

**Report  
on  
Automation of Library at  
Kendriya Vidyalaya Pattom  
Thiruvananthapuram**



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## **Introduction**

Automating a school library is the process which restructures its functions and reinvents its services. By keeping a database as the basis, automation converge new technologies of information storage and retrieval with traditional housekeeping operations. An automated school library can serve the teaching and learning community more effectively. A reduction in the time needed for routine operations can be utilized to give customized services to the users. The process of library automation has a short history in our country. It needs proper planning and active implementation. Kendriya Vidyalaya Pattom initiated the automation of its library to cope with the ever changing needs of the students and staff. The modernization of the library media centre helps the students to become skilled information users and life long learners.

### **1 Defining Library automation**

Library automation may be defined as the application of computers to perform traditional library house keeping activities such as acquisition, circulation, cataloguing, and reference and serials control.

Automation is used to reduce the amount of staff time devoted to repetitive (and often less challenging) activities that must be done in any properly functioning library. It is to be remember that, various library operations are automated, not the library as such.

#### **1.1 History of Library automation**

Punched cards were invented by Hollerith in 1880 and used in tabulating the US census data. The library at the University of Texas was perhaps the first to use punched cards in 1936 for circulation control. The Library of congress used the unit record machines for the production of catalogues in 1950. Many libraries in the US followed the system for automating their activities.

Library automation entered into its second era in 1960s with the advent of computers. The notable ventures were MEDLARS, MARC, etc. Until the early 1990s, “automating the library” involved generally the same features as those in place since the advent of machine readable cataloguing record in the late 1960s. Libraries created integrated text based systems using micro/mini computers in which traditional library housekeeping operations were computerized using the library’s database as the foundation.

In the last decade, library automation has undergone a transformation that reflects changing definitions of library service in general and access to resources in particular. The introduction of global networking such as internet, cheap availability of technology and new media technologies made information more accessible.

Today's integrated library systems must not only provide modules which automate traditional library functions but also capable of connecting through the local systems into systems of other information or knowledge suppliers, databases and internet.

## **1.2 School library automation**

School libraries started automation in the West in 1960's. Many schools in the US and European countries automated their library operations in a large scale in 1980s with the advent of microcomputers. Nowadays they are integrated with modern information networks which allow the students to access up-to-date information with ease.

## **1.3 Indian scenario**

In 1962 INSDOC experimented the preparation of a Union Catalogue of scientific serials. The Documentation Research and Training Centre (DRTC) introduced *Docfinder* (a computer used for finding documents) in 1968. The library automation in India was a slow process and got momentum in 1980s. Research and technical institutions were the forerunners and academic libraries followed them. New professional library management software packages entered in to the Indian market and some Indian companies also tried to make it with Indian flavour.

Some libraries run by Public Schools became automated in late 1980s. More schools entered in the foray in 1990s with more funds and infrastructure. The schools in Govt. sector those had good libraries had been following the conventional library concepts and never looked for automation due to lack of funds.

New millennium witnessed tremendous developments in Information and Communication Technologies (ICT), and the concepts of school libraries changed from mere storehouses of books to well-organized library media centers with variety of services (online and offline). Some educational institutions were the torchbearers, but most of them are lagging miles behind.

## **1.4 Libraries in Kendriya Vidyalayas**

CBSE published a handbook titled "*Organising School libraries: Guidelines*" in 1997. Based on it, Kendriya Vidyalaya Sangathan has been giving periodical recommendations for the development of its libraries. KVS charted out a Library Policy in 2007 detailing the aim, functions and services of school libraries.

In Govt. sector, KV libraries stay at the top with enough infrastructure and professionally trained librarians. Awareness of the importance of libraries in the academic achievement of the students make the administrators think about restructuring the libraries with new technologies for information storage and retrieval. Library automation is the foundation on which all other activities placed. It has been considered as the starting point of a library's first meeting with technology.

### **1.5 Library of Kendriya Vidyalaya Pattom**

The Vidyalaya started functioning in the year 1964. Now it has 3400 students and 125 staff members studying and working in two shifts. The library has a collection of 21,645 books and more than 40 multimedia CDs as on 31/04/2008. It subscribes 65 periodicals and 06 newspapers.

There is one librarian for each shift and the library functions from 07 a.m. to 06 p.m. Class libraries function for classes I to V, which cater 1500 students of primary section. The main library is open to students from classes VI to XII. In total, the library serves around 1900 students and 125 staff members of the Vidyalaya.

The library provides a host of services, which include reference, circulation, current awareness, reader's club, exhibitions and displays, competitions, information literacy programmes and online resources (Internet and CD-ROM searching).

### **1.6 Automation of the Library at KV Pattom**

Better service to the users has been the main priority. During library periods, the students were not getting enough time to search issue or return of books. Since, the librarian is the single staff of the library, he/she couldn't help students timely in finding required information and provide other services such as reference, current awareness, teaching of information skills, online search etc.

Collection management was also a problem. The varied holdings in the library were to be properly classified, catalogued and shelved. Then only the users could find them easily. The accessioning of the materials had been taken a lot of time. Annual stock verification was a tiresome process since it needed closing the library and literally ending its operations.

Incorporating new technologies to cope with the ever-changing needs of the users such as Online catalogues; automated circulation, serials control, networking and resource sharing tended the library to opt automation as the first step.

## **2 Automation: Objectives**

The main objectives of the library automation are:

- (i) To improve control over collection;
- (ii) To have an effective control over the entire operation;
- (iii) To improve the existing services;
- (iv) To share effectively the resources among various libraries in a region;
- (v) To avoid duplication of work;
- (vi) To use the services of the existing staff effectively.

## **2.1 Process description**

The main steps in the process of library automation are:

- i) Preparing for automation
- ii) System Selection (software and hardware)
- iii) Preparing the collection for the automating system
- iv) Implementing the Automated system
- ii) Networking
- iii) OPAC
- viii) Staff training and user education
- ix) Evaluation
- x) Planning for the future

### **2.1.1 Preparing for Automation**

Preparing for an automated library system needs system evaluation and planning before implementation.

#### **2.1.1.1 Appraisal of current status**

Statistics regarding total number of stock, accession of materials, daily issue and return, time taken for routine activities, services given, its effectiveness, etc were studied to find a true picture of the current status of the library and identified the problems facing by the users.

#### **2.1.1.2 Need Assessment**

Routine library activities such as issue and return of the books take a lion's share of the total time of the library. The librarians were not getting enough time to do added services. So, for acquiring required time for a functional library, automation was necessary.

Control over the stock was not adequate. Annual stock verification and generation of monthly library statistics were not up to the standards. An automated system will make the things better.

Finding a book from the stack room was time taken. There were no standard classification or cataloguing schemes. Books were arranged unscientifically. Card catalogues were absent and the users had to go through all the collection to find the wanted one. There was no system to find whether the book was present, issued, if yes, to whom it was issued or when will it return.

#### **2.1.1.3 Cost evaluation**

The cost contained in every library activity was higher in the case of a manual system. The human cost was many times greater than an automated environment. In the long run, the cost of work done by a librarian in manual system for routine activities will become less and that can be utilized in giving programmed or individualized information services.

#### 2.1.1.4 Budget allocation

Library automation needs a huge initial investment. Administrators should be informed about the urgency and usefulness of the process.

The fund for the process was earmarked in the annual budget and extracted from the library allotment. Since it was a onetime investment, it will not hamper the routine book and periodical accession in coming years.

#### 2.1.1.5 Administrative support

Strong administrative backing is essential for the process. The Principal of the Vidyalaya, Dr. Cicy Roy Mathew, with her pragmatic vision and keen support has been acting as the main factor for success.

### 2.1.2 System Selection (software and hardware)

Selecting the right integrated library management software package is very important. The strength of the automation is mainly depended on the quality of the system software. A number of software are available in the market. Some have special school library modules. For the selection certain things should be remembered.

#### 2.1.2.1 Selection criteria

- i) User friendliness
- ii) Portability
- iii) After service
- iv) Cost
- v) Proper documentation

#### 2.1.2.2 Libsoft Library Management Software

The library selected “**Libsoft**” Integrated Library Management software from M/s. Libsoft Solutions, a company based in Trivandrum.

Libsoft is a Windows based library management software. It is a portable system. The minimum system configuration needed is Pentium II, 64 MB RAM, 200 MB free space and a CD Drive (24X or above). This can manage the entire library functions such as accession, technical processing (classification and cataloguing) circulation, serials control, indexing and OPAC. It is a multi user and easy to use software.

The software works on two interfaces, **Librarian** and **User (Information retrieval)**. The Librarian Interface is password protected against unauthorized use. This interface is for the administrator (Librarian) who does the work of accession of books, periodicals and multimedia, Classification, Cataloguing, Membership and Circulation.

The librarian can add, modify or delete the details of the document from the database on which all the house keeping operations are conducted. The **classification** scheme followed is Dewey Decimal Classification, (DDC) Edition 21. We can select the class numbers from the inbuilt database.

If we need printed Catalogue cards (shelf card, Author card, Title card and Subject card), the **cataloguing** feature will help us.

The **statistics** section generates statistics about the collection and members.

**Circulation** (issue, return, renewal and reservation) can be done easily by entering or reading (using barcode reader) the accession number and or the member number.

**Membership** details such as Admission number, Name, Class/Division/Category, Address, Sex, Date of birth, Phone number, E-mail are entered in to the member database.

The User interface (**Information Retrieval interface**) provides the access to the online catalogue (OPAC). The user can search the catalogue by its, author, title, subject, series, call number, accession number, imprint, etc.

### **2.1.2.3 Advantages of local software**

The main advantage of using local software is the promptness in service. Since it is based in Kerala, the service is available at any time. Many libraries (school, college and research institutions) in the state have been using the software for years. The pricing was reasonable. It was easy to use. Simple user interface and searching facilities are helpful for students. Over all the software was adequate for the Vidyalaya library.

### **2.1.2.4 Cost analysis**

The software costs was Rs.30,000/- (Library Management software-Rs.25,000/- and barcode generating software-Rs.5,000/-).

### **2.1.2.5 Hardware**

One computer system is used as the server and one as OPAC for the users. A laser printer have been using for printing of labels. The retrospective conversion work needed two computers.

Barcode reader (PSC Quick scan 6500) was selected as input device for reading books and identity cards.

Other materials such as self-adhesive labels and cello tapes were also procured.

## **2.1.3 Preparing the collection for the automating system**

To start the technical processing (retrospective conversion), the materials (books, multimedia and periodicals) for the process had to be selected and prepared.

### **2.1.3.1 Books**

The criteria followed in the selection of books were its usefulness, relevance and physical condition. Some old books on history, geography and mathematics were useful and relevant. Books those were physically mutilated and destroyed by termites were excluded. Very old textbooks were not selected although some copies were retained for reference. In total, 14,000 books were earmarked for technical processing.

### **2.1.3.2 Periodicals**

All the periodicals were included in the selection.

### **2.1.3.2 Multimedia**

Subject and encyclopedic multimedia CD-ROMs were selected for the process.

## **2.1.4 Implementing the Automated system**

The implementation phase consists of **retrospective conversion, database of members, operations, statistics generation and training for staff and users.**

### **2.1.3.3 Retrospective conversion**

The process of converting the bibliographic or documentary details of the existing stock into the machine-readable form is known as retrospective conversion. This technical processing consists of Bibliographical data entry and physical processing. The steps in Bibliographical data entry are:

#### **2.1.3.3.1 Classification**

In library classification, materials are classified according to the subject of their content. The classification system used and being followed is **Dewey Decimal Classification, Edition 21**(the most favoured scheme around the world). Here, the subjects are primarily classified into ten main divisions (First summary). Each division is again classified into ten subdivisions and again into ten, according to the depth of the subjects (Second and Third summaries).

School libraries required a division of subjects up to the maximum of third summary. The class numbers given on CBSE guidelines for libraries were used as reference.

For easy identification, indicators were given to documents such as, R (reference), T (textbook), H (Hindi) and S (Sanskrit).

#### **2.1.3.3.2 Cataloguing**

Although the software has the facility of printing card catalogues, there not raised any need of that, since we are using the Online Public Access Catalogue (OPAC).

#### **2.1.3.3.3 Indexing**

In the case of books all the entry fields are indexed and searchable. Where as in the case of periodicals indexing terms were feed into the database.

#### **2.1.3.3.4 Barcoding**

In an automated environment every document should be unique and searchable. It is done through bar coding. Barcoding facilitates the searching, circulation and systematic shelving of the concerned document.

After entering all the details regarding the documents into the database, barcodes are printed on adhesive labels according to the accession number of the document. For this process we used one barcode software and laser printer.

#### **2.1.3.3.5 Labelling**

The barcode label was pasted on the lower bottom of the title page of the book. This has been read by the barcode reader during circulation and stock verification. The second label that was pasted on the lower bottom side of the spine of the book is called **spine label**. It contains Call number (class number and book number), Accession number and library code. After pasting, these labels were covered with cello tapes for more protection.

#### **2.1.3.3.6 Shelf arrangement**

The processed books were arranged on the shelves in the stack room according to their call numbers. If more than one book is present with the same call numbers, they were arranged based on the alphabetical order within the call number.

#### **2.1.3.3.7 Why outsourcing?**

Retrospective conversion needs knowledge of books, library classification, and cataloguing, indexing and logical arrangement of documents. The processing of a document consists of its selection, identifying the class number, bibliographic data entry, indexing, preparation and printing of labels, sticking these on the document and shelf arrangement.

School Library is a single staffed institution and since the librarian is always engaged with his/her routine duties, it is impossible to do the technical processing during the school hours. Maximum fifty books can be processed by a professional in one day. We have earmarked 14,000 books for the process and it will take years to complete the work if the librarian was deputed. So, outsourcing was the only option. The professionals from the software company did the work. They completed it in three months.

Once, the existing stock has been processed, the librarian can do the retrospective conversion of new additions at the time.

#### **2.1.3.3.8 Problems faced**

The process needed recalling of all the books issued to students and teachers. Reminders were sent to defaulters and the initial response was weak. The Principal's timely and strict intervention changed the situation.

Routine library activities were not suspended. Class library books were recalled and returned after the work. The technical processing was done during the school hours. Support from the student's side for shelf arrangement was helpful.

#### **2.1.3.4 Database of Users**

The preparation of the user's database using the library management software was critical. Just like a book which has its unique accession number, a member should also have his/her unique identification. Since, the only unique number for the student was the Admission Number, it was selected. The number was bar-coded and engrossed on his/her library cum school identity card.

#### **2.1.3.5 Student's/Staff Identity Cards**

The school identity cards have been also used as the library membership cards. One side of the card contains the barcoded admission number of the student along with instructions. On staff identity cards, the serial number of the staff has been bar-coded, along with his/her personal particulars.

#### **2.1.3.6 Circulation control**

The user has to bring the identity cards to the library at the time of issue, return, renewal and reservation.

##### **2.1.3.6.1 Issue / Return of Books**

When a user comes to the circulation counter along with the selected book from the shelf, the barcode reader reads his/her identity card. Then the system will show the details of the member such as name, class & div., category, books previously issued or to be returned along with the dates. Then the book's details are automatically entered by the barcode reader by reading the barcode label on the title page of the book. The process of issue is completed by stamping the due date on the due date slip.

When the book is returned, its barcode label is read by the barcode reader and details such as due date, fine details etc. are appeared. The librarian can now 'return' the book by selecting the required graphic options.

##### **2.1.3.6.2 Renewal and Reservation**

Giving the membership/accession number at the circulation section, users can do renewal of the books for an extended period. Books can be reserved by submitting the Identity cards.

##### **2.1.3.6.3 Fine**

The 'loan period' should be fixed at the beginning of the operation (e.g. one/two weeks). Then the system will automatically give the overdue details, when the member returns the book.

#### **2.1.3.7 Serials control**

The details of the periodicals subscribed by the library were entered into the database such as title, periodicity, subject, imprint, and vol./issue numbers, date of publication and date of receipt. It is searchable by OPAC. The system will automatically generate the missing issues, so that the librarian can send reminders.

### **2.1.3.8 Multimedia**

The collection details of CDs, ACDs, VCDs, DVDs, etc are feeded into the database. Title, producer, imprint, subject, language, format and duration of the media are entered. Barcode labels (accession number) are pasted on the CD-ROMS so that, they can be circulated.

### **2.1.3.9 Library Statistics**

Periodical library statistics shows the functional effectiveness of the stock and services. The main statistics that can be generated from the systems are:

- i) Monthly stock details (subject-wise, format-wise)
- ii) Member information (students and staff)
- iii) Weekly/Monthly circulation details (class-wise, member-wise)
- iv) Renew/reservation details
- v) Overdue and fine details
- vi) List of new additions
- vii) Details of written off and condemned documents

### **2.1.3.10 Stock verification**

Annual stock verification can be done with ease by reading the barcodes of the books and comparing it with the basic database.

## **2.1.4 Networking**

The main system where the software has loaded and the data entry has been taking place was kept as server. It has been protected with passwords. The remaining systems in the library including OPACs and the computer system in the principal's room were networked locally.

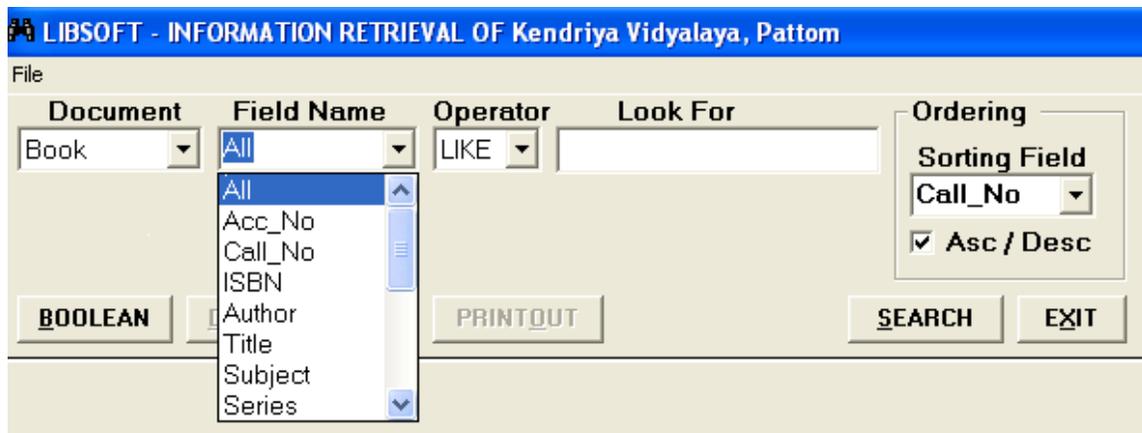
Proper monitoring and maintenance of the network is necessary. Updating of the database should be done when new documents are added.

## **2.1.5 OPAC (Online Public Access Catalogue)**

The Online Public Access Catalogue, popularly known as OPAC is the user interface of the automated system. The user gets all information regarding the holdings of the library here.

### **2.1.5.1 Searching OPAC**

Searching the OPAC is very easy. First the user selects the document, which may be a book or a journal or multimedia from the "**Document**" field. Book is the default document.



The field name can be changed as **Acc\_No, Call\_No, Autor, Title, Subject, Series** etc. Then the user has to put the keywords in to the “**Look For**” box which may be author, title, subject, series, imprint, year, edition, accession number, call number, etc.

If the search is by author the fieldname may be changed in to **Author** and if it is by title, change it to “**Title**”

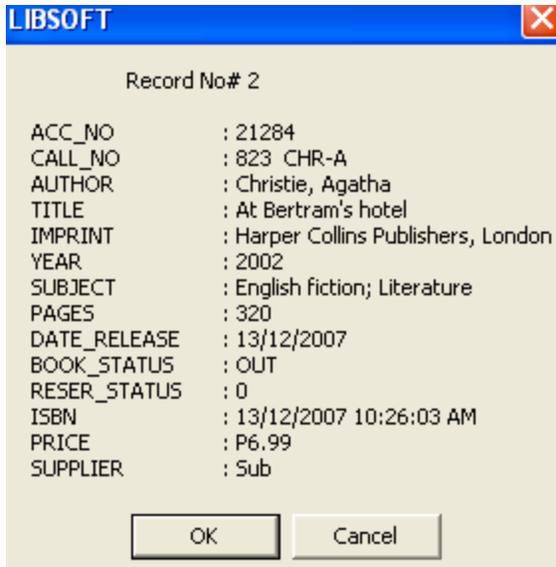
For example, if we are looking for books written by Agatha Christie, just type **Christe, Agatha** in the “**Look For**” box and click “**SEARCH**”. The field name is “**All**”, means every document which contains the term “**Christie, Agatha**” in any field will appear.

BOOK DETAILS								
ACC_NO	CALL_NO	CHR	AUTHOR	TITLE	Edn.	YEAR	SUBJECT	IMPRINT
14790	823	CHR-A	Christie, Agatha	ABC murders		1991	English fiction; Literature	Berkley
▶ 21284	823	CHR-A	Christie, Agatha	At Bertram's hotel		2002	English fiction; Literature	Harper
15243	823	CHR-B	Christie, Agatha	By the pricking of my thumbs		1994	English fiction; Literature	Harper
15246	823	CHR-C	Christie, Agatha	Cat among the pigeons		1962	English fiction; Literature	Harper
21285	823	CHR-C	Christie, Agatha	Curtain: Poirot's last case		2002	English fiction; Literature	Harper

English names are written as surname first where as Indic names are written as it is.

An option of “**Boolean Search**” is also given for indepth search.

By clicking “**DETAILED VIEW**”, we get the detailed information of the document.



The circulation details of the document are also given.



#### **2.1.5.1.1 Finding the book-work flow**

The user noted down the Call No. of the required book from the database. Then he/she goes to the stack room where books are shelved according to their call numbers. Shelf guides are there to help to find the concerned shelf number. From the shelf the user picks the book and brings it to the circulation counter for issue.

#### **2.1.5.2 Back-up**

The back up has been taken in fixed intervals. The database is copied on CD-ROMs as to avoid unexpected system crashes and data losses.

#### **2.1.6 Staff training and User education**

The librarian should be well trained in the overall management and maintenance of the automated system. He will get initial training from the software vendor and has to continuously update it according to the changing user needs and technology. In this case the librarians got training from the company.

Training sessions on the automated library system (mainly, OPAC search, finding the book, circulation, etc.) are conducted for the users. These skill development programmes can be organized during the library periods. For staff members special time slots should be planned.

### 2.1.7 Evaluation

The system must be evaluated for its currency and effectiveness periodically. User studies can be conducted to assess the effectiveness of services. Real time oral interviews with the users and observation techniques can be used. The shortcomings should be identified and clearing measures be taken. A suggestion book may be kept in the library to express user's views.

### 2.1.8 Planning for the Future

Library is a growing organism. As the technology changes in the field of information storage and retrieval, the user needs are also changing. There should be planned Library programmes which will incorporate the future needs.

Automation of the library will help us to set new targets.

#### i) Interlibrary loan and resource sharing

Automation helps to know the availability of a document in the library through its online catalogue. So, if more libraries become automated the search for a document became easier. The required document which is not present in one library can be loaned from other libraries controlled by interlibrary loan policies.

The resources such as documents, services and staff can be shared in an automated environment more easily.

#### ii) Network of Kendriya Vidyalaya Libraries (KVLNET)

When the KV libraries of a cluster or region become automated they can be networked using LAN or WAN

#### iii) Link with National or Regional Library Networks

National library networks such as NISSAT, NICNET and regional networks such as DELNET, CALIBNET etc can be linked with KVLNET. Think.com can act as a technology and resource partner.

#### iv) Web interface

The activation of WebOPAC will facilitate the search of library OPAC through Internet. The user can renew and reserve a book through online.

## 2.2 Advantages of Library Automation

- i) It provides users with timely access to library materials
- ii) It eliminates routine tasks or performs them more efficiently
- iii) It reduces the amount of time spent on material acquisition, serials management, budget administration and record keeping.
- iv) It supports new means of information retrieval by introducing patrons to global information
- v) It allows patrons to use search strategies that exceed those that can be used with card catalogue
- vi) It allows patrons to search library's collection from locations outside the library's walls.

- vii) It motivates users, equips them with problem solving and information retrieval skills, and provides them with life long learning experiences.

### **Conclusion**

Library automation is the process which needs proper planning, timely implementation and periodical evaluation. The librarian with the administrators has to set the priorities after analyzing the current status and future requirements. Selection of the suitable integrated library management package according to the needs of the users and the library is important. Retrospective conversion, OPAC, circulation and serials control, etc. should be conducted with care. Staff training and user education are keys to the success of the process. Library automation invites pragmatic approach. Here, those institutions which freed their visions from the traditional shackles of financial insecurities and fears of making proper decisions can only set the pace of journey to excellence.

Academic achievement of a student is closely related to his/her ability to find, evaluate and use the required information according to the curriculum needs. An automated school library with a variety of resources and user oriented services can lead them to the goals.

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