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Using the E-Learning Acceptance Model (ELAM) to identify good practice in the provision of online tutorials.

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Abstract: This paper seeks to evaluate the usefulness of the E-Learning Acceptance Model (ELAM) in relation to the module TU100 My Digital Life which is offered by the Open University in the United Kingdom. TU100 is only offered as a distance learning module therefore students have no choice in their mode of interaction. A combination of printed and online material is provided with students offered both face to face and online support at regular intervals throughout the module. The ELAM model will be used to evaluate the attitude of students and staff to the use of technology that supports the delivery of the online aspect of the module. Synchronous online activity is supported by a Tutor requiring the student to commit to regular participation in online activities. Neither Face to Face nor online Tutorial attendance is compulsory but some students are regular attenders at both activities. In order to determine the reasons for student participation the ELAM model will be used to evaluate the factors, if any, which influence their engagement in online activities and to what extent Tutor interaction influences their willingness to participate. One mechanism utilised for delivering online tutorials to the student cohort is a branded version of Blackboard Collaborate called OULive. This provides a stilted environment which depends primarily on a whiteboard based application and audio technology to support the online tutorial process.

Applying and evaluating the ELAM model will allow the identification of good practice in the provision of online tutorials helping fellow practitioners cope with the demands of online delivery. The paper will conclude by demonstrating that while the OULive tool is dependent on whiteboard and audio technology students who engage on a regular basis do constitute a community of practice and demonstrate that participation in online tutorials as part of their learning experience is a worthwhile exercise. This therefore illustrates a certain level of acceptance of technology in their learning activities. This paper will demonstrate that a good level of support early on in the module to use online material is essential in helping this community of practice to form.

Keywords: e-learning, distance learning, synchronous communication, breakout rooms, problem solving activities

1. Introduction

Traditional learning is perceived to take place in a face to face environment generally with someone in charge of controlling the Learning Session. This paper attempts to examine how a Technology acceptance model can address the use of technology to replace face to face interaction and at what point students and teaching staff accept the technological learning as either being acceptable as an alternative to face to face interaction or as the norm for learning. Traditional University learning is built around Lectures, Labs and Tutorials. The key feature here is that someone is usually dictating the pace of the learning through the provision of specific material. The pace is controlled by the release of material through the Lecture and this material is put to use in some way in a Laboratory and in a Tutorial session. Online learning tends to remove the release of the material in a piecemeal manner and provides the learner with access to a combination of printed and online material. There is a perception with online learning that students studying in this manner still need some form of support from an academic. This support has come in many forms. Face to face support in terms of Lab Sessions/Tutorials and Seminars are one way of achieving this support. One to one telephone calls are another with conference calls between a Tutor and a number of students another medium that has been used. The major thrust now in supporting students at a distance is the use of collaborative tools which run over the internet. This leads us into a discussion of acceptance models of E-Learning and how the technology is embraced by academic staff and students. In particular how are these tools used as a means of supporting students in their study by providing synchronous communication opportunities to help students learn.

Our argument is as we embrace the electronic age and become more and more accepting of Information and Communication Technologies (ICT) in our workplaces, homes and in the mobile environment students will be keen to embrace this technology and engage with their academic leader in a synchronous manner.

Constructing the synchronous online Tutorial to support students can be a time consuming exercise and is not something that can be treated as a trivial exercise. Lambie & Law (2015) discussed how synchronous Tutorials should be organised in order to attempt to get a good level of interaction with a group of students in a synchronous online activity. Lambie & Law (2015) identified that there is a need to ensure that students have opportunities to speak and to put forward their answers in a supportive manner. The Woodcock et al. (2015) study of student Teachers supports the findings of Lambie & Law (2015) that there is a need for a good level of interaction to engage the learner. Woodcock et al. (2015) found that synchronous communication was thought of as being convenient but this was dependant on a "reliable internet connection" and also that "the "breakout rooms," "interactive whiteboards," "emoticons," and "hand icons" encouraged increased participation."

2. Technology and E-Learning acceptance models

Online Tutorials are increasingly seen as the way to deliver support for distance learning students. The use of a tool to support this activity is therefore central to any discussion on technology and e-learning acceptance models. Rosell-Aguilar (2006) concluded that Tutors and Students could get a positive learning experience through the use of conferencing type tools although the experience was not identical to the classroom experience. Blackboard collaborate is one of the most recent invocations of this type of tool. Perhaps then the challenge is not to reproduce the classroom environment as such but to look at what the online tool can provide and how this can be utilised to the best effect. Acceptance of the use of an online tool and the approach that it provides are therefore important.

The question that we were trying to answer is "Do students accept online synchronous Tutorials as useful?"

The E-Learning Acceptance Model (ELAM) as defined by Umrani-Khan & Iyer (2009) is based on the Unified Theory of Acceptance and Use of Technology (UTAUT) model developed by Venkatesh et al. (2003). Umrani-Khan & Iyer (2009) model has the same "key determinants" as UTAUT but differs due to the use of e-learning specific variables within each key determinant. ELAM focuses on four factors: Performance expectancy, Effort expectancy, Social influence and Facilitating conditions.

The Umrani-Khan & Iyer (2009) model has the same "key determinants" as UTAUT but differs due to the use of e-learning specific variables within each key determinant. ELAM focuses on four factors: Performance expectancy, Effort expectancy, Social influence and Facilitating conditions. The model is presented in figure 1 below.

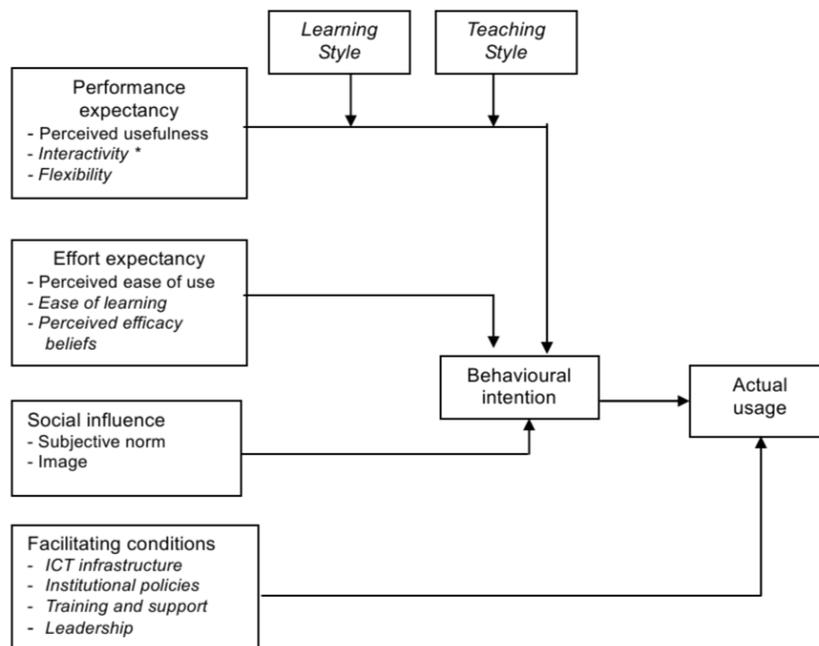


Figure 1 - Umrani-Khan & Iyer (2009) E-Learning Acceptance Model (ELAM)

Performance expectancy takes into account both the student and teacher viewpoint of a gain in the “teaching-learning process.” The Effort expectancy takes into account both the student and teacher viewpoint of the level of effort required to use the e-learning tool. The Social influence takes into account both the student and teacher viewpoint of the social pressure to use e-learning. Facilitating conditions takes into account both the student and teacher viewpoint of encouragement on the institutions part to use e-learning. Online learning and learner support is a key part of the Open University’s mission.

Factors such as age are important factors in the development of this e-learning/technology acceptance norm. Typical teenage (17+) students believe that it is acceptable to read a Tutorial sheet at a face to face Tutorial on their smart phones, tablet or laptop. In fact for them it is the norm. Many institutions now make extensive use of managed learning environments and one aspect of this is the provision of material electronically. In fact providing course materials in electronic formats is pretty much now the norm.

However there still seems to be a dilemma in that there is a level of acceptance of technology in some areas but a reluctance to participate in others. There seems to be a level of acceptance of accessing material and making contributions to discussions in an asynchronous manner but a lack of engagement in synchronous activities. Woodcock et al. (2015) indicate a number of issues with synchronous communication for the learner; the perception that it is “less convenient” and “more intimidating” in comparison to their perception of asynchronous communication as flexible and anonymous. Woodcock et al. (2015) also point to the juxtaposition of synchronous e-learners having the benefits of “more consistent communication, greater focus on tasks, increased participation, and more frequent completion of their work and courses” compared with e-learners who prefer asynchronous communication.

Experience has shown that face to face Tutorials tend to suffer from low turnout and that the attendance rate falls away as the course progresses. There is a level of expectation that students will buy into the “new” technologies and embrace them fully. Students on TU100 My Digital Life which is the course being used to investigate e-learning acceptance models (see section 3.1) sign up to an online correspondence course where support is available on line. They do not need to leave their homes to participate but at least 75% of them do not avail themselves of this offer. Asynchronous activities such as the use of email or leaving messages on forums seem to be a more popular means of communication. Students’ time management is still an issue in their participation in synchronous online activities. Interestingly it has been pointed out by Brown & Charlier (2013) that e-learning doesn’t always attain its full potential due to a high level of attrition and low usage rates suggesting that the availability of an e-learning tool is no guarantee of its use nor does it guarantee that it is an effective tool.

Students studying with the Open University tend to do so because the OU offers a more flexible approach to learning and they are less constrained as to how and when they study. The flexible learning model presented by Peters (2007) illustrates the nesting and overlapping with flexible learning of e-learning and m-learning. The Open University integrates e-learning and m-learning into its flexible study approach.

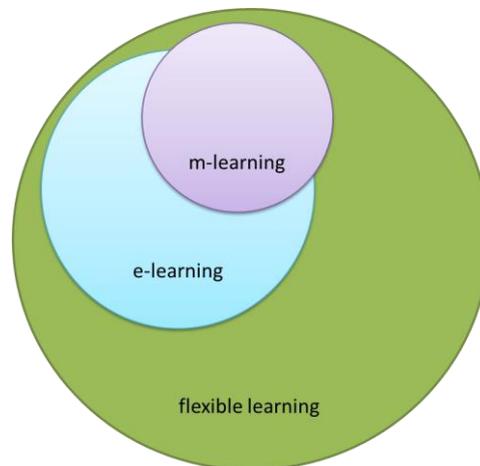


Figure 2 'just enough, just in time, just for me' model of flexible learning

Does m-learning generate competition between learning and students other commitments? "For example, one participant, who had three children, attended the live-time tutorial via iPhone while watching his/her son's soccer match." (Woodcock et al. 2015) So, perhaps, Tutor expectations for the possibilities offered by e-learning are too high. Perhaps the flexibility of m-learning generates too much competition for learners' time.

Kuo et al. (2014) also stress the importance of interaction citing three forms: learner-instructor interaction, learner-learner interaction, and learner-content interaction suggesting the first two forms are important to online learners. The example cited by Woodcock et al. (2015) indicates the conflict in the learner-instructor and learner-learner interaction when the learner is not fully engaged due to a conflicting distraction.

3. The Preliminary Study

In order to investigate these observations a questionnaire was developed which aimed to focus on specific aspects of the delivery of the Open University (OU) course TU100 My Digital Life. Experience of delivering online Tutorials on this course indicated that the following points were worthy of investigation:

- Student attitude to their own personal use of technology
- Level of acceptance by students of the use of technology as a means of study on TU100
- Level of usefulness to the student of the online tutorial tool used to deliver synchronous tutorials as part of the support offered to students on TU100

These are aspects that are important to the Tutor on TU100 because they are likely to influence the level of student engagement with the online aspects of the course. The questionnaire was influenced by the work carried out by Umrani-Khan & Iyer (2009) and looked to investigate some of the findings in a specific context of a single course that was delivered and supported online.

Experience of Tutoring on the TU100 course over a number of years showed that there was a need to consider how to use synchronous Tutorials to good effect in order to engage students and to encourage them to attend further on line sessions (Lambie & Law 2015).

The idea was to use the results from the questionnaire to determine the level of acceptance of technology and to try and judge how students on TU100 were using technology and how their attitudes influenced their choice and style of study. The authors were particularly interested in student attitude to online Tutorials and the reasons students choose to either engage or not engage in this activity. Students sign up for TU100 as an online correspondence course but this does not necessarily mean any sort of level of acceptance of the use of

Technology. It is the author's experience, that in any one year, 75% of students in a Tutorial Group of 20-24 either do not engage regularly or do not engage at all in organised online Tutorials.

Studies such as that carried out by Goodfellow (2014) indicate that students who engage in online Tutorials feel that it is a worthwhile exercise.

There is no real option on the tool that is used to carry out the online Tutorial. The tool that is provided by the Open University (OU) is Blackboard Collaborate badged as OULive. This tool provides a Whiteboard centric interface Woodcock et al. (2015), Rosell-Aguilar (2006). Audio is the main communication tool that is used particularly by the Tutor to guide students through the Tutorial activities. When this is combined with the white board with information in the form of instruction or data being displayed an interactive environment is produced in which a wide range of problems can be tackled. Preparation is the key (Lambie & Law 2015). The whiteboard cannot be created in an ad hoc manner as the Tutorial progresses. The theme and the exercises are best worked out in advance.

This limited study is looking to identify factors which will help practitioners particularly with the synchronous aspects of online delivery where Tutors are looking to engage with students online in a Tutorial type environment.

The study was carried out within the author's own tutor groups and has provided some insight into student perceptions on the use of technology.

3.1 TU100 My Digital Life

The Open University in the United Kingdom is a distance learning institution with a world wide reputation for delivering online courses and making use of ICT technologies to deliver these courses. TU100 My Digital Life is an OU distance learning course. It is a level 1 university course aimed at students who intend to go on and study further courses in Maths, Computing and Technology. Material is provided as a series of course books and a course web site. The course web site has a calendar based approach and students use this site to receive direction on what they should be studying at any particular point in time. Assignments are accessed electronically and some course material is only provided electronically. The course web site also provides a link to allow students to submit their assignment electronically. Students are assessed by 5 Tutor marked assignments and an end of module assessment which is marked by a different Tutor.

Students support is provided by a Tutor who typically has around 20-24 students. Tutors provide face to face Tutorials and online Tutorials using Blackboard Collaborate (Badged as OULive). The use of OULive is a key piece of technology for helping to support students.

3.2 General Questionnaire findings

The questionnaire findings are based on 15 respondents, although not a large number, this is sufficient to draw some initial conclusions. The questionnaire consisted of 24 questions broadly covering the four factors: Performance expectancy, Effort expectancy, Social influence and Facilitating conditions identified by Umrani-Khan & Iyer (2009).

3.2.1 Student attitude to their own personal use of technology

Figures 3 & 4 indicate that there may be an interrelationship between students who believe technology enhances their day to day lives hence allowing them to undertake a university course. This is an interesting finding as this indicates that a liking of technology has facilitated their learning.

Accessing online resources makes it possible for me to study for a University level qualification.

(15 responses)

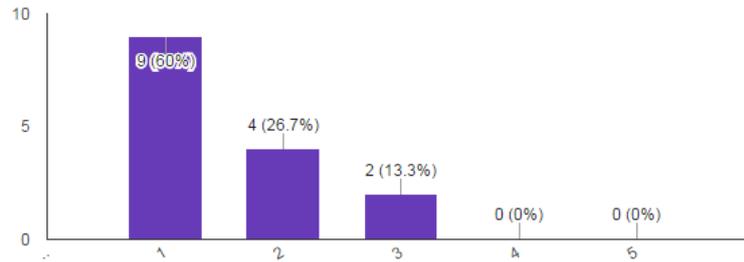


Figure 3 Accessing online resources

I like using technology including communication technologies and believe they enhance my day to day activities.

(15 responses)

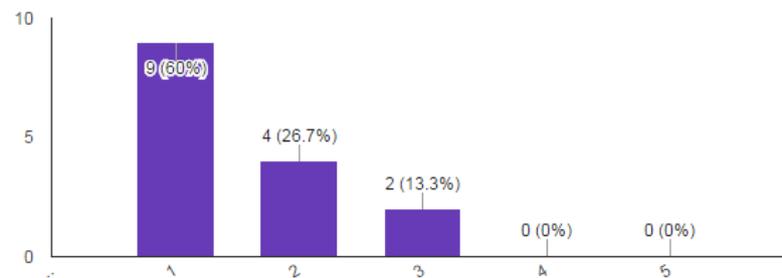


Figure 4 I like using Technology

3.2.2 Level of acceptance by students of the use of technology as a means of study on TU100

Figure 5 is interesting as the use of mobile technology is not as pervasive as expected given the respondents indicated they are happy using technology (shown in Figure 4).

I regularly access the TU100 Website from a mobile device in order to help plan my studies.

(15 responses)

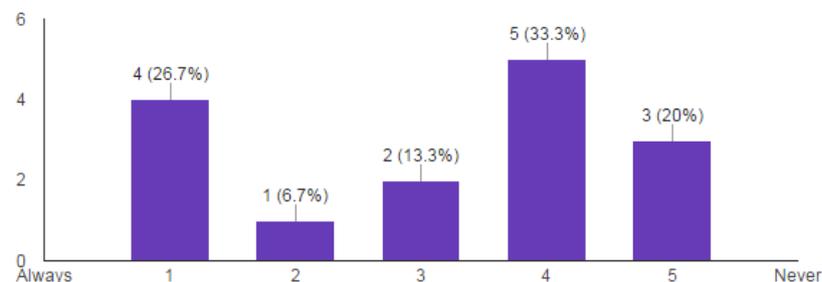


Figure 5 Access from a mobile device

Figure 6 indicates that 80% of respondents prefer, in principal, online tutorials to face to face tutorials due to the perceived convenience, however, this not borne out by experience as the recorded attendance is up to 25% of the registered student population.

I prefer online Tutorials rather than Face to Face Tutorials because I do not have to leave home and waste time travelling.

(15 responses)

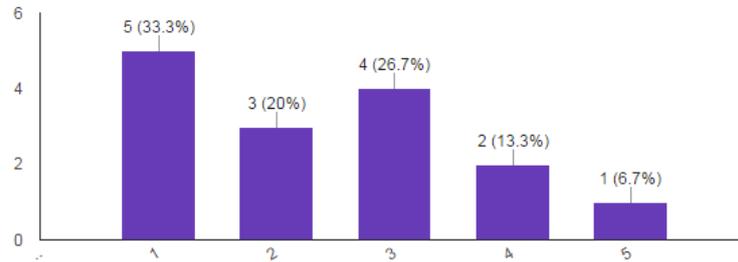


Figure 6 Preference for online Tutorials

3.2.3 Level of usefulness to the student of the online tutorial tool used to deliver synchronous tutorials as part of the support offered to students on TU100

Figure 7 shows that only 10 of the 15 respondents have attended an online tutorial, however, the 10 that have attended appear to be broadly happy with the features available.

If you have participated in a TU100 online Tutorial do you think that the features available to you as a student on OULive have a clear purpose that require little in the way of explanation?

(10 responses)

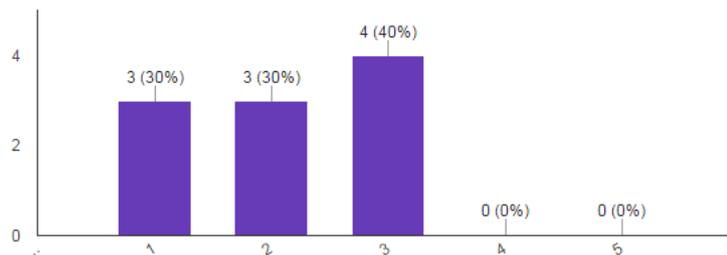


Figure 7 OU Live features

Features offered in OULive include breakout rooms, interactive whiteboards, emoticons and hand icons. Figure 8 shows that only 10 of the 15 respondents have attended an online tutorial, however, the 10 that have attended appear to be broadly happy with the use of the whiteboard.

If you have participated in a TU100 online Tutorial do you find the whiteboard style of displaying information helps you to focus on the material being covered?

(10 responses)

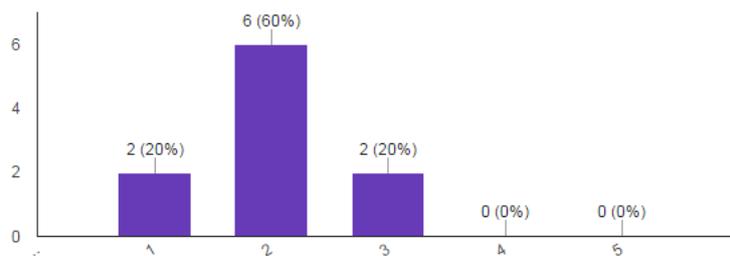


Figure 8 Whiteboard use

3.2.4 Summary of Questionnaire findings

Summarising the findings from the questionnaire it seems that students have appropriate access to ICT technologies to be able to participate in online activities but attendance at online Tutorials is mixed. Students' attitude to online tutorials and their reasons for attending are not clear cut and could be said to be mixed at best.

Students who were not good attenders indicated that they were not able to find the time to attend online Tutorials or that it was too difficult to organise their time to be able to attend online Tutorials. Students who were active attenders generally considered themselves to be active participants. There does appear to be some kudos in attending online tutorials.

One very interesting result from the questionnaire reveals most students who attended online tutorials indicated they preferred to type rather than to speak as a way of contributing to the online activities. This has been observed in practice by the authors and is an area that needs further investigation to determine and understand the underlying reasons for this.

Students seemed to like the problem solving based approach and the use of the whiteboard in the online Tutorials.

4. Conclusion

The questionnaire has confirmed issues that have been observed in practice but has also raised areas that need further investigation. Tarhini et al. (2013) suggests that to determine the successfulness of an e-learning system it must provide a classroom experience and acknowledge the students' needs, however, if the students do not use the system then the systems benefits will be under-utilised. This seems to have been borne out by the response to their preference for online tutorials, where 20% of respondents did not really agree and the fact that 33% of the respondents did not attend any online tutorials.

Using a synchronous communication tool, such as OULive, has a number of advantages including reduction of travelling time (evidenced by the fact that 80% of questionnaire respondents agreed), immediate clarification from the Lecturer to any questions from the learner and "simulated experience of a real classroom learning setting" (Kuo et al. 2014).

The concept of the online tutorial replicating the experience of a real classroom learning setting has been cited in a number of the papers reviewed (Brown & Charlier 2013; Kuo et al. 2014), however this may not necessarily be the approach required to engage today's technology savvy students whose approach to flexible learning, e-learning and m-learning may be such that they require to consider an alternative paradigm.

In terms of practical solutions that can be tried and given the reluctance on the part of students to talk in an online session one development that is being explored is to make more use of Breakout rooms as a means of encouraging communication between students on a peer to peer basis. Observational experience suggests that students are a lot more talkative when they are left in a separate breakout room on their own. Therefore there is scope for modifying the Tutorial activity to give students their own space to work in a collaborative manner. This would build on the questionnaire result that students were broadly happy with the problem solving type activities that have been used.

OULive provides the Tutor with the option to promote the privileges of a student to allow a different level of contribution. For example one of the students could be temporarily granted higher privileges to allow the sharing of an application in order to try out a solution as part of a programming example.

The more difficult question to answer is getting the students to attend the online sessions. From the questionnaire it can be determined that there are a small number of students who will not attend any sessions but there are a large proportion of students that will attend at least one session. It is therefore imperative that these students are encouraged to return to future sessions by making the tutorial content interactive, engaging and fun. This is by no means an easy task and from experience takes time to prepare and on occasions may necessitate an impromptu improvisation to keep the tutorial activities flowing.

In conclusion the results of the questionnaire, although not extensive, suggests that maximising the delivery of online tutorials for both student and lecturer is worthy of further exploration.

5. Future Work

The questionnaire that was developed was used within the author's own Tutor groups. This has given some insight into the attitude of TU100 students to the use of technology and to their level of acceptance of their use of technology. A more substantial survey based on the questionnaire used is planned on a national level. This will give the authors the opportunity to investigate the use of technology and level of acceptance on a national scale for a particular OU course. The authors will be looking for any regional variations in the attitude and use of technology.

Determining the hardware used by students for connecting to OULive sessions could shed light on how they interact during these sessions as it is conceivable that they may be using kit that does not afford them the full range of interaction provided by OULive.

The student perception questionnaire will be revamped to include new questions on student perception of the use of breakout rooms, the type of hardware used during the OULive sessions and the type of internet connection being used. A second questionnaire will be developed to capture the views of the tutors delivering the sessions.

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