

Design and Development of Online Student Support System

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Abstract

Success of student in open and distance learning (ODL) depends on level and various forms of information and communication technology (ICT) support services available to them. Online student support system has an important central role in ODL where students are geographically distant from teachers and institute. Allama Iqbal Open University (AIU) is the first Distance Education University in South Asia which provides education to around 1.3 million students annually. To provide administrative and educational support to these large numbers of students an online support system is developed using latest open-source technologies to accumulate all the student queries on a single platform for better data analysis and quick response. The system is capable of handling queries coming from different sources e.g. email, website, telephone etc. In-built rating mechanism which is based on student vote on query response helps in improving the response quality. Custom reporting module helps in analyzing the nature and category of queries based on different related parameters. On each query initialization and response, student is automatically intimated via email and SMS. In this paper, technical design of online student support system is discussed followed by detailed query analytics.

Keywords: Online Student Support System, Analytics,

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Introduction

Student support system becomes mandatory in open and distance learning (ODL) due to geographical distance between student and institution. In ODL, students face more administrative and technical problems as compared to face-to-face students.

Allama Iqbal Open University (AIOU) is the first Distance Education University in South Asia which provides education to around 1.3 million students annually. To provide effective administrative and educational support to these large numbers of students an online support system becomes the need of time. In this paper, technical design and analytics of an online student support system is presented. This system is being developed using latest open-source technologies to accumulate all the student queries on a single platform for better data analysis and quick response. Besides these, data analytics is one of the content analysis techniques which are being used in many industries to make better decisions by visualizing the existing data. In education, learning analytics is very popular term which is used to measure and analyze the learner's data to make appropriate improvements in learning and teaching designs. In this paper, analytics module, developed based on customized requirements is also presented.

Related Work

A study carried out to examine the critical e-learning success factors as perceived by students identifies six different components in e-learning that includes pedagogical, administrative, technological, evaluation, resource support and interface design. E-learning adoption is a difficult stage for any institution in which these kinds of success factor studies can give better guidance to the institutions (Puri, 2012).

Support system has a direct impact on success and quality of ODL. Learner support system is categorized as the key element in quality distance education. An investigation carried out to identify the major concerns of distance learners of Asia region states that there are major five types of support required by a distance learner which includes affective support, reflective support, cognitive support, gender support and systemic support. Affective support is meant for motivating distance learner by providing social, practical and emotional support in educational and administrative matters. Reflective support means to make learners reflective and responsive. Cognitive support includes support related to

educational contents, assessment and tutorials. Gender support is responsible to handle issues which are related to any specific gender (Jung and Hong, 2014). Systemic support means to develop a comprehensive ICT based solution which integrates all kinds of support under one umbrella. The model of systemic student support illustrated in Fig. 1.

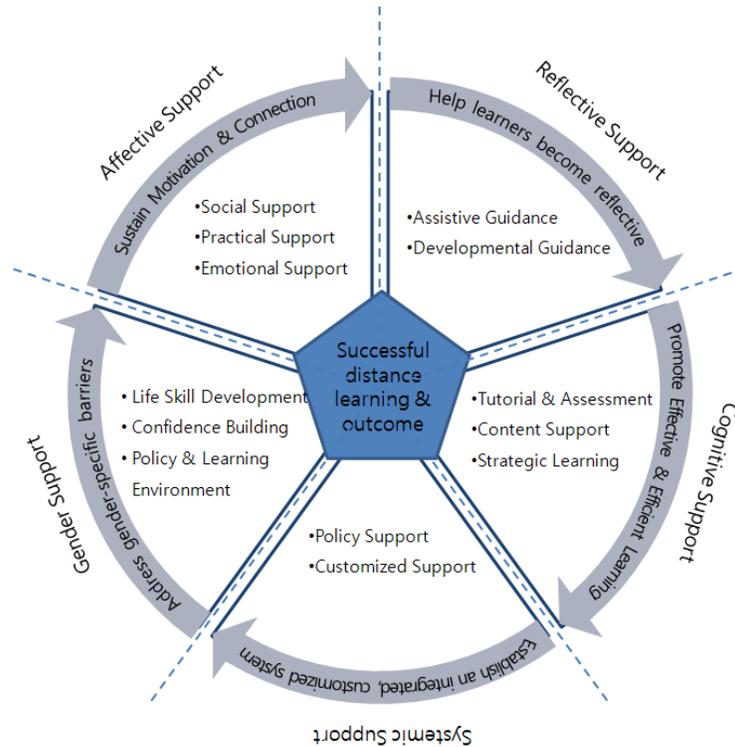


Fig. 1 : Systemic Student Support Model (Jung and Hong, 2014)

The mode of providing student support changes with time. For e-learning, online support is also very important along with online course contents. In a research study, it is suggested that online tutors must get expertise in technology so they can provide technical and administrative support to online learners. Support activities may not be bound with any specific mode; however, it must be provided as and when required depending upon the situation of the learner (Thorpe, 2002).

An analysis conducted by a group of researcher to understand the dimensions of support system which have close impact on women learners' achievement. This study concludes that the role of faculty is the main contributing factor towards achievement however other factors

include electronic portal and video conferencing setup (Atan, Rahman, Majid, Ghani and Idrus, 2015).

A case study of learner support services at Indira Ghandi National Open University (IGNOU) states that support system provided to distance learners should be responsive and accessible to everyone. It means it should work on multiple modes. If the support services provided are not continuously monitored it will decrease the efficiency and effectiveness of student support services. In general, support services should broadly provide information support, institutional support, learning support and feedback support (Chattopadhyay, 2014).

The use of ICT has completely changed the way of teaching, learning and support services. This has also changed the delivery mode of library and tutorial support. Different innovative and technological steps have been taken at IGNOU to provide support services to its students (Arora and Babbar, 2013).

Methodology

In this paper, online student support system developed for AIOU distance learners is discussed. Fig. 2 shows different sources of support questions raised by distance learners. As suggested by Jung and Hong (2002) a comprehensive ICT based system should be developed which integrates all support services provided to distance learner. Similarly, at AIOU, different support services were provided in isolation having no centralized linkage. A comprehensive online support system using open-source programming technologies has been developed which integrates all types of support services in one system. All queries and complaints generated by students using different mediums are stored in a centralized database of online support system.



Fig. 2: Different Sources of Student Queries

Fig. 3 illustrates the basic entity relationship diagram of overall support system. The database structure is based on open-source ticket management system i.e. HESK. The centralized entity is tickets where all complaints and queries are stored. Each complaint or query belongs to a category of problem.

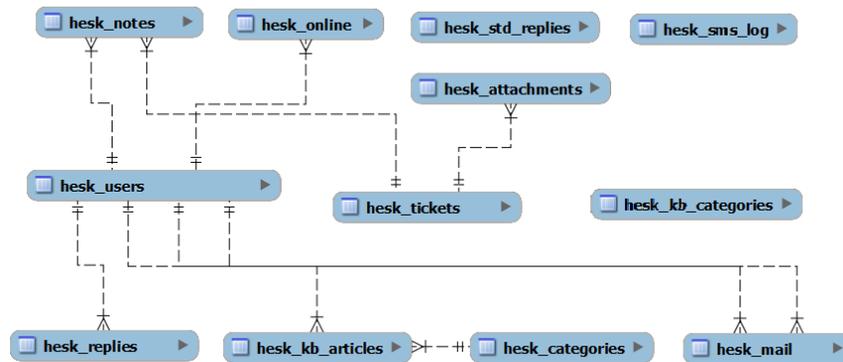


Fig. 3: Entity Relationship Diagram of Online Support System

Results and Discussion

The interface of online support system is customized as shown below in Fig. 4. From this screen, a student can submit an online query or can check status of already submitted query. System is also loaded with pool of frequently asked questions (FAQs) which are automatically suggested to read during query submission.

On every query submission by student and response by university is automatically intimated by email and SMS to all the relevant stake holders. This increases the efficiency and effectiveness of overall system by providing immediate feedback.

Every response can be rated by concerned student based on which user rating is calculated as illustrated in Fig. 5. This feature of direct immediate feedback of student can be very useful for improving the response quality of different departments which will at large increase the student satisfaction and improve ODL support quality.



Fig. 4: Interface of Online Support System

adms	NO	★★★★★
drs	NO	★★★★★
overseas	NO	★★★★★
mailing	NO	★★★★★
exam	NO	★★★★★
aiou_isb	NO	★★★★★
aiou_rwp	NO	★★★★★
mba	NO	★★★★★

Fig. 5: User Rating System

Using open-source programming and data analytics, customized dashboard has been developed which shows general summary of queries generated in each month and its monthly status as shown in below Fig. 6.

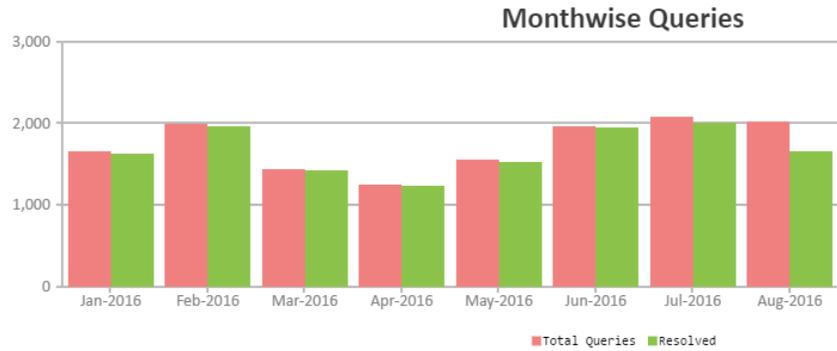


Fig. 6: Monthly status of student queries

Further, it can be analyzed that how many queries belong to what type of problem in any specific month or assigned to any specific department. It can also be extracted that how many queries are pending or are not resolved within time as required.

Conclusion

A comprehensive ICT based online student support system which integrates all types of support queries is an effective and efficient solution to provide student support services to open and distance learning students. This will not only improve the support system but connecting it with a centralized database can be used for further data analysis and pattern recognition for better decision making. Detailed analytics can also be acquired using freely available scripts to capture student behaviour, location, device attributes and many other important factors which are very helpful in decision making.

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