Training Material for Virtual Learning Environments

Contents

Diagrams

Introduction

This resource is designed to assist lecturers and teachers involved in vocational initial teacher training (ITT) in using Virtual and Managed Learning Environments in their work. The resource combines advice and guidance on the pedagogical implications of using online learning, with practical help on the technical skills and competencies needed to effectively teach vocational education online. The resource is generic and does not cater for one particular learning environment. Instead the advice and guidance is designed to be used across a range of platforms. Throughout the reader is given general information on skills and expertise needed, and then is encouraged to apply this to the particular platforms, software and systems which are in operation in their particular teaching and training context. Examples are included where appropriate and these are mostly drawn from the Blackboard and WebCT learning environments which are popular in many European countries.

The resource is divided into four sections, covering various aspects of learning environment use and application. It is written to give an overview of most aspects of online learning within a vocational education context, and includes information about wider issues which need to be considered when implementing initiatives and innovations of this nature.

The first section, titled "Preparing to Teach Online" deals with the general issues to be considered when a course which has been predominantly taught on a face to face or traditional basis, is moved into an online environment. Various kinds of strategies for implementing online learning are considered and the reader is advised about important considerations.

The second section, titled "Managing Content", deals with the management of learning content in an online environment. Online learning and learning

environments now allow for many different types of material to be placed online for easy download by learners, and the implications of these issues are considered in detail. Additionally, technical and software issues relating to file size and type are covered.

The third section, titled "Managing Learners" deals with the registration and management of learners within a system. Various models of learner management are considered and advice is given about effective strategies for managing this process.

The fourth and final section, titled "Managing Policies", covers wider issues of VLE usage, particularly accessibility and copyright issues, and the effective implementation of acceptable use policies so that all users of the system are clear about their rights and responsibilities and the system is protected from abuse.

Preparing to teach vocational education online

The key to effective teaching and learning online is preparation and a clear sense of direction. It is relatively easy to implement strategies for online learning which are piecemeal and proceed according to the skills and competencies of teachers and lecturers involved. But it is clear that a more systematic and structured strategy is needed if online is to be embedded successfully into a course. This section covers some of the initial decisions about online learning and provides some useful advice about steps which can be taken to ensure that any implementations are successful and innovation is sustainable.

Models of online learning in vocational education

There are many different implementation models available to those wanting to use online learning in vocational education and training. Many people who are new to these systems make the mistake of thinking that the move to an online environment needs to be a "big bang" where the course moves entirely online at a single point and where traditional models of learning and teaching are replaced at a stroke with virtual methods. Experience has shown that this "big bang" approach can be problematic and can lead to disillusion on both the part of tutors and students with online learning. An alternative model is that of gradual movement, where elements of online learning are grafted onto traditional practice in a slow but sure way, and where the best of the traditional model is preserved whilst the opportunity for innovation using virtual methods is also put into practice.

Managing Content

The ability to allow learners anytime, anywhere access to course materials is one of the most important features of online learning environments and in this section we will cover the most important aspects of content management.

Preparation of content

Procedures for preparing content prior to uploading will vary from course to course and between institutions. In many institutions, lecturers and teachers have been using information technology to produce teaching related material for many years, and in many cases these files can be uploaded into learning environments with minimal changes and adaptation. Lecture notes, handouts, PowerPoint presentations, web address lists and other multimedia resources are all suitable for uploading into the majority of learning environments. However, it is not recommended that lecturers or course teams simply "dump" the contents of their computers into the learning environment. This practice has been widespread, and has often been referred to as "shovelware", a term which refers to material placed online as quickly as possible, and with little consideration being given to usability, appearance and accessibility. Within in an educational context, shovelware is also unlikely to provide suitable pedagogic support for learners and can lead to frustration and negative attitudes to online learning being developed, as students struggle to make sense of a myriad of files and content which does not have coherent and structured routes clearly linked to learning objectives and outcomes.

Avoiding the shovelware approach requires planning and discipline. Each file or chunk of content should be carefully checked. Firstly the checks should ensure that the content is up to date and accurate. Next the presentation of

the material should be checked, formatting errors and issues with written expression should be corrected. Finally there should be a clear plan of where the particular resource fits in with the rest of the content being uploaded. There is little use in uploading stand alone files to a learning environment without giving learners a clear sense of why they are, and how they should be used. Many resources which have been used by teachers and lecturers in face to face teaching require adaptation before they are suitable for online use. In particular the content needs to be checked so that an adequate explanation of the resource and how it should be used is added. In classroom situations this is often done verbally by the teacher, but when using the same resource online, these instructions need to be made explicit within the environment itself. Take for instance a set of safety guidelines for using workshop equipment. If used in the workshop itself, these would be copied and handed out to students and the lecturer would explain what each guideline means and why it is necessary. If the students access these materials online, they will need this contextual information built into the resource itself. Either the resource should be modified so this extra information is added to the primary document, or an appendix or supplementary document should be added to cover this extra information.

Many learning environments allow for extra information to be uploaded along with the files themselves. This can be useful in letting learners know what a particular file contains and what its purpose within the course is. Figure 1 shows an example from a Master's course, which demonstrates the use of this explanatory framework. Each folder contains a set of lecture notes and resources and a brief but informative textual description added to each resource explains to learners what each folder contains. This is useful for a number of reasons: firstly it can give learners an important overview of a course online so they can plan their study strategies; secondly it allows lecturers to easily find content when updating material; and thirdly it prevents all users from having to load unnecessary content as each course segment is clearly labelled.

Figure 1: index page of lecture content, showing explanation of each resource
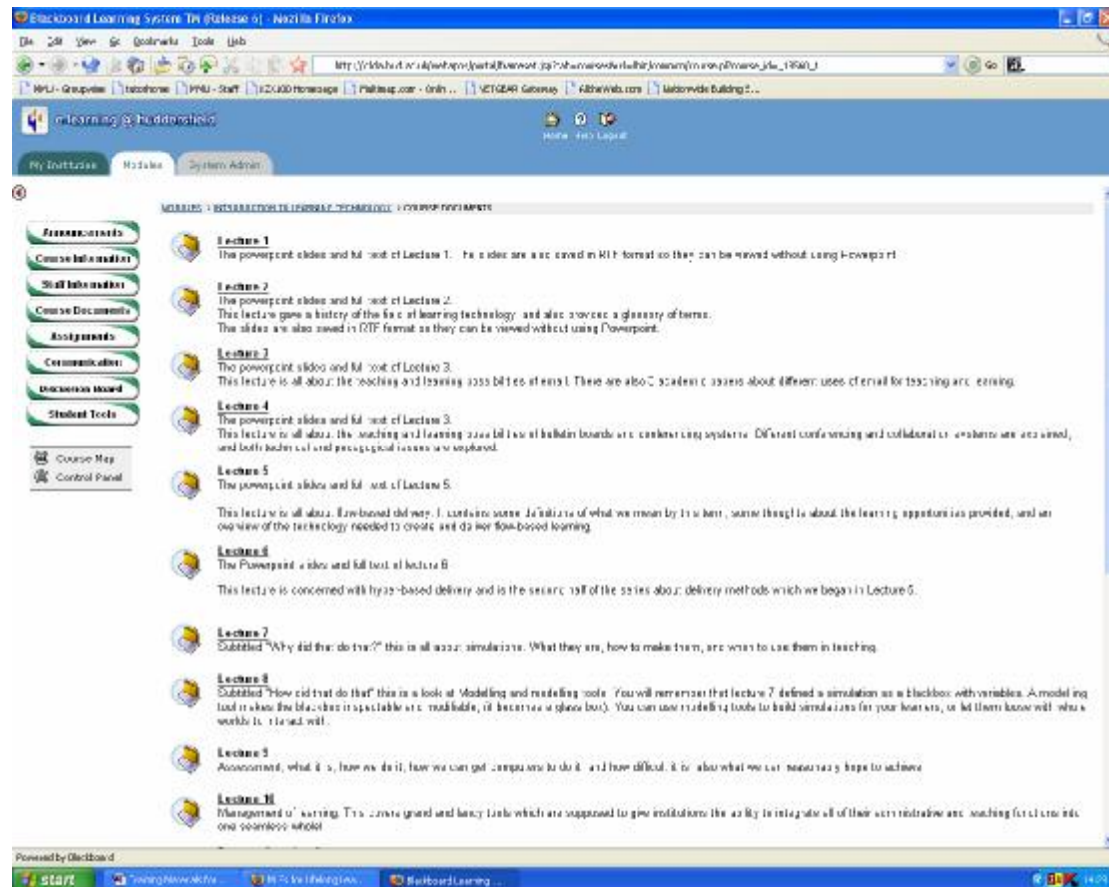
File types

Most learning environments can now handle uploads from nearly every possible file type and software program. The issue is not therefore whether you can upload a particular file, but rather whether your learners can easily access this file and use it successfully. Your choice of file type and software will be reliant on a number of issues, including:

Size of file: the size of files can vary enormously, even within an application. The general rule when choosing content formats for upload, is to work to get the smallest file size possible.

Accessibility of file: your students need to have the necessary software to read the files you upload. There is little point in uploading special graphics and illustrations in a software format which they are unlikely to be able to read. The rule is to choose formats which are readable on software which most users will have, and which has freely available "readers" which can be downloaded. Examples of these common interchange formats are:

PDF (portable document format) PDF files are easily readable by using PDF reading software, which can be freely downloaded in the unlikely event it is not already installed on a machine. The particular advantage of PDF files is that they print exactly as the creator intended, they are therefore a good choice for files which learners will print. PDF files need to be created using specialist software which is often expensive, and finished PDF files cannot be easily edited by users. These factors need to be considered when using PDF files for learning materials.

RTF (rich text format) RTF is an exchange format for word processed files. Unlike PDF, the files can be ready in most popular word processing packages and although there can occasionally be issues with formatting when files are passed between software packages, the medium is generally reliable. Files can easily be edited by the end user, so this is a good choice when uploading worksheets and templates for assignments, as learners can save the files locally and then begin making their own amendments.

Web page format (HTML) Hyper text mark-up language is the basic tool of composition on the web and is thus hugely accessible. It is also very efficient in terms of file size, with a great deal of text being able to be carried in small file sizes. Pictures can easily be added, although these need to be uploaded separately and linked to the original documents, as HTML does not allow for the embedding of media. Linking between documents is easy in HTML. HTML can be composed in a variety of ways. Some users will write their HTML documents by hand, adding tags and mark up to achieve a close

control over the content, others will use specialist software, such as Front page and Dreamweaver, and an increasingly popular option is to use the "convert to HTML" features which are available in many office packages. HTML is excellent for making your content accessible to the maximum number of users, and it can also be very efficient on download times. However, some expertise and skill is needed when creating content in this format and authoring content in this format is not recommended for beginner users of learning environments.

Using vendor specific formats

The formats listed above are all non-vendor specific, and therefore offer enhanced accessibility for most users. In many cases, institutions can use vendor specific file formats, because it is known in advance that the necessary software is installed on all machines that the students will use to access learning material. So many tutors do rely on Microsoft Office formats (DOC, XLS, PPT) when uploading material, or use other formats specific to specialist software. Consideration should always be given to the accessible of file formats. It can be good practice to provide the same file in a number of different formats. For instance, PowerPoint presentations can be saved in "outline" mode as RTF files as well as in the original format. Dual saving and uploading of files has a number of advantages. Users can choose which file type to access, and for those on slow connections, often outline formats are far easier to download. A disadvantage of saving a file in multiple formats is the increased maintenance time if the file is changed. All files relating to the master document need to be changed and uploaded if the learning environment is to be kept up to date, and this adds an increased burden of work on the tutor.

Figure 2: A demonstration of how to save a PowerPoint in outline format, using the "save as RTF" feature
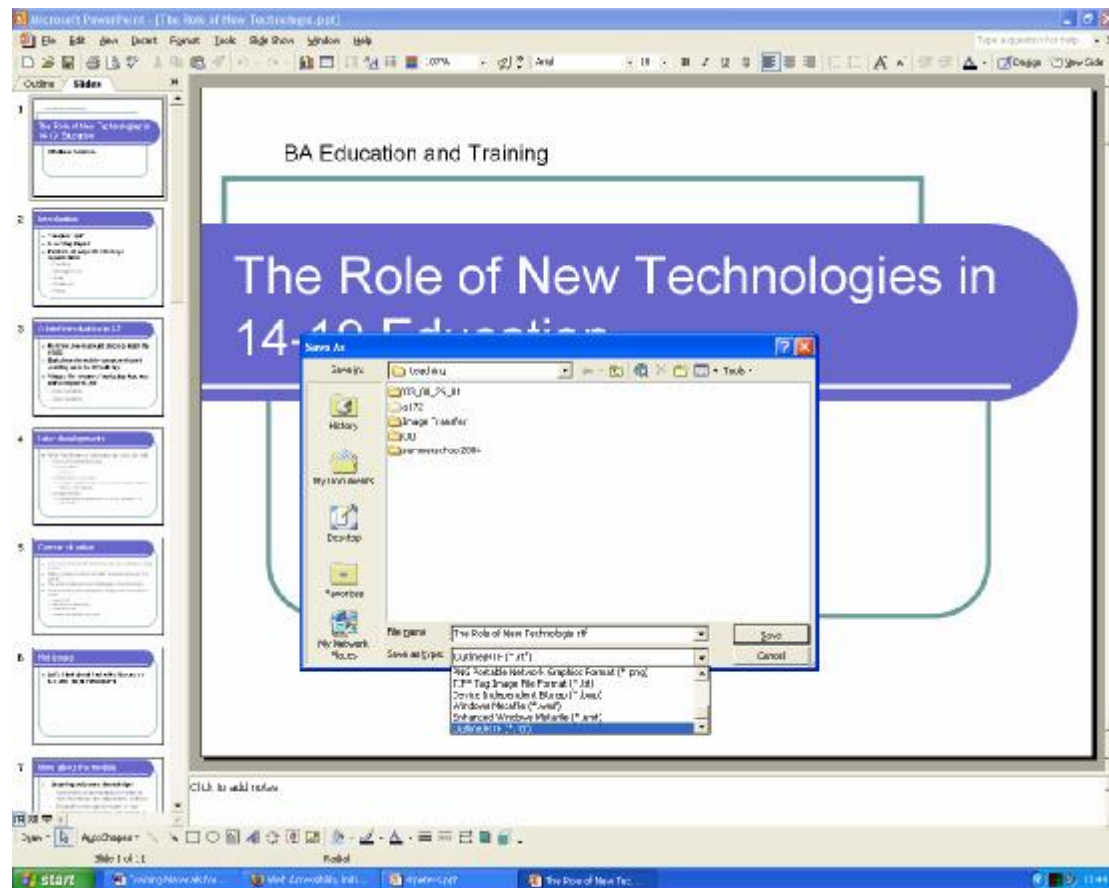

Uploading

Uploading is the generic term used when files are transferred from the hard drive or other local storage device into the online learning environment. The materials uploaded are always a copy of the originals, and the originals remain in their place. The material is thus effectively duplicated, once in the local setting, and again in the virtual setting. This procedure has many technical advantages because the creation of two copies of a file acts as a natural back up in the case of the failure of either system. It does however have implications for the management of content. A lecturer who updates files on his or her computer, must remember to upload new copies to the learning environment, and importantly outdated or obsolescent material needs to be removed so that learners are not confused or frustrated.

Uploading is typically done through the use of tutor web pages which have special functions to allow material to be passed to the server. These pages are only available to tutors on courses, to prevent students from uploading content and removing files. Some learning environments rely on a method of transfer called FTP (file transfer protocol), which requires the use of specialist software. The use of FTP is beyond the scope of this resource, but any readers whose learning environments or websites require the use of FTP will be able to get local help with these issues.

Figure 3 is a screenshot of the tutor management pages for Blackboard. The buttons relating to uploading files are contained in the upper right panel. Blackboard splits content into a number of categories in order to create a top level hierarchy of content management. These categories can be switched on or off for each particular course.

Figure 3: tutor page for controlling content in Blackboard
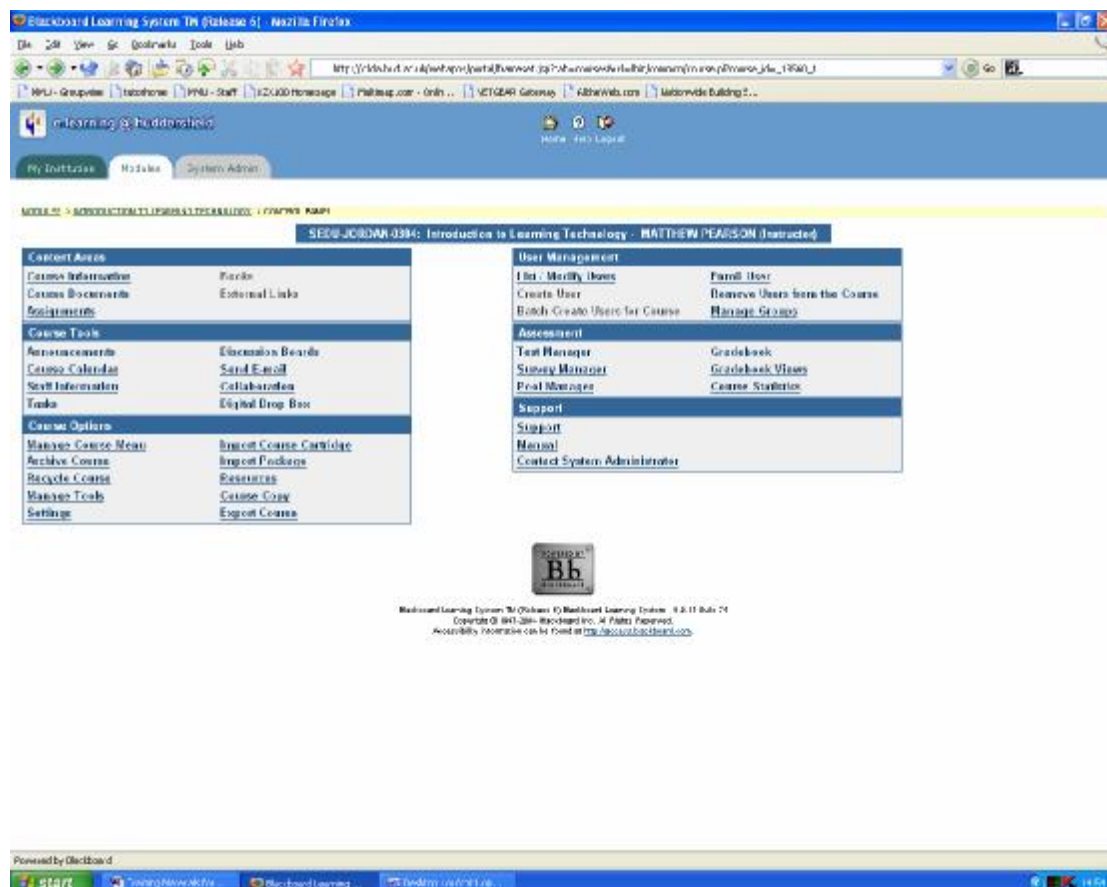
Managing Learners

One of the main benefits of a virtual or managed learning environment over a traditional web based course is the enhanced support for managing learners which these systems provide. Most systems allow the creation of individual log-in names for each user and then customise content and courses according to the profile of the learner or lecturer. These features are handled through the database which is embedded in the software. However, it is still necessary to have a rigorous and systematic approach to managing learners in these systems and databases and records need to be maintained and kept up to date. This section will consider some of the main issues involved in managing learners in online environments, and will draw on some examples of good practice to demonstrate how to work effectively.

Registering Learners

The first stage of using any system with learners is to create log in names and passwords for them. In some institutions this process has been automated and log-in names are created through the use of database transfer and batch operations. If your learner accounts are created automatically, then much of the hard work has been done for you, but you should still be prepared to work on learner management, as experience has shown that even the best system is likely to fail in some instances, and you may well need to manually register some learners on the system, particularly if they join courses late or transfer.

If your learner accounts are not created automatically, then you will need to decide, both as an individual and as a course team, who to tackle this time consuming process. There is nothing essentially difficult about creating accounts for learners in most of the popular learning environments, but for numbers in advance of 20, the process can be rather repetitive and can waste

valuable lecturer time. It is therefore wise to explore the possibility of getting technical help with this, and handing the registering of students over to support or administrative staff. You will need to decide on a clear and consistent policy for creating user log in names and passwords; failing to do this and relying on ad hoc systems can lead to confusion for both student and tutor and is can be a huge waste of time. If your learners already have log in names and passwords for other systems, then it is wise to at least use the same log in name for the learning environment. In many institutions this will be the student ID number or similar. If you create accounts with the same log in name, confusion about which log in to use will be minimised. When creating passwords, you need to consider whether to create individual passwords for each student, or whether to create a generic password which individuals then change when they are logged in. Most manual creators of learner accounts favour the latter as it streamlines the process. However, there are security issues to be considered as all students having the same password can lead to abuses and misunderstandings. To alleviate these, it should be stressed that it is the responsibility of all users to change their generic password to an individual one as soon as possible, and then it is their continuing responsibility to keep this password safe from the knowledge of others.

Email addresses and user names

Many systems now offer an integrated email system from within the learning environment. This is the case with Blackboard; user email addresses can be added to the system, which can then act as a mail server. This can be extremely convenient for both staff and students, as an integrated email and content system reduces the number of software systems to be mastered and makes for a streamlined communication environment. However user emails need to be correctly set. This is often done automatically with batch set ups, but in the case of manual learner entry, you will need to decide whether to enter these emails or have the students do this when they access the system.

The second option is preferable, as the student become responsible for maintaining their emails and the workload for tutors is reduced.

Communication

All learning environments offer enhanced possibilities for communication between students and tutors. It is not possible to list the totality of all features supported by systems, so this section instead gives an overview of common features and how these can be used within vocational education.

Email: The most basic communication tool and not restricted to learning environments. Email remains the most popular tool for communication on the Internet and its use in education should never be underestimated.

Discussion Boards and Online Forums: these asynchronous forms of communication are extremely useful as they allow the posting of messages in a common space used by a course or module. They have many different uses within a course, and the exact choice of deployment will vary. Some tutors use the online forum features of learning environments as social spaces for students and tutors to talk about a range of issues, whilst others prepare formal work to be completed and even tie assessment outcomes to participation in these discussion boards. Creating discussion boards is straightforward in the majority of systems, and tutors can add new boards or delete ones that are finished with easily. The following guidelines for good practice should be considered when using discussion boards within vocational education

1: give students a reason to participate. Experience has shown that all users usually require a reason and sound motivation to take part in online discussion. Do not expect it to magically happen just because you make the system available! You should explain to learners clearly why you are making

these features available and what they will get out of using them. For instance, you may explain that the discussion areas will be used for talk about the assessment process and you will give specific help on these issues here as opposed to in the classroom. You may even make participation in the discussion areas compulsory, but in this case you will need to think this decision through carefully and draw up clear rules governing acceptable participation. You should also make provision for those students who are prevented from taking part.

Synchronous Chat Facilities: these are features of a system where users talk in real time. They are often text based, but increasingly these systems are increasing in complexity and features such as shared drawing spaces and even rudimentary audio and video conferencing have been added. Features of this nature are rarely used currently within vocational education, although there is a case to be made for exploring how this could be changed in the future.

Support for assessment

Submitting assignments

In the final section in "managing learners", we will consider the support for assessment provided by online learning environments. At the most basic level, the environments provide a way for tutor and student to communicate virtually, so files can be passed for assessment purposes. This has many advantages over the traditional use of paper drafts, but it needs to be clearly managed, otherwise the tutor can overwhelmed with the number of drafts coming in, and tracking each submission can be difficult. It is good practice to create a clear policy for accepting submissions by email through an online learning environment, and publicise this to students. Some systems, such as Blackboard, build on the idea of using email and attachments, and offer a "digital drop box". This is a space on the server which can be accessed by each user and where files can be left for the tutor to access. Once they have

been read, the tutor can reload the file into the drop box and it can be collected by the student. Using the digital drop box has a number of advantages over using normal email for assessment transfer, not least in that the email box of the tutor is kept free of the often heavy traffic which this practice can encourage. The system also lets both tutor and learner know when a file has been accessed or changed, so a degree of transparency is achieved.

Quizzes and surveys

Both Blackboard and WebCT have tools for creating quizzes and surveys. These are usually variations on multiple choice. The software handles the administration and marking of the tests, and many features of the tests can be controlled by the tutor. It is the case that these features are largely underused within vocational education. Although there are undoubtedly limits to the kinds of knowledge and skills which multiple choice style tests can measure, they can be used effectively in many contexts especially when combined with other assessment methods. The tests are marked automatically and scores are passed to the tutor so a great deal of time is saved by using these systems. Tests can also be reused from year to year, and once the initial time expense of creating the test has been invested, maintenance is relatively easy.

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