communication and ability to access information by using the best searching strategies for various kinds of information are set of skills that have become the critical skills for students to succeed in their future. In this new era of information and communication technology (ICT), the implications of ICT are enormous. In this paper, I would discuss how ICT has been influencing the education sector. I would also discuss the influence of ICT on teaching & learning and research & administration in educational institutions.

## Introduction

In the beginning, globalization was fully believed to lead to greater economic development in the sense of greater market scale, which in turn would increase the gross national product. So, people believed that poor countries or third world countries would develop faster, thus the economic gap between the rich developed countries and the third world countries would be diminished.

However, the developing country like Nepal, due to lack of appropriate information at the right time has remained in low productivity, low quality research works and waste of time to pursue information and even to do a research which actually had been done by others.

The ICT revolution is going on and has been making significant impacts in our daily lives. Within a short span of time, ICT has managed to change the very landscape of human existence and it has dramatically altered and redefined virtually every aspect of our lives in terms of how we work, conduct business and entertain ourselves. With

* Associate Professor and Head
Department of Electronics and Computer Engineering
Pulchowk Campus, IOE, TU

the Internet Technology, also popularly known as the net, all physical barriers like geography etc. are gone and the world today stands as a global village.

**ICT in Nepal**

The successful utilization of ICT depends on the infrastructure which includes the telecommunication network, the availability of the Internet facilities and the use of the Internet.

In general, the development of ICT in Nepal is less encouraging as compared to the developed countries or even compared to neighboring countries such as India, China and others. At present the ICT status of Nepal is as follows:

- The country started using computers as early as in 1971.
- In that year IBM 4101 was used in the country for Population census for the first time.
- The establishment of National Computer Centre in 1974.
- In 1980, private sector companies started getting involved in IT and the IT industry of Nepal started taking a shape.
- The country saw foreign investments coming in IT sector in 1983 and very soon software and services started to export (in limited quantity) from the country (in 1984).
- At present, companies exist in Nepal are Software and Service Joint-ventures with US and Japan.
- Similarly, a few off the shelf software products from Nepal (e.g. multimedia CD-ROMs etc.) have been exported.
- However, it was only in 1990 that the proliferation of IT companies in the truest sense started taking place.
- Existing Market base in Nepal
    - Software Development 80+
    - Networking 58+
    - System Integrator 26+
    - Training institute 180+
    - Consultancy 90+

- Universities 4
- Trading 200+
- Mobile service provider 2
- Wireless telephone service provider 1
- ISP 30+
- Web services provider 30+
- Interactive Multimedia CD-ROM developers 60+

- The country saw its first IT policy in 2000.
- Most of the significant institutions like banking and financial institutions, tourism related institutions (hotels, airlines, travel agencies), transport (long distance buses etc.), industries etc. have already been computerized and offer computer-based services in the country.
- Similarly, a number of government organizations have also undertaken considerable efforts to computerize their services (e.g. Ministry of Finance, NTC, EPF etc.)

**ICT and Education in Nepal**

1. ICT Education

   In the development of human resources through ICT education, there are two objectives which are desired to meet the need for skilled human resources: those who can use ICT products and those who can produce ICT products.

   Some ICT education programmes which has been done and are still being done in Nepal are as follows:

   i) Formal Education

      a. Vocational school programme in ICT

         Through this programme it is anticipated to produce skilled human resources at the basic level in ICT, who can fill positions of ICT operator, technical support, help desk and web designer.

      b. Diploma programme in ICT

         This programme is expected to produce semi-skilled human resources to meet the need for skilled ICT manpower for industry and vocational school.

      c. Undergraduate programme in ICT

This programme is expected to produce ICT programmers, software engineers, analysts, designers, hardware engineers and network engineers.

d. Graduate programme in ICT
Through this programme, it is expected to provide human resources with more specialized skills in the areas of ICT engineering for academic institution and industry.

ii) Non-formal education
Besides ICT educational programmes through formal educational institutions/schools at various levels, there are many out of school educational efforts that are being made in various areas of ICT skills, as network technicians, computer technicians, programmers, animators, operators, web designers etc. Some of the non-formal educational institutions or ICT training centres are in partnership with foreign ICT training centres, while others are totally motorized by local experts.

2. ICT literacy
   a. Development of soft -wares in the Nepalese language
   One of the obstacles to the use of computer for all the Nepalese society is their low mastery of English, so that they are reluctant to use computer. In 2005, utilization of computer through the development of application programmes in Nepalese language based on an open source platform, NepaLinux is started.
   b. ICT training in schools
   c. Socialization of computer-assisted learning media in high schools
   d. Healthy Internet

3. ICT for education
To improve the quality of Human resources, it is necessary to use ICT as an educational opportunity that will improve the quality and relevance of education and the efficiency of the educational system. That's why various efforts have been made to include ICT in education.

Some of the efforts to use ICT in education are:

a) E-learning
The objective of this programme is to improve the quality of education at high school and vocational school levels through the use of the Internet. In

the preliminary stage, learning materials have to be developed in the following areas such as Mathematics, Physics, Chemistry, Biology, Electronics and Information Technology.

b) Online courses

Need to develop infrastructure for some schools and universities that have to provide lectures through the Internet for same courses.

c) Online tutorials

One can use Information and Communications Technology for higher education tutorial through the medium distance education.

c) Joint research

For the use of Information and Communications Technology, a joint research programme is easy to collaborate.

d) Electronic library

For the use of Information and Communications Technology, a Digital Library is easy to handle.

**Influence of ICT on Teaching and Learning**

In the last couple of years, ICT has significantly changed the teaching and learning environment in educational institutions all over the world. With the advancement in ICT, the ways in which curriculum are designed and delivered have significantly changed. Similarly, there has been a significant shift in the teaching and learning strategies with penetration of ICT. The learning processes of today encourage more on the acquisition of information through drill and practice e.g. using the Internet than the acquisition of routine facts in a typical classroom setting. Likewise, with the adoption of ICT, in the last couple of years the ways in which the curriculums are delivered have also significantly changed. Multimedia presentations of lectures have gradually replaced the traditional method of delivering lectures e.g. on whiteboards. Followings are some of the trends and influences that ICT has made changes in the teaching and learning environment.

- With the advancement in IT, in the last couple of years, the teaching and learning methodologies have changed significantly. The use of ICT in education has enabled the faculty to focus in helping students to select and to structure concepts and information and to engage in discussions. In this new setting, the faculty needs to spend less time in transmission of routine facts and

information to students as they are encouraged to obtain that information for themselves using various ICT tools.

- Penetration of IT in education has provided more choices to students in the way they learn. With ICT, the learning process has become more personalized with different modes and paces of learning, which fit the individual cognitive styles of students.

- With the availability of the Internet Technology of today, a student seeking information on some subjects is no longer restricted to the libraries of a particular institution. In this new era, information can come from anywhere and geography is no longer a barrier. The use of ICT has facilitated the development of research culture amongst students where the students are encouraged to acquire information from variety of sources. The students use a wide variety of learning tools such as analysis and simulation, drill and practice modules, multimedia presentation of information, self test modules with corrective feedback, network based tutors etc. and acquire several skills deemed necessary in this digital age.

- In the last couple of years, smart classrooms have gained significant popularity and are rapidly replacing traditional classrooms. The smart classrooms of today are typically equipped with audio-visual aids and have high speed network connectivity in the classroom to access network resources including the Internet. The smart classrooms have gained widespread popularity because they can qualitatively improve the teaching and learning process in any institution.

- With the networking technologies of today, a new model of education known as distance education has evolved and gained significant popularity amongst students all over the world. The Internet has played a key role in this evolution. The principal reason behind the popularity of distance education has been the fact that it supports learning anywhere and anytime. It also allows learning across a range of environment and in individualized, flexible format. Distance education allows students to obtain education in a setting that they are comfortable with e.g. their homes, and in their own time and pace. The lectures, assignments etc. are generally posted on the Internet from where the students do not need to come to the class physically to attend lectures etc. Considering the high demand for this mode of learning, more and more

institutions in the world have adopted this and offer their courses by distance education on a routine basis.

A different but fascinating dimension of distance education is that with the available multimedia technologies, it is possible today for students to attend lectures, seminars, conferences etc. happening any where in the world. They can become a part of a global classroom receiving lectures and participating in discussions etc. without being physically present there.

- In addition to face to face communication in and outside classrooms, ICT has helped to develop stronger intellectual bond between professors and students. Electronic communications like E-mails has helped a lot to bridge the communication gap that is often found between the professors and students.

**Influence of ICT on Research**

ICT has significantly redefined the research scenario in the last couple of years. In the last couple of years, network computing resources and especially the Internet have surfaced up as a predominant tool to conduct cutting edge research in any discipline. The Internet has been instrumental in providing tools and information, vital to conduct research activities in minimal time thereby accelerating the pace of research. Due to the Internet, it has become possible to publish research papers on the net and obtain comments much faster than the conventional methods of attending seminars or conferences.

Collaborative research has become possible because of the available networking technologies and the Internet. Availability of greater and greater computational power required for developing cutting edge technologies through networking has immensely helped the research community all over the world.

**Influence of ICT on Administration**

ICT has found a significant place in the administration of educational institutions. The use of ICT to manage administration has allowed the quality services to students and the faculties alike has been significantly improved. Likewise, ICT has also helped to increase the efficiency and effectiveness of the administrative systems as a whole. With computer networks, online, paperless systems can be deployed to deliver information more quickly, conveniently and accurately. For example:

- Information for students: Course syllabus, courseware, course registrations, results, assignments, address etc.

- Information for faculties: Students counseling, grade submission, assignments, project monitoring etc.
- Information for administration: Training personnel and financial management, activity planning, inventory management and control, campus interviews etc.

In a time of continuous financial constraints, ICT has become an enabling force, which lets organizations to rethink, to redesign and to improve the way they conduct their administrative process and deliver the resulting information.

**Conclusion**

Through the above discussion we can say that the emphasis of human resources quality improvement is needed especially to gear on the provision and expansion of education of human resources in ICT area. Besides the utilization of ICT for education and learning purposes as an effort to fill digital divide, the national competitiveness to revive the economy should be our another emphases.

**References**

Shakya S. and Rauniar D. (2001): "Information Technology Education in Nepal-an Inner Perspective", International Conference on information technology, communications & development.

Shakya S. and Rauniar D. (2002): "The Role of Information Technology in the Overall Development of Nepal", International Conference on information technology, communications & development.

# WWW – a Highly Useful Resource for an EFL/ESL Teacher

- Ganga Ram Gautam*

Professional development has been a 'buzz' word in every discipline in the present day world. Due to the rapid advancement and expansion of information and communication technology (ICT), the world is becoming smaller and smaller. In order to be familiar with the new developments and innovations in the field and then to adapt those changes in the local context, one must be ever ready to grow as a professional. A professional is a person who performs the given functions with updated knowledge and skills in the area he/she is working. There are different means of professional development and some of them as they are mentioned in the literature include personal reflection or self-reflection, sharing with colleagues, involvement in the professional organisations, using on-line resources and so on. One of the powerful means which has been massively used by many people for their professional enhancement is the use of the on-line resources. Teachers have also used these resources world-wide and there are a number of sources on-line for teachers which they can use for different purposes. The use of internet and on-line facilities and resources by English teachers is growing day by day. This article is, therefore, an attempt to present the use of some on-line resources which English teachers can make use of for their professional development.

**What are the On-line Resources?**

On-line resources are those resources which are produced in electronically and stored on the World Wide Web (WWW). Mostly these resources are free and they can be downloaded from anywhere in the world. Some of the resources have to be subscribed by paying minimum subscription fees. Some of these resources are fixed and they can be accessed simply by typing the URL address on the screen and some sites can be accessed only by signing-in. Similarly, some of them are dynamic in which you can even interact and some of them are static which you can only view. Also, there are some discussion forums online which one can join and participate in the professional discussion.

*Lecturer, Mahendra Ratna Campus, TU

## WWW for English Teachers

Everyday, enormous amount of ELT materials are uploaded to the Internet from different parts of the globe. At present the world has started to materialize libraries without paper. A vast treasure of knowledge is being stored on the web, which can be retrieved by anyone at any corner of the globe. ELT also possesses enormous amount of materials (literature on the web in various aspects ranging from academic articles of theoretical foundations to very practical materials of classroom purpose which a teacher hard pressed for time - can use immediately and improve his performance' (Bhattari and Gautam, 2005). Among many, some highly useful ELT sites for an English teacher are as follows:

### 1) The Internet TESL Journal - http://iteslj.org

This site is an extremely useful site for English teachers who really want to have taste of a variety of ELT materials on-line. This is an electronic journal appeared every month. This is a free site which can be accessed simply by typing the URL address i.e. http://iteslj.org on the address bar menu. The materials on this e-journal range from research-based academic articles to highly practical classroom activities, handouts and lesson plans. The articles and techniques are grouped under different thematic headings such as language teaching skills like listening, speaking, reading, writing, vocabulary, grammar and some general pedagogical headings like motivation, becoming a teacher etc. When one enters the URL on the address bar the home page of this site will read as follow:

The Internet TESL Journal
For Teachers of English as a Second Language
Articles, Research Papers, Lessons Plans, Classroom Handouts, Teaching Ideas & Links
This is a monthly web journal, so make a bookmark.

Home | Articles | Lessons | Techniques | Questions | Games | Jokes | Things for Teachers | Links | Activities for ESL Students

Previous Issues: 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998, 1997, 1996, 1995

**Vol. XII, No. 1, January 2006**

**Teaching Techniques**

- Defining Words: What Can Teachers and Students Do?
  By Jennifer Yun and Marely Cervantes
- Dyslexia in the Language Classroom: Practical Guidelines for Teachers
  By Anna Krzyżak

**Lessons & Lesson Plans**

- Teaching the Beatles' "Yellow Submarine": A Handout for ESL/EFL Students
  By Bill Templer

**Articles & Research Papers**

- Motivation of ESL Teachers
  By Sebnem Suslu

**Announcements**

- Conversation Questions for the ESL/EFL Classroom
  Many new questions have recently been added.
- Easy Online RSS Reader for English as a Second Language (ESL) Podcasts
  A couple of months ago we put this online to make it easy to access ESL podcasts.

**Vol. XI, No. 12, December 2005**

**Teaching Techniques**

- Using Translated First Language Literature in the Second Language Classroom
  By Ronald Gray
- Words to be Avoided in Academic Writing: How to Cope with Them
  By Aleksandra Kledecka-Nadera

**Lessons & Lesson Plans**

- Job Interview Practice for ESL Students
  By Matthew W. Blake
- Part-time Job Debate Practice for ESL Students
  By Matthew W. Blake
- ESL Pronunciation Practice - Alphabet Radio Game
  By Matthew W. Blake

**SEARCH**

**Search This Website**

Search Website

ANY Word

**Search Our Links Database**

Search Links

**Browse Our Links Database**

Links for Students
Links for Teachers
What's New

**Other Things on Our Web Site**

- Things for ESL/EFL Teachers
  Things you can use in your classroom: Conversation Questions, Free Online Textbooks, ...
- Activities for ESL/EFL Students
  Things your students can do online.

**Using Our Materials**

- You do not need to ask permission to put a link to our page(s) on your page(s) as long as you do not trap any of our pages in a frame.
- For more information, please read our Copyright Notice.

**A Request for Submissions**

- We are always looking for things that are of immediate practical use to ESL/EFL teachers.
- Read our Call for Submissions for more information.

**Commonly-used Acronyms**

- **CALL** = Computer Assisted Language Learning
- **EFL** = English as a Foreign Language (Studying English in non-English-speaking countries)
- **ELT** = English Language Teaching (or sometimes Training)

- **ESL** = English as a Second Language (Studying English as a non-native speaker in a country where English is spoken. Depending on where you are from, the term ESL may be more inclusive and includes EFL. For some people the reverse seems to be true.)
- **ESOL** = English to Speakers of Other Languages (Note: ESL and EFL are often used interchangeably. This acronym is an attempt to make a generic term and then assign more limited meanings to ESL and EFL.)

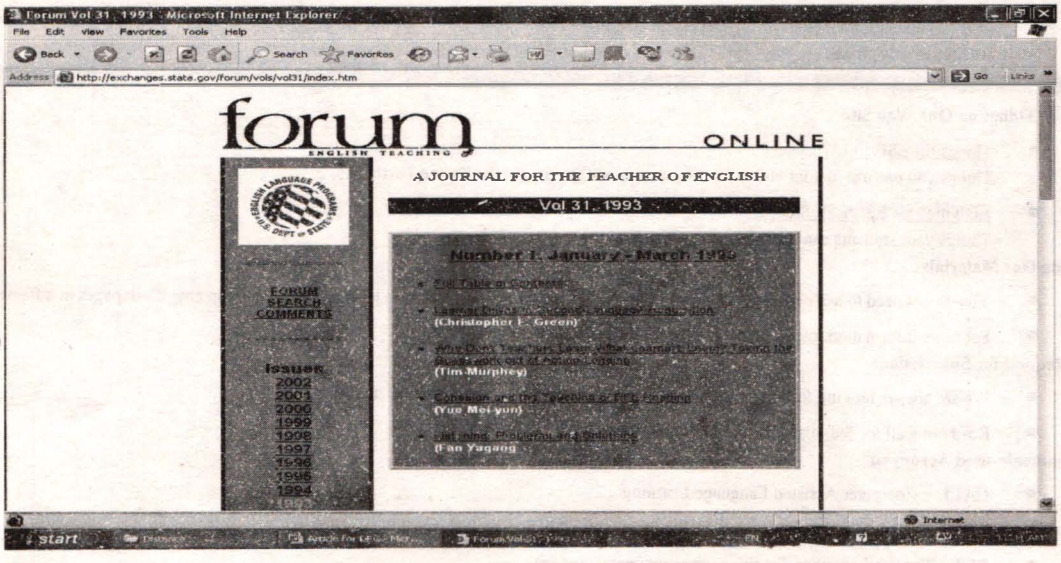
For more acronyms go to our page on Acronyms Related to TESL.



As one can see, the page displays varieties of information that this site contains. The home page displays the contents of the current issue of the journal and the type of materials available in this journal. All the previous issues of the journal are also achieved here and can be accessed through the links provided. This is a wonderful site which you can log on, roam around and enrich yourself with the different ELT stuffs.

## 2) English Teaching Forum - http://exchanges.state.gov/forum/

Another highly useful ELT journal which is also published in hard copy and simultaneously stored electronically and can be accessed free is the electronic version of English Teaching Forum which is published quarterly from the United States and distributed all over the world. All the issues published so far from the year 1993 have been stored on its e-site i.e. http://exchanges.state.gov/forum in electronic form. The articles published on this journal are written by the classroom teachers based on their practical



Some other internet sites that English teachers have extensively used worldwide to enrich themselves are listed below and the readers are expected to explore by themselves:

3) http://www.bbc.co.uk/worldservice/learningenglish/index.shtml

4) http://www.learnenglish.org.uk/

5) http://www.teachingenglish.org.uk/

6) Dave's ESL café on web – the best known ELT Portal - http://www.eslcafe.com/

7) TESL-EJ Quarterly Journal – http://www.kyoto-su.ac.jp/information/tesl-ej/index.html

8) BBC Lesson Plans -

9) Developing Teachers. Com -

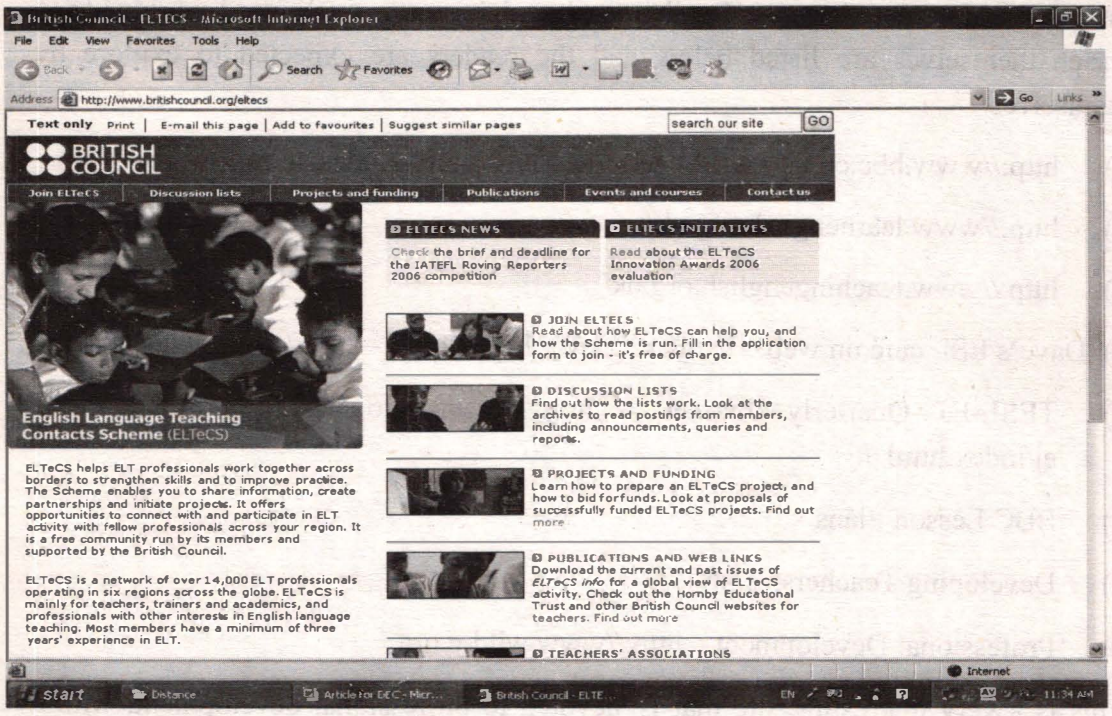
8) Professional Development – http://www.wild-e.org

This is a very interesting site that is 'devoted to professional development, with a penchant for pop and rock music and New Age Philosophy. Written by EFL/ESL teachers, but aimed at a wider teaching audience, the site is witty and idiosyncratic' (Eastment, 1999).

**On-line Discussion Forums**

There are different electronic networks of English teachers worldwide which anyone can join free of charge. To name a few, ELTeCS and TESL-L are the ones which have expanded their networks world-wide' (Bhattarai and Gautam, 2005).

**1) ELTeCS: = http://www.britishcouncil.org/eltecs**




This is the discussion forum hosted by the British Council and it can be joined by anyone interested in ELT from any part of the world. The membership is free one can become a member of this forum by signing in on its site

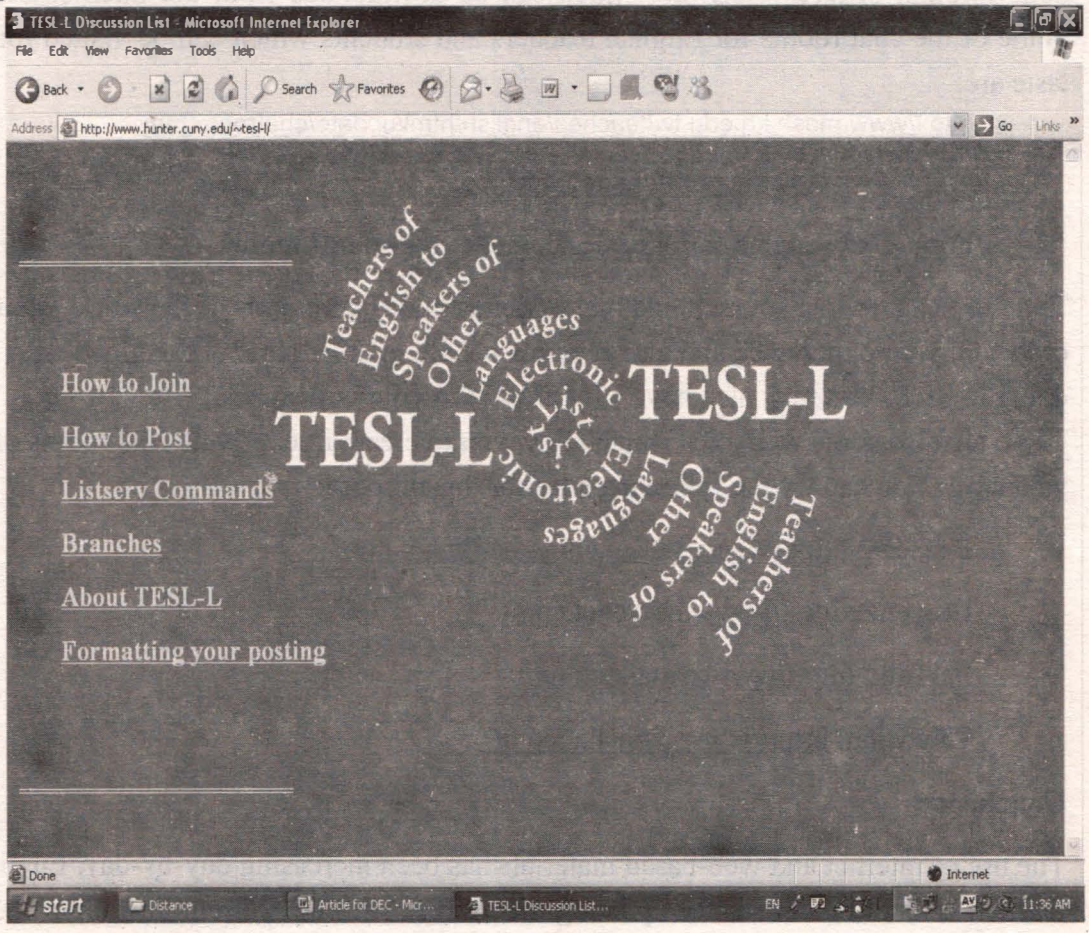
**http://www.britishcouncil.org/eltecs** which provides the detail instruction on how to join and use this site for its best use. By being a member of ELTeCS, for example, one can participate in the on-line discussions on various topics of their interest. 'ELTeCS helps ELT professionals work together across borders to strengthen skills and to improve practice. The Scheme enables you to share information, create partnerships and initiate projects. It offers opportunities to connect with and participate in ELT activity with fellow professionals across your region. It is a free community run programme by its members and supported by the British Council. ELTeCS is a network of over 14,000 ELT professionals operating in six regions across the globe. ELTeCS is mainly for teachers, trainers and academics, and professionals with other interests in English language teaching. Most members have a minimum of three years' experience in ELT' (ELTeCS homepage, http://www.britishcouncil.org/eltecs).

Similarly, the ELTeCS members are also entitled to 'bid for an ELT project worth £3000 through partnership with their fellow international colleagues' (Bhattari and

Gautam, 2005). There are sample project proposals and the report of the successful projects in the site and the members can get feedback on their proposals before the final bidding is submitted. English teachers are highly recommended to join this site and expand their ELT horizon.

**2) TESL-L : = http://www.hunter.cuny.edu/~tesl-l/**

This is another discussion forum which is 'one of the most popular lists for ELT: TESL-L, a 24-hour electronic resources for anyone interested in the teaching of the English language. Physically located in New York, in a recent count TESL-L linked over 20,000 virtual subscribers in 125 countries. This resource is freely available worldwide to anyone with access to an email account' (Teeler and Gray, 2000).




As we can see from the number of subscribers, this is really a very popular forum for English teachers. When you subscribe to the list you can receive all the messages automatically. You can also participate in the discussion and most of the messages

posted in this forum are classroom issues the teachers are facing in their everyday life. Through this site 'you can communicate your concerns to your virtual colleagues around the world' (Teeler and Gray, 2000).

**Chat Programmes**

Like other chat programmes for fun, there are also chat programmes for those who are interested to learn English. Almost everyone who use internet uses chat these days. Chat is 'basically a number of people typing simultaneously, reading and replying to what others in their group or channel are saying' (Teeler and Gray, 2000). Chat is like email where you communicate electronically through writing but chat is more expensive as you have to be on-line while you are chatting. Chatting can be done through different software which can be downloaded from the internet sites. Some of the chat rooms for English teachers and students which can be visited for a taste are:

http://www.mcsh.kh.edu.tw/teaches/english/html/update/chatroom.htm

http://www.eslcafe.com/chat/chatpro.cgi

http://www.englishforhispanics.com/elt-chat-rooms.html

Try these chat rooms yourself and make friends in different parts of the world. You can share your experience and also see how people in other parts of the globe are doing in ELT. You may also have a lot to offer to your colleagues.
There are also some web-sites which allow you to create free, private chat rooms of your own. You can try the following sites for this purpose:

Beeseen: http://www.beseen.com/chat/index.html

Bravenet: http://www.bravenet.com/

PalTalk: http://www.paltalk.com/

Para Chat: http://www.parachat.com/

**Conclusion**

The use of internet and web-based materials has been increasing day-by-day. English teachers should be constantly updating themselves with the current development in the field of ELT and one of the most useful tools for this could be the use of the Internet. However, all the sites that are said to be useful for English teachers might not be as useful as they are claimed to be. All that glitters is not gold. A teacher has to be able to decide whether the Internet site is authentic, reliable, accurate and

updated. For this 'an English teacher should be more energetic, inquisitive, dynamic and aware of the fast changing socio-cultural, and linguistic realities. He should bear in mind that this is possible only through one's commitment for continued professional development' (Bhattarai and Gautam, 2005).

## References


Bhattarai, G. R. and Gautam, G. R. (2005): *English Language Teachers at the Crossroads* in The Journal of NELTA Volume 10, No. 1 & 2. Nepal English Language Teachers' Association. Kathmandu.

Eastment, D. (1999): The Internet and ELT. Summertown Publishing. British Council. United Kingdom.

Teeler, D. and Gray, P. (2000): How to Use the Internet in ELT. Longman. England.


**The internet sites used for the reference:**


http://iteslj.org
http://exchanges.state.gov/forum/
http://www.bbc.co.uk/worldservice/learningenglish/index.shtml
http://www.learnenglish.org.uk/
http://www.teachingenglish.org.uk/
http://www.eslcafe.com/
http://www.kyoto-su.ac.jp/information/tesl-ej/index.html
http://www.wild-e.org
http://www.britishcouncil.org/eltecs
http://www.hunter.cuny.edu/~tesl-l/
http://www.mcsh.kh.edu.tw/teaches/english/html/update/chatroom.htm
http://www.eslcafe.com/chat/chatpro.cgi
http://www.englishforhispanics.com/elt-chat-rooms.html
http://www.beseen.com/chat/index.html
http://www.bravenet.com/
http://www.paltalk.com/
http://www.parachat.com/

# Teacher Training for Better Classroom Delivery

- Ganesh Bahadur Singh*

## Background

Basic and Primary Education Project (BPEP) has noteworthy achievement regarding foundational works in the primary education sub-sector, but there was lack of a visible and significant impact on classroom learning and students' achievement levels as reported by Shrestha et al. (MOE, 1999) in the report "BPEP (1992-1998): A Synthesis of Experiences". Study undertaken by BPEP and national achievement level assessments of grade 3 and 5 conducted by EDSC for BPEP indicated lower level of students' achievement. Despite the prime goal on enhancing students' achievement levels, the endeavors were not successful. BPEP II master plan (1997-2002) assessed deficient delivery of the curricular materials as probable reasons for under achievements of the primary level that states, "either the new curriculum has not been appropriately delivered, or it has not been delivered to the required extent" (1997).

Major factor for the effective implementation of the curriculum is teacher training. Until the end of BPEP I, teacher training had been, "a one-way traffic of unknown emphases and unseen practices" (MOE, 1999). BPEP II master plan (1997-2002) raises concerns over gap between content and intent of the teacher-training curriculum, and teacher-training endeavors producing under-trained teacher at large. These could be among several factors for training of the teacher not having any significant impact on the achievement level of the students as reported by EDSC study on national achievement level of grade 3 students (1997). The study also points out about almost non-existent of the research studies, which investigated into the impact of the training on classroom performance of teachers. However, studies conducted by BPEP I in 1997 and 1998 have tried to evaluate some of the components of the classroom practices of the teachers in the classroom (MOE, 1997; EDSC, 1999). In this context, one of the formative research study conducted by CERID for the MOES on 2002 focused on the 'Classroom Delivery' which included teacher training component as well. This article mainly covers findings and suggestions of that study.

*Lecturer, Mahendra Ratna Campus, Tahachal, TU

## Classroom Delivery in the Context of Teacher Training Through Distance Mode

Teacher training, whether face-to-face or through distance mode, has by and large focused on instructional improvement at the classroom level. National Centre for Educational Development (NCED) is to impart knowledge and skills to the teachers for improving their classroom delivery practices by combining two modes – face-to-face training in the teacher training centres and audio training through distance mode. There is a division of content as well as duration between these two modes. This way, these two modes are paired together to complete the cycle of the teacher training. Therefore, while this article addresses the issues related to classroom delivery, this also covers teacher training through distance mode as well.

## Some Observations

Teacher training is provided with the expectation that it will help teachers to deliver their classes effectively. But classroom instruction is not yet found to be effective up to the expected degree. There are various shortcomings in the classroom delivery which indicates that despite various endeavors in the training to help teachers improve their classroom delivery practices as well as classroom environment the situation has not improved yet. The reasons for this are described in the following paragraphs:

## Cross Matching Skills

While cross matching skills from training manual on which the teacher have received training and their use in the classroom delivery, then one can find that most of the skills could be useful. For example in the training manuals of mathematics subject, methods like (induction, deduction, question answer, discussion, demonstration, drill, CSA -- concrete, semi-concrete, and abstract, concept development, games, problem solving) are covered. Most of these methods are also suggested in the teachers guide. But in practice these methods have not been frequently and properly used during classroom delivery. Similarly, intended instructional materials have not been used frequently and properly. Training manuals cover real objects, multiplication fact table, flash card, number card, model, picture, drawing, instrument box etc. which have rarely been constructed and used in the classroom delivery.

Basically, training is related to providing teacher with skills and practice on colletion of materials, preparation of lesson plan, teaching methods, instructional materials

construction and use, and evaluation of the lesson. These relevant skills acquired during training have not been found a use during classroom delivery. There were also some instances observed which could be the feature for improving training manuals themselves. For example in mathematics,

- Incompatible suggestions: lining up boys and girls in front of the classroom to give example of a set.
- Lack of link of theoretical description with content area: Piaget theory, group formation, correction for guessing.

**Yearly Plan and Daily Routine**

In the schools, a daily routine can be found pasted on the wall of the office-room. In some of the cases, same daily routine of the last year can also be seen using for the coming year as well. Yearly school plan can also not be found in most of the schools. Some schools use tentative plan on how much lessons to cover tri-monthly, which they have not documented yet. It seems that schools/teachers have not fully realized the importance of planning as emphasized during training.

**Classroom Organization**

Classroom organization has been one of the major aspects covered in the 10 month training and a 10 day modular training. Structure of classroom organization (i.e. subject teaching, grade teaching, multi-grades teaching) and classroom sitting arrangement are among major components covered in the trainings. Subject teaching arrangement can be found in most of the cases.

The third packages, "class organization and school management" and Modular Training such as "Grade Teaching" and "Multi-grade Teaching" explain various sitting arrangements (U-shape, V-shape, semi-circular, circular) and space management. These are very useful skills. But row-wise arrangement with two columns -- in one column girls and in other boys has been in general practice in the schools. Though other type of sitting arrangement would have been difficult in some schools where there is a congested space and crowded class, the other type of sitting arrangements are not used in those schools even where there is enough space in the classroom.

**Creating Conducive Classroom Environment**

It is found that managing classroom space for effective sitting arrangement and display (Grade teaching package), displaying and keeping handy instructional

materials like flash cards, real objects, charts, diagrams (Whole School Approach, and Foundations of Education, First Package) have been discussed in the training manuals. In all the classes, blackboard can be found hung on the wall. In the study it is found that more than 50% of the classes were students' attendance boards, in about half of the classes there were pocket boards and in few of them some pictures and charts were there. But the display was very poor and their ineffective use in most of the cases had been found.

**Use of Blackboard**

Blackboard mostly found on the wall and in some cases wooden board, was found in all the classes of the observed schools. Use of blackboard is one of the aspects most extensively covered in the training manuals -- foundations of education; second package; subject-wise packages like-Nepali language teaching, English language teaching, Mathematics; modular like Instructional Materials; Learning Process and Evaluation; Grade Teaching; Multi-grade Teaching and Whole School Approach.

The study found that blackboard was mostly used for writing information like subject, topics, date and in most of the cases, these were only things written on the blackboard throughout the classes. Training packages emphasized that more spaces of blackboard should not be used in writing the information like subject, period, date, grade etc. (Instructional Material Training Booklet for Trainer). Whereas in the same booklet on page 3 the suggestion is, "unnecessary things such as grade, date, period, subject should not be written on the blackboard. If it is done so, not more than 5 -10% of spaces should be used. In the cases where blackboards were found being used, it was used for,

- solving mathematical problems -- mostly by the teacher, sometimes by students.
- giving mathematical problems to the students
- writing word-meaning -- English language, Nepali language.
- writing letters, words, sentences number -- especially in the lower grades.
- drawing pictures (only in one case).

Though quality of use of blackboard was unsatisfactory in general, but quality of blackboard as a material was good in most cases.

**Instructional Materials**

Instructional materials construction and use is one of the major components in the teacher training. Blackboard use also falls under instructional materials. Besides

blackboard, various types of instructional materials are included in the training, such as:

- Real objects - stones, pebbles, things around classroom & environment, plants,
- Match stick figures, drawing
- Cards, charts, models (flash card, number card, pocket chart, charts, models)
- Globe, map, poster, pictures, Paper work, colors
- Children book, local book
- Flatin board,
- Figures of faces, various pictures, cutouts (WSA)
- Playing materials, Musical instruments, Mathematical instruments, Audio-visual

Training programmes widely cover use and construction of instructional materials for effective classroom delivery. Pictorial printed materials are also provided in WSA packages as well. In the Teacher Guides, specific materials are suggested to be used while covering specific lesson/activity. One teacher was found using pebbles to provide students for additive function of multiplication, three teachers using mathematical instruments, a few using map, globes, pictures and about 20% using flashcard, number card. Otherwise, reading the textbook content and doing textbook exercises were dominating in the classrooms delivery.

**Group Formation Techniques**

In the training manuals various types of group formation (age ability, interest, sex) are described and their use explained. In the TGs also (see subject-wise analysis in chapter III) group formation for classroom discussion, group work/activities were found being suggested. But teachers were found not considering any aspects or observing any utility while forming groups. Usually while teachers formed groups, they made a bench, or a row or a column as a group. But activities (such as read content paragraph, read poem, do exercise, solve problem) provided were not really a group work. When presentation (answer to the question, reciting poem) were done, these were done by individual student. There is possibility of interaction when there is a bench as group or two benches with suitable sitting arrangement as a group. It is very difficult, if not impossible, for group interaction by the groups situated between the passage or a column with 3/4 benches or students in column.

**Student Attendance Board**

Students' Attendance Board is used to motivate students to come to the school regularly. Out of 16 schools visited, only in one school, Student Attendance Board was found used properly. In most of the schools of Kaski district, Attendance Board could be seen on the walls of classroom, but they were in unused form for a long time or the roll number coin was missing. In the visited schools of Morang district, attendance Board was mostly stacked in the office room or totally missing (either Attendance Board or the coins) or was not used. Attendance Board was not used in Rasuwa district.

**Testing**

During classroom delivery observation, classroom questioning was noted down in broader categories and test papers used in some of the schools were also collected. As paraphrasing and reading textbook content was dominating method of teaching, rhetorical questions and memory level questions were found in large proportion. Questions relating to experiences of students, and providing motivation were very few. Leading questions, asking and providing immediate reinforcement were also found practiced less. Training programmes also seemed not covering much on classroom questions. As for the written test, it was found that in most cases question papers (for terminal and final) were developed RC- wise or by a group of schools. Some of the test items were found appropriate with respect to curriculum and grade-level. In written test also rote memory questions and questions from textbook exercises were found in higher proportion.

**Perceptions of Stakeholders**

During interactions with the teachers and DEO personnel, they were asked to indicate categorically two skills which teachers had learned from training they received and were using the skills in their classroom delivery. Similarly, they were asked to indicate two important skills learned but not being used. In addition, they were asked reasons for non-use of training skills and requirements for effective use of training skills.

Teachers indicated various skills they had learned and were using in classroom delivery. Those skills were related to use of textbook, adoption of student centred approach to some extent, preparation of yearly educational plan, use of blackboard, cut out picture. flash cards, number cards, letters, cards, pocket chart, real objects as instructional materials. They also told that they had been using students' attendance

board. They opined that the skills that learned from the teacher training have been useful and helpful in making classroom delivery effective. In the view of DEO personnel, training skills that teachers were using during classroom delivery were use of textbook, yearly education plan, use of instructional materials -- flash cards, number cards, pocket chart, match stick figures, cut outs, real object / local materials as instructional materials.

The responses of the teachers and DEO personnel indicated that some of the skills related to use of textbook, instructional materials, and yearly education plan making are being used by the teachers during classroom delivery. This indicates transfer of certain training skills at the classroom level. In the view of the teachers, training skills which they were not able to transfer in the classroom are:

- Selection and proper use of teaching methods – discussion , Q/A, demonstration, observation, story telling, practical, field visit
- Student centred approach
- Preparing lesson plan
- Classroom management, sitting arrangement
- Construction and use of variety of instructional materials -- flannel board, UN cards, pictures, charts etc
- Students Attendance Board
- Games and activities in Physical Education
- Activities in Creative Arts
- Multi-grades teaching strategy.

In the view of DEO personnel, training skills which the teachers were not able to transfer in the classroom:

- Selection and proper use of teaching methods
- Student centred approach
- Lesson Planning
- Construction and use of instructional material
- Group works, games, songs
- Multi-grades Teaching.

Responses of teachers and DEO personnel about use and non-use of the training skills indicated that skills provided in the training are useful ones, but only a small portion of these skills had been actually utilized. Important aspects supportive for effective classroom delivery such as student-centred approach, selection and proper

use of appropriate teaching method, lesson planning were neither frequently nor properly utilized. Reasons provided by the teachers and DEO personnel for non- use of training skills were:

| Response of Teachers | Response of DEO personnel |
|---|---|
| • Lack of budget<br>• Lack of material ( musical instruments, globe, map, charts, sports materials)<br>• Lack of time (7 periods a day did not allow time for lesson planning, preparing instructional materials), Lack of proper evaluation (doing good or bad does not make any difference)<br>• Lack of monitoring and support from RC and DEO.<br>• Poverty and illiteracy of the community and parents<br>• Lack of curricular materials (Curriculum, TG)<br>• Crowded classroom. | • Lack of mandatory provision for using training skills by the teachers<br>• Lack of professional commitment of the teachers<br>• Lack of regular monitoring and evaluation.<br>• Lack of effective management skill and commitment of the Head Teacher.<br>• Physical and economic reasons.<br>• Lack of knowledge of SMC members about teaching learning. |

Responses of teachers and DEO personnel are usual, ready-made ones; their responses also indicate a lack of professional commitment of the teachers and DEO personnel. Indicating the lack of resources or blaming others, they have attempted to justify not fulfilling their duty and responsibilities. For example, lack of musical instruments was given a reason for not conducting Creative Arts classes in most of the schools. Unavailability of musical instrument might affect about 25% of the Creative Arts curriculum and it can not justify for not covering the remaining 75% of the curriculum.

Teachers and DEO personnel were also asked to provide their suggestions in order to improve classroom delivery. Again, their suggestions were general and in broader form :

- Regular supervision and monitoring
- Head Teacher should also supervise and monitor the classes
- Provide immediate reinforcement and suggestion
- Improve physical aspects of the school and classrooms
- Strictly follow student teacher ratio criteria
- Reduce teacher load (provide time for lesson planning, homework, and instructional material construction)

- Proper evaluation of the teacher
- Establish reward and punishment system.

Some relevant suggestions provided by teachers and DEO personnel

- Provide textbooks on time: As free textbook distribution takes time, it disturbs regular teaching learning process.
- Provide complete set of teacher guide at least for one time: As some of the curricular materials provided are either lost or torn and these are not on sale, a provision to help school to have a complete set will be fruitful.
- Curricular materials should be on sale as well.
- Teacher rationalization to achieve proper students teacher relation should be strictly followed. This would minimize problem of crowded classroom.

**Relevancy of Training**

All the teachers opined that training is useful for equipping them with methods and materials for effective classroom delivery. Teachers viewed that training has provided them a vision and goals of educating primary children, their psychological understanding; knowledge and skills on different teaching methods and the role of teaching aids for younger children in understanding and learning concepts, knowledge, skills and their application. In their actual classroom practice, they realized the difference in teaching at class after being trained. Even though they do not have formal lesson plan, they have learned how to split up a lesson in the book into small teaching lessons. Before this, they finished the lesson in a single touch, which was complicated for younger children for understanding. Using TB/TG as a source of knowledge for both teachers and the taught, they learned how to utilize other forms of knowledge in teaching, – knowledge through observation, discussion and exploration. However, those forms are rarely practiced due to the lack of planned teaching learning activities.

Teachers also reflect training in a positive way for providing skills in various teaching methods, in construction and use of various instructional materials, and for improving testing skill. However, teachers also accepted that full use of training skill has not been achieved yet, but the relevancy of training is accepted. Teachers and DEO personnel also indicated difficulties in proper utilization of training skills due to parental attitude and school environment. Teacher opined that:

- When students are taken out in the field study, other classes are left unattended.

- Teachers fear parents might complain that teacher has taken their children out for a walk than teaching in the school.
- Teachers also expressed their reservation that if children are out in the field playing games, parents might comment that teachers do not teach instead they spend time in playing.
- All the teachers are not equally competent in teaching all the primary level subjects. Therefore, it is not easy to use grade teaching in all the grades.

**Consolidation of Efforts and Skills**

Questions were raised about exhausting implementers (district and school) with numbers and varieties of programmes and not providing time for consolidation of efforts and skills. One example provided in this respect was the use of learning outcome indicator. Teachers of Kaski districts felt training as a "milestone". While they were using "milestone", they were asked to stop using "milestone" and instead use "learning indicators". Neither teachers nor the DEO personnel knew reasons for such a change. Confusion and frustration led them not to use any of these, terms.

**Teamwork**

Not all teachers of a primary school are trained at a time. There is a cohort of trained and untrained teachers. Transmission of the learned teaching skills through training is necessary for making a team attempt to promote effective teaching learning environment at school. Most of the teachers complained the lack of such arrangement in the schools. Except exam preparation, no other activities are preformed as teamwork. Question preparation, result-sheet preparation are the main in-group works of the teachers.

**Conclusion**

A unique feature observed regarding teacher guide and training manual is that most of the teaching methods suggested in the teacher guide are also covered in the training manual. Similarly, materials suggested in teacher guide are explained in the training manual. Thus, skill learned during training would be supportive in implementing teacher guide effectively in the classroom. However, such transfer was lacking largely in the classroom.

Training provides teacher with skill and practice on classroom preparation (lesson plan, materials collection), teaching methods, instructional materials use/construction, and evaluation. Those relevant skills acquired during training were

not used during classroom delivery in most of the cases. Training manuals cover methods of classroom organizations, enhancing classroom environment, proper use of blackboard, various methods and use of group techniques, Students' Attendance Board and testing. These skills are yet to be translated widely in the classroom.

## References


CERID (2002): Effective Classroom Teaching Learning (Phase 1: Classroom Delivery). Kathmandu: Author.

EDSC (1997): National Assessment of Grade 3 Students. EDSC, Kathmandu.

EDSC (1999): National Assessment of Grade 5 Students. EDSC, Kathmandu.

EDSC (2001): National Assessment of Grade 3 Students. EDSC, Kathmandu.

Ministry of Education (1997): The Effects of New Curriculum on the Achievement of Grade IV Students. Basic and Primary Education Project, Kathmandu Nepal.

MOE (1997): BPE Master Plan 1997-2002. Basic and Primary Education Project, Kathmandu Nepal.

MOE (1999): BPEP (1992-1998): A Synthesis of Experiences. Basic and Primary Education Project, Kathmandu, Nepal. Including Training Materials of DOE, DEC and NCED.

# Modernism – Postmodernism: Open and Distance Education (ODE)

Subhadra Kumari K. C.-Thapa*

## Introduction

In educational institutions / centres like as in other organizations in contemporary society, traditional purposes and modes of operation are being challenged and changed. In the process of such change, the people who define and constitute institutions are caught up in a transition between eras, a situation that can lead to confusion, alienation, anger, and in some cases, apathy. It can also have the effect of excitement and challenge, sparking creativity and the development of innovative approaches and strategies (Inglis et al., 1999:16). Accordingly, some of the most widely addressed issues in the literature related to education in recent years have been changed and transformed. There seems to be a growing consensus among academics, education managers, and policy makers on the existence of key underlying changes that have been affecting many aspects of higher education in recent decades. Nevertheless, the responses towards how to cope with the changes differ widely, depending on varying perceptions of the impacts, scope, or direction of the changes, and on managerial, financial, legal and visionary capabilities of the leaders.

Due to the influence of technological advancements and modernization and post modernization, ODE institutions, particularly operating in developing countries, also are exposed to challenges on many fronts. Traditionally, 'distance education and open learning institutions' are being exposed to challenges on many fronts; their clientele have tended to be the non-certificated school leavers or the 'second chance' learners.

Traditional ODE institutions, specially operating in developing countries, were operated with print plus correspondence provision and sometimes audio as supplementary resources. Today, they feel obliged to deliver online programmes, develop strategies to address the increased competition, become innovative in creating and delivering new courses and programmes, and find new markets. To do this, calls for extensive managerial, organizational, technological, cultural, and financial review and reform are necessary.

*Deputy Director, NCED

Aiming at contributing to better understanding of the issues to be addressed during the transition process of change towards modernization - post modernization, it is necessary to realize a more effective and more competitive open and distance education (ODE) organizations. What needs to follow are the efforts made to describe the concept of modernism as well as postmodemism focusing on their major thrust and conceptual contradictions; and in Nepalese context, linkages of modernism and postmodernism with open and distance learning (ODL) system.

**Concept of Modernism and Postmodernism**

There seems to be a growing consensus among academics, business people, administrators, and policy makers on changes that have been affecting many aspects of higher education in recent decades. Nevertheless, the responses towards how to cope with the modernized society differ widely, depending on varying perceptions of the impacts of modernization, scope, or direction towards post modernization. Similarly, at the end of past millennium, open and distance education have already reached a level of maturity. Now, the time has come to continue advancement in communication information technology and opening of the global economy blurring of traditional conceptual and structural boundaries. A new approach to learning is emerging namely student centred learning with an emphasis on interactivity, competence and skill development.

**Modernism** - Modern thought reflects a belief in human liberty based on reason, which forms the basis of moral values, the reality of God, and the natural universe. It offers a unified vision of the universe, an ideology claming to be universal and of objective validity. It is a belief in capacity of reasoning and explaining the world and its' mankind and of revealing a comprehensive meaning of existence. 'Modernism' is being believed to be rational, non-traditional, technology based and industrial. Changing societies have impacted by prevailing influence of culture and religion, individualistic life style, nuclear family and shift of responsibility that offer a unified vision of the universe. It is an ideology claiming to be of universal objective validity including the belief in capacity of reasoning and explaining; it necessarily gives rise to nationalism and socialism, as both of these movements educate people to realize the comprehensive goal of educational development. The implicit objective behind modernization was combating communism that was, then, quickly spreading in many newly emerging and free countries. In the societies of such countries, modernization occurred in the following spheres:

- Socio-cultural modernization – awareness- literacy, mobilization, urbanization, decline of traditional authority, secularization and nationalistic ideas
- Educational modernization – development of: educational institutions, adoption of advance technologies, moods and media
- Economic modernization – economic changes, technology and industrialization, division of labor and specialization and management principles
- Political modernization – development of key political institutions, political parties, parliaments and secret ballots

In overall development, it was argued for internal change in socio-cultural and political values; however, it was later combined with economic and educational modernization.

Beginning in the 1890s and increasing with force afterwards, thinking began to assert that it was necessary to push aside previous norms entirely; instead of merely revising past knowledge in light of current techniques, moderists thought that it would be necessary to make more thorough changes. The movement was started in art and literature; paralleled to the industrialization and the rise of social sciences in public policy. In the first fifteen years of the twentieth century, a series of writers, thinkers, and artists made the break with traditional means of organizing literature, painting, and music, again, in parallel to the change in organizational methods in other fields.

Second generation modernism (1930 -1945), particularly that of 30s then increasingly began to focus on the realities of being a popular culture which was not derived from high culture, but instead from its own realities, particularly of mass production. Modern ideas in art were also increasingly used in commercial logos. The famous London Underground logo is an early example of the need for clear, easily recognizable and memorable visual symbols. Another strong influence at this time was Marxism.

Modernism as a continuing revolution after the second World war (1945), has produced more liberation which has initiated an invitation to further artistic experimentation, as a modernist would call it, and more direct methods of creation.

The most controversial aspect of the modernization movement was its rejection of tradition, both in organization, and in the immediate experience of the work. This dismissal of tradition also involved the rejection of conventional expectations.

Hence, modernism often stresses freedom of expression, experimentation, radicalism, and primitivism. Because of its emphasis on individual freedom and expression, many modern artists ran afoul of totalitarian governments, many of which saw traditionalism in the arts as an important prop to their political power. The Soviet government rejected modernism on the grounds of alleged elitism.

**Postmodernism** - The modernist movement emerged in the mid - 19th century in France and was rooted in the idea that 'traditional' forms of art, literature, social organization and daily life had become outdated, and that it was therefore essential to sweep them aside and reinvent culture. Karl Marx seemed to present a political version of the same problem: that problems with the economic order were not transient, results of specific wrong doers or temporary conditions, but were fundamentally contradictions within the 'capitalist' system.

Like Marxism[1], postmodernism is also not a development theory. It is an idea that rejects all - encompassing grand narratives or universal theories and is thus, disintegration of modernity and its long-held beliefs of rationality and objectivity of science. Postmodernism has argued for contextual development policies for deprived groups of peoples; as argued, there is no single and objective explanation of reality and that there are multiple perspectives towards reality. Postmodernism has profound influence in development thinking, by rejecting centrism and arguing for multiple discourses. It has been resulted in increasing policy emphasis in accepting diversity and the policy of decentralization in development as well as in education.

Postmodernism came up as rebellion against all cultural tendencies, propounded and advocated by modernism; though proponents of modernism strongly advocated its usefulness and benefits. It repudiated them as destroying the basic fabrics of the 'ill conceived non modern or traditional societies'.

The anarchistic and nihilist nature of postmodernism invite criticism on the validity of the basic positions of the school of thought of its own critical attitudes and of the practical results, it can lead to. Being the later point practical as well as theoretical sphere, it is particularly significant in education. Nevertheless, there is no single and objective explanation of postmodernism; there are multiple perspectives to define it:

[1] Karl Marx developed complex theoretical explanations of relations of production or the relationship between economic life and other social institutions. 'Marxism' emphasizes in economic aspect of social relationship, that is, economy or basically the control of the means of production (labor relationship) that determines social relationship (Cosar L. A., 1996)

- The aim of postmodernism is to promote change that can lead to undermine the basis of democracy.
- Pluralism, the cornerstone of postmodernism, lacks binding force, since 'anything goes'. It serves as justification for whatever exists and a legitimating of all positions that renders any criticism impossible.
- All the postmodernists' proposal concerning education is really the modernists' proposals. They make an excessive use of uplifting term.
- The postmodernists wish to educate politically conscious generation to adopt equivocal positions, which is contrary to their principles.

**Open and Distance Education in Transition: Modernism and Postmodernism**

The Transition of stages of open and distance education (ODE) speeds with that of modernism and postmodernism. The terms open, distance, flexible, and remote learning are used increasingly loosely to describe a growing and diverse variety of learning delivery systems. The question of just what these terms actually mean has been a source of considerable debate in the literature. The speed of change and the rapid introduction of new developments have presented a considerable challenge to those attempting to capture and to define key concepts. Increasingly, the temptation for many is to use some terms interchangeably. There are however, critical differences between them. Although many authorities have attempted to define the concept of distance education (Keegan 1996) as defined:

> Open and distance education is now have become a mainstream and widespread educational development phenomenon. It is a source of optimism in that the rapid spread and development of an innovation which challenges many of our preconceptions about teaching and learning suggests that there is an openness and receptivity to new ideas among the policy makers and strategic thinkers in many countries. It is a source of concern in that the development and introduction of many open and distance learning initiatives is driven by a desire to achieve simple low cost solutions to complex social and economic problems. In such contexts, the quality of the provision appears often as a fragile afterthought rather than as fundamental to its development (Judith Calder, 2000)[1].

As Trenton (2000) has analyzed the growth of open and distance education (ODE) generations in the following manner, it in worth discussing here.

**First generation** - traditional correspondence model such as printed materials

**Second generation** - multi-media model such as printed materials, audio-videotape and later included radio broadcast

[1] Cited in a papered for the first issue on online journal International review of Research in Open and Distance Learning (June 2000) Athbasca University, Canada.

The above two generations are traditional modals of ODE system; being top-down, single line delivery and non-interactive, these modalities came to be ineffective as compared to the following modernized generations. Traditionally, 'open and distance education institutions' operating in developing countries, were operated with print plus correspondence provision and sometimes audio as supplementary resources. They are being exposed to challenges on many fronts; their clientele have tended to be the non-certificated school leavers or the 'second chance' learners. Nevertheless, these are effective in inaccessible areas, like hills of Nepal.

**Third generation -** includes model such as interactive, computer based learning, teleconferencing, video conferencing and audio graphic communication.

**Fourth generation -** Interactive multimedia, Internet-based access to www resources and computer mediated communication.

The above two generations are modernized modals of ODE system; these are more effective in urban and suburb areas. Thus the above four generations seemed to have developed along with the ideas of modernism

**Information Communication Technology**, popularly known as ICT education is a most modern version of ODE / *transaction*. However, this *transaction* includes various forms of study at all levels that are not under the continuous and immediate supervision of tutors. This has become opportunities, which can be enjoyed by any group of people, residing anywhere and who are deprived of learner through instructor is face-to-face interaction. So, therefore, ICT may be said as further changed towards postmodernism.

## Linkages of Modernism - Postmodernism with ODL System

Many developing countries are still following the principles of modernism and these countries are in the process of modernization without fully disciplined assessment and analysis of criteria of local /national /regional needs and possibilities. It is now obvious that its very basic concept of linearity of locating all countries on the same path is wrong. It has failed to recognize that poverty is a socio-cultural product and the countries / societies can have different destinations that need to be taken into consideration while developing educational policy and agenda to bring the true sense of modernity. It is feared that unless appropriate corrective measures are taken and educational agendas are set in wholesome manner to meet the local /national cultural

realities and needs, the whole world will be turned into an unhappy and unhealthy global village at the end of this millennium.

The idea of postmodernism has been in existence since the 1950s, in one or other form, arguing against the principles of modernism. These are exactly the things we are seeking in Nepal. Beginning from mid 1950s, it consolidated during 'Panchayat' period and still followed to achieve these utopian goals. Since 1980s, postmodernism has come up as intellectual and public discourse; but it is one of the most debated concepts. Some see it as an 'era shift' – different from modern period, change in everyday life style and change in the pattern of thinking. Some see it as a theoretical construction explaining the happenings around the world and some say it as an expression of dissents against oppressions or an effort to create space for 'others'. More than whatever peoples see, say and express, post-modernism has enormous influence in development thinking; it has been resulted in increasing policy emphasis in accepting diversity and the policy of decentralization in development as well as in education; more specifically, distance education and open learning (DEOL) system.

Postmodern education is to emphasize on a localized and culture based studies including understandings of local cultural patterns interactions with the wider sociopolitical forces, structural constraints and oppressions, agency of the social actors, etc.

Postmodernism is also to reject the centrality of elites' ideology, that is, Kathmandu is the centre; Bahun, Chhetri and Newar ideologies are the central ideologies; or Bahun *Purohitbad* is the central *bad* (our present education largely follow these ideas).

Postmodern education is to argue for 'others' voice and space in educational processes; it is a struggle to say that the so-called privileged are also 'others' among 'others'; and it is an attempt to make our education system 'a multiple system', rather than to keep it 'a majority system'; however, it is also important to realize that power struggle will always be there, privileged and 'others' will always be there.

Development in technology, communication, world tourism, growth of multinationals, international migration, etc. is said to shrinking the world into one system. As a result of such process, the localized nature of institutions and practices are gradually changing and becoming alike around the world. World economy is largely being controlled by multinationals agencies like the World Bank, World Trade Organization (WTO), etc. Smaller economies are facing stiff competition even

in their own national markets and are loosing and getting vanished. National markets are being increasingly controlled by multinational agencies with headquarters somewhere in Europe or America. Besides economy, the aspects like education, culture, politics etc. are also being directly or discreetly affected and controlled by outside and worldwide agencies.

Not only economy, but also the aspects like education, culture, politics etc. are also being controlled. A process of cultural homogenization is taking place as illustrated by spread of coca-cola, foreign TV channels and Mc-Donald. Knowledge is produced and controlled at the world level, that is, by Western countries and the rest of the worlds just follow the Western worldviews in name of 'development. For example, there are number of schools now in Kathmandu offering Cambridge courses. The same is applied in ODL system; because it has been learnt that a few numbers of open learning centres are affiliated with the Nepalese Universities, other than Tribuvan University.

**Conclusion**

In architecture, modernist concept was for achieving geometrical perfection and efficiency; arguing for 'life in architecture' postmodernists introduced cultural elements in their designs:

It was assumed that there would be no or only less problems with ODL that could be corrected; and thereby its development can be achieved through the use of technology along with modernization of the society as seen by global outlook. But, policy development turned out into the perceived problems in ODL.

It was assumed that there would be no or only less problems of development that could be corrected; and thereby development can be achieved through modernization of the society as seen by global outlook. But, in contrary, it turned out into the perceived problems in development. The main ones were lack of capital, no/ little infrastructure, weak governance and management, dearth of appropriate human resources especially capable to deal with local societies needs and potentialities and ill and skewed distribution of resources, etc. However, the solutions, as thought suitable all came from external assistance through the financial and technical co-cooperation of developed countries with a key theme that globalization values and culture will lead these 'Eastern societies and nations' in a rapid path of over all development. Nepal is included in the list.

In fact, postmodernism attempts to strike the foundations of modernism only by being critique to aberrations of elements of modernism and fails. Postmodernism itself is not sufficient and is not foolproof that to force the proponents of modernism to rethink, to introspect and to make further adjustment in modalities of modernism.

## References


Coser, Lewis A. Indian edition (1996): Masters of Sociological Thoughts. Jawahar Nagar, Jaipur 302004: Prem Rawat for Rawat Publications

Garrison & Anderson (2000): Transforming and Enhancing University Teaching: Stronger & Weaker Technological Influences' in Changing University Teaching. Reflections on Creating Educational Technologies . Ed. T. Evans – D. Nation. London : Kogan Page.

Keegan, D. (1996): Foundations of Distance Education. London: Routledge

Reddy V.Vanugopal & Sristava Manjulika (eds.) (2000): The World of Open and Distance Learning. Ansari Road, NewDelhi 110 002: viva Books Pvt. Ltd.

Sigad, I (1990): Postmodernism and Education. Jerusalem: The David Yellen Teachers College

Http://www.ag.ohio state edu /brik

# Get What You Want

- Hari Khadka*

Internet is a sea of information; it has an enormous amount of information in the form of text, images, graphics, videos, animations and live actions scattered among piles of junk with billions of web pages, UseNet, newsgroups and users. One can get easily within few seconds, all types of information scattered all over the world that he/she wants on a single mouse click sitting in his room whenever and in whatever form he/she likes. But, it is necessary to know that how a person can find what he wants. Therefore, a small attempt is being made here to answer this question.

The simple answer to this question is the use of Search Engine. The 'Search Engines' are here to help us to search and find the needed information, scattered on different parts of the world in the World Wide Web (www). There are different types of search engines and each search engine follows a slightly different search approach as each of them have their own way of searching techniques and options. Hence, searching requires a little bit of creativity, patient and judgment to get the required and right information it seems relevant to know what a search engine actually is? How do the different types of search engines designed and function? What are the different types of rules they follow and options they provide etc? The search can depend on the term or phrase, as one search engine can give best result on one term, while the other on another term and so on. It is difficult to say which is the best search engine. Therefore, the best way to find the best engine is to try searching different search engines using the same topic.

**Search Engines -- What Are They and How Do They Work?**

Search Engines are huge databases and/or indexes of web pages and their keywords files have been assembled automatically by machines. But, this definition looks confusing to those who actually do not know the way of functioning of the search engines. In simple term, Search Engines in the context of world wide web can also be defined as, the remotely accessed computer programmes or tools that are used to find the information on the Internet. None of the search engines can examine or index the entire www. It is estimated that the best engine can search only around 20 percent of the www. The search can include titles, URLs, headers, keywords or full

*Electronic Engineer, NCED.

text. Every search engine has its own way of examining, indexing, classifying, prioritizing or ranking and displaying the information to the user. Hence, the result provided by one search engine may not match with the result provided by another engine. Thus, it is useful to try more than one search engine if we could not get the right information from the first search. As mentioned earlier, a search engine is a database or index, and none of the engines searches the entire Internet or websites on the web space. But, they look or match the query keyword or phrase within the terms stored on the engines database and returns the result. This is why, the searching process is so fast. The extent of the search depends on the size of the database or the number of pages/sites/keywords that have been indexed on the database (eg. Google claims that it has indexed more than 1.4 billion web pages). The ranking or the order of the display of the searched information depends on different factors on different engines. Some engines follow number of times a word appears on the page and/or the position of the word (eg. title/top/middle/bottom etc.) or how many times it is accessed or how many sites are linked to that page or the term. For example, if a term we are searching appears at the title or is repeated many times on the same page, then that page could be displayed at the top and so on, and if it falls at the lower side of the ranking criteria then the information we are searching could be at the bottom of the list in a thousands of numbers of the display; and so, we can face problems in finding the exact information. Therefore, a good search engine is required for searching web information and pages. Every search engine consists of an interface (graphical user interface) to enter the search term. A good engine is that which can provides options and opportunities to modify the search, broadens or narrows down the search, makes more specific, time and/or language selection options, etc.

Now-a-days, search engines (eg. msn, yahoo etc.) are not used only to search the information, but can also be used as information source or reference site as well, as they may contain different types of information like news, horoscopes, sports, video clips, free software downloads, weather reports etc.

**Types of Search Engines**

The search engines can be classified into different categories depending on their search mechanism or criteria they follow.

**1. Automatic**

Most of the popular search engines are automatic engines, also known as Indexing or General Search Engines. The information is collected, sorted/indexed, analyzed and ranked automatically by indexing spiders, which are also known as crawlers. This name has been derived from the way they find the information on the Internet. They have a programme, which is called Spider, Crawler or Robots ("bots") that scans or crawls through the web space from link to link, identifying, classifying and indexing them, in the form of huge databases of all the sites, the crawler scanned and read, are called index. The engine searches this index or database only, rather than searching the entire web whenever we enter the query keyword or phrase. Each page stored in the database is ranked based on the contents of each web page, including the title of the page, text, keywords, images etc.

As indexing engines search through the large and varied databases, these engines are useful in searching how to find information, or very specific information. But, the main disadvantage of these engines is the return of large number of search results.

Some of the examples of such engines are; Google, AltaVista, Excite, Gigablast etc.

**2. Directories**

Directories are much smaller databases compiled into different categories by an editor. The editor decides sites to list categorizing groups and subgroups, moving from general to specific. There is no guarantee of a website to be accepted by the editor. The directory may consist of the title, a short description and URL to the web site, categorized and linked to one or more topics. The search is confined to the directory itself and not the sites.

As the directory is designed, it produces a less number of results, but more targeted, qualitative and relevant information. Directories can be more useful when we don't know a lot about a subject, need help making the topics specific or when we are looking for general information or articles.

Some of the examples of directories are; Yahoo, AAAOL, AltaVista, LookSmart etc.

### 3. Natural Languages

This type of search engine is generally useful for the beginners to the web space. When he/she could not form a query keyword or phrase, and wants to find answer to a question like in a natural language (eg. What is the height of Mt. Everest?), the natural language search engine is simple to use, where query can be submitted in the form of a question and it also allows narrowing down the search by clarifying what he/she wants. Examples of this category are: Subjex, Answer Bus (AskJeeves is also designed for questions) etc.

### 4. "PAY" Engines

PAY Engines are the engines which allow access to the websites only when the owner pays to the search engine for the placement or listing. The payment could be in the form of Bid or Pay-Per-Click or Pay-Per-Ranking/Pay-Per-Position (ranking at the top costs more) or Pay-Per-Placement etc. The higher the amount paid, the higher could be the position or ranking in the list and more will be the chances to be searched and referenced first.

Such engines can produce better results when we need specific information. Pay engines are best when we are searching to purchase or auction etc.
The examples of PAY engines are: Overture, 7Search, Find What, Mamma Classifieds, Google Adwords etc.

### 5. Meta Search Engines

Meta search engines display results which are actually a combination of the results produced by other search engines. Meta search engines or Meta Crawlers do not compile their own databases instead they search the databases of multiple sets of other individual search engines and at the same time they compile their results and display them in a uniform manner by eliminating the duplicates and re-sorting them according to their relevancy.

Meta search engines generally tolerate the imprecise search terms or improper use of operators and tend to produce fewer but more relevant search results. They are useful when we need a general search and we don't know where to start from.
Few examples of Meta search engines are: Mamma, Metacrawler, Dogpile, Ixquick, Copernic, AskJeeves etc.

6. **Hybrid Search Engines**

Search engine has emerged as a big business, but none of the engines indexes or categorizes the entire web space. Hence, in order to be profitable, many search engines have developed a partnership between them in the form of Hybrid search engines, which may combine a spider engine with a directory service. For example;

MSN:- Yahoo indexing engine + Overture's paid listing

AOL:- Google + GoogleAdwords

**Free For All Link (FFAL)**

This is another type of search engine in which, the web-site owner can register free of cost. However, the relevancy, reliability and quality of the result could be very poor.

The search engines can also be categorized into the following three types based on the geographical coverage, subject area, etc.

1. **Global**

   The search engines which can scan and read the web pages scattered all over the world and in different languages are called global search engines. The indexes or databases of such engines are very large and some of the examples of Global engines are: Google, Fast Search, HotBot, AltaVista, etc.

2. **Regional**

   The engines which can scan and read a particular geographical region only fall into this type. For example, the websites only within the UK can be indexed by UKIndex. Other examples are: YELL, WWLIB, etc.

3. **Reference**

   The engines that can scan and return the results only from a set of reference materials come under this category. For example, Encyclopedia, Britannica, Bartleby and Xrefer, etc.

4. **Targetted**

   Some search engines limit themselves to the particular subject only, such as biography, medicine, graphics, arts, engineering, law etc. Some of the examples are: FindLaw, SOSIG, OMNI, ADAM, etc.

## Categories of Information on the Web Space

Knowing the search engine alone may not work properly, if we do not know anything about how the information is stored and accessed on the web. The information on the web can be classified basically into the following three categories:

1. **The Free, Visible Web**

   The web pages available in the Internet that can be accessed by the public come under this category. These web pages can be scanned and indexed by the spider engines. Therefore, any search engines can be used to find the information on such web pages.

2. **The Free, Invisible Web**

   The information stored in such types of web-pages is also for the public use, and is free of cost as well but, none of the search engines can index it. The information can be accessed only by entering directly into the web-sites. Thus, one has to know the URL of such sites in advance. Some magazines, news papers, reference works etc and databases such as legal cases, medical and financial fall into this category. Database can only be accessed if one has a password or permission. For example, the big universities in UK/USA allow the access to the digital libraries to their students only, through the password, and not for the outsiders.

3. **Paid Databases Over the Web**

   Databases which are of commercial importance come under this category. Some medical databases, legal cases, scholarly journals, designs, artistic works, etc. can be accessed and searched directly, only after paying and getting the access permission by acquiring the password; such as Lexis-Nexis, UMI Proquest, Infotrac, JSTOR etc.

**Some examples of Search Engines in different Categories**

| General Search | Meta Search | Pay-Per-Click | Directories | Shopping |
|---|---|---|---|---|
| AltaVista | Ixquick | Mamma | Yahoo | Amazon |
| Google | Mamma | Find What | About | mySimon |
| HotBot | MetaCrawler | Overture | Gimpsy | |
| Lycos | Vivisimo | LookSmart Enhance | ODP | |
| Gigablast | Dogpile | | | |
| | | | Galaxy | |

| News Entertainment | People | Computing/Internet | Business | |
|---|---|---|---|---|
| AltaVista News Search | Genealogy | HostIndex | Business | Movies |
| Google News Search | Biographies | SEO Directory | AllBusiness | Music |
| Find Articles | Switchboard | Tucows | B2B Pages | Pictures |
| Alltheweb News Search | | | | |

| Subject Specific | Geographical Specific | Science |
|---|---|---|
| SOSIG | YELL | scirus |
| OMNI | UKIndex | |
| ADAM | WWLib | |

## Search Engines and Search Options

As mentioned earlier, each engine has an interface where we type our query terms. The options could be for simple, or general search, or advance search. The advance search may include the features of simple one; in addition, it may allow the use of Boolean and proximity operators, grouping of terms by parentheses, ranking of results by keyword, etc, and many ways to type the query. Some of the ways in which we can enter the query are:

1. **Simple Search or Keyword Search:** Every engine has an interface for keyword search and mostly is a default option. The search engine can find all the sites or pages containing any of the words that we type. The search finds the words in any order and in any location. For example; if we type ***information***; the search can find information technology, information processing or information communication technology or technology and information or mis-information etc, in any order and at any place in the page. That means the simple search displays all the pages that contains any of the words related or connected with information. Hence, all the displays may not be of interest to us. But, most of the engines rank and list the pages earlier or at the top which contains the exact phrase or query term. In such cases the "hits" could be much less than the noise. Therefore, we should be very careful and as specific as possible while using a keyword search. Sometimes we can get rid of the noise by using the ***phrase***

***search***. If we are looking for the ***definition of information***, then typing the exact phrase can return the exact result. Putting the quotation mark, such as "Information Technology" can give the exact result by displaying the pages which contains 'Information Technology". If we do not put the quotation mark then the result could be all the pages with all the words or any of the words in the phrase.

Some engines are case sensitive and some may allow inserting punctuation to link words into phrases. Most of the engines allow the use of wildcard character (mostly an asterisk * ) at the end of keyword or phrase which will substitute for any combination of letters, to generalize a subject. For example; journ* - can produce journalism, journal, journalist etc.

2. **Advanced Search:** The advanced search engine gives more options and flexibilities, as it can provide the choice like file format, subject, date, language, capitalization, phrases, wild cards, boolean searching, proximity operators, and logical grouping with parentheses etc.

   **Boolean and Proximity Searching:** Named after the mathematician, George Boole, it involves the binary operators **OR** to expand or broaden the search; **AND, NEAR** and the unary operator **NOT** to narrow or contract the search. The symbols **&, |, ~, !** can also be used instead of AND, OR, NEAR and NOT respectively. For Example:

   Nepali **AND** Culture – produces the pages which contain both the words.
   Nepali **OR** Culture – produces the pages which contain any or both the words.
   Nepali **AND NOT** Culture – produces pages with the word Nepali only
   Nepali **NEAR** Culture – produces pages with the word Nepali in close vicinity of the word Culture
   "Abraham Lincon" **AND** "civil war"
   (dogs **OR** cats) **AND** ("pet care")

**Some Search Tips and Strategies**
**Where to Start a Search?**

We may have a topic searching for some support information, but could not get the information on the Internet due to the lack of knowledge on search technique. In such case trying the following options could be helpful;

- We have a ***broad subject***, but do not know exactly what we are interested in or how to look it up, such as information processing, photosynthesis, earth quake etc, try an encyclopedia or some reference site.
- We need information about a ***general subject area*** – to find information about business, law, medicine, education; government documents etc., try a targeted search engine.
- We have ***well known specific subject*** – to find information on such specific subjects, such as Hindu festivals in Nepal, colleges and universities in London, art museums etc., try a directory.
- Support information from diverse sources for a ***research paper*** – try several search engines, directories and other tools.
- Use singular terms and wild cards to generalize a subject.
- Use several but precise query terms or phrases in order to limit the hit or reduce the noise. Use the required/prohibited term operators (+/-) along with wild card, if allowed, such as; +infor*-informer. Here, informer will be discarded and all other terms starting from infor will be included.
- Do not use common generic terms. If required include them in a phrase with more specific terms. Such as instead of book, use "book binding" to make more specific.
- Use Boolean logic to increase the relevancy of the hits.

There is a scheme called **FOREST LOG** which could be helpful in generating the search term, if we are facing difficulties while searching the information.

**FOREST LOG**

**FO**-Forms --- use different forms or variants of the word. Such as: validity of testing, validity of test/tests ( wild cards can be used ).

**RE**-Related Terms --- Use the related terms as well. For example: related to testing are: measurement, assessment, evaluation etc.

**ST**-Synonym Terms --- Use the synonyms of the term you are looking for. For example: test--- exam, examination, midterm etc.

**LOG**-Ladder of Generalization --- Search using more terms by moving up and down the ladder of general or comprehensive term to the specific terms. For example: measurement, assessment, testing, performance test, etc.

## Conclusion

World Wide Web is a big information resource. We can find all types of information on the web related to almost all the things that are available in this universe. It can be helpful in our general day to day life to the most advanced scientific research as well. But, the proper use of this huge resource can be possible if we handle it in a skillful manner. The wonderful Internet search engines are to help us finding the information. A little bit of our imagination, creativity, knowledge and time can make us resourceful by enhancing our skill and knowledge. Therefore, using the web could make us more competent in the present age of competition and knowledge. Though, we should be competent in handling the Internet to get most out of it, no special skill or knowledge is required to search the information on the web space, if we have patient and will power. If we do not know how to use a particular engine, then we can use the search tips or help information at each search engine, use different search tools, and use several search terms if we could not get the information by using a particular term or phrase. Moreover, if we don't know anything about any search engine or web site, than also, sometimes, we can find the required information just by guessing the URLs. Generally, the URLs of the commercial companies could be in the form **http://www.companynamehere.com,** where the companynamehere can be replaced by the name of the company (for example, for BBC it could be www.bbc.com, for SONY www.sony.com) etc. We should have knowledge about the different types of search engines and search techniques in order to use the power of the Internet into our daily life. The Internet is most important for every body in order to be acquainted with the outer world sitting in a room.

## References


www.4mktg.com

www.redcarpetweb.com

www.internet4classrooms.com

Gray, Terry A. How to Search the Web: A Guide to Search Tools,

Robert Harris, "Internet Search Tips and Strategies", www.virtualsalt.com

www.mamma.com, mamma.com search engine guide

# Open Learning: A Mode of Delivering Curricula

- Ananda Paudel*

## Situating the Problems

Learning can take place everywhere and can be understood differently. It constitutes both product and process. It is a change in behaviour, which can be regarded as the outcome of learning process resulted through attaining various experiences. Learning is the ways in which people 'understand, or experience, or conceptualize the world around them' (Ramsden, 1992: 4). Thus, argument can be made that gaining knowledge or ability through the use of experience is learning and which could be possible everywhere.

Various arguments were made during the discourse of defining learning. A quantitative increase in knowledge; process of memorizing, storing, reproducing the information; acquiring facts, skills, and methods; making sense or abstracting meaning; relating parts of the subject matter to each other and to the real world; interpreting and understanding reality in a different way; comprehending the world by reinterpreting knowledge are some of the concepts, used to define learning (Ramsden, 1992, Saljo,1979). From these concepts, I would say learning is a change in behaviour through mental process of restructuring knowledge, attitudes and skills, aiming the development of the whole person able to cope various challenges for individuals' better future life.

Formal education system of Nepal, for various reasons, is not being able to enroll all school age children. The enrolled are not completing their education cycle. The drop out ratio in grade one is high. The quality of teaching and learning is being questioned. The various reports have found that knowledge and skills delivered in teacher training are not translated in daily classroom practices. The large groups of teachers are still untrained. The educational achievement is not satisfactory. Quality of education was highly shadowed area of education. Access in education was denied due to various reasons. From these scenarios, it can be argued that in front of our education system there are several challenges:

- reaching to geographically challenging areas

*Curriculum Officer, CDC/MOES

- increasing the access to education and learning
- reaching the unreached population
- enabling stakeholders to use various educational technologies
- meeting the growing needs of the people through extending existing knowledge and skills and develop new ones
- enhancing the teachers capabilities and competencies to make them professionally sound

To overcome these challenges and improve children's schooling, continuous education system, teachers professionalism, and efficiency within the system and the traditional system of delivering education need to be revised and various alternatives have to be explored and practiced. Open learning can be a mode for delivering curricula related to school education, teacher education, teacher training and so forth. For this, we have to be understood the very notion of open learning.

**Meaning of Open/Distance Learning**

Distance education has been defined as an educational process in which someone removed in space and/or time from the learner conducts a significant proportion of the teaching. Open learning, in turn, is an organized educational activity, based on the use of teaching materials, in which constraints on study are minimized in terms either of access, or of time and place, pace, method of study, or any combination of these. (UNESCO, 2002). This means the separation of teacher and learner in space and/or time; control of learning by the student rather than by the instructor; noncontiguous communication between student and teacher, and the use of varying technology for learning are the basic features of open or distance learning (Perraton, 1988; Jonassen, 1992; Keegan, 1986; Garrison and Shale, 1987). Therefore, it can be understood that open learning is a way of delivering the curricula that has the following characters:

- physical separation of learners from teachers
- flexibility of time and place of study
- teaching and learning is individualized
- learning takes place in the student's own environment
- the learners take responsibility for the pace of learning
- multimedia are used in order to accomplished the learning

Distance education technologies are expanding at extremely rapid rate and have lacked the knowledge of the latest technology. Too often, instructional designers and

curriculum developers have lacked the knowledge of the latest technology. Without dealing with the underlying issues of learner characteristics and needs, the influence of media upon the instructional process, equity of access, and the new roles of teacher, site facilitator, and student in the distance learning process, curricula and reading materials are often developed and implemented. Besides, the other crucial issues emerging around the world with reference to distance or open learning are the roles of key participants, technology selection and adoption, design, strategies to increase interactivity and active learning, learner characteristics, learner support, operational system, policy and management, equity and accessibility, and cost/benefit tradeoffs (UNESCO, 2002) and these days open learning is being a topic of research and study.

**Conceptual Frame of Understanding Open Learning and its Delivery**

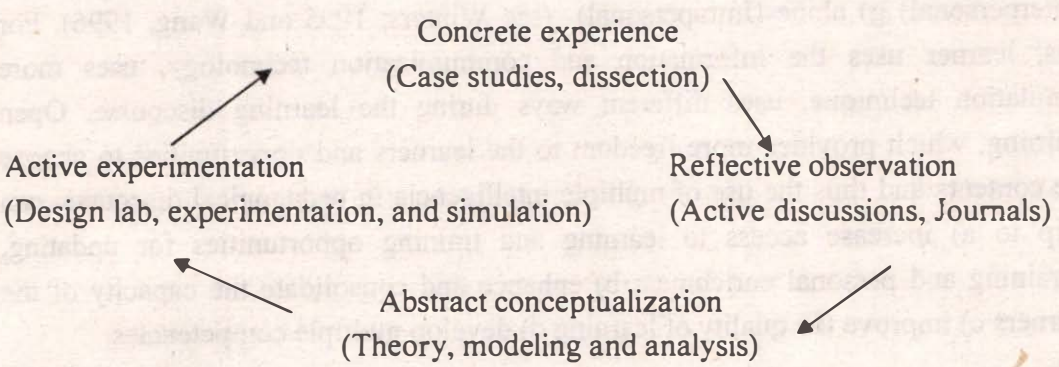
There are some theoretical concepts with regard to open learning. In theoretical discourse of distance education, Keegan's (1986) work 'the foundation of distance education' is pivotal. He categorized distance theories into three groups: theories of independent and autonomy (independence of students, independent study, greater responsibility for learning on the students, more choices on course, format, and methodologies etc.); theories of industrialization of teaching (unlike industrial production distance education needs preparatory work, planning and organization, formalization, objectification, mass production, standardization etc); and theories of interaction and communication (dialogue, use of multimedia, interactive communication etc). Similarly, theoretical perspective of students' physical separation from teachers (Holmberg, 1985), and planned and guided experiences (Rumble, 1986) also played crucial roles in distance education. Following Keegan, Rumble, Holmberg, the delivery of open learning has to adopt the pedagogical concept of meaningful learning, independence learning, facilitation of learning, interactive learning, less structured learning, creative learning, active and dynamic learning etc. The curricular contents, the reading materials, the radio interactive programmes, the means of delivery of the contact sessions, etc., need to be planned, designed and implemented accordingly that poses various challenges to the concerned institutions.

Design considerations are other crucial areas in delivering the open curricula. Systematic design and development (consideration of design, development, evaluation, revision, technicality, accessibility to all, feedback, continual updating and making more relevant); interactivity (between teacher and students, students and

learning environment, among students themselves, use of interactive communication technology, two-way communication etc.); active learning (sense of ownership) have to be given due consideration in order to make open learning more effective (see Wills, 1992; Porter, 1994; McNabb, 1994; Millbank, 1994; Garrison, 1990; Savery & Duffy, 1995). These revealed that better planning, greater partnership, dialogue, academic discussion, analysis and interpretation of the design consideration, implication analysis, situation analysis, etc. are essential before deciding the design consideration. Otherwise, the efforts, time, money and resources, would not be worthwhile.

Methods and strategies for open learning are another significant areas. Due to the nature of independent learning and less physical contact with the teacher, learners have the sole responsibility of learning. Therefore, while designing methods and strategies, the designers have to be more careful and tactful. Guided practice (need development of hands on practices, use of materials and audio visual aids, use of hands on experiments, text and graphics, guidelines, use of equipments, etc.); selection of media (radio, TV, on-line through e-mail and Internet; developing appropriate feed-back mechanism and reinforcement; optimizing content and space for media use etc.); inquiry learning (discovering one's learning through oneself, integrating various teaching strategies, adopting reasoning and arguing styles of learning); team work ( peer work, group work, group discussion etc.) are some of the strategies for open learning that could be used in open learning.

Kolb's (1984) learning style can also be useful for open learning. Following is his model of learning style.



Kolb believed that learning needs to be continuum. In his model; a) concrete experience is being involved in a new experience and this can be possible through laboratories, field works and observations-learning from specific experiences relating to people and sensitivity to feelings of people; b) reflective observation means watching others or developing observations about own experience that demands brainstorming careful observation before making a judgment, viewing things from different perspectives, and looking for the meaning of things; c) abstract conceptualization is creating theories to explain observations. Here lectures, papers, class notes, etc. become noteworthy-logical analysis of ideas, systematic planning, acting on intellectual understanding of a situation and d) active experimentation means using theories to solve problems and making decisions-ability to get things done, risk taking and influencing people and events through action. In this context, simulation, case studies and homework would become worthwhile (see Kolb, 1984, Hartman, 1995). While developing distance self-learning materials, delivering them, assessing the learners' achievement, we could use the Kolb's learning style. We could apply the kolb's learning style. By providing space for fieldwork and case studies and by allowing time for analyzing and observing critically the other's works and relating learners' experiences with the theories i.e., going through theory and practice together not only conceptualizing the situations but also solving various problems.

Additionally, Gardner's multiple intelligence models can also be useful for better implementation of open learning. Gardner chose to look at learning styles in a different light. In Gardner's model, learner can plays with: a) words (Verbal/Linguistic) b) questions (Logical/Mathematical) c) pictures (Visual/Spatial) d) music (Music/Rhythmic) e) moving (Body/Kinesthetic) f) socializing (Interpersonal) g) alone (Intrapersonal) (see Winters, 1995 and Wang, 1996). For this, learner uses the information and communication technology, uses more simulation technique, uses different ways during the learning discourse. Open learning, which provides more freedom to the learners and opportunities to choose the contents and thus the use of multiple intelligencia in pedagogical discourse, can help to a) increase access to learning and training opportunities for updating, retraining and personal enrichment b) enhance and consolidate the capacity of the learners c) improve the quality of learning d) develop multiple competencies.

**Reflection on Practice**

Distance/open learning is a less prioritized area of educational development discourse in Nepal. It was limited to only teachers' education- pre-service training

and in-service training of teachers. Formal schooling curricula and practices are the highly excluded parts in terms of open learning. Recently we have recognized that there should be the provision of open education as the Education Act 7th amendment (2058 BS) has made its legal provision. However, teacher-training programmes have been implemented by following the open learning principles since last two decades back.

Theoretically speaking, open learning demands various competencies among the people involved. The roles of teacher, site-facilitator, learners, technology adaptation and development and implementation of operational plan, and overall management play significant roles in open learning (Talab & Newhouse, 1993; Scholosser & Anderson, 1993; Sherry and Morse, 1995; Kell and others 1990; Holloway and Ohler, 1991, Cambre, 1991). Relating these with the practice, it can be argued that we were not being able to train our teachers and facilitators who could play their professional roles while delivering the curricula as envisaged by the theories. The learners on the other hand, were not able to identify their roles in open learning and contribute accordingly. The operational plans specifically 'teacher training' have not appeared relevant and effective as those teachers who are in the age of retirements, are still attaining trainings. The delivery techniques we have been adopting are basically one-to- many and many-to many in some cases. The overall management that we are practicing is centrally guided which poses the characters of centralization. The physical facilities, prerequisites for adopting multidimensional pedagogy are not well established. The learner support mechanism and environment essential for self-learning is yet to be planned. These all indicates that there is significant gap between theory and practice.

**Unanswered Issues**

With regard to distance and open learning, several issues and concerns can easily be observed. Because several issues were not dealt properly. Questions such as have we really followed the philosophy of distance education? Do the issues related to policy, management, operation, teacher-learner support, professionalism, pedagogy, evaluation, problems and constrains have been identified? Have we developed a plan for providing opportunities of open learning to those children who, for various reasons, were not attending formal schooling? Have we really followed the principle of social aspects of learning i.e., competitiveness, fear of public failure, peer pressure, social constructivism, etc. while designing and delivering open curricula?

For me, these are some critical issues or questions that our education system has not addressed during the discourse of distance education.

Critical understanding and analysis is essential for the betterment of curricula and their delivery. Such analysis must focus on whether our learners have or have not: a) ample opportunities of learning b) flexible opportunities for interactions c) correlated curricula that complements the learning content, pedagogy, context of learning d) responsive curricula and instructional materials to the needs of the students of diverse backgrounds e) a system for their supports i.e., site facilitation, technical supports, library and information services, advising, counseling and solving the problems and f) easy access to such supportive mechanism. Such conditions are essential to make our distance and open learning more lively and relevant to all.

**Where is Problem?**

The major problem in education is great variation what we said and really what we did. This means, the gap between thinking and doing / planning and implementation. I think, we have to eliminate this gap or we have to minimize it. For this, various ways can be applied and one of the important ways lies on its design. We have great theoretical knowledge on design of programme as we educational planner have excellency in conceptual clarity on the step of design i.e. a) identify the probiems b) collect and analyze data c) determine performance criteria d) generate alternative solutions e) implement the design f) evaluate and rethink over the plan and design. However, in initiating these steps, we have to think over the budgets, social and cultural contexts, bureaucratic norms and values, technical capabilities, etc and more often we loose the connection between education and society, education and students, education and parents, education and teachers and, so forth.

We consider the University teachers as strong and powerful thinkers instead of students, parents, school teachers and educational administrators. We heavily rely and depend upon the high-level university technocrats and foreign consultants to design, develop, implement, and evaluate the total system. These are the people who are not involved in the implementation discourse and thus lack practical experiences. We easily blame to our culture, tradition, and practices if any programme fails instead of diagnosing the reality, the problem areas, needs and developing plans and programmes accordingly and reflecting on what we did. We do less work on seeing the relevancy of developed plan, curricula, and materials to our diversified social, cultural,economical, geographical and physical contexts before their implementation.

The problems also lies on research and development work. The research studies also suggested some beautiful suggestions but did not suggest the way outs i.e., how to proceed further. This has made problematic to the implementing institutions and they have to plan for another consultancy on generating ideas and procedure and how to implement them that again increases educational wastage.

Problems also find in planning and programming. More frequently, we bring the 'poverty' in front and prepare plans and programmes in-order to have more resources from the rich country and the rich work with their interest to impose their ideas, in the name of economic, academic and technical superiority and power over the poor and developing countries. I have seen many consultants who have completed their tenure successfully here in Nepal but I did not identify what they did for the benefit of our poor children. However, I may not be the person who needs to be acquainted with them on the one hand and, may lack the competencies to visualize their progress on the other. But my argument is that we have to reflect ourselves what we've done in the past, what lesson we've learned through analyzing the outcomes, and then only plans for the future to do what, how, for whom, and by whom will come. I've observed various duplications, overlapping in our programming and thus educational wastage is obvious. Thus, we have to challenge to our activities and reflect upon them in order to create an environment where sitting, planning, playing, following the rules and regulations, reforming system based on the vested interests, and visualizing the grassroots sitting within the boundary of five star hotel, and observing abroad with donors will be minimum. With reference to open learning as well, due to lack of technical know-how and experiences, the similar problems may arise and thus we have to be very sensitive while designing plans and programmes .

**Some Useful Tips**

From the discussion above, some useful tips can be drawn with regard to improve the open learning.

1. Visualize content, context and the learning process while designing open learning courses and their delivery modes,
2. Reflect and respect our surroundings and adopt participatory approach while planning through determining talents, strengths and, interests of the participants,
3. Think over self-organization, flexibility, stability, practicability, and sustainability of the programme,

4. Visualize interdependency, diversity, complexity while developing working network,
5. Catch the body, mind, spirit and interest of the learners while designing plans, programmes and their pedagogical measures,
6. Develop self –directed relevant learning materials that promote active learning, independence of thought, and where appropriate, problem solving,
7. Utilize and provide access to current content, materials, and resources to the learners,
8. Foster learner-instructor and learner-learner communication and interaction mechanism before implementing open learning programmes,
9. Develop learner support system and allow for frequent and meaningful feedback on learner progress,
10. Promote pedagogical sensitivity to learners of varying ages, backgrounds, and experience and among the facilitators through training and professional development work,
11. Develop training package for facilitators of open learning covering facilitative techniques and skills (active listening, asking questions, paraphrasing, reflecting feelings, communicating, summarizing, giving and receiving feedback etc) that produce facilitative behaviors,
12. Create conducive environment (caring, trusting, accepting, recognizing, respecting openness, concern for the needs of others) to utilize a variety of appropriate learning resources (print, video, CD-ROM, WWW etc.) and feed back mechanism,
13. Promote project-based learning.

**Challenges to the Technocrats**

Academician can suggest very beautiful suggestions. For instance, with reference to useful tips no. 1 of this article suggested that **Visualize content, context and the learning process while designing open learning courses and their delivery modes is one of the tips for the betterment of distance learning.** However, you cannot find how the suggestions made will help to proceed further. Here my argument is that an appropriate expert in open learning must have to suggest the possible way-out. In this case i.e., the visualization process, content and context, delivery mode and its strategies for implementation, can be seen only an idea without any visioning and planning the future process. Similar suggestions in almost all research studies even so-called the formative ones can easily be found.

Importantly, idea demands procedure for better implementation. Suggesting ideas is the one side of a coin and other side of it is the procedure that often not highlighted even during the research and innovation discourse. Therefore, doing a research, developing strategies, writing an academic article demand more implication part and thus the challenge for the technocrats is to suggest suggestions with a concrete procedures of implementation.

## References


Cambre, M.A. (1991): 'The state of the art of instructional television.' In G.J. Anglin, (ed.), *Instructional technology, past, present, and future* (pp. 267-275). Englewood, CO: Libraries Unlimited.

Garrison, D.R., & Shale, D. (1987): *Mapping the boundaries of distance education: Problems in defining the field.* The American Journal of Distance Education, 1(1), 7-13.

Holloway, R.E., & Ohler, J. (1991): 'Distance education in the next decade.' In G.J. Anglin, (ed.), *Instructional technology, past, present, and future* (pp. 259-66). Englewood, CO: Libraries Unlimited.

Keegan, D. (1986): *The foundations of distance education.* London: Croom Helm.

Kell, D., et al. (1990): *Educational technology and the restructuring movement: Lessons from research on computers in classrooms.* Paper presented at the Annual Meeting of the American Educational Research Association, Boston.

Kolb, D.A. (1984): Experiential Learning: Experience as the source of learning and development, Englewood Cliffs, New Jersey: Prentice-Hall.

McNabb, J. (1994, October): *Telecourse effectiveness: Findings in the current literature.* Tech Trends, 39-40.

Millbank, G. (1994): *Writing multimedia training with integrated simulation.* Paper presented at the Writers' Retreat on Interactive Technology and Equipment. Vancouver, BC: The University of British Columbia Continuing Studies.

Perraton, H. (1988): *A theory for distance education.* In D. Sewart, D. Keegan, & B. Holmberg (Ed.), Distance education: International perspectives (pp. 34-45). New York: Routledge.

Porter, D. (Ed.). (1994, March): *New directions in distance learning: Interim report.* (Available: David Porter, Manager, Schools Curriculum Programmes, 4355 Mathissi Place, Burnaby, BC., Canada V5G 4S8).

Ramsden, P. (1992): *Learning to Teach in Higher Education*, London: Routledge

Säljö, R. (1979): 'Learning in the learner's perspective. I. Some common-sense conceptions', *Reports from the Institute of Education, University of Gothenburg*, 76.

Savery, J.R., & Duffy, T.M. (1995): *Problem based learning: An instructional model and its constructivist framework.* Educational Technology, 35(5). 31-38.

Schlosser. C.A., & Anderson, M.L. (1994): *Distance education: review of the literature.* Washington, DC: Association for Educational Communications and Technology.

Sherry, L., & Morse, R.A. (1995): An assessment of training needs in the use of distance education for instruction. International Journal of Telecommunications, 1(1), 5-22.

Talab, R.S., & Newhouse, B. (1993, January): 'Self-efficacy, performance variables and distance learning facilitator technology adoption: Support for the teacher needs hierarchy.' In *Proceedings of Selected Research and Development Presentations at the convention of the AECT*, Research and Theory Division, New Orleans.

UNESCO (2002): *Teacher education guidelines: Using open and distance learning.* France: UNESCO.

Wang, Po-Ching. (1996): *Gardner's Multiple Intelligences.* Penn State Educational Systems Design Home Page: Penn State University.

Willis, B. (1992): *Instructional development for distance education.* (ERIC Document Reproduction Service No. ED 351 007).

Winters, Elaine. (1995): *Seven Styles of Learning: The Part they Play When Developing Interactivity.* http://www.bena.com/ewinters/styles.html

# A New Multilevel CPU Scheduling Algorithm

- Md. Mamunur Rashid*
- Md. Nasim Akhtar**

***Abstract***

*The productivity of a computer solely depends on the use of CPU scheduling algorithm in a multi-programmed operating system. In this paper a new variant of priority scheduling algorithm has been proposed to reduce the average waiting time as well as the average turnaround time of the processes. It is observed that in existing priority scheduling algorithm the average waiting time and average turnaround time is very high for the processes, which have equal priority. But the proposed upgrading of this paper can handle priority-scheduling algorithm with much more reduced waiting time and turnaround time for the processes.*

**Keywords:** CPU Scheduling, Priority Scheduling, Burst Time, Waiting Time, Turnaround Time.

## Introduction

In case of multi-programmed operating systems, CPU scheduling plays a fundamental role by witching the CPU among various processes. The intention of an operating system should allow processes as many as possible running at all times in order to maximize the CPU utilization. In a multi-programmed operating system, a process is executed until it must wait for the completion of some I/O request. In this case, the time has been used proficiently. A number of processes are kept in memory simultaneously and while one process has to wait another process occupies the CPU selected by the operating system.

Being the primary resource of a computer system, CPU scheduling has to be designed centrally by an operating system. A successful CPU scheduling depends on process execution and I/O wait. Process execution starts with a CPU burst followed by an I/O burst and this thing happens rapidly. The last CPU burst ends with a

*School of Science & Technology, Bangladesh Open University, Bangladesh
**Dhaka University of Science & Technology, Gazipur, Bangladesh

system request to expire execution. Here is a figure to show the sporadic progression of CPU and I/O bursts:

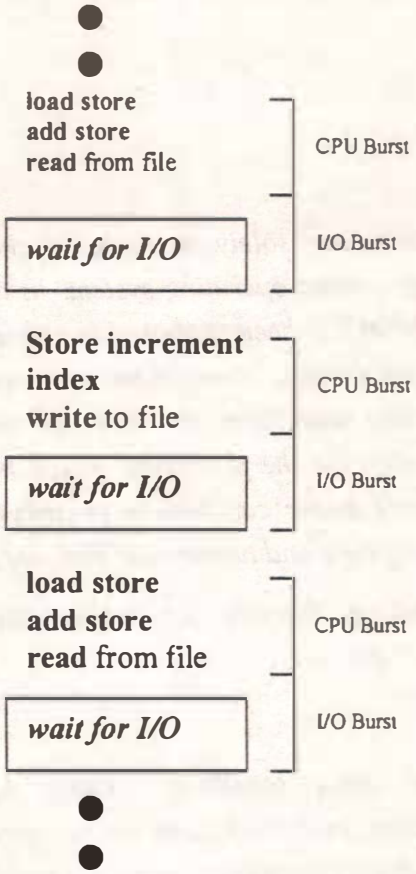



**Figure 1:** A typical sporadic progression of CPU and I/O burst

### Concept of a CPU Scheduler

The task of a CPU scheduler is to pick a process among the processes stored in the memory that are ready to execute. For a scheduler, the CPU scheduling decision has to take under the following state of affairs:

- When a process switches from the running state to the waiting state.
- When a process switches from the running state to the ready state.
- When a process switches from the waiting state to the ready state.
- When a process terminates.

The success of a CPU scheduler depends on an algorithm. High-quality CPU scheduler algorithms again in terms rely on the CPU utilization rate, throughput, turnaround time, waiting time and response time.

**Contemporary Priority Scheduling Algorithm**

Priority CPU scheduling algorithm decides according to the assigned priority of the processes (Highest priority process) in the ready queue to be allocated to the CPU. In this case, equal-priority processes are scheduled in FCFS (First Come First Served) order. Here the term *priority* refers to some fixed range of numbers such as 0 to 9 (for 10 processes in the ready queue) or 0 to 4,095 (for 4,046 processes in the ready queue). Generally, low numbers are used to represent high priority.

For example, let, $P_1$, $P_2$..... P5 are the set of processes in the ready queue with the following CPU-burst time and priority:

| Process | Burst Time (milliseconds) | Priority |
|---|---|---|
| $P_1$ | 10 | 3 |
| $P_2$ | 1 | 1 |
| $P_3$ | 2 | 4 |
| $P_4$ | 1 | 5 |
| $P_5$ | 5 | 2 |

So using the contemporary priority scheduling algorithm, the processes can be scheduled as the following Gantt chart:


**Limitations of Contemporary Priority Scheduling Algorithm**

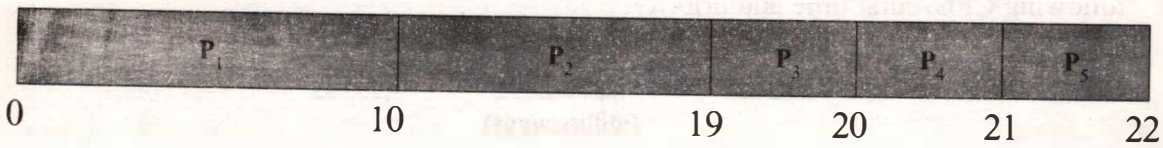
Though priority-scheduling algorithm does an enormous job for allocating the CPU to the processes, but still it has some limitations to mention:

i) Indefinite blocking or starvation can happen for the low priority processes. And this problem can be solved by the **"Aging"** technique.

ii) If two processes have same priority then the tie can be broken with FCFS (First Come First Serve) basis. So the waiting time gradually increased for the equal priority processes.

Let us consider the following processes with equal priority:

| Process | Burst Time (milliseconds) | Priority |
|---|---|---|
| $P_1$ | 10 | 2 |
| $P_2$ | 9 | 2 |
| $P_3$ | 1 | 2 |
| $P_4$ | 1 | 2 |
| $P_5$ | 1 | 2 |




The waiting time for the processes are as follows and the average waiting time is (0 + 10 + 19 + 20 + 21) / 5 = 14 ms.

| Process | Waiting Time (milliseconds) |
|---|---|
| $P_1$ | 0 |
| $P_2$ | 10 |
| $P_3$ | 19 |
| $P_4$ | 20 |
| $P_5$ | 21 |

Again the turnaround time for the processes is as follows and the average turnaround time is (10 + 19 + 20 + 21 + 22) / 5 = 18.4 ms.

| Process | Turnaround Time (milliseconds) |
|---|---|
| $P_1$ | 0 + 10 = 10 |
| $P_2$ | 10 + 9 = 19 |
| $P_3$ | 19 + 1 = 20 |
| $P_4$ | 20 + 1 = 21 |
| $P_5$ | 21 + 1 = 22 |

**Proposed Priority Scheduling Algorithm**

In our proposed priority-scheduling algorithm, we have combined the working principle of SJF (Shortest Job First) scheduling algorithm along with the contemporary priority-scheduling algorithm. Here one thing should mention that SJF is a special case of the general priority-scheduling algorithm. Our proposed algorithm works as follows:

**Step 1:** Assign priority to each of the processes in the ready queue.

**Step 2:** Allocate the CPU to the process that has the highest priority.

**Step 3:** If two or more processes have equal-priority then
{Allocate the CPU to the process that has shortest job (minimum burst time).}

**Step 4:** If two or more processes have equal-priority and equal burst time then
{Allocate the CPU to the processes according to the FCFS (First Come First server) basis.}

**Implementation & Comparison of Proposed Algorithm**

To implement the proposed algorithm, we have to use a multilevel stable sorting techniques. Some common stable sorting techniques like Bubble sort, Selection sort etc. can be used for this purpose. We have also designed a compare function and swapping function so that our algorithm can work with multiple criteria.

Now to show the comparison, let consider the same processes, which have been implemented for the existing algorithm:

| Process | Burst Time (milliseconds) | Priority |
|---|---|---|
| $P_1$ | 10 | 2 |
| $P_2$ | 9 | 2 |
| $P_3$ | 1 | 2 |
| $P_4$ | 1 | 2 |
| $P_5$ | 1 | 2 |

So the Gantt chart for the above mention processes using propose algorithm:

The revised waiting time for the processes are as follows and the average waiting time is (12 + 3 + 0 + 1 + 2) / 5 = 3.6 ms.

| Process | Waiting Time (milliseconds) |
|---|---|
| $P_1$ | 12 |
| $P_2$ | 3 |
| $P_3$ | 0 |
| $P_4$ | 1 |
| $P_5$ | 2 |

Again, the revised turnaround time for the processes is as follows and the average turnaround time is (22 + 12 + 1 + 2 + 3) / 5 = 8 ms.

| Process | Turnaround Time (milliseconds) |
|---|---|
| $P_1$ | 12 + 10 = 22 |
| $P_2$ | 3 + 9 = 12 |
| $P_3$ | 0 + 1 = 1 |
| $P_4$ | 1 + 1 = 2 |
| $P_5$ | 2 + 1 = 3 |

Thus if we consider our proposed priority scheduling algorithm to that of the existing one then we find that our algorithm reduce ((14 – 3.6) / 14) * 100 = 74.29 % waiting time for the above mentioned example. The comparison can be understood well from the following graph:

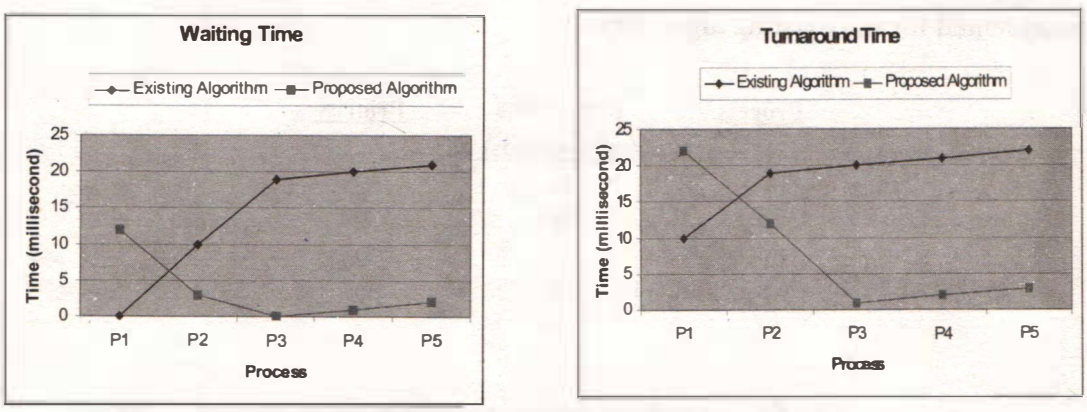



**Figure 2:** Comparison of proposed algorithm with existing algorithm

## Conclusion

It is recommended that any kind of simulation for any CPU scheduling algorithm has limited accuracy. The only accurate way to evaluate a scheduling algorithm is to code it and to put it in the operating system. Then a proper working capability of the algorithm can be measured in real systems. As our proposed algorithm has been justified with code (In C++ environment) so it can be an innovative move in case of CPU scheduling.

## References


Silverchatz, Galvin, Gagne, (2002): "*Operating System Concepts*", Sixth Edition, John Wiley & Sons, INC.

Zahorjan and C. McCann, (1990): "Processor Scheduling in Shared-Memory Multiprocessors", Proceedings of the Conference on Measurement and Modeling of Computer Systems.

D.L. Black, (1985): "Scheduling Support for Concurrency and Parallelism in the Mach Operating System", Computer, Volume 23, Number 6.

# Models for Distance Education

- Saraswathi Krithivasan and Sridhar Iyer*

**Abstract**

Distance education is an essential and growing trend in India. Reaching a participant at any remote location in the country to impart knowledge is the goal for such initiatives. Models that use technology to transmit multimedia content in a scalable and cost effective manner are required to achieve this goal. Several network options are available to efficiently disseminate the size intensive multimedia files. While the Internet is the most widely used network in the Western countries for imparting distance education, this may not be the best option for countries like India given the current PC penetration rate and bandwidth availability. Internet provides the flexibility of space and time to individual users. However guaranteeing quality of reception is not possible as the Internet is shared by multiple applications. The problem becomes more acute when video intensive content is used for education, as video files demand larger bandwidth. With the launch of EDUSAT, India is ready to thrust ahead with widespread dissemination of multimedia content using the satellite network. Leveraging the available technology to give the best Quality of Service (QoS) to users is key to the success of such an initiative. With a satellite-based model, contents can be disseminated to any part of a region covered by the satellite. However, satellite models are cost effective only when the receiving centre caters to the community rather than an individual.

In this paper we discuss several models that can be used for efficient dissemination of multimedia content. Advantages, problems, and challenges in implementing the different models are briefly discussed. Hybrid models that combine satellite networks and Internet are especially meaningful in the Indian context as satellite networks provide the reach while the Internet can be leveraged to provide flexibility in a local area. Choice of the model finally rests on the requirements of the end users. End users can be from various classes: educational institutions catering to higher educational need, schools, governmental agencies, business organisations and industry, and individual users. Based on the objectives of the programme, whether it is targeting a community or an individual user and whether it caters to national or

* IIT Bombay, Mumbai, India

Adopted from ICDE International Conference, 2005.

international users, an appropriate model can be chosen. We have mapped the user classes to the models proposed in this paper with a view to provide the basis for choosing one model over the other.

**Introduction**

Distance education is an essential and growing trend in India. Reaching a participant at any remote location in the country to impart knowledge is the goal for such initiatives. Models that use technology to transmit multimedia content in a scalable and cost effective way are required to achieve this goal. Distributing multimedia content to multiple clients pose many challenges due to the following reasons:

1. ***Size of files***: while there are several encoding mechanisms available for reducing the size, maintaining good quality of reception translates to relatively large size files compared to data files. This in turn translates to high bandwidth requirement to ensure acceptable quality of reception.
2. ***Nature of transmission:*** In multimedia transmission, unlike data transmission, both delay and variation in delay (delay jitter) are important factors. While multimedia applications can tolerate some loss, once the transmission is started, it needs to go on without any interruption.

With the launch of EDUSAT, India is ready to thrust ahead with wide spread dissemination of multimedia content using the satellite network. Leveraging the available technology to give the best Quality of Service (QoS) to users is key to the success of such an initiative. End users can be from various classes - educational institutions catering to higher educational need, schools, governmental agencies, business organizations and industry, and individual users. In this paper we discuss several models that can be used for efficient dissemination of multimedia content. Advantages and challenges in implementing such models are also discussed. We conclude with some recommendations on the models that would most benefit users from the different classes. We list the notation used in this paper in Table 1. The rest of the paper is organized as follows: In Section 1, satellite based models are discussed. Section 2 explores models based on streaming over the Internet. Hybrid networks, which combine satellite networks and Internet, are discussed in Section 3. Section 4 identifies the various user groups and their different needs. We conclude in Section 5 with our recommendations for the appropriate model for the various classes of users.

**Table 1: Notation used**

| Notation used: |
|---|
| SS- Source Site |
| SRS – Satellite Receiving Site |
| LL –Leased Line |
| RC – Remote Center |
| LLRS – Leased Line Receiving Site |
| ISP –Internet Service Provider |
| PoP – Point of Presence |

## Satellite-based Models

### Model 1: VSAT Model

Satellite networks with dedicated bandwidth provide one solution for distributing multimedia information to remotely located participants. Generic architecture of a satellite-based model is given in Figure 1:

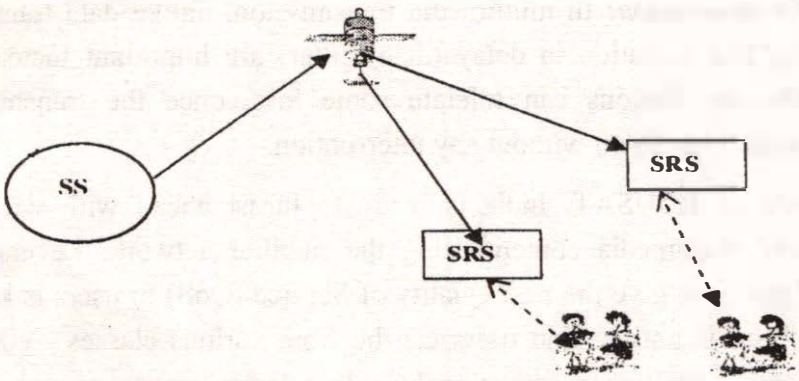



**Fig. 1: Generic architecture of a satellite-based model**

### Working of a Satellite-based Model:

The multimedia content originates at the SS. Using VSAT technology [www.gilat.com] this signal is broadcast/multicast using a channel to the SRSs. To ensure quality reception, typically the channel used is a Demand Assigned Multiple Access (DAMA) channel, which is contention-free. Considering the high latency in a satellite network (Round Trip Time (RTT) in the range of 250 ms.) [Mitchell, 2003], dedicated channel access is important to ensure quality of reception as retransmissions are of no value.

**Model Incorporating Interaction with Participants**: The basic model is enhanced to provide interaction between the two parties (as in the case of a distance education application), by adding a polling channel, which uses a Time Division Multiple Access (TDMA) mechanism. A 16 kbps channel is sufficient to serve the purpose of polling the SRSs, which registers a request for interaction. Through the hub, the 512 Kbps channel is shifted to the requesting SRS, which becomes the broadcasting site. A complete description of features of such a working model implemented for the purpose of distance education at IIT Bombay can be found in [Arya, Krithivasan and Iyer, 2003], [Krithivasan, 2003], [Krithivasan, Baru and Iyer, 2004].

**Advantages**

***Reach***: Given investments in the receiving infrastructure, this model can be extended to any part of the country. With the provision of International agreements, services can be extended to Srilanka and South East Asian countries (as far as the satellite coverage can be extended).

***Scalability***: As at any point in time, only one site is transmitting, the data channel requirement remains constant, irrespective of the number of SRSs. Also, since the received signal can be projected on a large screen for the benefit of many participants, this model is scalable to reach multiple participants within a same SRS.

***Cost Effectiveness***: When the model is scaled to serve multiple participants at multiple SRSs, the initial high investments of the satellite infrastructure can be covered, making the model cost effective.

***Interaction***: In the case of a distance education application, the model provides interaction not only with the faculty, but also with peers as in the case of a traditional classroom, adding value to the participant.

**Disadvantages**

***Traveling Overhead***: The model compromises on flexibility for a participant, as for the model to be cost effective, multiple participants have to be served by a single SRS. This requires the participant to travel to a SRS, causing overheads, in terms of time and energy.

***High Initial Investments***: The model is sustainable only if a minimum number of participants participate and benefit from the model.

**Model 2: A Hub and Spoke Model**

Figure 2 illustrates a hub and spoke model which uses leased line infrastructure in conjunction with the satellite network.

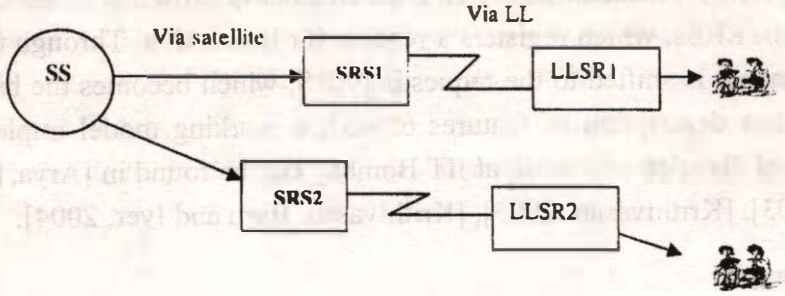



**Fig. 2: Generic architecture of a Hub and Spoke Leased Line Model**

**Workflow in a Hub and Spoke Model**

This model is an extension of the satellite-based model, which allows the initial infrastructure cost to be spread across more centers. The basic idea of this model is to increase the number of RCs in a given area (within a metropolitan, for example) by taking advantage of the SRS's infrastructure, thereby spreading the cost across more centers.

Given a high density of potential participants in a given area, multiple centers provide easier access to participants, without taking away business from the existing SRS. By using a leased line modem to connect to the router at the SRS, additional centers, from here on referred to as Leased line Receiving Sites (LLRS) can share in the infrastructure to serve more participants in a given geographical area. (It is to be noted that this model is cost effective only when the distances between the SRS and LLRS are within 10 kms, so that the recurring LL costs are justifiable by the LLRS). The cost of the satellite infrastructure can be shared amongst the participating LLRSs to make it viable for the SRS to invest in the satellite infrastructure. This hub and spoke model has already been implemented as part of the Distance Education Programme (DEP) [www.dep.iitb.ac.in].

**Advantages**

Considering that this model is an extension of the satellite-based model, advantages elaborated in the previous section hold good for this model also. In addition, this model alleviates the burden of heavy initial investment by a single SRS by spreading

**Model Incorporating Interaction with Participants**: The basic model is enhanced to provide interaction between the two parties (as in the case of a distance education application), by adding a polling channel, which uses a Time Division Multiple Access (TDMA) mechanism. A 16 kbps channel is sufficient to serve the purpose of polling the SRSs, which registers a request for interaction. Through the hub, the 512 Kbps channel is shifted to the requesting SRS, which becomes the broadcasting site. A complete description of features of such a working model implemented for the purpose of distance education at IIT Bombay can be found in [Arya, Krithivasan and Iyer, 2003], [Krithivasan, 2003], [Krithivasan, Baru and Iyer, 2004].

**Advantages**

***Reach***: Given investments in the receiving infrastructure, this model can be extended to any part of the country. With the provision of International agreements, services can be extended to Srilanka and South East Asian countries (as far as the satellite coverage can be extended).

***Scalability***: As at any point in time, only one site is transmitting, the data channel requirement remains constant, irrespective of the number of SRSs. Also, since the received signal can be projected on a large screen for the benefit of many participants, this model is scalable to reach multiple participants within a same SRS.

***Cost Effectiveness***: When the model is scaled to serve multiple participants at multiple SRSs, the initial high investments of the satellite infrastructure can be covered, making the model cost effective.

***Interaction***: In the case of a distance education application, the model provides interaction not only with the faculty, but also with peers as in the case of a traditional classroom, adding value to the participant.

**Disadvantages**

***Traveling Overhead***: The model compromises on flexibility for a participant, as for the model to be cost effective, multiple participants have to be served by a single SRS. This requires the participant to travel to a SRS, causing overheads, in terms of time and energy.

***High Initial Investments***: The model is sustainable only if a minimum number of participants participate and benefit from the model.

**Model 2: A Hub and Spoke Model**

Figure 2 illustrates a hub and spoke model which uses leased line infrastructure in conjunction with the satellite network.

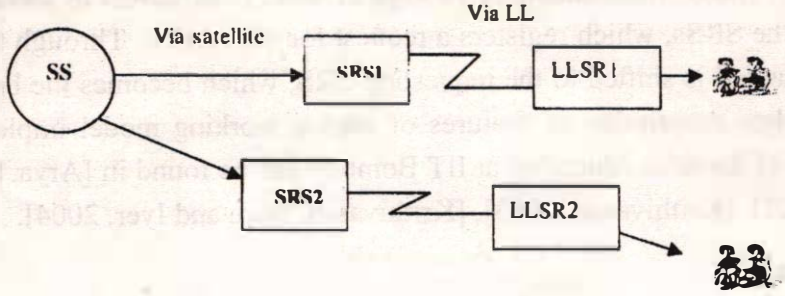



**Fig. 2: Generic architecture of a Hub and Spoke Leased Line Model**

**Workflow in a Hub and Spoke Model**

This model is an extension of the satellite-based model, which allows the initial infrastructure cost to be spread across more centers. The basic idea of this model is to increase the number of RCs in a given area (within a metropolitan, for example) by taking advantage of the SRS's infrastructure, thereby spreading the cost across more centers.

Given a high density of potential participants in a given area, multiple centers provide easier access to participants, without taking away business from the existing SRS. By using a leased line modem to connect to the router at the SRS, additional centers, from here on referred to as Leased line Receiving Sites (LLRS) can share in the infrastructure to serve more participants in a given geographical area. (It is to be noted that this model is cost effective only when the distances between the SRS and LLRS are within 10 kms, so that the recurring LL costs are justifiable by the LLRS). The cost of the satellite infrastructure can be shared amongst the participating LLRSs to make it viable for the SRS to invest in the satellite infrastructure. This hub and spoke model has already been implemented as part of the Distance Education Programme (DEP) [www.dep.iitb.ac.in].

**Advantages**

Considering that this model is an extension of the satellite-based model, advantages elaborated in the previous section hold good for this model also. In addition, this model alleviates the burden of heavy initial investment by a single SRS by spreading

the cost across more centers. The LRSs invest around one third of the amount in the LL infrastructure while paying a fee for using the SRS's satellite infrastructure.

**Disadvantages**

Cost of travel for the participant still remains in this model. In addition, the LRS is dependent on the SRS for providing the service. Thus, the SRS becomes the one point of failure, which brings down all the spoke centers with it, introducing reliability issues in the model.

## Models for Streaming over the Internet

**Model 3: Streaming model**

The two options considered for streaming multimedia files from the Source Site (SS) over the Internet are explained below:

***Live streaming***

When a lecture is being delivered at the SS as in a distance education application, it is encoded on the fly using hardware based encoding solution, which in turn is streamed to the clients. In this case, the SS typically hosts the encoding hardware component. The encoded file is sent to the streaming server placed at the ISP's Internet Data Center (IDC) for serving the clients in real time. During live encoding, the file is also stored for future use.

***On-demand Streaming***

Recorded contents are encoded off-line at different rates and uploaded to the server. Valid users after authentication can start the streaming session at any time convenient to them. As users will be accessing the lectures using a media player application, they will have the options to pause, rewind, fast forward, etc. In the case of live streaming, as the content is played in real time from the SS, additional care needs to be taken to ensure acceptable Quality of Service (QoS) in terms of delay, loss and delay jitter parameters. On demand streaming provides flexibility to users to access the content from their desktops at any time. In both these cases once the streaming session is started, users expect continuous and jitter-less transmission. Figure 3 describes the generic workflow of a streaming model:

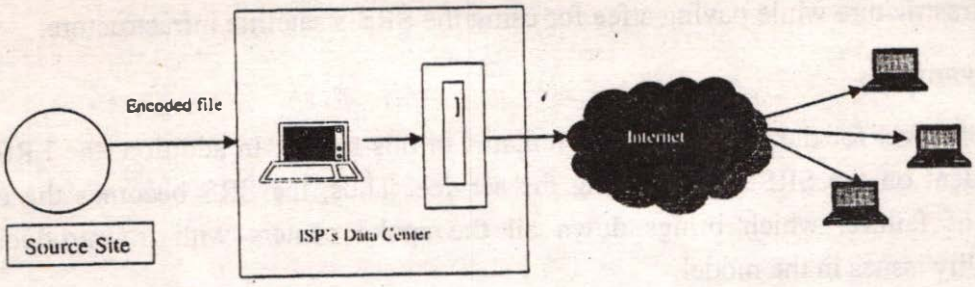



**Fig. 3: Streaming model**

### Workflow in Live Streaming

In this model [Krithivasan and Iyer, 2004], the live feed of the lecture going on is given as the input to a real time encoder. This encoder (typically hardware based) compresses the audio/video source in real time and sends it to the streaming server. Here the live compression to various bit rates can also be done simultaneously depending on the encoder being used. In case the encoder is a part of the streaming server itself, it directly starts streaming the compressed file. The live streaming can also be stored on the server and can be used for streaming in the on-demand mode in the future. The URL is accessed by the participant after authentication.

### Workflow in On-demand Streaming

Assuming source material recorded on DV tapes, this content would be compressed and encoded in various bit rates (56 kbps, 150 kbps, 256 kbps) and to a format (.mp4, .mov), which is suitable for streaming. This file is then uploaded on the streaming server. Registered participants are given the URL to view the lecture, after authentication. Participants log on to the streaming site and select the appropriate bit rate link based on their network connectivity and watch the lecture. The participant only needs a standard player (QuickTime, Real, Windows), which supports streaming. While the user cannot download the file, he/she can navigate through the file using the pause, rewind, etc. buttons provided by the player application.

### Advantages

Streaming allows participants to access the lectures on their desktops providing flexibility of space. While synchronous live streaming poses a time constraint, on demand streaming allows for flexibility of time. In the latter case participants are also provided with the mechanisms to access the contents according to their pace.

From a working professional's point of view, streaming (especially access of contents on demand) is very attractive giving him/her flexibility across all three dimensions: space, time, and pace.

**Disadvantages**

Streaming requires stable and dedicated connectivity to guarantee a good quality of reception. While dedicated bandwidth is costly, sharing bandwidth on a public network with numerous other applications result in unpredictable quality. Simultaneous access by multiple users requires high bandwidth, jeopardising cost-effectiveness and scalability of this model.

**Model 4: Caching Model**

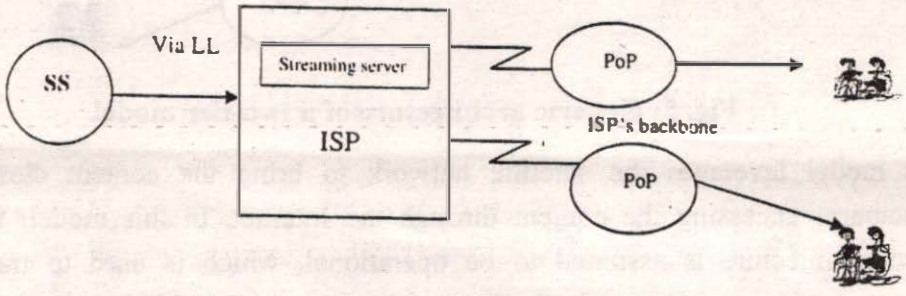



**Fig. 4: Generic architecture of an Internet based Caching model**

In order to provide QoS guarantees on the best effort Internet, one optimization could be in the form of placing cache servers at the PoP locations of the ISP. Participants in the neighbouring area of a PoP will be served by that PoP, thereby reducing the uncertainty in delay. The idea is to provide QoS in the local area by serving the clients in the area through a local streaming server, which contains the replicated content to be streamed to the local participants.

**Advantages**

Considering that this model is an extension of the streaming model, advantages elaborated in the previous section hold good for this model also.

**Disadvantages**

In this model, following are the challenges:

- Keeping the caches at the PoP servers consistent. Mechanisms to load and delete the appropriate files and synchronous uploading of the files to all the PoP servers have to be implemented.

- Efficient cache management and back up mechanisms through cooperative sharing of caches need to be implemented.

## Hybrid Models

### Model 5: A Two-tier Model

Figure 5 illustrates a combination of networks that can be used for efficient multimedia dissemination.

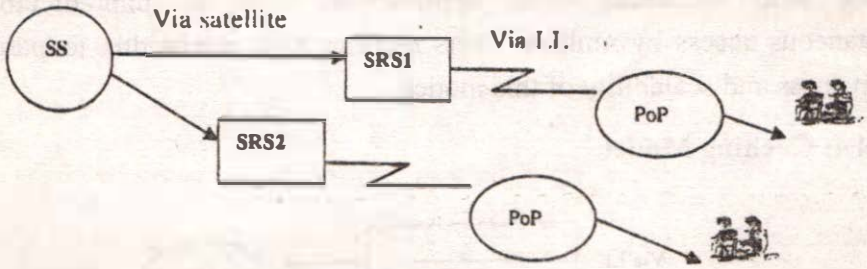



**Fig. 5: Generic architecture of a two-tier model**

This model leverages the satellite network to bring the content closer to the participants accessing the content through the Internet. In this model, the VSAT based architecture is assumed to be operational, which is used to transmit the contents to various geographically dispersed locations. Considering that in the initial phase, most of the RCs are located in the cities where the ISP's PoPs are present, the VSAT infrastructure can be used to load the cache servers at the PoPs. For example, when a lecture is transmitted using the VSAT infrastructure, it can be captured through a point-to-point link, at the server placed in the PoP. Participants access the contents from the PoP streaming server, as in the previous case.

#### Advantages

Comparing this model with the previous one, instead of uploading the content from a central server at the ISP, the existing VSAT infrastructure is used to upload the contents to the local PoP servers. This model leverages the VSAT transmission for loading the cache servers to provide guaranteed service to the participants from a local area.

#### Disadvantages

This model relies on the SRS to load the cache servers. Also, an annual recurring cost is incurred based on the distance of the PoP from the SRS. Recovering this cost from the participants may make this model unviable.

## Model 6: A Three-tier Model

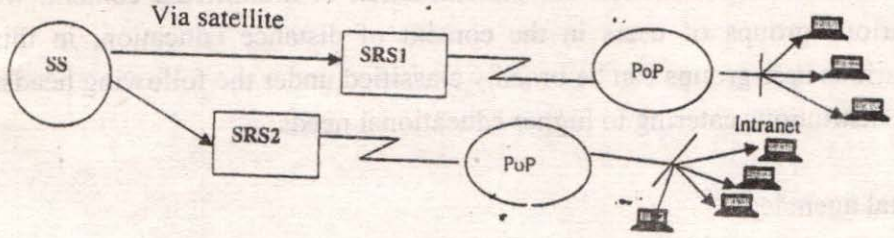



**Fig. 6: Generic architecture of a three-tier model**

Considering that the motivation for Internet streaming arises out of providing flexibility to corporate participants who enjoy Internet connectivity with adequate bandwidth to support multimedia streaming, a three-tier model with the following features are proposed:

- A VSAT network is used for reaching RCs from where participants attend lectures.
- As the live lectures are being transmitted, they are captured and transmitted to the servers placed at the PoPs of the ISP.
- These servers serve the local area corporations connected through the Internet.
- The corporation's gateway server connects to the ISP's PoP, which streams the contents on the Intranet of the corporation, allowing participants to access the contents on their desktops.

### Advantages

Providing Flexibility to participants is the main advantage of this model. By allowing access to their employees, corporations can train their employees and enhance their skills. This model also allows for a viable business model where the cost of LL can be spread across corporations.

### Disadvantages

Implementation of such a model requires cooperation between several entities with clear understanding of the scope of each of the entity's responsibilities. In practice this may prove to be cumbersome.

## User Profiles

Having discussed the various models for dissemination of multimedia content, we outline the various groups of users in the context of distance education, in this section. The various user groups can be broadly classified under the following heads:

1. Educational institutions catering to higher educational needs
2. Schools
3. Governmental agencies
4. Business organisations and industry

An important aspect of distance education is the scope of reach; whether the users are within a country or the programme needs to reach an international audience.

Let us consider educational institutions in categories 1 and 2. If the objective is to network the institutions within the country to leverage the expertise of a few teachers to educate many students spread across the country, satellite models as discussed in Section 1 would be the most appropriate. This is precisely the motivation behind the launch of EDUSAT. Governmental agencies as in category 3 which facilitate dissemination of knowledge in the areas of farming, health, and hygiene to rural and remote population can also leverage the satellite network effectively. Thus the first three categories where the focus is on the community at large rather than individual users, satellite based network models would work fine.

Considering users in a business organisation or an individual industry professional, flexibility of space and time is absolutely essential. Allowing access to knowledge on their desktop which moves with them when they travel fulfils the requirement of continuity. While streaming models satisfy the requirements of working professionals, guaranteeing quality becomes a bottleneck. By deploying the hybrid models that are discussed in Section 3, quality guarantees can be made within a local area.

Considering the reach, a satellite-based model for an application such as distance education would restrict its reach to institutions and organisations within the country. Internet based streaming would open up the programme to participants anywhere in the globe.

## Conclusion

We have discussed various models that can be used to implement distance education applications, which are multimedia intensive. Given our Government's EDUSAT

initiative, which facilitates large scale deployment of satellite networks, the different models proposed in this paper can be considered for implementation to provide the reach and flexibility, the crucial factors of any distance learning initiative. We have outlined the advantages and disadvantages of these models highlighting some of the implementation challenges. We have identified the various user groups of distance education. Based on the objectives of the programme, whether it is targeting a community or an individual user and whether it caters to national or international users, the choice of the model changes. We have mapped the objectives to the models proposed in this paper with a view to provide the basis for choosing one model over the other. With the launch of EDUSAT, the proposed models that use the satellite network as the primary infrastructure can be considered for reaching the masses.

## References


Arya, K., Krithivasan, S. Iyer, S. (2003): Satellite Based Distance Education Programme at Indian Institute of Technology, Bombay, India. Educational Media In Asia: Reviews, cases and lessons, Book chapter. Vancouver, Commonwealth of Learning.

Distance Education Programme, KR School of Information Technology, IIT Bombay – http://www.dep.iitb.ac.in/

Krithivasan, S. (2003): Distance Education Programme - towards Greater Interactivity, Indian Distance Education Association, 10th Annual conference.

Krithivasan, S. and Iyer, S. (2004): To Beam or to Stream: Satellite-based vs. Streaming-based Infrastructure for Distance Education, Edmedia 2004, Switzerland

Krithivasan, S., Baru, M. and Iyer, S. (2004): Experiences with an Interactive Satellite Based Distance Education Programme, SITE 2004, U.S.A.

Mitchell, P.D. (2003): Effective medium access control for geo-stationary satellite systems, Ph.D. thesis.
http://www.gilat.com/Technology_Introduction.asp

## About the Authors:

Saraswathi Krithivasan is a doctoral student in the Kanwal Rekhi School of Information Technology (KReSIT) at IIT Bombay conducting her research in the area of multimedia dissemination over heterogeneous networks (deployed for applications such as distance education). She holds M.S. in Computer Science and MBA with specialisation in International business, both from the University of Massachusetts, U.S.A. She also manages the Distance Education Programme at IIT Bombay.

Sridhar Iyer is presently an Associate Professor in the Kanwal Rekhi School of Information Technology (KReSIT) at IIT Bombay. Prior to this, he has been a faculty member in the Dept of Computer Science & Engg. at IIT Guwahati. His research interests include: Networking protocols and multimedia tools for distance education, wireless networking, mobile computing frameworks, and some areas in programme/protocol verification. Sridhar Iyer received his BTech, MTech and PhD from the Dept of Computer Science & Engg at IIT Bombay.