

Suggested Quality Indicators for Services of Centers for Information Technology, Computers, Daycare and the hostel in Universities and Colleges

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ABSTRACT

Evaluation of support services for students and Faculty is an essential component in an accreditation activity. Centers for Information Technology and Computers play a vital role in supporting students and Faculty of the University and colleges. The usages of these services have been expanding exponentially in the learning processes.

Students from remote locations join the Universities and Colleges to explore numerous opportunities existing for education. They need hostels. Hostel facilities and environment therein also play a vital role in supporting the student learning processes. Young Faculty needs the daycare facilities at campus for their tiny-tots.

Devi Ahilya Vishwavidyalaya (DAVV) in the quest for excellence has developed a set of quality indicators (QIs) for four services, namely, Information Technology, Computer Center, Student hostels and Daycare center in the first phase. Present paper suggests the QIs for these services. The objective is to improve the presented indicators after the discussions.

1. INTRODUCTION

“*Education* is not the delivery of information, it is cognitive mapping of reliable access to optimal states of mind.” A recent study of Adewunmi et al [1] has shown that the academic productivity of an Institution is highly dependent on the indicators like “facilities available to students” and “support services”. Devi Ahilya Vishwavidyalaya (DAVV), a State Government University, in the quest for excellence has developed a set of quality indicators (QIs). [2] First phase covers three centers and the hostel services.

Present paper describes the recently developed and adopted QIs. The indicators are developed for the IT, Computers and Daycare Center and hostel in first phase.

1.1 Information Technology Services

IT Centers have been expanding exponentially and playing a vital role in the learning processes in the Universities and Colleges. The IT Centers are shouldering newer responsibilities in the higher education. A Center for Information Technology (IT Center) plays a vital role in supporting students and Faculty of the Universities

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and colleges. The IT Center supports *learning, teaching* and *research* processes in the institutions.

An IT Center enables the usages and services of Internet and Wi-Fi access. It provisions for high-speed access all over the campus including hostels. A poor quality infrastructure and resources for IT and ICT affect seriously the students and Faculty ability for access to the lessons, tutorials, e-books, web resources, web power-point presentations, the webinars and the usage of virtual classrooms. The centers are becoming equally important source of learning as much as library. These are now an important component of an Educational Institution.

A detailed work is needed on QIs for an IT Center. Evaluation of IT Center of an Institution is expected to become an essential component in the accreditation process of an Institution.

1.2 Computer Center Services

A Computer Center also plays an important role in supporting the administration, students and Faculty in University and colleges. A typical Computer Center support processes of *computer infrastucure, student examinations, declaration of results* and *e-governance* in the educational institution. Role of the Computer Centers have also been expanding exponentially. The Computer Centers are shouldering newer responsibilities in the higher education administration and services to students.

A Computer Center enables the processing of examination forms (off-line and on-line), issuance of roll numbers, data entries of marks and result processing. It provisions for uploading of gradesheets, results and may also up-load awarded degrees. A poor quality Computer Center resources affect seriously the administrative, evaluation and governance processes ability for service deliveries. The centers are thus becoming equally important source of adminsiterring the services in conjunction with the IT Centers.

A detailed work is also needed on QIs for the Computer Centers. Evaluation of Computer Center of an Institution is expected to become an essential component in the accreditation process of an Institution.

1.3 Hostel Services

The main objective of an institutional hostel is to provide accommodations and mess facilities as well as good academic environment. A hostel enables academic pursuits of the students coming from the distant cities. The hostel also plays an important role in the development of an individual. The students learn to co-exist with harmony despite differences of cultures, thoughts and living styles.

Evaluation of hostel services of an Institution is also expected to become an essential component in the accreditation process of an Institution. A detailed work is needed on QIs for the hostel services in Governmental and private educational institutions in India.

1.4 Services of Daycare Center for Tiny-Tots

There are several working couples among the Institutional Faculty, researchers and employees. Their tiny tots needs a daycare center. Parents want to leave for work each day with feeling of confidence about the safety and happiness of their child. Parents expects homely care and learning experience which matches to developing abilities in the child.

National Child Care Information Center, USA have published [3] a report on “Quality rating systems– Definition and statewide systems” in 2006. State and Counties in USA provide quality ratings to Child care centers. Lea J.E. Austin et al [4] have studied staff preparation, reward, and support relationship with the Quality Rating and improvement (QRI) in childcare systems. A detailed work is needed on QRIs and QIs for the daycare services in Governmental and private educational institutions in India.

Staff is key component in sustaining and enhancing the quality of a daycare center for children. Evaluation of daycare services of an educational institution is also expected to become an essential component in the accreditation process of an Institution because an excellent quality Daycare has bearing on the academic outputs of the working Faculty and researchers and employees.

2. QIS AND BENCHMARKS

2.1 QIs for Information Technology Services

University of Autonomia, Barcelona, Spain in a report in 2012 have considered provision of guarantee of permanent availability of Computer servers and resolution of 80% of incidences within 48 hours as quality services. [5] Spanish University IT Center provides the *remote access* to a wide collection of digital resources and online transactions (reservations, renewals) from the University website.

DAVV initiated in phase 1 the development of QIs. An IT Center should contain for this purpose, the general description for the Centre and plan for quality sustenance and enhancement should be prepared.

Following description is suggested for inclusion:

1. **Vision and Mission Statement**
2. **Objectives**
3. **Year of Establishment**
4. **Location**
5. **IT Center Staff Organisation and Architecture**
6. **Financial Resources** a. Governmental and UGC plan and yearly Grants b. Self generated from User fees in a year c. Self generated from fees in a year d. Self generated from consultancy in a year
7. **Campus Network Organisation, Architecture and Network Maps**
8. **Operational policies** (Staff Working hours, Maintenance Schedules)
9. **Human Resources:** A description about required and actually existant operational and administrative staff along with their qualification,

certifications (for example, CISCO, Microsoft or Sun Micro or Web-designer or other) and minimum experience requirements for each one.

10. IT and ICT Infrastructure and Resources: A description for the followings:

- Numbers, installation details and features of Servers and other systems
- Numbers, installation details and features of Network infrastructure
 - Core switch (s)
 - Edge Switches
 - Router
 - UTM/IDS
 - Firewall
 - Network Storage System
- Numbers, sources, installation details and features Software
 - Network management
 - Antivirus
 - IDS
 - Bandwidth Manager
- Numbers, sources, installation details and features of Peripherals
 - Printers
 - Scanners
 - Others
- Numbers, sources, installation details and features of Power Backup and Air conditioning
 - UPS
 - Generator
 - Air conditioners
 - Others

11. Existence of Annual Maintenance Contract and Plan

Existence of comprehensive AMC plan of all above mentioned infrastructure and should have sufficient provision in the annual budget.

12. Existence of Plan for University Information System (UNIS)

A comprehensive Master plan should be prepared for UNIS. The plan for the UNIS is required for harnessing the potentials of Information and Communication Technology (ICT). UNIS should ensure good governance and promotes the transparency and accountability in operations and transactions in University or College.

Indicators for Quality rating, sustenance and enhancement

Following description is suggested for inclusion to function as indicators for Quality rating, sustenance and enhancement:

1. **User Registration Service:** Number of User Registrations (Faculty, students, staff and others)
2. **Authorisation Service:** Existence of a system for permitting only genuine users to use centre facilities and Internet and Campus-wide Wi-Fi . Also develop single sign-on system for services to individual user.
3. **Services for the Users**
 1. *Existence of Portal and Website service* (For example, 1. University or College Portal for Faculty, Students, Councils, Committees, Administrations, Heads of the Departments, Centers, Hostels, Teaching Departments, Acts, Statutes, Ordinances, 2. University Handbook Information and Statistics about 30 to 50 teaching departments and centers 3. Enrollment Information and Statistics of Affiliated and Autonomous colleges, 4. University Research Achievements and database 5. University Learning Resources of library, digital library and ICT 6. University Sports activities Resources 6. University Resources for Cultural Activities 7. Health Center 8. Daycare Center Info)
 2. *Links to e-Governance services* of University/College (For example, 1. Notices for Faculty, Students, Colleges, Administration, Heads of the Departments, 2. Regular Updating of handbook Information and Statistics 3. Regular Updating of College Information and Statistics 4. Minutes of Meetings of Higher bodies 5. Press Releases)
 3. *Links to Automation services* (For example, 1. Student Admissions, 2. on-line Fees Payments, 3. e-Enrollment, 4. e-submission and processing of all the forms and applications, 5. Faculty leave applications and processing 6. On-line verification of degrees and marksheets, 7. On-line examination)
 4. *Links to Internet services* (For example, 1. Websites, 2. Filtering policy of restricted material 3. Access to e-books, e-tutorials, PPTs, Course material, 5. Access to Webinars and Virtual Class room lectures) 6. Access to E-mail, Video Conferencing, e-Chat and other services 7. Student Examination Results, Gradesheets
 5. Intranet and Internet Links to Video lectures, Seminar Proceedings, and Digital library
4. **Graphical Representation of Extent of user statistics** of the services
5. **Regular up-dation and Monitoring** of the Portal and development of new Web Services: Portal and web development service necessitates the development of website template which defines the look and feel of website with focus on overall objectives giving emphasis to what the users want to achieve and what view they seek.

6. **LAN Network Solutions Assistance:** LAN is crucial as it enables sharing of ICT resources which can be accessed by anyone within organization. Provisioning of technical assistance in local area network requirements of departments and sections
7. **Provisioning for ICT Literacy, Education and Training:** about a general awareness of the user and benefits of ICT in University operations. Through ICT training, it is concerned with the generation of a continuous ICT manpower who will design, develop, implement and manage the computer based Information Systems
8. **Provisioning for delivery of courses and Certification of ICT Professionals** The centre provisions for conducts of certification programs for independent professionals who wish to enhance their technical skills against standards set by industry certification bodies. It can also become authorized centre for conducting proficiency exams.
9. **Consultancy to other organizations for establishment of ICT services**

A template for QIs for IT Center suggested by DAVV will be available at [2].

2.2 Quality Benchmarks for Information Technology Services

An international project, named COSTS [6], is an international effort designed to develop benchmarks for understanding and comprehensive data collection. A comparison is made for each University or college. The comparison is with the aggregate data based on Carnegie Classification and public/private control. The project is at Hamilton College, New York [7]. Its mission COSTS is to find (i) appropriately expenditure on information resources to support the Institutional mission (ii) staffing the University or College appropriately and compensating the staffs appropriately to attract and retain the needed support personnel (iii) maintaining and utilizing our infrastructure appropriately to assure that it continues to deliver the necessary services (iv) provisioning of appropriate services to meet the needs of users of information resources.

Universities in Australia and New Zealand participate each year in IT Service Quality Benchmark survey since 2008. It has been reported that over 23000 students and Faculty responses were analyzed in 2011 from 31 Universities. Responses were in the form of online questionnaire. Responses were for IT support services in their respective Universities.

University of Adelaide, Australia IT Service Quality Benchmark [8] suggests the following: Respondents in 31 universities are were asked to complete an online questionnaire asking about their experiences in using the information Technology support services. The questions included speed of response, communication and feedback. The questionnaire addresses addressed five service categories:

1. Overall Satisfaction

2. Responsiveness
3. Communication
4. Technical Skills
5. Bad Experiences

DAVV is in the process of developing feedback system at the IT Center and results will be hosted at [2].

2.3 QIs for Computer Center Services

Initially the role of Computer Centre in the Institutes of Higher Education when they were setup around 1985 with UGC support was (a) research & training, (b) in application of computers in every field/subject (c) supporting the development of MCA/M.Sc. (Computer Science) programmes and computer application laboratories and courses at Postgraduate level in certain disciplines.

Keeping in view the latest developments in Computers and their roles in University systems, there is a significant shift in the role and functions. Further evolution of the existing Computer Centres is taking place depending upon their historical conditions and state of preparedness to face new challenges.

A description is required for a Center for the Quality indicators for a Computer Center. The suggested description for QIs is suggested as follows:

1. Vision and Mission Statement
2. Objectives
3. Year of Establishment
4. Location
5. Computer Center Staff Organisation and Architecture
6. Organisation and Architecture of Campus Computer Laboratories and Computerization Maps
7. Operational policies (Staff Working hours, Maintenance Schedules)
8. Financial Resources a. Governmental and UGC plan and yearly Grants b. Self generated from User fees in a year c. Self generated from examination fees in a year d. Self generated from consultancy in a year
9. Human Resources: A description about required and actually existant operational and administrative staff along with their qualification, certifications (for example, CISCO, Microsoft or Sun Micro or Web-designer or other) and minimum experience requirements for each one.
10. Computer Infrastructure and Resources:
 - Numbers, installation details and features of Laboratories and other systems
 - Numbers, installation details and features of UTD and Administrative infrastructure
 - Numbers, sources, installation details and features Software
 - Numbers, sources, installation details and features of Peripherals
 - Printers
 - Scanners

-Others

- Numbers, sources, installation details and features of Power Backup and Air conditioning
 - UPS
 - Generator
 - Air conditioners
 - Others

12. Existence of Up-dation plan and Annual Maintenance Contract

A comprehensive plan for regular up-dation for computer infrastructure is required. Existence of comprehensive AMC plan of all above mentioned infrastructure and should have sufficient provision in the annual budget.

11. Statistical Graphical Representation of Computer users and Computer hardware and Software Updation

12. Existence and Execution of Plans for University Automation and Governance System (UAGS)

A comprehensive Master plan should be prepared for UAGS. The plan for the UAGS is required for harnessing the potentials of Computers

1.e-Governance services and Automation services (For example, 1. Student Admissions, 2. on-line Fees Payments, 3. e-Enrollment, 4. e-submission and processing of all the forms and applications, 5. Faculty leave applications and processing 6. On-line verification of degrees and marksheets)

2.Data Processing Activity such as (i) Student Examinations and preparation of examination results and declaration (ii) Faculty and Staff salary

3.Provisioning of laboratories for on-line examination system

13. Timeliness and records of user satisfaction level of the data processing activities such as Computer up-dations, result processing, payroll, accounts and other automation and governance services

14. Provisioning and Conducting Computer Literacy, Education and Training Programmes: about a general awareness of the user and benefits of Computers in University operations. Through Computer training, it is concerned with the generation of a continuous Computer manpower who will design, develop, implement and manage the computer based governance and automation Systems

15. The number and description and consultancy assignments obtained and the money value of each assignment.

A template for QIs for Computer Center suggested by DAVV will also be available at [2] shortly.

2.4 QIs for Hostel Services

The Indian University and Colleges hostel QIs can be developed from the description and records. The suggested QIs are suggested as follows:

1. Institutional hostels Vision and Mission Statements
2. Institutional hostels
3. Statistical Information about ratio of seats and outside city-students studying in campus
4. Year of Establishment of each hostel
5. Location map of the hostels
6. Hostel Staff Organisation
7. Organisation of Campus Hostel and Campus student residents' Maps
8. Each Hostel Physical Facilities:

1. Located in a properly planned and organized space
2. Sufficient physical living space available in each room in accordance with the national/ international standards
3. Attached or shared wash rooms and their regular cleanliness arrangements
4. Rooms be furnishing with apt quality furniture (table, chair, bed, cupboard, racks and dressing table).
5. Provision of natural light and proper ventilation
6. Provisions for electrical accessories, fan, light arrangements and network cables, Wi-fi accessibility
7. Cleaning plan and schedule, and Cleanliness maintenance in strict manner, whether it is maintained in-house or from an external agency
8. Provision for common facilities as follows:
 - (a) Common facilities for drinking water along with purifiers and cooling, wash rooms equipped with washing machines, hot water supply
 - (b) Medical, first aid and doctor visiting room
 - (c) Health checkups of inmates and health file maintenance facility
 - (d) Institute/university tie up with the reputed/ renowned hospital for serving specific or emergency situations
 - (e) Group insurance and medical insurance
 - (f) Special guest rooms for visitors/parents

- (g) Common recreation, daily news papers, indoor games, Gym, rest room, wall-mounted TV of sufficient screen size with DTH
- (h) Excellent modern kitchen orderly, neat and with dining hall with appropriate crockery for running Mess food facilities ensuring that the served food is healthy, nutritious, hygienic and satisfies students of diverse cultures and locations
- (i) Wi-Fi hotspots and Computer/Internet room
- (j) Paintings of Nation Personalities at key places in the hostel, Names of prestigious hostel alumni and yearly events photographs
- (k) Parking space
- (l) Store room
- (m) Space for night time canteen
- (n) Emergency Exits
- (o) Fire fighting equipment
- (p) Electronic surveillance systems and Arrangements of Guards for 24 hours to keep vigilance and security of the students
- (q) Garden: Students themselves motivated to maintain a descent garden if sufficient space is allocated for the purpose

9. Financial Resources a. Governmental and UGC plan and yearly Grants b. Self generated from User fees in a year c. Self generated from fees in a year d. Self generated from guests and short period participants in a year

10. Operational policies (Staff Working hours, Infrastructure Maintenance Schedules of hostel facilities and)

11. Provisions of administrative control of Chief Warden and each hostel warden/superintendent who are 24 hours resident in the hostel premises, and other supportive staff to facilitate the residents and a help desk/attendant and security

12. Statistical Graphical Representation of users and area per room and number of inmates per room in each hostel

13. Formation of hostel, mess and anti-ragging committees role and functions in developing the hostel facilities

A template for QIs for hostels suggested by DAVV will be available at [2].

2.5 Quality Benchmarking of Hostel Services

Shahid Bashir and others [9] have done exhaustive study recently on perception of students on the Service Quality of hostel services in Malaysian Universities. Their result showed that students perceive service quality at universities' residence halls to be slightly good.

DAVV has developed for each hostel a student feedback performa since 2006. There is regular up-dation of the student assessment and hosting at [2]. These can be used for for benchmarking with Universities.

2.6 QIs for Daycare Center Services

The following are the criteria considered for quality service.

1. Ratio: Child to care provider
2. The Relationship between Care-providing staff and Child
3. Working hours
4. The amount of supervision
5. Physical environment, infrastructure and routine activities
6. Trained and experienced care-providers
7. Salary of the staff
8. Health and safety
9. Parent involvement
10. Advisory committee
11. Best practices

Children: Care-providers Ratio: Staff Children need adult attention to thrive. Fewer children per adult means that each child is more likely to have the opportunity to gain one on one attention. The child to care-provider ratio influences the quality care that children receive. Lower child to care-taker ratio is especially important for infants and children below age of three years. Quality indicator ratios are as follows:

- (i) For children below three Years Ratio = 3:1
- (ii) For children above three years Ratio = 5:1

Relationship: The relationship between care provider staff and child may be the most important characteristic of high quality care. Caregivers must spend time with the children in their care. They should talk to the children in ways that are informative, responsive and accepting. Such caretakers bend down to address children face to face, seem genuinely concerned and interested, and listen carefully to what children have to say. Qulaity indicator rations are as follows:

- (i) Dedication of the working staff at the centre
- (ii) Provision of maximum possible attention to the children.

Working Hours: This indicator refers to opening and closing hours of the centre keeping in view the working/official schedule of the parents. Quality Indicators are as follows:

Centre opens before the official working time and closes after the routine working hours, so that parents have an opportunity to access the centre facility without difficulty in their daily academic/working schedule. It opens at 9.30 a.m. and closes at 6 p.m.

Full details of eleven QIs for Daycare Center are hosted at [2].

3. QUALITY INDICATORS IN CANADA HIGHER EDUCATION FOR INTERNAL SERVICES FUNCTION

A report [10] of Higher Education Quality Council of Ontario as well as a policy paper [11] suggests following indicators for internal services functions. Internal services are libraries, students services, student aid, residences, information technology resources. These are as follows: (i) Student satisfaction measures (ii) Spending Indicators. The policy paper [11] expressed two concerns: (i) There isn't a single source of publically available data measuring all dimensions of a quality educational experience and (ii) The current process of tying specific quality metrics to government funding results in an overly narrow perspective of what a quality educational experience entails.

4. CONCLUSIONS

QIs have been developed in DAVV for four supporting services in Universities and Colleges. These are open for discussions so that the QIs can further be improved up-on.

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