Predicting System Success using the Technology Acceptance Model: A Case Study

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Abstract

Determining what makes an Information System (IS) successful is an ongoing concern for both researchers and practitioners alike. Arriving at an answer to this problem is compounded by the subjective nature of success and therefore trying to make judgements of what is and is not a success is problematic. Despite these difficulties system use has become more accepted as a measure of system success. Following this logic if a system is accepted it will have a higher likelihood of being used and therefore impact positively on success. The Technology Acceptance Model (TAM) is one of the more widely accepted theoretical frameworks that has been used to measure system acceptance. This paper combines the TAM, as the theoretical framework, with case study research to provide a more holistic account of why a specific IS, an online assignment submission system, has become successful. Initial findings suggest that the TAM measures of perceived usefulness and perceived ease of use are effective predictors of systems success.

Keywords

IS success, Technology Acceptance Model, case study

INTRODUCTION

Measuring success within IS has been a concern for those within the discipline since its inception. Although success is complex and therefore difficult to measure researchers have made efforts in doing so. Traditionally these measurements focus on delivering a functional IS product within certain economic and temporal constraints. Despite this bias there is evidence to suggest that a more accurate measure of success may lie within the realms of system use. Based on the logic that a system must first be accepted to be used ensuring acceptance should increase the probability of system success. One of the more popular theoretical frameworks that predicts system acceptance of technology is the Technology Acceptance Model (TAM). We use this model to try and investigate why a specific IS innovation in use at Central Queensland University (CQU) has become so popular.

Davis et al.'s (1989) work on the TAM Information Systems theory, is a user centred approach which has gained popularity as a measure of technology acceptance. TAM suggests that when users encounter a new IS innovation there are two main factors which will influence how and when they will use it. These are perceived usefulness and perceived ease-of-use. Perceived usefulness is "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis 1989). Perceived ease-of-use is "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989). Although TAM has been developed further into a more elaborate model known as the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh and Davis 2000) there currently exists only one study confirming its validity and robustness. TAM on the other hand has been tested by many more researchers (Adams et al. 1992, Hendrickson et al. 1989, Segars and Grover 1993, Subramanian 1994, Szajna 1994) with different populations of users and IS innovations.

Due to the testing and support of the model by others we rely on the original TAM proposed by Davis (1989) rather than the extended model of the UTAUT (also known as TAM2) to measure technology acceptance. In this study we apply the model to a twelve year old IS, OASIS (Online Assignment Submission, Infocom System) in use at CQU. We apply the TAM measures of perceived usefulness and perceived ease of use to two different groups; staff non-users and staff users. The non-user group is examined due to their potential to become users and therefore impact on the continued growth of the system's popularity. The user group is examined due to their importance in maintaining the current level of system use. Preliminary analysis into these two groups through the use of a case study approach reveals that the TAM measures appear to be useful predictors of a successful system. Our study also suggests that the evolutionary development model adopted by the system support team may have impacted positively on user perceptions and beliefs of system usefulness and ease of use.

RESEARCH APPROACH

Rationale for using a case study approach

This research focused on determining the significant system acceptance factors that have contributed to the success of OASIS. This level of detail allows us to provide a more complete description and explanation of this particular innovation's success. We believe that such a holistic focus of success using a proven IS is beneficial for researchers and practitioners alike. Although TAM has been the subject of investigation for much research, many of these studies are limited in several respects. These deficiencies include issues such as the strictly quantitative nature of the research with a focus on the adoption of simplistic technologies such as voicemail, email (Adams et al. 1992, Davis 1989, Segars and Grover 1993), word processing, spreadsheet and graphics software (Adams et al. 1992, Bagozzi et al. 1992). Our study helps to address these limitations in the literature by providing an in-depth qualitative study of a more complex non-mandatory system. For practitioners it provides a unique insight into an authentic and successful IS implementation. Given our main requirement of an in-depth investigation we used the case study approach. This decision is in accord with recommendations from proponents of the case study approach, for example Hamel (1993), Yin (1994), and Stake (1995).

Site selection – unit of analysis

Selection of the research site is the most critical decision in the analytic process of case study research (Hamel 1993). For our investigation, the choice of CQU as our site was a relatively simple matter. This was because CQU met all three of the main selection criteria; 'no real choice', suitability and pragmatism (Denscombe 1998). Firstly the site represented a unique opportunity for study. All researchers work at CQU and were able to observe the successful adoption of OASIS, a 'home grown' IS used in the support of teaching and learning, as well as various other information system adoption failures. The success of OASIS at CQU was an event that could not be 'planned or created' (Denscombe 1998). It therefore represented a 'one-off chance' for us as researchers to gain insight into why OASIS has become so successful where other ISs had failed. Consequently there was no real element of choice in 'deciding' on CQU as an appropriate site for study. Secondly the site was suitable due to the relevance of the case for testing previous theory. TAM is the theory we believe to be relevant in predicting the success of this system due to its ability to measure user acceptance. Through our own observations of OASIS and a review of the literature we believe that the success of OASIS at CQU contains 'crucial elements' (Denscombe 1998) of being a successful IS innovation which can test the theory of TAM. Finally the case is both intrinsically interesting and convenient for investigation. Although these final pragmatic considerations are not enough to choose the site on their own they added to the research experience allowing for a more in-depth study, hopefully appealing to a wider audience (Denscombe 1998).

Case study design type

Our case study is an investigation into why a specific information system, OASIS, is a success. Due to the formation and identification of TAM as the theoretical framework that guided our research, we utilised a descriptive case study design (Berg 2004). Our design follows the advice given by Yin (1994) and includes the five components he deemed necessary; study questions, theoretical framework, identification of the unit of analysis, logical linking of the data to the theory and the criteria for interpreting the findings. The first

three (already previously stated) indicated the data we needed to collect and the last two how we would use the data. Although, according to Yin (1994) the last two are the least well developed in case studies we lay the foundations for this analysis early in our research design. Linking the data to the theory was to be done through a "pattern matching" technique (see Donald Campbell 1975 via Yin 1994). This is where several pieces of information from the same case may be related to some theoretical proposition. In our research we would determine whether the data matched or did not match the propositions put forth by the TAM theory through visual examination. The last component of determining the criteria for interpreting the findings is the most difficult of all (Yin 1994). Unfortunately there are very few guidelines on how to arrive at such a criteria and all that exists is Yin's very brief advice on matching rival theories. Given these difficulties we decided that we would rely on an "all or nothing" approach similar to Yin's advice. We had to decide on whether the pattern matched with the theoretical propositions or it didn't. Where the pattern was deemed to hold true then the theory would be tested in the positive, where it didn't the theory would have failed to explain our case.

Methodological tactics – Data collection

A case study is an in-depth investigation that seeks to uncover the various nuances, patterns and latent elements that other research approaches may overlook (Berg 2004). It accordingly makes use of different methods to collect various kinds of empirical data (Hamel 1993). Our case study made use of the more traditional methods of collecting data. These were questionnaires, participant observation and the review of documents. Data collection through the participant observation and document review techniques is representative of the 12 year period. Participant observation was a crucial data gathering technique as all researchers have been involved with OASIS at some point over its lifetime. Documentation used in this research included support logs and records from the OASIS system. To capture current perceptions, questionnaires were sent to all current user and non-user groups of OASIS identified as academic staff.

At the time of the writing of this paper 94 responses (34.9%) had been received from users of OASIS and 18 responses (15.3%) from non-users. The analysis in this paper concentrates on the free text responses to two open questions asking staff about the factors influencing their perceptions of the usefulness and ease of use of OASIS. Academic staff members in charge of a course are responsible for making the OASIS adoption decision. Students are only able to use OASIS after this adoption decision is made. For this reason we have initially focused on academic staff as the users and non-users of OASIS. Subsequent research will investigate student perceptions.

Scientific value and study Limitations

The case study is a popular research approach across many disciplines both basic and applied (Hamel 1993). Despite their popularity they have many strong critics due to the belief that the approach lacks insufficient objectivity and concern over the ability to generalize research results (Berg 2004). We have been careful in our research to maintain objectivity through deliberate construction of a research design. Construction of such a design does much to increase the rigor of a study and counter the claims of "weak research" (Yin 1994). As part of our research design we maintained as much objectivity as possible by having each researcher separately review the evidence as part of the data analysis phase. Our findings have been examined within the context of our chosen theoretical framework; TAM. As far as generalizing the results of this research is concerned our view is similar to that taken by Berg (2004). He states that "When case studies are properly undertaken, they should not only fit the specific event studied but also generally provide understanding about similar … events. The logic behind this has to do with the fact that few human behaviours are unique, idiosyncratic and spontaneous." (Berg 2004). Likewise it is our belief, due to the socially constructed nature of IS in general, as well as their reliance on social aspects as determinants of success in particular, that the success of OASIS is not a unique event. Our study should therefore provide an understanding to the wider community of success in similar IS implementations.

THEORETICAL BACKGROUND

Success of an IS innovation can be determined in a number of ways. However, general organisational measures of success include "on time and on budget" (Standish Group 1995, IT Cortex 2002) with the desired functionality (Mahaney and Lederer 1999). Following the logic inherent within the literature

focussing on IS characteristics predictive of success, failure is generally discussed in terms of having the opposite characteristics. For example, Whittaker (1999) described the 1997 KPMG survey on what constituted an IS project failure. The study deemed a project as having failed if it overran its budget by 30% or overran its schedule by 30%, or the project was cancelled or deferred due to non-delivery of planned benefits. However, Mahaney and Lederer (1999) argue that there are degrees of failure and that a project that overruns budget by 5% is less of a failure than one that overruns by 50%. Some determinants of why IS innovations might be considered failures include whether they; have the ability to evolve and grow with the organization, integrate well with the business environment, possess consistency between the initial requirements and the final solution, simply make business sense (IT Cortex 2002).

DeLone and McLean (1992) were leaders in moving to a more user centred approach when trying to judge overall IS success. Their model suggests six interdependent measurements of success; system quality, information quality, use, user satisfaction, individual impact and organisational impact. It is important to note that all of these factors should be considered when trying to measure success under the model and that no single measure is intrinsically better than any other. Further attempts have been made to refine and expand on their model by others (e.g. Seddon et al. 1999) as well as minor refinements suggested by themselves (DeLone and McLean 2003). However as DeLone and McLean (1992 p. 61) themselves point out, "there are nearly as many measures of success as there are studies".

With the more recent study conducted by Iivari (2003) there is more evidence to suggest the applicability of the DeLone and McLean (1992) model in measuring a system's success. This work helps to contribute to the shift from organisational measures of success to more user focused measures. Davis et al.'s (1989) work on the TAM IS theory, is a user centred approach which has gained popularity as a measure of a users acceptance of technology. We draw the conclusion that if a system enjoys high user acceptance this will impact positively on system use. Use of the system is a contributing factor to system success especially when that system is not mandatory (DeLone and McLean 2003, Iivari 2005). Based on this assumption we use TAM as a theoretical framework to guide our research. Specifically, do the constructs in the model offer a reasonable explanation for why OASIS has enjoyed such an exponential growth in its adoption and use?

SYSTEM BACKGROUND

Online Assignment Submission, Infocom System (OASIS) arose out of early experiments in 1994 by a single academic implementing a system to reduce assignment turnaround for distance students (Jones and Jamieson, 1997). Adoption of OASIS by other academics was limited at this time. Only 13 course offerings made use of the system with just over 1900 assignments being submitted in the six years up until 2000. Since 2000 use of OASIS has increased significantly. From the years 2000 to 2005 over 77,000 assignments have been submitted via OASIS by 6892 (72+%)of Infocom students.

Students enrolled in Infocom courses are distributed across a number of campuses as well as being enrolled via distance education. There are five regional Central Queensland (CQ) campuses in Bundaberg, Emerald, Gladstone, Mackay and Rockhampton. Four other Australian International campuses (AICs) in Brisbane, Gold Coast, Sydney and Melbourne managed by a commercial partner. Campuses are also located overseas in Fiji, Singapore, Malaysia, Hong Kong and China. Students may also study from any location in the world via distance education (FLEX). Figure 1 provides a summary of Infocom student numbers from 1996 to 2005.

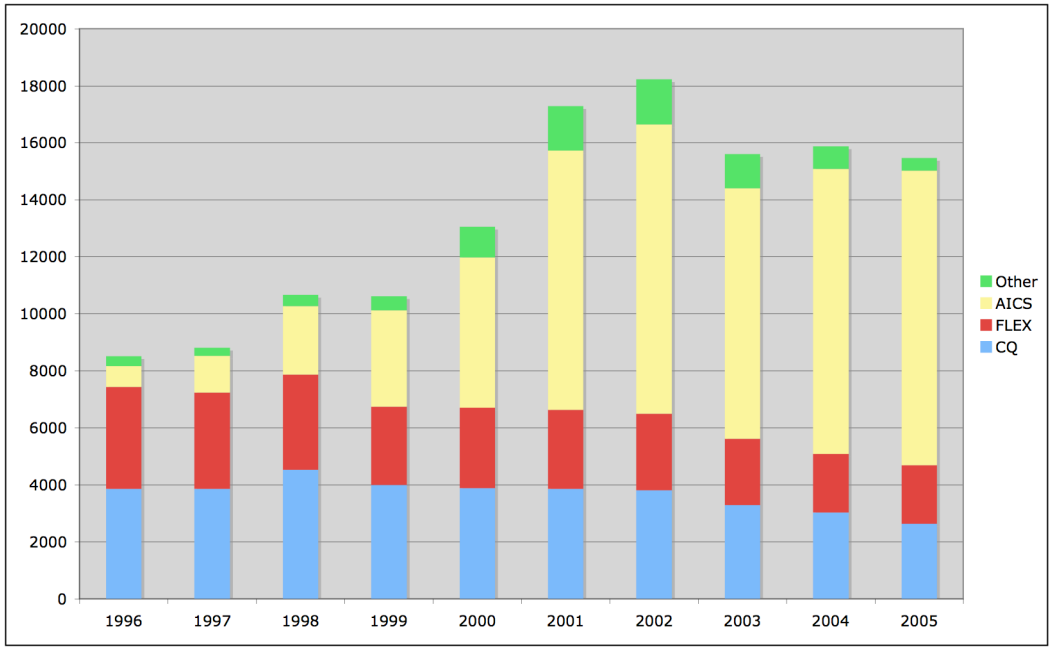

Figure 1. Number and type of students enrolled in Infocom Courses (1996-2005)

Since its inception Infocom has had a small development team responsible for its online presence. In 2001, partly in response to increasing numbers, this team was expanded and additional effort placed on providing services that would help support Infocom's teaching operations. Using an agile development methodology (Jones and Gregor, 2004) this group, in response to direct user feedback, made a range of additions to OASIS to improve its functionality. The combination of increasing complexity and this on-going development of OASIS appears to have had an impact on usage of OASIS. Figure 2 shows percentage of Infocom students, staff and courses using OASIS from 2000-2005. Specific staff figures are only available from 2002 onwards when a markers' database was added to the system.

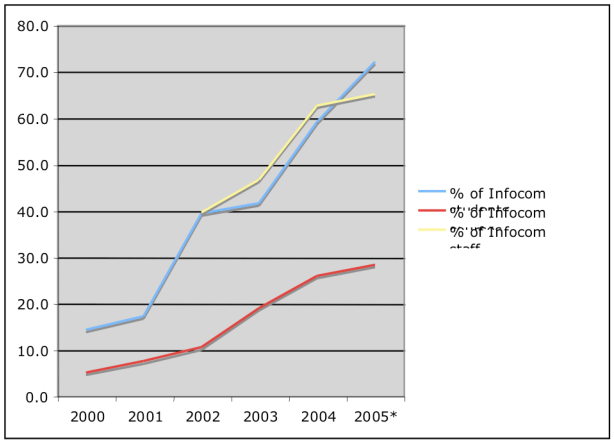

Figure 2: OASIS usage in percentages of Infocom students, courses, and staff (* figures as of September 30, 2005)

FINDINGS

In this study we applied the TAM measures of perceived usefulness and perceived ease of use to two different staff groups; non-users and users. Non-user perceptions concerning usefulness and ease of use of the system are used to compare against actual beliefs of users. The non-user group is examined due to their

potential to become users and therefore impact on the continued growth of the system's popularity. The user group is examined due to their importance in maintaining the current level of system use. This section reveals the complex underlying belief structures concerning the two constructs of perceived usefulness and ease of use as they pertain to OASIS. This is information that has been missed in other investigations concerning TAM (Segars and Grover 1993). Of particular interest it reveals that usefulness and ease of use, at least in our study, seem to be influenced positively by the evolutionary development model adopted by the system support team. This is in line with other research concerning what makes for a successful system, namely the ability of the system to evolve with the business (IT Cortex 2002). The findings in this study are of a preliminary nature only.

HOW DO NON-USERS PERCEIVE OASIS?

Overall non-users of OASIS had mainly positive perceptions of the system. These perceptions centred on the belief that the system would benefit the students just as much as it would enhance course management.

Perceived usefulness factors

The main student benefit perceived by non-users was timely turn-around of assignments. One respondent noted that 'OASIS will eliminate unnecessary delays' while another believed that 'It may also help with prompt and efficient grade information requests in/out'. Other respondents saw OASIS as a method for improving courses by being able to more easily analyse the results from assessment. One respondent noted that 'each question can be analysed for effectiveness at distinguishing between students passing and failing. With individual questions assessed for how well they are answered teaching can be modified to prepare students better in the identified weak area'. Another was the benefits in being able to track how well students were progressing, stating that 'I envisage OASIS would be useful to gauge student progress/understanding/level of expertise throughout a particular course/subject'.

Non-users also perceived a number of administrative benefits from OASIS. Of particular note was the ability to track assignments and marking, with one respondent stating their belief that OASIS 'will encompass safe guards for assignment delivery and return, as well as acknowledgement of assignment receipt for students'. This is an important aspect of course administration, especially with the difficulties in distributing, managing and moderating marking over multiple campuses and markers. Another respondent support this belief, stating that 'I have used a similar system before and it was quite helpful to my consolidating marks, and not being on campus would probably simplify the marking system'. Respondents believed that OASIS would make this task both possible and easier. Others believed that OASIS would also provide additional benefit by enabling the use of automated plagiarism detection.

While there were few negative perceptions of the usefulness of OASIS, some respondents had beliefs about what types of assessment OASIS was suitable for. One noted that 'I believe OASIS is suitable for multiple choice questions. But my assignments are essay type with computer program printouts. As of now, I don't know how I can make OASIS useful for my course'. Another indicated that OASIS didn't fit in with the way that they currently assessed, stating that 'I mark all my student's assignments manually, it is easier for me to sub-edit stories that way.'.

However, respondents generally had positive perceptions of OASIS, with one respondent stating that 'certainly, any online submission technology would be useful to me. And the precedent of other IT systems made available in Infocom suggests that it would be extremely user friendly for people with very limited computer competence/confidence. The nifty acronym is also appealing'. The successful evolutionary development process adopted by the support team had produced a number of successful systems and helped in developing positive perceptions amongst users of new systems.

Perceived ease of use factors

Non-user respondents generally believed that OASIS would be easy to use. They justified this with two belief factor groups. The first group was the technology centric belief that, as non-users had used similar systems, they would be able to easily use OASIS. One respondent noted that 'I have been using computers for many years, including online application/enrolment. These may not be identical with OASIS, but I believe there will be similarities'. Another respondent stated that 'It should not be difficult for me to learn

since I'm computer literate'. Another respondent believed that the system would be just as easy to use as other systems developed by the faculty, stating that 'my positive experience with other Infocom systems gives me confidence that OASIS would be no different. The systems team have a very good track record that inspires confidence'.

The second group of factors was based on having not heard negative things about ease of use of the system. One respondent noted that 'nobody seem to complain too much about OASIS being hard to use, or hindering them in their job'. However, this was contradicted by another respondent who stated that 'I have heard from another tutor that OASIS is a bit time consuming and a little confusing… but [I] have not used it myself'.

HOW DO USERS PERCEIVE OASIS?

Users of OASIS had generally positive perceptions of the system. Again, these perceptions centred on the belief that the system would benefit the students just as much as it would enhance course management. Yet users were pragmatic in their beliefs and many discussed the "trade-offs" associated with using OASIS. However, a new category of perceived usefulness was uncovered concerning the personal benefits of using the system.

Perceived usefulness factors

Users believed that OASIS gave them a greater ability to monitor student progression while also allowing students to track their assessment through the marking process. One respondent noted that 'submission records for students are useful in monitoring my students' progress, hence adjust tutorials/support as needed'. Another respondent supported this by stating 'it is easy (and quicker) to know if a student has submitted work for assessment by checking the relevant section of the web site'. Others saw the advantage in being able to compare and contrast assessment results, highly rating OASIS's functionality to give teaching staff the 'ability to compare your student's results with overall performance'. Many staff also saw the non-repudiation aspects of the assignment management as being advantageous, with one user stating 'students cannot say that they were NOT late or did submit the assignment (when in fact they did not)'.

Administratively, users discussed a number of factors that they perceived made OASIS useful. Most of these concerned assignment management issues. One issue identified was the ability for the user to track where an assignment was and what actions had been performed on it, with one respondent noting that '[OASIS] makes assignment collection simple and easy also [as you] do not have assignments go missing. [OASIS is a] quick and easy way of returning assignments and collect the assignment marks'. This tracking also facilitates moderation processes, and as noted by another respondent, 'OASIS allows for the moderation process to be carried out in a timely fashion". OASIS was also seen to support core academic requirements as exemplified by one user who stated that 'OASIS is useful in the case of essay and report type assignments as it helps in detecting plagiarism'. This issue is especially important over a multi-campus operation, with another respondent adding that one of the key usefulness factors was the ability of OASIS to 'perform copy detection, not only within a campus but between campuses'

The users of OASIS also found a personal usefulness factor in the ability to remotely download assessment to mark and moderate. This gave them the ability to mark, moderate and manage assessment from anywhere in the world. One respondent stated that having 'assignments on soft-copy [was] a tremendous help [because there was] no need to carry them home'. It was sessional staff who seemed to gain the most benefit from electronic access to assessment. One user explained: 'I am sessional lecturer and OASIS makes it possible for me to download the assignments for marking. I don't have to go to the campus to get the submitted assignments'. Another supported this by saying that 'OASIS is useful because it has enabled me to work from home and pick up students' assignments outside office hours'.

The most contentious usefulness factor was the benefit OASIS was able to provide in the time taken to mark assessment. While many users found the systems fast and efficient to use, others disagreed, but continued to use the system because of other usefulness factors. One user who found that OASIS saved time stated that:

> Having also been a marker (both paper-based, and using OASIS), I was stunned by just how much time was saved by no longer needing to handle piles of paper. Virus scanning 100

> floppy disks, for example, takes a long time. OASIS provides a neatly formatted, scanned, and correctly-named set of files

However, several users found the process of dealing with electronic assignments time consuming and cumbersome. One respondent stated that 'practical experience with many assignments that were to be submitted through the OASIS system indicates that … it takes much more time and effort to mark assignments on line' while another noted that 'for assignments that where marking can not be automated it is very time consuming to mark electronic copy, especially when there is significant reading to be done. it is also time consuming to provide feedback'. Many staff made comparisons with OASIS and "hard-copy" marking, with one user stating that:

> It is a very good way of submission and collection of assignment. But, the hardest part of it, is adding comments electronically during the marking process. It kills time. I did same types of marking to some other university, and later they decided to take hardcopies and to write comments. We found that saving 50% of the overall marking time.

The general experience of users of OASIS was that it was initially slow to mark assessment with, but as changes were made to routines and practices, marking speed increased. This was substantiated by one user who stated that '[marking with OASIS] takes a little longer to generate a rhythm to freely mark assignments in an efficient timeframe'. Many noted that the time to mark assessment was dependent of the type and complexity of assessment, with one user stating 'the experience is very dependent on the assessment design'. Even with these negative aspects, users still perceived it as useful with one user summarising by stating that 'it's a great system but online marking and commenting takes significantly longer than on hard copy - other than that I like its functionality'.

The only other negative factors that affected perceived usefulness were those concerning support. Some users felt that OASIS was complicated, difficult to understand and lack support mechanisms. One user's frustration was evident from the comment 'just trying to understand how to use [it] is a pain'. Yet other users made particular mention of the support services offered by the web team. This perception of the support services will be discussed later as a factor concerning ease of use.

Perceived ease of use factors

Users generally perceived OASIS as easy to use, however two factor groups, technology and support, affected these beliefs. Technology affected users in both positive and negative ways. Users who were comfortable with technology believed OASIS was easy to use and made comments such as 'being an IT professional, I find it very very easy to interact with'. However, users who found technology intimidating focused on this as impeding their use of OASIS. One user remarked that 'anything computer-mediated always seems to take longer or involve more hassles than expected, at least for me'. Many of the comments relating to ease of use and technology were focused on difficulties with understanding technology external to OASIS rather than the system itself.

A related group of factors concerned support mechanisms. As previously discussed, the perception of a lack of support mechanisms impacted negatively on the perceived usefulness. However, users of the system were divided on the issue. In particular, those users who had used OASIS over a long period of time and had watched its support mechanisms evolve saw them as a positive influence on ease of use. One respondent supported this by stating that 'It used to be a problem, but I've seen the system and supporting documentation improve to the point that I would consider the system fairly easy to use for new users. Support requests for the system have dropped significantly as it has matured'. Another remarked that 'OASIS is self explaining, there is not much to learn about it in order to use it'. However, others still regarded the system as difficult to initially learn, with one noting that 'learning OASIS for the first time is difficult because the instructions are not very clear. However, it is easy once you get the hang of it'. Others noted that the lack of documentation and online help procedures was overcome with support from the web team, with one respondent commenting that 'learning how to do things in the system is not easy but the tech team offer an excellent support and are to be commended for their efforts'. Most users shared these views believing that once users started using OASIS, the perception of ease of use changed. This was supported by one user who stated that 'OASIS is no more difficult or easier to use than any other web-based system

with online help and hyperlinks to the various relevant parts. I think initially I asked colleagues about its general use as the concept seemed daunting at the time (before I'd actually used it)'.

DISCUSSION AND CONCLUSION

In general users had very positive perceptions surrounding the usefulness of OASIS. As one respondent stated, 'I find the system professional and bug free. It's an excellent assignment management tool. It provides a rigid framework for student submissions. Students appear to have little or no problem with the general concept of online submission and its use. In all I find the system very useful'. If system success can indeed be measured in terms of system use OASIS can be categorised as a success. The adoption of this system by the majority of students in the Faculty of Informatics and Communication at CQU and its use by an increasing number of staff is a testament to its popularity. This use is unaffected by the non-mandatory nature of the system giving even more strength to the motivations behind its adoption. In the search for an explanation of why it has been so successful we applied the TAM to investigate both staff users and non-users of the system. Both of these groups revealed very positive perceptions and beliefs surrounding the usefulness and ease of use constructs in TAM. On further investigation these constructs were complex in nature but seemed to centre more on the administrative benefits that the system could provide rather than the pedagogical benefits originally intended by use of the system.

In examining non-users perceptions and users' beliefs, we have presented evidence that provides an explanation for the continued and growing success of OASIS. Non-users perceive that the system will be useful and easy to use and will not hesitate in using it when the chance arises. This indicates why the system has had an increase in adoption and use throughout the courses in the faculty. Users believe that the system is useful and easy to use and this explains stability in growth and continued use. If success can be measured in terms of use then we believe that the usefulness and ease of use factors within TAM are reasonable predictors of system success. We also believe that the usefulness and ease of use constructs are positively influenced by the successful application of agile development methods employed by the support staff of the system. As shown above this process has generated a perception amongst staff that the systems produced by this team will be useful and easy to use, or if the systems are not useful or easy to use that the systems soon will quickly evolve and become so. From the preliminary results of this study, we predict that the success of OASIS will continue as long as the beliefs and perceptions concerning the system's usefulness and easy to use characteristics are maintained through activities such as evolutionary development.

As stated in the previous section, methodological tactics, our findings are limited to initial analysis of two free text questions. Further detailed analysis has to be carried out on all questions. It is envisaged that in the secondary stage of analysis attention will be also be paid to contextual and background information of respondents. This may impact on their perceptions of perceived usefulness and perceived ease of use of the system. Although the preliminary results of this study offers a more detailed account of a specific systems success it would benefit from expansion in several areas. Firstly, expanding the study to include students. Secondly, using UTAUT instead of TAM as the theoretical framework. Thirdly, including other cases to see whether the results still hold. Finally it may be useful to investigate further the complex structure of the perceived ease of use and perceived usefulness constructs of TAM to other information systems supporting teaching and learning as well as other more complex information system innovations.

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