Using Google Docs for the Early Identification of 'At Risk' Students

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Abstract
This paper explores the use of Google Docs as a mechanism for the early identification of 'at risk' students during the assessment process. A cloud computing assessment model is introduced and applied to a case study assessment involving 23 second year students. Monitoring and analysis of the assessment process revealed major advantages to using a cloud computing assessment model, specifically in the areas of progress checking, redirection of off track students, plagiarism, and on time submissions.

Keywords
Assessment, Cloud Computing, Google Docs, At Risk Students

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Introduction
An 'at risk' student can be defined as someone who is unlikely to succeed academically in their chosen field of study (Kagan, 1988). 'At risk' students are initially difficult to identify, and often only become apparent after the first summative assessment has been conducted, being highlighted by poor or nonexistent submissions. Unfortunately, research shows that academic failure lowers student motivation and self efficacy (Nilsen, 2009) (Schunk, 1991), and for many 'at risk' students this is the beginning of overall academic failure. This situation is made all the more worse when many of these students have great potential and with even a small amount of extra guidance would be more than capable of succeeding. One significant factor that contributes to this process is the lecturer's restricted ability to monitor and direct student progress during the assessment process (i.e. feedback can usually only be given after submission) (Race, 2001). This is due to the limitations of the traditional assessment model (see figure 1). In practice, lecturers are often in the dark while students work on assessments, with the first opportunity for feedback being on the final submitted assessment.

The recent advent of cloud computing has introduced functionality such as online document storage, online document sharing, and real-time collaboration (Google, 2010). Utilising these new features provides a means

for enhancing the traditional assessment model in a way that 'turns the light on' for lecturers during the assessment process. This enhanced assessment model will be referred to as the cloud assessment model (see figure 2). By utilising the online sharing functionality of cloud computing environments (i.e. students sharing their assessment documents with lecturers), this paper will show how lecturers are able to seamlessly monitor student progress during the assessment process.

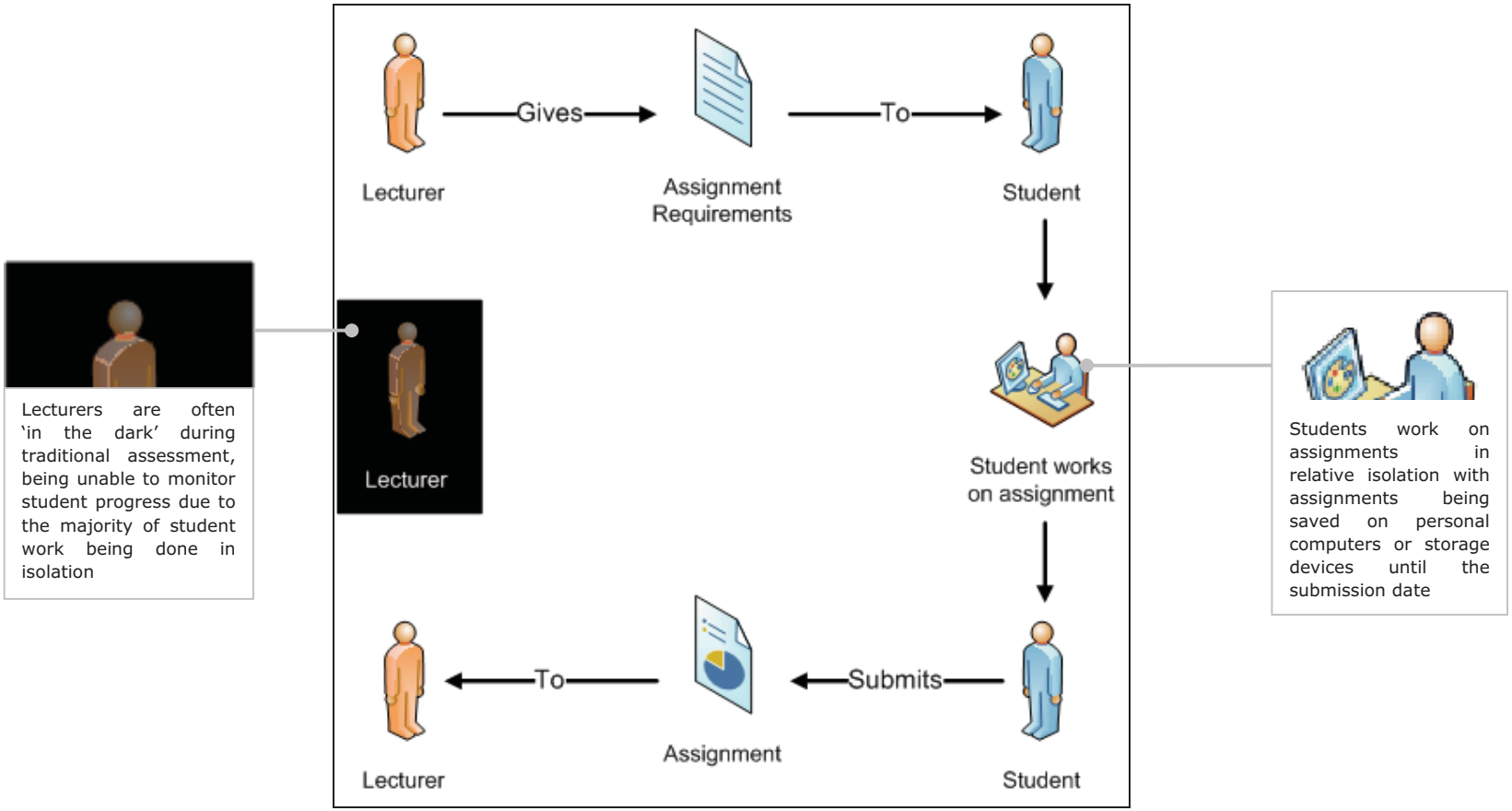

Figure 1. Traditional Assessment Model

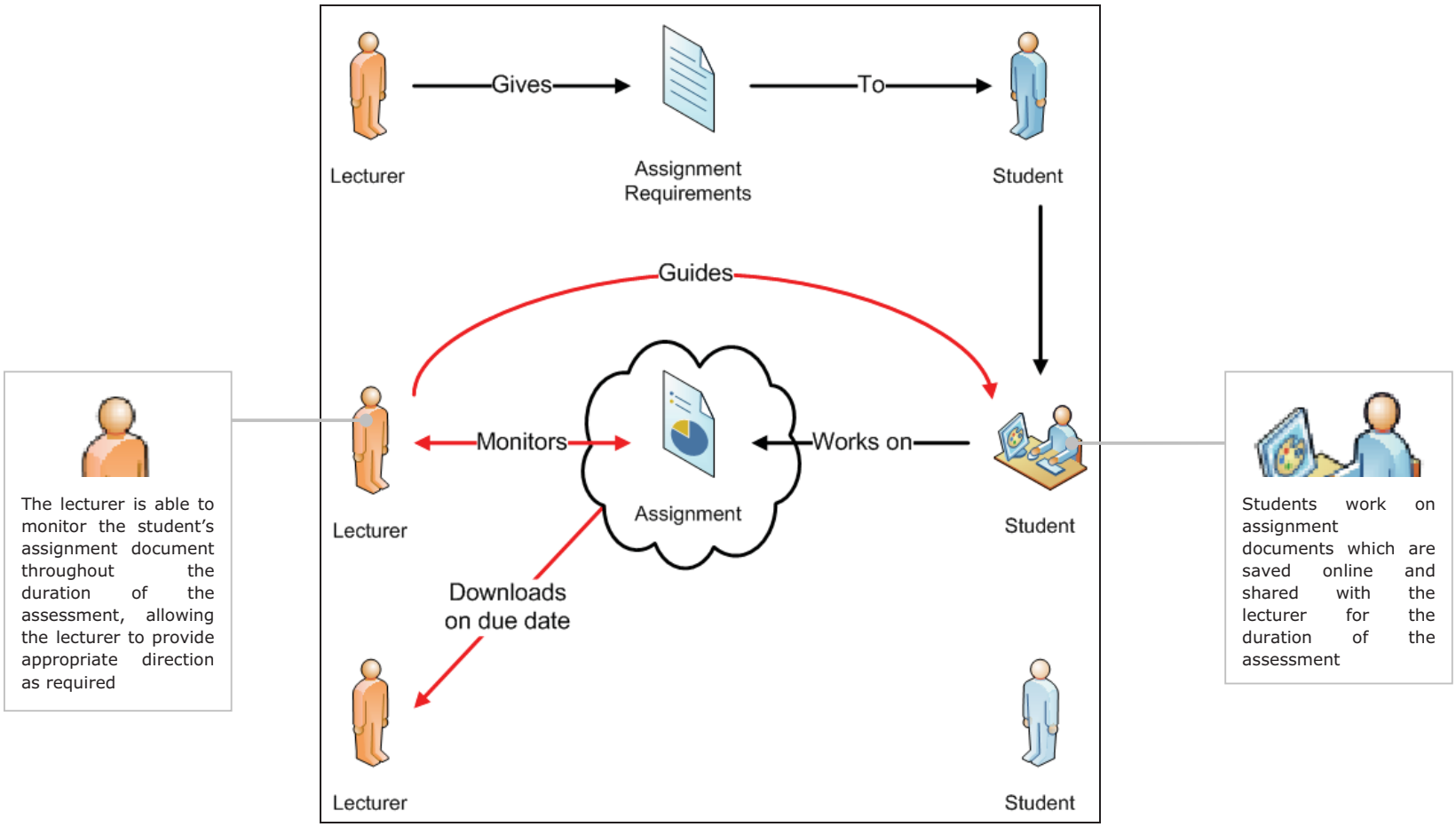

Figure 2. Cloud Assessment Model

This paper will proceed by detailing a case study assessment that utilised the cloud assessment model. The results and observations from the case study will be presented, discussed and conclusions will be given.

Approach

A second year project charter assignment for 23 second year IT Project Management students was used as a case study in order to explore the usefulness of the cloud assessment model. The assignment was the first summative assessment for the paper and required students to write a project charter for a given scenario over a span of three weeks. The assignment requirements instructed students to use Google Docs to create a document and share it with the lecturer. This blank document would be the beginning of their project charter. Once shared, the lecturer would then monitor and guide students as they worked on the assignment.

The next section presents the results of the case study and details observations made during the process.

Results

The results and observations from the case study assessment will be presented in order of occurrence.

Observation One

On the day the assignment was given, students were required to create and share their project charter assignment using Google Docs. Five days into the assignment only 17 of 23 students had shared their Google Doc. As a consequence, students who had not shared their document were followed up during the next face-to-face class. The four students who were in class created and shared their assignments that day, whilst the remaining two students created and shared their assignment later that week after some email correspondence.

Observation Two

After two weeks (one week until the due date) it was observed that a number of students had not made much progress. In some cases students had not touched the assignment since the initial creation and sharing of the document (as indicated by the last accessed/modified date attributes). In response, the students in question were sent reminder emails and some individual students were followed up in class with some informal encouragement. As a result, the majority of students who were followed up began to progress.

Observation Three

A particular student had done a significant amount of work on the assignment but had been moving in the wrong direction. As a response, the student was followed up in person and the redirection about the assignment was given. This involved reiterating the overall aim of the assignment and re-explaining what was expected. Consequently, the student went on to significantly rework their assignment to be more aligned with the assignment task.

Observation Four

Two days before the due date a number of students still had not made any significant progress on the assignment. In response, a reminder email was sent to the relevant students with an open door invitation if they needed help with the assignment. The email also included the due date, time, and weighting details. During the last two days students stayed up

remarkably late and did a significant amount of work of the assignment.

Observation Five
On the due date, at the due time all the assignments were downloaded and saved for offline marking. This resulted in a 100% submission rate, removing the possibility for students to lose marks for late submissions. Students were given the option to continue working on the assignment past the due date and receive the standard 10% penalty per day. However, this was not an option taken by any of the students.

Conclusions

The observations made during the assessment process highlighted a number of significant advantages to using the cloud assessment model, not only for the early identification of 'at risk' students, but also for assessment in general.

Observation one illustrated the benefit of being able to quickly identify students who were slow in starting the assignment. The day one sharing instruction provides the lecturer with a clear indication of exactly which students have not started the assignment. This type of indicator is an inherent feature of the cloud assessment model provided students are required to share their assignments from day one. The identification of slow starters is however not as easily achieved when using a traditional assessment model.

Observation two builds on the first observation by providing the lecturer with the ability to observe exactly how much work students have done on the assignment at any given time. Although a similar mechanism exists in traditional assessment in the form of assignment milestones, the cloud assessment model offers a number of additional advantages. Firstly, traditional milestones are restricted to a single point in time whereas the cloud assessment model provides synchronous observations at any point in time during the assessment process. Secondly, traditionally lecturers can spend a substantial amount of time checking the work of students who are making good progress when this time could be better spent focusing on students who are struggling. The cloud assessment model improves this mechanism by providing means for the lecturer to quickly view the work of students who are making good progress while at the same time helping to quickly identify students who are struggling. As a result, the lecturer is able to focus more time and effort on those students to whom it would most benefit. Finally, the transparent nature of the cloud assessment model can also provide the lecturer with an overall view of the progress of the class as whole. This insight can be a helpful indicator as to which concepts the students are struggling to grasp, and which concepts would be worth revisiting during class time.

Observation three illustrated an extremely useful feature of the cloud assessment model as it relates to identifying 'at risk' students. Occasionally students head in the wrong direction when working on an assignment. This misdirection can often be due to an honest misunderstanding of the assignment question. Unfortunately, as a consequence, these students continuing spending time and effort working on an assignment, which from the outset is destined to be unsuccessful. In this instance, the lecturer was able to intervene before it was too late and redirect students focus for the assignment.

Observation four relates to the first and second observations and shows how having a real time view of student work can be used for focused follow up. Lagging students whose assignments would likely receive a fail grade were quickly identified, which provided a specific list of students to whom reminder emails could be sent. Having a literal view of the current state of student work also allowed for the reminders to be tailored specifically for each student instead of being generic in nature.

Observation five shows another advantage of the cloud assessment model with regards to assignment submission rates. Being able to download the assignment documents on the due date makes late or non-existent submission a thing of the past. This shows a fundamental shift in the way assignments are submitted. With the traditional assessment model lecturers must wait for assignments to be submitted (i.e. pushed by the student), whereas the cloud assessment model puts the onus on the lecturer requiring them to download the assignments on the due date (i.e. pulled by the lecturer).

Overall, the case study was useful in highlighting a number of ways the cloud assessment model can help with the early identification of 'at risk' students, as well as showing other benefits for assessment in general. These areas were specifically: immediate identification of late starters, real time monitoring of students progress, identification of misdirected students, early identification of students who are likely to fail, and lecturer controlled assignment submission. These features coupled with appropriate responses from the lecturer provide a way for identifying and helping 'at risk' students before it is too late.

Future work will involve examining the student's perspective of the cloud assessment model. Other future work will also aim to discuss other implications of using the cloud assessment model. One specific area will focus on how to establish appropriate levels of lecturer intervention. This is due to the foreseeable problem of having too much intervention and direction by the lecturer resulting in assessments with reduced credibility.

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