Early Warning System In Education

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Abstract: With the changes in education from face to face teaching to more online based learning and teaching, there is an increasing number of students enrolled into online courses and virtual classes. One of the major disadvantages of online learning is the difficulty to track students who are at risk of failure in a course. A method that can be used to keep track of these students is the Early Warning System (EWS). Only identifying students that are at risk does not ease their risk factors or assists students to graduate or progress in a course, however, the EWS has the ability to predict which students would have difficulty in completing a course or programme, ultimately this would also enable success of students. The EWSs assists educators to ensure students do not “fall through the cracks” and they receive the required attention.

Keywords: Learning analytics, At-risk students, Early warning system, Moodle, Elearning

1. Introduction

With the changes in education from face to face teaching to more “online course offerings” [1] there is an increasing number of students enrolled into online courses and virtual classes. While online classes provide many advantages, there are also certain disadvantages that accompany it. One of the major disadvantages of online learning is the difficulty to track students who are at risk of failure in a course. A method that can be used to keep track of these students is the Early Warning System (EWS), which has been recently implemented at the University of the South Pacific on their Moodle platform. Certainly, there are instances where educators, student counselors, and student personnel specialists are unaware of students in universities that may be experiencing serious academic difficulties or adjustment problems and the EWS can counter this problem [2]. In regard to eLearning systems, they provide various ways of course delivery which incorporates much different way for students to be interactive [3]. Having an EWS that targets the students’ “poor attendance, behavior and course performance” [4] can provide insights and information to improve how students undertake online based learning. Moodle is a platform which can provide information such as “login frequency, participation indexes, completion rates could greatly aid in identifying satisfactory and unsatisfactory performances” [5]. Only identifying students that are at risk does not ease their risk factors or assists students to graduate or progress in a course, however, the EWS has the ability to predict which students would have difficulty in completing a course or programme, ultimately this would also enable success of students. Pinkus (2008) discusses the approaches to EWSs and its benefits, stating that approaches such as the EWS can assist teachers ensure student are on track with their work and on route to graduate, those who are not are the ones who require additional attention and support [6]. This approach can also lead to improved success rates as educational institutes and therefore increased number of graduates available for the workforce. The EWS assists educators to ensure students do not fall through the cracks and they receive the required attention. This can be in the form of student engagement, instructions from the academic, support needed to succeed; these points can assist students to be prepared to succeed in their courses. This review paper looks into the EWS and its use in education, its advantages and disadvantages.

2. Developing an Early Warning System

When developing an EWS, one must consider student performance, engagement, or social and individual characteristics. Here, the educators can also analyze the associations from the previous students and areas students had difficulty. This information can assist universities to mitigate risk of current and future students. Jerald (2006) stated that while developing an EWS, it is important to establish a database which can be used to store data and be used for longitudinal analysis to investigate the factors associated with student risk or failure [7].

3. Early Warning System at the University of the South Pacific [5]

The University of the South Pacific introduced the EWS through course completion on the Moodle platform in the year 2013. This was aimed to monitor and provide information to academics about students who are at risk. This information can be used by academics to provide information and support to these students which would allow them to progress in a course. The design for the USP EWS started in 2011, and it incorporated designs to assist students in managing course time and ensure students are well informed. The EWS will show course completion to students as well as identify students who need intervention [5]. The implementation of the USP EWS was assessed through feedback from staff and students with the staff having mixed thoughts regarding this. While most staff felt that the EWS would be beneficial to students by identifying the students at risk and informing them, however, certain staff members felt there were still the needs for improvement in certain areas [6]. The disadvantage of the EWS implemented at USP was to do with its operation towards the end of the semester; there is huge burden on the Moodle platform as most assignments were due and this increased student activity on Moodle. Due to the EWS being embedded on the Moodle platform, determining student analytics of at-risk students needed procedures in real time which made the processes slow. To correct this, the EWS was to be implemented on a different platform and this be synchronized with the Moodle database. Advantages and disadvantages of the EWS that should be noted are:

Advantages
- Early Identification
- Curriculum Development
Disadvantages

- Teacher/ Course improvement
- Student Burden
- Depression
- Loss of motivation

4. Early Warning System to Target Interventions

Detecting at risk students through the use of EWS is the first step in overcoming the challenge of student failure. Examining the information from the EWS can assist educators to target at-risk students and ensure they implement suitable interventions. Moreover, there could possibly be various indicators that would be an outcome of EWSs, the students from these cases would then be tagged. These indicators could be low Grade Point Average, poor attendance, poor assessment completion rate. There is also a possibility that some students would be struggling with certain courses or certain areas and this will definitely require specific academic interventions. Allensworth & Easton (2007) discussed situations in which early warning signals converge and specify the general disengagement with studies; this is a situation in which students need to be re-engaged in comprehensive school activities by the academic [8].

5. Early Warning System to Monitor Progress

After the indicators have utilized to identify the at-risk students from the initial process, the EWS can be used to track the progress of students who are participating in the intervention program. It is important to note that different strategies with various intensities are implemented depending on the students’ response, some students respond positively to a particular intervention while others may not respond well. Some students may be able to move back on track and succeed in the course; however, the others may need more intensive intervention. Interventions that are more intensive could be one-on-one intervention or regular monitoring and interaction with the educator [9]. More intensive interventions would include assigning a mentor to the student to ensure closure monitoring of student progress, as well as an opportunity for the mentor to motivate the student; markedly, this would be beneficial to overcome any disadvantages of the EWS. Sure enough, EWSs provides educational institutes information on students and therefore a chance to intervene before it is too late for students [10]. EWSs are very useful tools that measure accurate information on attendance and academic performance. This means there needs to be student information available that is recent and allows educators to target specific students and carefully monitor their improvement.

6. Conclusion

To know which students are at highest risk of failure is the first step towards teaching a successful course. EWS has many advantages in education; at the same time, the most important one is to reduce student failure rates. It cannot be overstressed that the EWS has had success after its initial implementation at University of the South Pacific, however, there still needs more studies conducted with regards to the EWS and its benefits to education as there is a low number of literature currently available on this topic. Yes, utilizing the strengths and recognizing the limitations of an EWS can be used to improve EWSs to benefit students. Balow (2016) stated that once an EWS is established, the efficient use of this could be the difference between the success or failure of a student in a course or programme [11]. Not only is an EWS important to assist the current cohort of students, it can also be used by educators to improve on their methods of teaching, and this would benefit the future students. This will ensure the teacher is able to better prepare for a new semester or academic year of teaching and is able to make amendments according the constraints of previous cohorts.

References


Author Profile

Dr Reginald Arvind JNR Kumar received his bachelor’s in dental surgery and PGCert in Tertiary Teaching from the University of the South Pacific in 2014 and 2018 respectively. He works as a Lecturer in Oral Health at the Fiji National University (2015–present) and as a General Dentist at The Smile Clinic (2017–present).