
UNIT 4 COST AND QUALITY IN DISTANCE EDUCATION

Structure

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4.1 INTRODUCTION

In the preceding three units, we discussed respectively DE for human resource development, funding of distance education and pricing Issues in distance education. We have also discussed educational costs in Block 1 (Unit 3), and shall discuss more on cost of distance education in Block 3. In this unit, we examine various aspects of quality and cost of distance and online learning (DOL), and the relationship among access, cost, and quality in DOL through examination of some seminal works as well as relevant research studies. This background shall equip you better to further examine various aspects of cost of distance and online learning in the subsequent blocks.

4.2 LEARNING OBJECTIVES

After going through this Unit, you should be able to:

- describe quality as well as cost aspects of distance and online learning, and
- explain how cost and quality are related phenomena in the context of distance and online learning.

4.3 QUALITY DIMENSIONS OF DISTANCE AND ONLINE LEARNING

As you already know, there is clear distinction between F2F, distance education, and online learning in their organisation and delivery. The F2F education heavily depends on the prescribed curriculum and the translation of teaching-learning by teachers inside the classroom and labs, etc. The quality of learning largely depends on the quality of text books, the quality of teaching by teachers, the quality of students' self learning and engagement with activities and assignments. In case of distance education, which takes place at a distance and is mediated by various media and technology, the quality depends on the quality of self-learning materials (in print, audio, video, teleconferencing, etc.), the quality of student's self-learning, the quality of tutoring and counselling, and the quality of student engagement in

assignments, projects, and hands-on activities. In so far as online learning is concerned, almost all activities are carried out on the web (through the platform called Learning Management System). In this case, quality depends on the quality of interactive digital resources, collaboration and interaction, engagement in tasks and activities, and specifically the quality of reflective self-learning.

While the context of F2F education is largely subject-centred and teacher-centred, in the contexts of distance as well as online education, the stages of design, development, delivery, and evaluation assume considerable significance. Carey and Trick (2013) have put up the distinguishing role of the faculty in F2F and distance and online learning (DOL) as given in Table 4.1 below. The table outlines the basic roles played by the faculty in case of campus-based F2F education and DOL which takes place at a distance.

Table 4.1: Faculty role in F2F and DOL

Traditional F2F education	Open and distance learning
<p>The faculty members undertake the following activities:</p> <ul style="list-style-type: none"> • Development and maintenance of curriculum. • Presentation through direct instruction and student activities. • Establishment of alignment between course materials and delivery strategies. • Assessment of student learning outcomes. • Advising students on academic and career matters. • Providing various extra-curricular services to the institution. • Conducting research more on one's discipline, and less on discipline teaching-learning. 	<p>The faculty members generally undertake the following activities:</p> <ul style="list-style-type: none"> • Design and development of pre-produced course-curriculum design, development of learning resources in print, audio, video, multimedia, online digital resources, etc. • Delivery of instruction through teacher-built self learning materials, media and technology, tutoring and counseling, and practical. • Assessment of student learning outcomes largely with the help of technology. • Advising and mentoring students through various electronic means. • Act as instructional designers, aligning the learning outcomes with learning resources, learning activities, collaboration and interaction. • Conducting research more on pedagogy of student learning, discipline teaching-learning, and feeding back the findings to curriculum design and student learning.

As can be seen from Table 4.1, though the indicators of teaching-learning remain largely the same irrespective of the mode of delivery, however the functional role of the faculty vary considerably in the context of distance and online learning.

In the past few years, many institutions have moved toward using 'blended learning' (BL) as a curriculum design as also delivery strategy (combining F2F and online learning), and use of 'open educational resources' (OER) in the resource-based online or blended learning. Both campus-based and distance education/virtual teaching institutions have moved toward BL and OER. Open education, open learning and OER have facilitated institutions and faculty to move towards open pedagogy and open educational practices.

As Smyth, Bossu and Stagg (2016) noted, a move towards open-empowered learning approach involves the following principles, applicable to both F2F-blended and online-blended teaching-learning contexts:

- The control over learning resources and their navigation rest with the learners who may move in different pathways (based on their learning styles and learning approaches) to achieve the desired learning outcomes. This also involves modular accumulation of credits, credit transfer, as well as recognition of prior learning.
- There is use of both formal and informal learning, and open-content/open educational resources are used as shared and/or co-created knowledge by both learners and teachers.
- Given that the learning ecosystem is open (based on open educational practices), mentoring support is provided to learners to be autonomous and develop critical thinking, reflective thinking, and abilities for innovations.
- Though initial teacher involvement is high, in this process of open pedagogy, open educational practices, and open learning, there is more of self-regulated learning, co-travelling and co-creation through intensive engagement in tasks/activities in-context, and therefore, subsequent teacher involvement gets reduced and learning autonomy gets enhanced.
- Adoption of open educational practices brings in more openness, flexibility, transparency, and social involvement in learning. All these contribute to authentic learning, based on authentic assessment.

Given that there have been considerable developments today in areas of media and technology (especially in social technologies and social networks) and in learning resources design (especially in OER), still most distance education institutions are largely using the printed resources (and traditional audio-video media) and also developing the self-earning materials on their own. The quality dimensions or traditional distance education generally include the following:

- Increased access and equity (and inclusiveness) with a reasonable or lower cost.
- Appropriate curriculum and instructional design based on student needs, learning approaches/styles, and development of self-learning materials that are more sufficient and interactive.
- Deployment of need-based media mix/integration, which could be supplementary, complementary or integrated.
- Appropriate and student need-based tutoring and counseling, assessment of assignments with tutor comments, and quality hands-on practices.

More institutions are adopting online teaching-learning systems (and also adopting online learning to blended learning systems), and quality assurance dimensions go beyond the traditional distance education. In the context of evaluation of an online course on OER, Panda (2019) analysed various quality assurance and evaluation benchmarks for online learning, which included the following:

i) *Online Course:*

- Access, equity, inclusiveness.
- Curriculum: content, learning objectives, activities, assignments.

- Teaching-Learning: easy to comprehend, collaborative and interactive, help and FAQs, visuals and assignments aligned to content, additional resources.
- Technical: ease of access, learner control of navigation, good visual appeal.
- Overall learner satisfaction.

ii) *Return on Expectations (ROE):*

- Reaction (satisfaction, value derived from the time spent).
- Learning (development of knowledge, skills, attitude, and confidence).
- Behaviour (empowerment, valuable to present tasks/job, quality of content, increase in efficiency, and perceived impact on future work).

iii) *Return on Investment:*

- Time and cost (time spent for doing the course, time saved in present work due to the course, and cost saving).
- Institutional cost.
- Individual/private cost.

Besides the above, it is important to consider the existing paradigms for evaluating the quality of online and blended learning programmes. These paradigms (Shelton, 2011) suggested by various researchers and online educators shall be useful to establish the assessment parameters as also establish quality of online and blended programmes. The important ones are briefly outlined below:

- *IHEP's 24 Benchmarks:* In the report of the Institute for Higher Education Policy (IHEP), sponsored by the Blackboard, 24 quality indicators were presented under seven themes: institutional support, course development, teaching and learning, course structure, student support, faculty support, and evaluation and assessment.
- *Tony Bates' ACTIONS Model:* The seven indicators include: access and flexibility, costs, teaching and learning, interactivity and user friendliness, organizational issues, novelty, and speed.
- *WECT Best Practices:* In the principles of good practice, the Western Cooperative for Educational Communications (WECT) identified three broad indicators: institutional context and commitment (role and mission, faculty support, resources for learning, student services, and commitment to support), curriculum and instruction, and evaluation and assessment.
- *Eight Dimensions by Bedrul Khan:* Khan presented an eight-dimensional framework for e-learning: institutional, management, technological, pedagogical, ethical, interface design, resource support, and evaluation. Each of these has detailed explanations and sub-indicators.
- *Frydenberg E-learning Standards:* The nine standards cover: institutional and executive commitment, technological infrastructure, student services, instructional design and course development, instruction and instructors, program delivery, financial health, legal and regulatory compliance, and programme evaluation.
- *Five Pillars of Sloan Consortium:* The five pillars of quality included: learning effectiveness, student satisfaction, faculty satisfaction, scale, and access.

- *Lee and Dziuban Strategy*: The strategies for quality included: administrative leadership and support, ongoing programme concerns, web course development, student concerns, and faculty support.
- *CHEA Accreditation and Quality Assurance*: Seven areas of quality assurance were identified by the Council for Higher Education Accreditation (CHEA): institutional mission, institutional organizational structure, institutional resources, curriculum and instruction, faculty support, student support, and student learning outcomes.
- *Moore and Kearsley*: The two established distance educators identified six variables: number and quality of applications and enrolments, student achievement, student satisfaction, faculty satisfaction, programme or institutional reputation, and quality of course materials.

The fore noted selected frameworks provide for comprehensive areas of online learning which institutions and faculty consider as important for design, development, delivery, and evaluation of online and blended programmes and courses.

Activity 4.1

- Notes: i) Write your response in the space given below:
ii) Compare your response with the one given at the end of the Unit.

What are the major variables that are indicative of the quality of distance education and online learning?

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4.4 COST ASPECTS OF DOL

At the first instance, costs in distance and online learning (DOL) consist of institutional costs and individual/private costs. Further, as you have seen in Block 1 of this course, there are also further cost divisions into: fixed and variable costs, average and marginal costs, opportunity costs, and costs expressed in terms of unit cost (i.e. enrolled student cost and graduate cost). You may revisit Block 1 for a detailed recapitulation of educational costs. We shall discuss these costing aspects and their application in distance and online learning in Block 3 of this course. Further, as you have seen in the preceding Unit 3, pricing in DOL assumes significance since pricing (and especially student fees) is determined on the basis of costing of design, development, delivery, and evaluation of programmes and courses.

Moreover, as noted by Ng (2000), there are available studies which focused on studying the effectiveness of both conventional classroom-based instruction and cost effectiveness of technology-enabled learning including

computer-mediated communication (CMS). Further, the author has underlined that various cost studies have stressed on different aspects of costing/cost centres, and that it is, in practice, very complicated.

In a comprehensive report, the Hanover Research (2014) noted various aspects of development, delivery, and administrative costs of distance and online learning as follows:

- *Development Costs:* These include expenditure incurred on: materials, staffing, staff equipment, copyright clearance, materials production, annual revision of materials, and developmental testing.
- *Delivery Costs:* These include expenditure on: materials delivery, instructor equipment, instructor expenses, instructor time, student/instructor helpdesk, and call costs.
- *Administrative Costs:* The 12 cost areas for administration of DOL include: decision making, institutional evaluation and quality assurance, website development, website implementation, learning platform software/course management system, internet costs, internet start-up costs, intranet ongoing costs, local training/counselling centre, digitized courseware and library, and marketing costs and expenses.

Both cost-effectiveness and cost-efficiency assume greater significance in any educational costing including DOL; and institutions adopt various cost-saving strategies to break-even or achieve economy of scale, while maintaining the pre-stipulated level of quality of instruction and of student learning.

Activity 4.2

- Notes: i) Space is given below for writing your response.
ii) Compare your response with the one given at the end of the Unit.

Briefly enumerate various cost centres in distance and online learning.

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4.5 COST AND QUALITY

In this section, we shall examine the relationship between cost as well as quality of distance and online learning (based on what you have read in the preceding two sections), and how or to what extent a balance between both can be maintained, or whether it is possible to reduce cost while maintaining quality.

The much circulated and much debated analysis on this aspect is the 'Iron Triangle' of Sir John Daniel (Daniel, Kanwar & Uvalic-Trumbic, 2009) comprising the relationship between three variables of access, cost, and quality (see Figure 4.1).

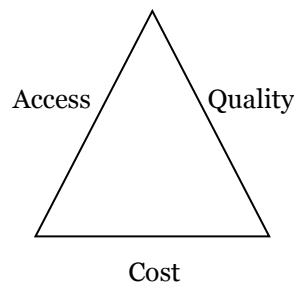


Figure 4.1: Relationship between cost, access and quality

It has been argued by many that all the above three aspects cannot be achieved at the same time; one can achieve at the most two of the three. Daniel believes that if proper care is taken, a balance between all the three can be maintained. However, mainly two characteristics determine this. One, that distortions can be made in their balancing, depending on the trade-offs among the three. Two, that the triangle has a fixed length, i.e. the stretching of any of the three has a limit. Traditionally, this is the 'iron triangle'. Sir John argues that in distance education (as also in case of online and blended learning) it is possible to break out of this iron triangle since increasing access to a large student group through distance and online learning could reduce (unit) cost while still maintaining quality. In other words, the fixed length can be extended further as shown in Figure 4.2 in which both access and quality can be expanded in DE while lowering the cost, or in other words while achieving the economy of scale.

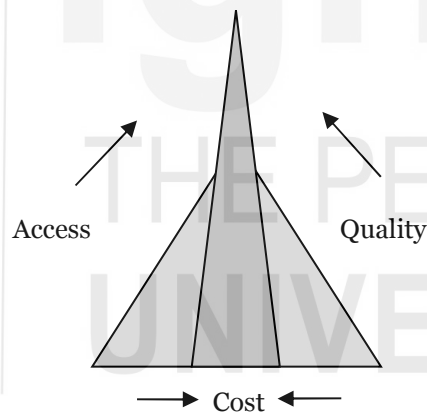


Figure 4.2: Extending the fixed length of the iron triangle

While critically analyzing Daniel's triangle, Power and Gould-Morven (2011) argue that in spite of technological and allied developments, many higher education institutions have not adopted DE (or even the later development of online learning) as the main programme/course delivery strategy, and, therefore, the Daniel triangle is dated and unworkable. The authors present a new form of online learning (BOLD – blended online learning design) which may come out of the iron triangle and meet the expectations of teachers, students, and administrators. They argue about 'priorities' by stakeholders, rather than the 'vectors' of Daniel; and the changed triangle involves cost-effectiveness (in place of cost), accessibility (in place of access), and quality remains constant. The argument is that students are generally concerned about 'accessibility', the teachers always defend 'quality', and the administrators/institutional leaders are concerned with 'system cost-effectiveness'. These three stakeholders do not work in tandem with each other and thereby bring in conflict amongst themselves. However, a balance can be maintained if each one's needs are fulfilled to a threshold level.

The argument is that the three stakeholders can respond to the needs of each other only when each one's traditional priority is met or is not disturbed. For example, the faculty can respond to student demand for more accessibility through online learning provided their traditional teaching and research is not disturbed. This threshold or equilibrium is possible if the needs of all the three priorities are comfortable with satisfaction of their needs. Similarly, administrators will respond positively to the demand for more student accessibility if there is higher cost-effectiveness. Similarly, also, if student accessibility is restricted, students may not have appreciation for teacher concern of quality – what quality if no access is provided! The authors suggest that distance education and online learning can be initiated and sustained (which provide for more accessibility), provided the faculty is involved in its decision-making, and that there is technological sophistication, and efficient utilization of resources to achieve balanced cost-effectiveness (including institutional prestige, and attracting high quality faculty).

Vis-à-vis the above argument, and in continuation to breaking the iron triangle, Sir John argues that handing over the examination/assessment process to a national or international agency shall not only reduce faculty workload (which can be geared toward quality online and blended learning), but also enhance quality and standards comparable to international best practices (rather than the model of full assessment of their students by the faculty as in the case of United states). In this context, he suggests consideration of UNESCO's 'Guidelines for Quality Assurance in Cross-Border Higher Education' for guidance. In conclusion, to quote:

“The aim of wider access, high quality, and low cost are not achievable, even in principle, with traditional models of higher education based on classroom teaching in campus communities. A perception of quality based on exclusivity of access and high expenditure per student is the precise opposite of what is required. One based instead on student achievement enables developing countries to scale up their higher education APRs without breaking the bank or fatally compromising quality.”
(Daniel et al, 2009, p.8).

We have other literature available (Xu & Xu, 2019) which examined various research studies to suggest that always online learning may not be cost-effective. One argument (which the authors question) is that the class size in online courses can be increased to reduce cost by muting the online interpersonal interaction and social presence; however, this may also reduce the quality of education. There are also studies, which suggest that there is a negative relationship between online learning and quality student learning outcomes since online courses are not supportive of student learning as classroom courses are. There is a large upfront cost of establishing and developing high quality online courses. Though it depends on the nature of online courses – starting from use of pdf materials and powerpoints, through use of video lectures and quizzes, to more resource-based, reflective, collaborative, supportive, interactive and engaging (through varieties of authentic activities) learning. More interactive and engaging online courses cost more money in terms of both start-up course development and recurring course delivery. The technology cost (for any institution, faculty, and students) makes online courses more cost-effective than classroom courses. Further, economy of scale may be maintained at the cost of quality (i.e. high student interaction and task-engagement). On the other hand, online education does not face the constraint of space as classroom education faces. It becomes more cost-effective when online courses/ resources are shared between both online and classroom students, as also

when blended learning is used to address the issues of access, cost, and quality.

Activity 4.3

- Notes: i) Space is given below for writing your response.
ii) Compare your response with the one given at the end of the Unit.

Describe briefly the relationship between access, cost and quality in distance and online learning.

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Sir John revisited the triangle and related aspects in a recent conference keynote at Contact North-Contact Nord (Daniel, 2017). The quality vector was extended to quality assurance (QA) to include inputs (student entry qualification, faculty quality, library holdings), processes (teaching, learning, assessment), and learning outcomes. Learning outcomes have been more diversified and flexible with the upcoming of MOOCs and open badges (or digital badges) for especially skills certification. QA has now crossed borders through international quality assurance/accreditation agencies which bring in additional best practices to the table.

The vector of 'access' is further boosted by technology-enabled learning and online learning, providing flexibility in learning as also acquisition of additional qualifications simultaneously. This also facilitates diplomas and degrees without spatial displacement. Technologies are also providing access to learning designs and pedagogies with individualized pathways for access to learning resources. Such provisions facilitate constructivist and deep learning. The flexibility to enroll and exit, as also in tutorial and mentoring support, extends the vector of access to new possibilities including greater engagement in learning.

In so far as the cost vector is concerned, institutions are required to adopt structures and policies to be more cost-effective. Offer of MOOCs, especially free of cost, reduces private cost to almost zero, whereas institutions offering MOOCs free of cost otherwise gain when the MOOCs students enroll into the full-credit courses (online or offline). The newer models of separating the stages/functions of design, development, delivery, assessment, and credentialing which are taken care of by different agencies puts online/blended learning to scale and thereby may reduce cost. However, Sir John argues that this latest process may not be liked by many since students are not prone to handling more flexibility and more choices, and thereby single institutional operation and credentialing shall be more respected. Institutional credibility depends more on their own faculty and their own students/graduates. It may be easier for single-mode open universities to

have cordial interaction of teaching, support, and administrative functions; but for dual-mode universities, central administration interference/engagement with faculty and student support may not be accepted by teachers (going against strong student-teacher relationship). However, one important aspect of cost-effectiveness which needs to be seriously taken is enhancing multi-skills of the faculty and their appropriate and optimum utilisation.

In relation to the access-cost-quality triangle, but in a different context of evaluating effectiveness and return-on-investment (ROI) and return-on-expectations (ROE), Panda (2019) in a recent study evidenced that while short online courses can achieve scale while maintaining course quality, both private and institutional costs can be reduced by using OER and by reusing the learner- and teacher-generated resources as also by using open source LMS like MOODLE. Though the public institutions may not be interested as much in ROI as in return on expectations (ROE) since it balances course quality, learner knowledge and skills and satisfaction, transfer of learning, and cost.

4.6 LET US SUM UP

In this unit, you studied various aspects and indicators relating to the quality of distance and online learning, as also various aspects of costing in DOL. We analysed the relationship between access-cost-quality based on the iron triangle of Sir John Daniel and other critical research literature. The revised explanations to the breaking of iron triangle by Daniel provides for much ground as also confidence that distance teaching and virtual learning institutions could achieve economy of scale by increasing access (especially through technology-enabled learning), enhancing (or maintaining equal level of) quality, and reducing cost (i.e. break-even early and continue to accrue higher return on investment and return on expectations). We shall take up detailed analysis of cost of distance education and online learning in the next/third block of this course.

4.7 MODEL ANSWERS TO ACTIVITIES

Activity 4.1

The major broad variables to assess quality of distance and online learning include design, development, delivery, and evaluation of programmes/courses. All these can be further spread to include: access and equity and inclusiveness, curriculum and course design, concept mapping and outcome based learning, media mix/integration, learning resources, collaboration and interaction, tasks and activities (including hands-on), technical and academic learner support, course satisfaction, development of knowledge/skills/attitude, and cost (both institutional and individual).

Activity 4.2

There are four major cost centres in distance and online learning: design and development (curriculum and course design, development of learning resources, copyright clearance, revision of learning resources, developmental testing), programme/course delivery (material dispatch, tutors and counselors, call centres and other technology-based student communication support, hands-on activities), administrative costs (institutional meetings and decision making, full-time faculty and staff salary, accreditation and quality assurance, LMS, training, and marketing), and evaluation (including student evaluation and programme evaluation).

Activity 4.3

Distance and online learning can achieve a balance between access, cost, and quality if there is use of blended learning, technology infrastructure is need-based and fully utilized, and marginal cost is reduced to as minimum as possible without compromising quality.

4.8 SUGGESTED READINGS

- Carey, T. & Trick, D. (2013). *How Online Learning Affects Productivity, Cost and Quality in Higher Education*: Toronto: Higher Education Quality Council of Toronto.
- Daniel, J. (2017). Making sense of flexibility as a defining element of online learning. Paper presented at World Conference on Online Learning-Teaching in the Digital Age, ICDE 2017, Contact North/ Contact Nor, Toronto, October 17-19.
- Daniel, J., Kanwar, A. & Uvalic-Trumbic, S. (2009). Breaking higher education's iron triangle: Access, cost, and quality. *Change: The Magazine of Higher Learning*, 41(2), 30-35.
- Hanover Research (2014). *Developing and Funding Distance Learning Programs at Public Institutions*. Washington D.C.
- Ng, K. (2000). Costs and effectiveness of online courses in distance education. *Open Learning*, 15(3), 301-308.
- Panda, S. (2019), *Evaluation of Online Course on 'Understanding Open Educational Resources'*. Vancouver: The Commonwealth of Learning.
- Power, M. & Would-Morven, A. (2011). Head of gold, feet of clay: The online learning paradox. *International Review of Research in Open and Distance Learning*, February.
- Shelton, K. (2011). A review of paradigms for evaluating the quality of online education programs. *Online Journal of Distance Learning Administration*, 4(1).
- Smyth, R., Bossu, C. & Stagg, A. (2016). Toward an open empowered learning model of pedagogy in higher education. In S. Reushle, A. Antonio & M. Keppell (eds.), *Open Learning and Formal Credentialing in Higher Education* (pp 205-222). Hersey: Information Science Reference.
- Xu, Y & Xu, D. (2019). *The Promises and Limits of Online Higher Education: Understanding how distance education affects access, cost, and quality*. American Enterprise Institute.