Unit 04

Interactive media product

ABOUT THIS UNIT

Interactive media has now become established as an integral part of everyday life. From browsing the web to using smartphones, interactive media exists, and every product has been planned for an identified purpose.

By completing this unit, you will understand how interactive multimedia products are used for a range of purposes and across a range of platforms. You will learn how to design and create an interactive media product and test it using both technical and user tests.

LEARNING OUTCOMES

The topics, activities and suggested reading in this Unit will help you to:

1. Be able to compare interactive media products
2. Be able to initiate, plan and design a new interactive media product to a client brief
3. Be able to create a planned interactive media product
4. Be able to test the new interactive media product

How will I be assessed?

You will be assessed through an assignment which has a series of tasks, which is set and marked by your tutor and externally moderated by OCR.

How will I be graded?

You will be graded using the following grading criteria, which are in the specification that is produced by OCR for the qualification.

Learning Outcome **The learner will:**	Pass **The assessment criteria which are the Pass requirements for this unit.**	Merit **To achieve a Merit, the evidence must show that, in addition to the Pass criteria, the candidate is able to:**	Distinction **To achieve a Distinction, the evidence must show that, in addition to the Pass and Merit criteria, the candidate is able to:**
1 Be able to compare interactive media products	**P1** Describe interactive media products	**M1** Compare and contrast the use of different platforms and formats for delivering interactive media products	
2 Be able to initiate, plan and design a new interactive media product to a client brief	***P2** Generate ideas for a new interactive media product for a client brief *(*Synoptic assessment from Unit 2 Pre-production and planning)*	**M2** Explain the legal and ethical issues relating to product ideas	
	P3 Produce a plan for the creation of the interactive media product from the generated ideas		**D1** Justify the planned interactivity and range of media content to meet a client brief
3 Be able to create a planned interactive media product	**P4** Create the planned interactive product	**M3** Create a graphical user interface combining media elements with user interactivity	**D2** Demonstrate optimisation techniques across the interactive media product
4 Be able to test the new interactive media product	**P5** Conduct testing on the finished interactive media product		

LO1 Be able to compare interactive media products *P1 M1*

1.1 The purpose of interactive media products

Interactive media products are now all around us. With recent advancements in technology, they are used for many different purposes and can be found and accessed across many types of **platform** and hardware.

GETTING STARTED

(10 minutes)

In pairs, make a list of at least ten media products that you use regularly that allow you to make choices about which content you want to access. The products can also include those that allow you to make comments.

KEY TERM

Platform – A media platform is the medium by which information and content is distributed to the audience (for example, website, app, TV programme, film, video game).

Promotion

Many **interactive** media products are used for the purposes of advertising and promoting products. JavaScript programming creates the interactivity that we find on most web-based products and this is increasingly being used in advertisements online, particularly on smartphones via apps. These are known as 'smart' advertisements. On **video-on-demand (VoD)** and catch-up television services, for example, advertisements that were traditionally shown on TV have taken another dimension and audiences can now have a choice to click on a full-screen pop-up advert that allows users to pick and choose what they want to know about the product. ITV Player and YouTube, for example, feature advertisements before most of the main content starts playing. Even if there is only a hyperlink directing the user to the advertiser's own site, it is still much more interactive than watching traditional commercials on television.

▲ **Figure 4.1** 'Very' interactive advertisement broadcast on video-on-demand site, ITV Player

KEY TERMS

Interactive – Allowing a two-way flow of information between a computer and a computer user; responding to a user's input.

Video-on-demand (VoD) – Services such as YouTube, which allow users to select and watch/listen to video or audio content when they choose to.

Simulation – This is a representation or imitation of something in the real world. This may include attempts to replicate environments and spaces or vocational, work-based situations.

Education and training

Interactive media products have long been used for training and education. With the earliest versions of these training tools, the products were provided on CD-ROMs and then DVDs, such as those used in learning Adobe Photoshop, Rosetta Stone language development and the DVLA theory test. More modern education and training tools are provided on the World Wide Web, such as at Lynda.com or the BBC Bitesize website. The development of interactive **simulations** of 3D objects and environments has come to the fore in recent years, especially in the field of medicine, where new techniques can be practised before operating and the internal organs of the human body can be analysed without the need to operate. Flight crews for airlines, the air force and even space programmes now use interactive media simulations as part of their training.

Entertainment

Many interactive products are produced solely for the purposes of entertainment and spectacle. DVDs have long had interactive extras whereby audiences can access 'behind the scenes' content, director commentaries or deleted scenes as part of the extra package content. However, the advent of internet technologies and the creative way in which both producers and audience members use them has led to some engaging and quite advanced interactive content to allow audiences to immerse themselves in a media product. Film franchises no longer just have trailers, but online environments. *The Hunger Games* (2012) franchise, for example, had a full interactive campaign that allowed fans to communicate across social media. The users could access the interactive environment and experience the scenery, moving around the advert to make content choices. Music videos are also moving towards being interactive as a medium that will help sell the song and concert tickets in an era of illegal downloads. For example, in 2014, The Webby Awards (which celebrate the best online content across every software platform and hardware technology) crowned Pharrell Williams' 'Happy' music video, made by Iconoclast Interactive, the best online interactive product of the year that used audio-visual media.

Social networking

Social media is one of the biggest forms of interactive media. With the advent of Web 2.0, audiences are now able to contact others on the other side of the world. However, social networks such as Facebook, Snapchat, Instagram and Twitter have revolutionised the way audiences interact with one another and media producers alike. People upload their own media content, such as photographs and videos, and respond to official feeds with comments and ratings. Hashtags are used to connect and spread information **virally**. Social media apps are some of the most interactive media that audiences use on an everyday basis.

For more on the uses and audiences of social media, see Unit 6.

KEY TERMS

Viral – When a piece of media becomes popular through the process of internet sharing, typically through social media and sharing websites.

Immersive – Digital technology or images that someone can become fully engaged and involved with, partly owing to the impact on aural and visual senses.

MMORPG – An acronym for 'massively multiplayer online role-playing game'.

Games and simulation

Video games are **immersive** technologies. Open-world role-playing games in particular, such as *The Witcher 3: Wild Hunt* (2015), combine an engaging narrative with role-play to allow the player to enter a large and believable world. **MMORPGs** also offer interactivity across the globe, with games such as *Star Wars: The Old Republic* (2011) allowing gamers to work in teams to complete missions. Games therefore offer audiences a simulated environment in which they can make decisions and control the action and progression.

Simulated environments, as suggested earlier, can also now be used for training purposes. Professions such as medicine and architecture use computer software to train users how to work practically to solve problems. For example, in medicine, organs can be simulated so that training surgeons can practise techniques that would be needed in real operations. Increasingly, many products are moving towards virtual reality environments, where multimedia elements are combined to create an environment that replicates reality as closely as possible. While many virtual reality systems utilise hardware such as motion suits and headsets like the Oculus Rift (Figure 4.2), gaming companies such as Crytek are increasingly developing games with virtual reality capabilities. For example, one of their latest releases, *The Climb* (2016), fully simulates a mountain rock-climbing range.

▲ **Figure 4.2** Oculus Rift virtual reality goggles

THINK ABOUT IT

Case scenario

Interactive games: Minecraft

Minecraft is a video game that allows the player to move outside of traditional gaming environments. The creative and building aspects of *Minecraft* enable players to build constructions out of textured cubes in a 3D generated world. Other activities in the game include exploration, resource gathering, crafting and combat. The game was originally released for PC in 2009 and a version for Android was released in 2011. Between 2012 and 2015, the game was released on multiple devices and platforms including Xbox 360, PlayStation 3, Xbox One, PlayStation 4, PlayStation Vita and the Wii U. The *Minecraft: Pocket Edition* app was released and was an instant download hit, and now runs on most major smartphones. A wide variety of user-generated content for *Minecraft* is available for download from the internet, such as modifications, texture packs and custom maps. Modifications of the *Minecraft* code called 'mods' add a variety of gameplay changes, ranging from new blocks and new items to entire arrays of mechanisms to craft. By 2014, the game had over 100 million registered users, became the best-selling PC game of all time and had sold 60 million copies across all platforms including smartphones.

▲ **Figure 4.3** *Minecraft: Xbox 360 Edition*

Now THINK ABOUT the following:

1 What type of interactive features do you think make *Minecraft* so successful across a range of media platforms and devices?

Journalism

Global news sites are now interactive and are constantly updated by media producers. All major producers of traditional broadcast and print news media have both a website and smartphone-accessible app. With reference to this, users can now pick and choose which news is delivered to them, with the BBC News app in particular

offering audiences the opportunity to pick and choose their favourite topics. In this sense, news, according to **David Gauntlett** (2004), is moving from a very traditional top-down model of one-way communication to becoming more accessible to audiences, giving them a choice in what they want to see, hear and read. For example, the apps for BBC News and Sky News allow the user to choose what they want to view at each stage of a story, from 'Breaking News' to the updates that follow. The apps allow the user to look at more in-depth features than normal broadcast journalism, including the use of 'what if?' scenarios such as were used before the results of the General Election. Users can also watch video content about public opinion or follow links to external references and websites for more information.

1.2 Distribution and platforms

As suggested above, the creation of new media, internet and web technologies means that interactive media products reach audiences in more ways than ever before. It is important as part of this unit that you understand the types of platform that your interactive product can run on and how your target audience will access it.

Web pages and blogs

Web pages feature many interactive products, such as adverts or film trailers, which are generally hyperlinked to other content that allows audiences to investigate products further. Today, almost all websites feature interactive content as part of their core design, and JavaScript allows carousels and dynamic scrolling content that makes what used to be static content engaging and, more importantly, controllable by the user. Blog hosting sites are highly interactive and they are a form of Web 2.0 technology that allows audiences to embed sound, video and graphics. Services such as Flickr and Pinterest allow users to upload and blog their own experiences, as well as pick and choose reference points for their own research and enjoyment.

PAIRS ACTIVITY

(20 minutes)

In pairs, pick three websites and write down all the interactive features and content. You should write down what benefits the interactivity has for a visitor to each of the websites.

Apps

Apps are interactive media products that audiences download from app hubs such as Apple's App Store or Google Play on their smartphones. Apps can also be accessed on tablets, laptops and desktop computers. While essentially apps are just connections to larger websites or mobile web content, they allow users to connect, post, research, add personal details and upload content. All social media networks have apps and the most popular ones are Facebook, Twitter and Instagram, which have been customised specifically for smartphone use. Other popular types of app are shopping websites such as those for Amazon and eBay, and gaming apps such as *Candy Crush Saga* and *Angry Birds*, the latter of which has become so successful that it has diversified into other media such as *The Angry Birds Movie* (2016). All apps can therefore be said to link to or act as interactive products in their own right.

Multimedia products

As discussed earlier in the chapter, older interactive products were mainly CD-ROM-based. These products were the first type of interactive media products that fully combined elements such as animation, graphics, sound and video. These elements are now commonly found in most media that audiences engage with on a daily basis, including advertisements in particular, which combine a range of multimedia techniques to engage audiences. The following are a few of the other types of multimedia product that audiences engage with.

Kiosks

These are still increasingly found in public spaces such as museums, art galleries and adventure parks. Very often, kiosks are educational and offer visitors, particularly school children, the opportunity to challenge their knowledge at a dashboard with multiple-choice questions, or engage them in learning further facts. Text and images can be chosen by the visitor and different pathways about different topics can be followed. Magna, the steel museum and interactive centre in Rotherham, has many of these types of kiosk, as does the Museum of Science and Industry in Manchester.

Television

Television has become interactive; pay-per-view, video-on-demand and simulcasting have given users control over what they watch and when they want to watch it. This increased interactivity has led to some theorists such as **Sonia Livingstone** (2002) discussing how new television technologies that offer increased audience control are leading to the 'death of the schedule'. Audiences also combine interactive catch-up services with use of social media and this could be said to enhance the viewing experience. Social TV, or 'second screening', allows viewers to engage with a television programme in a different way, and they can instantly see what others are posting about the same experience.

More about how social media has increased audience participation is discussed in Unit 6.

Mobile devices

Mobile technologies such as smartphones and tablets are, according to **Henry Jenkins** (2006), 'black box' devices that allow audiences control over the media that they consume and distribute. We have already discussed how mobile apps can be interactive, acting as links to websites, but audiences use smartphones and tablets for a variety of functions beyond social media and shopping. Text messaging, emailing, playing music, GPS, gaming, banking, notetaking, accessing news websites and even online dating are all ways in which audiences use mobile devices in interactive ways. It is obvious that many of the ways in which we use mobile technologies are linked to the increasing activity of internet technologies, but 4G mobile signals and enhanced GPS have led to enhanced location services, such as Google Maps, becoming more efficient. As such, even older mobile devices such as sat-navs are becoming slightly redundant as the power and reliability of mobile devices increases.

1.3 Design and components of interactive products

The design and layout of interactive multimedia products will be very much linked to their purpose. All the texts have to be engaging in terms of how they look in order to attract the audience. The main thing to remember is that many interactive products are part of a brand and so will need to follow a specific **house style**. The following are some of the components and media elements that go into creating an interactive product.

Layout

It is important that the right layout is considered when creating an interactive product. In the next section, we will look at **navigation**, but essentially it is this that also informs the layout rather than just looking at branding as with graphic design or print advertising products. It is important that the position of elements is considered, because usability is key. For example, even on a basic DVD menu, if the layout of the interactive functions (such as the 'play', 'stop' and 'next' commands) is not easy to follow then the product becomes difficult to use.

INDEPENDENT ACTIVITY

(30 minutes)

At home, pick two of your favourite DVDs. Look at the ways in which the menus are laid out.

- Write down the similarities and differences between the two.
- Make an evaluation of which layout is better and write down why.
- Take this information back to class and feed back to the group.

Graphics

Text and images are an integral part of any interactive media product. You will realise during your analysis and exploration of different types of products that they draw the audience to and direct attention towards these features. Different font styles represent the brand and ethos of the company or product. Images are used as part of the interactivity, such as in pop-up adverts or interactive television adverts where images or **icons** are used to link to more information about a product. Logos are often used as primary images, particularly on mobile and tablet apps, which link to further content.

KEY TERMS

House style – Defines the colour scheme and font style of a specific brand or company.

Navigation – The system on an interactive product that allows a user to move around and make choices about which content to access.

Icons – Specific graphics (such as arrows or logos) that are used to direct and inform users about the content.

Sounds

Sounds are used in interactive media products as with all media to engage the audience and direct attention. Quizzes will have sounds that signify a right and wrong answer, and many websites have background music as part of a launch page. DVD menus and video games will generally have sound motifs that let the audience know they are making a specific selection. Consoles such as the Xbox One have always had very recognisable sounds when making gaming choices, and video games themselves, from the Nintendo's early *Mario Bros.* and Sega's *Sonic the Hedgehog* to today's role-playing, choice-driven games have used sound to direct users.

Animation and video

All web-based interactive media use animation and video to draw the audience to the core content as an expansion of old text-based methods. The use of animation and video brings content to life. Even in kiosks and app-based content, basic animation helps to guide users. Most products that have the primary purpose of informing or educating will use animation and video to draw in the audience. Figure 4.4 demonstrates how video is being used instead of written text.

▲ **Figure 4.4** Digital learning web page and use of video

File types

Interactive media products are distributed as different file types. As we have discussed, most are web-based and are therefore coded using HTML5 with CSS3 design formatting. They can be accessed and played across all major web browsers including Chrome, Safari, Firefox, Windows 10 Edge and Opera. JavaScript code is then linked and embedded into the raw HTML code to create the more advanced interactivity that many users experience across modern websites. Older formats include Adobe's Shockwave Flash (SWF), which has packaged content since the late 1990s; however, Adobe's newest design software, Adobe Edge Animate, is a simple package that allows designers to create interactive products without being high-end coders, and the final output will still be in HTML for easy inclusion into website code. As we have suggested, apps are simply links to web-based products, but Android devices use Android Application Package (APK) as a **container** for their app content.

KEY TERM

Container – The format in which content is delivered to the user. Very often, interactive products are packaged in specific formats depending on their platforms and operating systems (for example, Apple versus Android).

1.4 Interactive features and controls

Basic interactive features

You will be familiar with the basic interactive functions of web pages and other interactive media products. All products will have a menu of some type and you will be required to link each section of the menu to a different section of content. The following are a list of the main basic features:

- **Navigation bar** – The main way that menus are presented on websites is through the navigation bar. This directs users to specific areas of the site and sometimes the navigation bar has a dropdown function to allow for even more choice.
- **Hotspots** – Images can also link to other content, play a video or sound, or provide more information if they are clicked on or hovered over. This type of function is known as a hotspot.
- **Hyperlinks** – These are used across web pages and apps to link to both internal and external web content.

User comments and participation

We are familiar with the ways in which social media products allow for user comments and audience engagement. However, one of the main ways in which interactive media products work is by allowing audiences to input comments, particularly for quizzes and forms. This is a good way to encourage audience participation on content, particularly if the purpose is to inform and educate.

User controls

All interactive media products feature user controls such as play, stop and repeat buttons or commands. Videos and sound require pause, stop and play commands, and all online video-on-demand services have such controls. Kiosk services require high levels of user controls, as video and spoken aural commentary can sometimes be lengthy. Interactive products such as video games are inherently based on user controls. Sophisticated and advanced first-person shooter games demonstrate how the product would not operate without full user control and engagement in terms of users being able to select and choose food and weapon items.

▲ **Figure 4.5** Interactive kiosk in a museum

1.5 Benefits and limitations of interactive media products

It is important to think about what makes an interactive product beneficial for the audience. Equally, we can also think about the limitations that some might have based on our own research and daily use of them.

Benefits

The main benefit of interactive media products – certainly contemporary web- and mobile-based products – is that they can be accessed anywhere at any time if there is an adequate Wi-Fi connection or mobile signal. This is why mobile apps and games are so popular. Social media applications can be accessed globally from mobile devices. They are increasingly interactive with video content and news forum links. As we have discussed, many interactive media products target a specific audience, such as on-demand services for narrowcast television channels. This also links to the effectiveness of interactive products; they are able to fulfil a specific purpose and reach a target audience in ways that traditional broadcast media could not.

Benefits of apps

Apps can be accessed from smartphones and tablets. They are convenient ways of accessing websites, and provide services such as banking, shopping and instant access to social media. Many apps do not require you to log on repeatedly. They are generally easy to navigate and require no access to a computer.

Benefits of websites

Websites are accessible from all portable and desktop devices. Owing to Web 2.0, hypermedia and multimedia allow for interactive experiences. Websites allow users to link to content through accessible navigation and can easily hyperlink to content on other sites. Website technology has also advanced to allow services such as banking to be offered to audiences securely. Websites built in HTML5 and JavaScript are compatible across devices.

Benefits of kiosk products

Kiosks offer users an interactive experience in a specific context. In museums, for example, the information in kiosk products is often tailored to the wider educational content for specific audiences at the museum. Very often, these are in the form of quizzes and offer an instant answer to a specific question to aid progression and learning.

Limitations

Some interactive media products have the potential of being fully immersive. However, the size of them means that they cannot always be distributed online. Equally, some video games cannot be played by all users owing to the amount of time it takes to download the high-resolution content. It is also apparent that some web-based interactive products cannot always be played across platforms. However, the need for a specific plug-in (for Java or SWF) is becoming less common as developers are increasingly using HTML5 and JavaScript that can be accessed across browsers and a range of mobile devices.

Limitations of apps

While apps are convenient, they are sometimes limited in terms of what content is accessible when compared to the website. Sometimes apps require updates to allow users to gain the full features and fixes of bugs that companies have completed. Some apps, including many social media apps, do not work without a full internet connection.

Limitations of websites

While broadband speeds are ever increasing, websites and some multimedia and video-on-demand content is slow when users attempt to download and stream it. In some cases, websites are not compatible with varied devices in terms of how the content is displayed on desktop compared to mobile or tablet devices.

Limitations of kiosk products

One of the main limitations of a kiosk is that they rarely have keyboard facilities or an interface that allows users to enter information easily. Very often, these kiosks are touchscreen only, and while this is good for basic question and answer interactive products, any typing that needs to be done can be quite slow.

KNOW IT

1 Name the four purposes of interactive media products.
2 Name four different types of interactive media product.
3 Explain why a smart advertisement is interactive.

L01 Assessment activity

Below is a suggested assessment activity that has been directly linked to the Pass and Merit criteria in Learning Outcome 1 to help with assignment preparation and includes TOP Tips on how to achieve best results.

Activity 1 Pass criterion *P1*

Identify at least three interactive media products and describe their purpose and how their design meets this purpose. Try to include a variety from the animation, film, television, radio or video games industries.

This can be completed as a short report or vlog.

Activity 2 Merit criterion *M1*

You should compare and contrast the use of different platforms for the delivery of at least three different interactive media products. These may have been created for any purpose. Make sure you give detailed reviews of how the products differ depending on the platform.

TOP TIPS

- ✔ Try to include a broad range of interactivity techniques for criterion P1.
- ✔ Make sure you show your knowledge of a range of interactive products across different platforms.

LO2 Be able to initiate, plan and design a new interactive media product to a client brief *P2 P3 M2 D1*

2.1 Creating a project specification for a client brief

It is important that we think carefully about what the client is asking of us before we create an interactive media product, owing to the vast number of options available to us. We must especially consider how to design it and the multimedia features that would be most suitable to meet the requirements of the brief.

GETTING STARTED

(10 minutes)

Work in pairs and pick an app of your choice. Write down the purpose of the app and how you think the design and control features (such as use of text, graphics and navigation) meet the intended purpose.

Feed back to the class.

Purpose and client needs

As with all media productions, assessing the purpose of a product is one of the most important aspects to consider when you begin to plan. The client may or may not be entirely clear about what exactly they want but they will have a purpose in mind, which will be to promote or advertise, inform, educate or entertain. You will need to think about what type of interactive product is most suitable to meet the needs of the client. If, for example, you are approached by a museum to create an interactive quiz and this is to be used by students at the museum, then your purpose will be to inform and educate, which means it will have a very different feel than products that you may encounter yourself every day.

Target audience

The target audience is another really important aspect to consider. The client may say 'everyone' when you ask who the app that they want made is aimed at. However, it is important to remember that age and gender in particular will have a great impact on planning of design features such as colour, use of images and font styles. The *Candy Crush Saga* app games are quite clearly aimed at women, for example, and the bright colour scheme and central characters demonstrate that the target market has been thought about. Social media apps, while being aimed at the general public, have also clearly been designed to cater for all types of audience. Functions and elements are easy to use on most apps, and use of language on help or query links (see YouTube, Facebook or Instagram) also has to be accessible to all users if there is a wider target audience.

Refer back to Units 1 and 2 for more information on demographics for your product.

Content

The content of the interactive product will need careful consideration when interpreting the client brief and the original purpose. Promotion of a product is likely to work well with video, but then this needs to be weighed up against whether the client has asked for a website, a web-based interactive video or an app. If it is a website the client wants and they want to promote a new service for their company, you will need to think carefully about how you can use multimedia content such as sound, animation and video to help convey the message, while also staying within the corporate design framework and reflecting the ethos of the company. The client may want the product to be an interactive advertisement or game, in which case you will need to think about how the original message can work with interactive elements to give the audience the opportunity to access further information. An excellent example of quite a sophisticated interactive product that demonstrates how content and format have been carefully considered is McCann Erickson's 'augmented reality' app for IKEA Mobile (Figure 4.6). With a tablet device, you can virtually touch products on a given page, and this was used as a supplement to the original paper catalogue and an extension to web-based image zooms and rollovers.

▲ **Figure 4.6** IKEA's augmented reality app that places furniture in a room

Format

In terms of format, it is important that you consider compatibility across different platforms. Think about the software that interactive products are built in and the file formats of assets that are used. Apps or websites built in HTML5, CSS3 and JavaScript can be compatible across different platforms and used on different devices. Adobe Flash's ActionScript is a form of JavaScript and this makes it compatible across a variety of platforms. However, certain interactive products such as **native apps** can only run on certain devices because they have been built specifically to run on a particular operating system. Xcode, for example, is software in which native apps can be built that will only work with Apple-based smartphones or tablets. **Integrated development environments** also allow for interactive products to be built that will run more easily across different devices. One example of such software in which these apps can be built is Eclipse.

Budgeting

As with the production of all digital media products, the budget will be set for you by the client. As discussed in Learning Outcome 1, you will need to think about the assets you are using in terms of copyright. Are these assets for the interactive product sourced from Creative Commons? If so, what type of licence is it? Is it free or is there a form of payment based on how the piece of music, image and so on is used? You will also need to look at royalty payments for use of video or music. Does the company you are working for have a PRS or PPL licence if the product is going to use music or a recognisable soundtrack? The budget you have available for the use of assets in your interactive product will need to be negotiated if the client has a specific vision that cannot be worked around.

See Unit 16 for further information on licensing for use of sound.

You will also need to think about **web hosting** if the product is a website. There are many cheap hosting sites, such as GoDaddy, Fasthosts and ONE, where you can also purchase a **domain name**. The website can be operated from here and content can be uploaded and changed easily. There are other ways to work around this, such as using Cloud services. If a website is built using software such as WordPress then you need to look at the mechanics and cost of transferring it to personalised hosting sites.

KEY TERMS

Native apps – Apps that are built using software that runs on a specific operating system, and intended for use on a particular device.

Integrated development environment – A type of software that allows HTML5 and JavaScript to be integrated with software that is made to only create native apps, to allow for changes to be made.

Web hosts – Companies that provide space on a server owned or leased for use by clients.

Domain name – The part of a web address that identifies it as belonging to a particular domain, company or country.

2.2 Planning and design

As with all media products, you will be creating mind maps and mood boards based on the client requirements to give you an initial idea about what content might be included in the product, as well as the house style, colour scheme and thoughts about navigation. Your client will

also tell you about the commercial considerations that they would like to plan for. The product may already have sponsorship or planned advertising space; if so, this will need to be included in the initial planning. However, the following aspects need to be particularly considered to aid the design of an interactive media product.

Production schedule

A detailed production schedule or work plan is an essential document in which dates, timings, activities, location, personnel, resources and contingency plans have been thoroughly discussed. When creating contingency plans for interactive products, you are likely to need ample time for user testing of the product. This should be built in with plenty of time afterwards, as there are likely to be many functions that need to be revised after testing. All elements of production should be in the production schedule, including any assets that are being created from scratch (such as original photography and production of music).

Please refer to Unit 2 for more information on production schedules and work plans.

Page and screen designs and construction of a sitemap

For the graphics and video products you may produce, you will need to create layouts, storyboards, flatplans or **wireframes** for your interactive media product. You will need to think carefully about colour scheme and juxtaposition of elements, how any animation will work, and the chronology, shot types and video effects you plan to use. You will need to pick the right pre-production documentation for each specific element you want to use in the design of the product.

Refer to Units 2 and 3 for extended information about planning documentation for different types of audio-, print- and video-based media products.

A 'sitemap' is a document that is produced specially for websites and interactive products, owing to the fact that it helps you chart the desired navigation of the elements or the pages or screens within the product. In the most basic sense, the sitemap simply charts the links, but a well-constructed sitemap will show how each of the elements link back to each other. For example, planning for a website will require a wireframe for each page with an extended sitemap annotated to demonstrate where each hyperlink or icon will go and how the audience will navigate round the product. There are free programs that do this for you, such as Google XML Sitemaps, or paid products such as SlickPlan, which generate the map once the information is submitted.

▲ **Figure 4.7** Example website sitemap

KEY TERMS

Wireframes – Flatplans and drafts of web pages to demonstrate juxtaposition of elements and house style. These include designs of screens and pages using empty boxes to demonstrate positioning of elements. Annotations are used to provide clarity of contents and reasoning.

Graphical user interface (GUI) – Allows users to interact with electronic devices through graphics, icons, text and layout of workspaces.

Operating system – Software that supports a computer's basic functions.

The graphical user interface

You will need to consider the **graphical user interface (GUI)** in terms of how the audience will be able to interact with the content and the features available on the interface that your product will run on. You will need to think about how the GUI may impact on the way in which audiences can use the product. Generally, however, successful GUIs such as Windows and Apple **operating systems** feature the following, to allow audiences to use online products and software:

- **Pointer** – A symbol that appears on the display screen and that you move to select objects and commands. Usually, the pointer appears as a small angled arrow. A device such as a mouse or trackpad enabled users to use earlier interactive products. Now, touchscreen devices allow you to select things directly. Most laptops now have a combination of ways to access the interface.
- **Icons** – Small pictures that represent commands, files, or windows. By moving the pointer to the icon and pressing a mouse button, you can execute a command or expand the icon into a window. You can also move the icons around the display screen as if they were real objects on your desk. Again this is easier on a touchscreen device.
- **Windows** – You can divide the screen into different areas on devices such as a laptop or desktop. Even on smartphones or tablets, you can have different windows, apps or pages open at the same time.
- **Menus** – Most GUIs let you execute commands by selecting a choice from a menu. On tablets and smartphones this is exactly the same, as the icons are grouped together and each has their own set of familiar menu commands.

Interactivity and accessibility

Your sitemap and planning documentation should clearly show how the product is going to be interactive, where the users will be able to activate controls and what the individual elements should link to. It is important that this is clear when presenting designs to the client for feedback, because you may be able to address any problems in planning that might not otherwise be picked up on until user testing. In terms of accessibility, you will need to make sure that you have thought about whether the product can run on or be supported by different browsers. Firefox will support most JavaScript commands, but Safari will not run some SWF files, so you will need to think about the ways in which your products are likely to be accessed by audiences.

You will also need to think about labelling content so that audiences will know what should be on the screen if images, videos and other content do not display on their device. HTML editors such as Adobe Dreamweaver prompt you to label all images with 'alt' tags, and when coding in HTML5 you are required to put the names in as part of the <img> code and <a> href code that links content to other sites or products.

You will also need to ensure that your interactive product can be used and accessed by disabled users. You should make images and text scalable and responsive, so that as well as responding to the media it is used on, it responds to any settings applied by the user due to disability. These might include screen readers (alt text used) and ensuring that fonts and images can change size based on the user's settings.

Sourcing assets and optimisation

You will need to source assets for the interactive media product and think carefully about the copyright involved. Based on your initial planning, you will have a discussion with your client about the suitability of images, sound or video you will potentially source or create as original content. Online resources and assets, many of which are free, are a quick and easy way to find sound effects and music. However, your client may have specifically asked for originally filmed content to embed in a website, for example. Depending on what the content is, you may need to optimise it for use online or across mobile or interactive devices. You might need to reformat image files into the .png format to keep transparency and file size small – an SVG file could also be used because this is scalable and aids accessibility. Video and animation should be converted into the .mp4 format using the H.264 compression option in your editing software if the content is going to be embedded into websites.

GROUP ACTIVITY

(50 minutes)

- In small groups, access the Creative Commons website or search for free image, sound and video websites.
- Download at least three pieces of media content and write down the file formats you have downloaded them in.
- Write down whether these formats would be suitable to use in an interactive media product that would play on the following devices:
  - **a** Computer
  - **b** Windows tablet
  - **c** iPad
  - **d** Android smartphone
  - **e** Windows smartphone
- If the formats are not suitable, write down what you could do to optimise their formats using the software you have available to you at your school or college.

2.3 Legal and ethical considerations

There are many legal and ethical issues such as copyright, libel and use of intellectual property and misrepresentation. However, there are also some issues that are directly related to web and interactive media products that do not necessarily apply to other products. The following are two of the legal issues that you may need to think about when planning the interactive product.

See Unit 2 for more information on general legal and ethical considerations.

Personal data protection

The Data Protection Act covers the protection of an individual's personal information. As a member of the public, you have the right to have your name, address and financial details kept safe. The interactive product that you are creating must ensure that user data is secured through **encryption** and therefore kept safe.

A website may have the facility for users to type in their email address and personal details. If you are creating such a function on your interactive product, you need to think carefully about how the hosting package is keeping the database and the data secure. Identity theft is a major issue with some online products, and possible hacking of people's data is always a concern, particularly for financial institutions or large companies that hold vast amounts of financial data. **Secure sockets layer (SSL)** technology is used to ensure that such data is kept private.

KEY TERMS

Encryption – The process of encoding messages or information in such a way that only authorised parties can read it. A password can be set up by the user as a way of encrypting and securing data across a variety of interactive products.

Secure sockets layer (SSL) – The standard security technology for creating an encrypted link between a web server and a browser. This link ensures that all data inputted and accessed by users remains private when it is passed between the web server and browsers.

Cyber stalking and bullying

If you are going to create a social interactive product, it is important that you consider the risk to individuals. How could you minimise the risk of online bullying or negative comments? How will you ensure that the information on a social media product is only seen by selected individuals? Moderation of social media and forum sites takes place continually. Before comments on websites or apps are published, moderators work to check that the content is not offensive. Similarly, content can be reported by users if it is considered inappropriate.

For more information on the potential risks of social media, see Unit 6.

KNOW IT

1. What are the pre-production documents called that help you plan a website?
2. Why is a sitemap important?
3. Name one legal issue specific to websites.

LO2 Assessment activity

Below is a suggested assessment activity that has been directly linked to the Pass, Merit and Distinction criteria in Learning Outcome 2 to help with assignment preparation and includes TOP Tips on how to achieve best results.

Activity 1 Pass criterion *P2*

Create ideas for an interactive media product in response to a client brief. You must discuss purpose and target audience. You should provide outline designs including a mood board, navigation map and storyboards, and ideas for content also need to be included.

Activity 2 Merit criterion *M2*

This is an extension of P2. You should produce annotated designs and layouts for a minimum of six pages/screens. Navigation and sitemaps should be accurate and any other pre-production documents such as storyboards, scripts and wireframes should be detailed and annotated. All elements and assets to be used should be clearly identified.

You should show you have considered the client brief, and include justifications for your designs in relation to the client needs and target audience appeal. Relevant legal and/or ethical issues must be considered in terms of the specific product.

TOP TIPS

- ✔ Ensure you fully understand the purpose and audience of the product you have to produce.
- ✔ Make sure all your planning designs are annotated and show justification of choice.

Activity 3 Pass criterion *P3*

Create a production plan that outlines all deadlines and timescales that you have to work to. Contingency plans should be evidenced. This plan can be produced on software such as Word or Excel.

Activity 4 Distinction criterion *D1*

Create a presentation or report that clearly identifies the interactive elements of your product. You are to demonstrate that you can clearly see why your chosen interactive features are appropriate and meet the client requirements. You should mention benefits and/or limitations where appropriate.

TOP TIPS

- ✔ Read more about production plans in Unit 2, and make sure you take everything you have learnt into consideration while planning.
- ✔ You should fully understand all the interactive elements of the product you have planned.

LO3 Be able to create a planned interactive media product *P4 M3 D2*

3.1 Create interactive media products to industry standard processes

It is important that industry standard procedures are followed in order to ensure the interactive media product is produced to a professional standard. It needs to not only fulfil the brief in terms of design, but the interactive functions must be intuitive for the audience.

GETTING STARTED

(10 minutes)

Pick a commercial website of your choice. Look at least five pages of the website.

Outline all the ways that the website has been built using a template page. Why might using a template page be useful?

Feed back to the class.

Naming files and saving your interactive media product

You will need to make sure, as with your video, print and audio media products, that from the start you collate all your assets in one main folder and then separate them into subfolders. If you are creating a website from scratch or using an HTML editor such as Dreamweaver, then you will see that your subfolders should be labelled 'pages', 'images', videos', 'JavaScript', and so on.

You will need to save your content using **version control** so that you can go back and edit content at an earlier stage based on client feedback and to show progression of your skills. A good naming technique is to call your work 'V_1', 'V_2', and so on. This is an important way to ensure that changes can be documented. In terms of

KEY TERM

Version control – The naming of project files over time as different versions so that you and your client can track changes to production work.

file backup, you should always transfer your work from a desktop to a hard drive in order to ensure that there is a second copy, and it is likely that you will have discussed this as a contingency plan.

Techniques for consistent design

You should be consistent with screen and page layout of your interactive media products as per any graphic or branded media products. One of the main ways of doing this is to define master pages or use template guides when setting up your project. In Adobe Dreamweaver and Adobe Animate, there are pre-set templates in which you can build your website or animated, interactive content. Template files have editable regions so that while the style and layout will look the same, the contents on each page/screen can change due to that information being placed within editable regions.

For websites, all HTML5-based sites use CSS3 as the backdrop to all consistent design work. Figure 4.8 shows an example of the CSS code written to ensure the colours and font styles remained consistent on each page for a Sheffield-based band. The website was written in open source software jEdit, but Notepad on Windows or TextEdit on the Mac can also be used to write the HTML and CSS code. jEdit is useful because it colour codes the different elements for you.

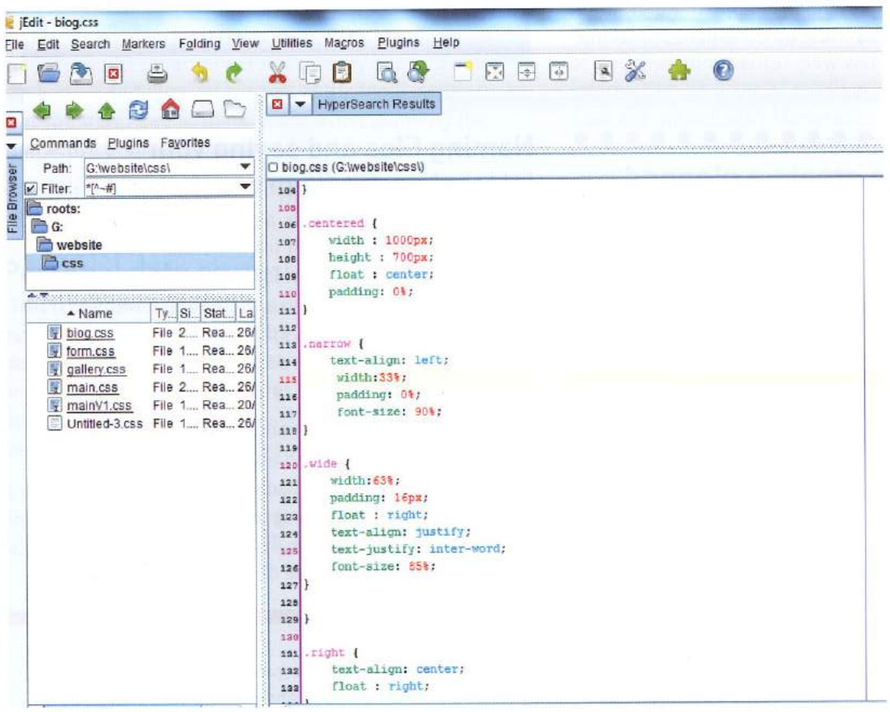
KEY TERM

Timeline – The main area within digital media software, where you place the raw content. In video production, this is the video footage. In interactive media, you will place your components within the timeline and separately program the commands for each component to work together in layers.

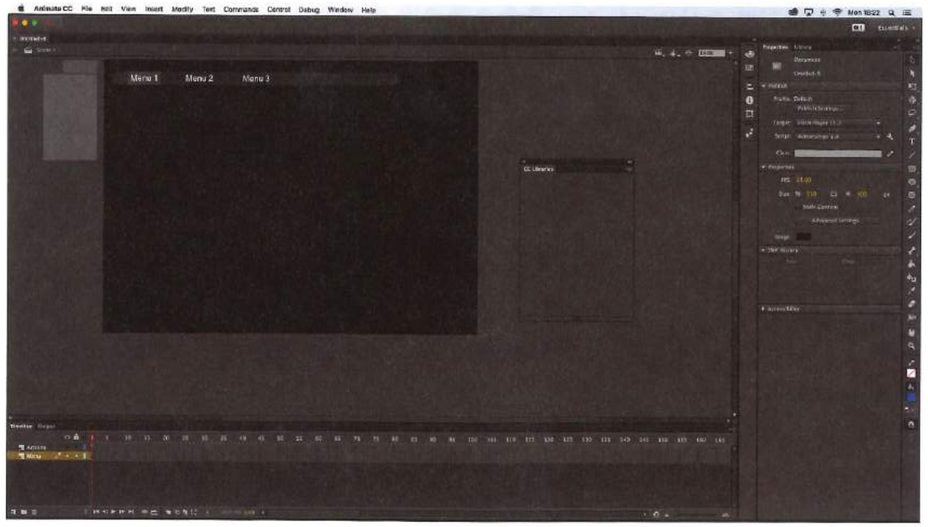
INDEPENDENT ACTIVITY

(30 minutes)

- Go back to the planning of your wireframes, sitemaps and flatplans. Think about all the assets and components you have that will be included in your interactive media product.
- Write down which ones will need to be heard and seen by the user of the product at the same time on at least one page or screen.
- Evaluate how you think you might approach the construction of this page or screen based on your understanding of digital media and layering so far.



▲ **Figure 4.8** CSS code written in jEdit software



▲ **Figure 4.9** Adobe Edge Animate workspace

Tools and components of interactive media

If you are creating your interactive media product in an editor such as Adobe Edge Animate, then you are likely to use **timelines** to control your material. You will build your shapes and texts using the pre-set tools, and be able to import video files and image content that will form the components of the piece. Much like when animating in Adobe After Effects or when creating a website in HTML editors such as Dreamweaver, you will be able to link the interactivity to a specific button or object. All these programmes are based on libraries of materials (such as ready-made buttons, 2D and 3D shapes and images) for you to access. For any interactive media product to be successful you will use a range of these components and, as suggested in Learning Outcome 2, you will need to repurpose them so they meet the client requirements. If you are using components such as animation, video and sound then you will need to apply appropriate transitions to this raw work before it is used in the interactive product.

For more information on transitions and visual effects, please refer to Units 1 and 3.

3.2 Interactive elements

The interactive elements that you create when making your product are those that you use every day across different media and platforms. The following are a list of the different types of interactivity that you will be programming when you create your product, either in a HTML editor, or raw coding the JavaScript and HTML.

Basic interactive functions and navigation

You will be familiar with the basic interactive functions on web pages and other interactive media products. All products will have a menu of some type and you will be required to link each section of the menu to a different section of content. The main way that menus are presented in websites is through the navigation bar. This directs users to specific areas of the site and sometimes the navigation bar has a dropdown function to allow for even more choice.

Images can also link to other content, play a video or sound, or provide more information if they are clicked on or hovered over. As we discussed earlier, this type of function is generally known as a 'hotspot', although the term is used less commonly these days. Hyperlinks are used across web pages and apps to link to other internal or external content.

Forms or other elements where users can input details are also commonly found in interactive products. You can, for example, give answers to quizzes, which will be done in a form-style template. As such, the programming language behind the product will collate the data and give the user an answer. Similarly, any data the user inputs will go into a central database. Forms have been used in interactive products for many years as a way to engage the audience.

Scripting and programming actions/ events

Scripting and programming specific actions and events work, in essence, as **logical** and **comparative operators**. The commands that are frequently used in JavaScript, ActionScript (Adobe Flash) and pioneering interactive scripts such as Lingo, which was used in Macromedia Director software, are AND, OR, NOT and IF. These operators form part of the script so that different outcomes or **variables** can be actioned based on what the user engages with on the dashboard or interface of the product.

For example:

IF image1 pressed then load Image1Large IF image1 NOT pressed load Image2large

JavaScript and other languages therefore change the attributes of a HTML code or CSS styling and it is this that can create the interactivity. While it is very difficult to learn JavaScript, essentially you need to understand that the user has a choice when engaging with a component of a product and this will need thinking about carefully. At the user testing stage, each outcome for each interactive feature will need to be scrutinised and evaluated.

KEY TERMS

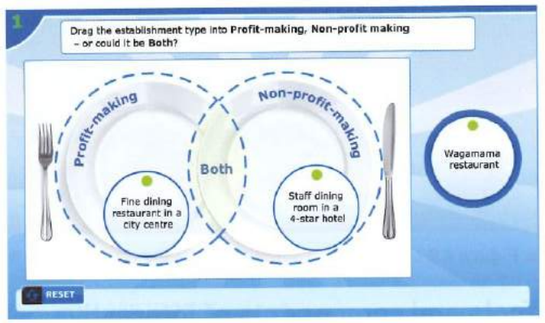
Logical operators – These are used to control program statements. They are also called Boolean operators (AND, NOT, OR).

Comparative operators – Used to control program statements and look at alternatives to a command (IF).

Variables – The term used for all possible outcomes of a specific action or command.

Movement and controls

One of the more interesting features of interactive products is the 'drag and drop' function, and such products are often aimed at school children. On Smart Boards, many teaching tasks aimed at school children of primary age have the drag and drop function. This is not too difficult to achieve now and is part of the standard HTML5 command codes, by applying the 'function' command followed by 'allowDrop(ev)'. Other products such as language packages very often use this technique to demonstrate the user has identified the correct word to describe a picture.



▲ **Figure 4.10** A quiz with the drag and drop function

User controls such as 'play', 'stop', 'forward' and 'back' are common in all interactive products for audio, video and gaming. All video-on-demand services have interactive functions in the video container, and video games in particular are based on users being able to stop and start. It is a given that you must include product controls as part of the interactive product if you are using media components.

KNOW IT

1. Explain why version control is important.
2. Explain how consistent styling is achieved on a web page.
3. Give three components that allow for interactivity on an interactive product.

LO3 Assessment activity

Below is a suggested assessment activity that has been directly linked to the Pass, Merit and Distinction Criteria in Learning Outcome 3 to help with assignment preparation and includes TOP Tips on how to achieve best results.

Activity 1 Pass criterion *P4*

You should create your planned interactive media product using appropriate software. It must include text and images as a minimum and have at least two forms of interactivity. You can use any language, theme or template. The final product will be the evidence for this criterion.

Activity 2 Merit criterion *M3*

You should create a graphic user interface combining media elements with user interactivity requirements. Evidence for this criterion should be working interactivity.

Activity 3 Distinction criterion *D2*

You must show how you have optimised the product for use on the platform stated in your planning, to ensure a high quality user experience. Evidence could be provided through the use of screen grabs showing file sizes having been reduced. The final interactive media product must be of a high technical standard.

TOP TIPS

- ✔ You should fully know the software or programming language you are choosing to build the product in.
- ✔ You should think carefully about how you have repurposed your individual media components so that your product is optimised for the specific purpose and brief.

LO4 Be able to test the new interactive media product *P5*

4.1 Technical testing

Even more than most of the products that you will make across the course, you will need to carefully test your product in order to make sure that all interactive elements work as planned.

GETTING STARTED

(10 minutes)

Work in pairs. Pick an app of your choice and think of at least five problems a user might have if simple navigation elements did not work.

Feed back to the class.

Creating a test plan or table

The easiest way of demonstrating your ability to test the product is by creating a test plan or table. Each page or screen and each element of interactivity will be included on the plan or table, including buttons, internal and external hyperlinks and user video and sound controls. The plan/table will discuss the following elements:

Functionality: is based around testing whether elements work as they should, and covers whether hyperlinks, hotspots and navigation menus go to the content that they should. This also includes, particularly for a website, looking at whether content will load and whether sound and video plays and stops as expected. It will also look at whether the variables in interactive elements such as quizzes and forms work correctly. In terms of functionality, a test plan is also important to look at whether images load correctly across different platforms and devices.

Usability: means testing whether the navigation is clear on the GUI and the user can access the interactive content. Can they clearly work around the space to move between different sections of the product? If the product is not easy to navigate then it will not fulfil its purpose. Many early websites of the 1990s were deemed lacking in usability owing to navigation not always being clear. The usability of navigation will need to be on the test plan for each page or screen.

Testing across platforms and devices

It is important that you test whether the interactive product can be played across different platforms successfully. For example, some kiosk products are websites that will also need to be accessed online and from a variety of devices. The product will therefore also need to be tested on different devices.

Figure 4.11 on the next page shows a test plan for a product loaded across different browsers.

Test Plan

Test No.	Test Type	Target File or Screen	Test Name	Purpose of Test	Test Data or Situation	Expected Result	Actual Result	Outcome and Actions Required
1	Browser	flight_ info.pho	Rendering of arrivals table	Test that table renders as expected for arrivals	Date set: 2nd July 2007 1. Internet Explorer 7.0.6000 2. Mozila Firefox 2.0.0.6 3. Safari for Windows 3.0.3	Sex rows for arrivals, five coloured blue, one coloured red, displayed in ascending order by time. Column sequence: flight number, from, time expected, status, gate. Row 1 should contain an image arrivals.jpg). Last row should contain an image in right-most cell (corner.jpg)	1. As expected 2. As expected 3. As expected	All screens rendered as expected. No actions required
2								
3								

▲ **Figure 4.11** An example of a test plan for a product loaded across different browsers

CLASSROOM DISCUSSION

(30 minutes)

Check out the Wayback Machine on the web, run by the Internet Archive. This archive allows you to see a website as it was on a certain day as long as twenty years ago.

Split into groups and try picking a well-known company website such as BBC or Lego from the late 1990s or early 2000s. You should compare the past website to the present, looking specifically at the usability of the same company website from today. Discuss some of these differences with your group. How has the website improved? What has remained the same?

Now feed back to the class with at least three similarities and three differences in either content or style.

Accuracy and completion against brief

Accuracy of written content in terms of spelling, grammar and, in some cases, sentence structure will need to be checked. This will mean careful proofreading and possibly sub-editing. All text should be readable against the specific colour scheme, although it is likely that this will have been evaluated in Learning Outcome 2. You should note down any specifics, even words on buttons, on the test plan. Each page or screen should also be evaluated in terms of whether it is complete. If content is incomplete then it is likely that an element will not work.

Accessibility and performance

As suggested in Learning Outcome 2, the accessibility issues need to be identified and clearly labelled in case the product fails to load on certain browsers. You will need to test that every hyperlink and image has an alt tag and that the text size is clear. You will also need to investigate whether the product is compatible across platforms. If you have coded in HTML5 in the <head> tag with the width-device-width command, then it is likely the website will automatically resize. If you have used a specific template, then its performance across platforms, or the specific one outlined by the client, will need testing.

4.2 Client and user testing

The client will want to test their product and it is important that once you have done your test plan/table and checked the interactivity, you also get a member of the target audience to test the product's functionality and accessibility.

Client testing

The client can test the product by acting as the official tester of the **beta** version. At this stage, the product should not be live online and the client would have to complete a test of the product against the test plan and their own criteria in relation to the client brief. They also will be assessing the user experience: if users do not feel comfortable using the product and they do not understand the navigation, then it will not be fit for purpose.

KEY TERM

Beta version – A version of a piece of software that is made available for initial testing by a target client or user.

User testing and improvements

It is likely that you will need to develop a series of primary research methods such as questionnaires and surveys to allow users to give their opinion and feedback to you. You will then need to evaluate any improvements you can make before the product is launched.

See Units 1 and 2 for information on primary research methods and how to gather qualitative and quantitative feedback.

KNOW IT

1 Why is a test plan important?
2 Write down three things that will need testing on the interactive media product.

L04 Assessment activity

Below is a suggested assessment activity that has been directly linked to the Pass in Learning Outcome 4 to help with assignment preparation and includes TOP Tips on how to achieve best results.

Activity 1 Pass criterion *P5*

You must fully test your completed interactive media product. You should create a detailed test plan/table that lists all the interactive elements and takes into consideration functionality, usability and accessibility. You should gain client and audience feedback and this can be evidenced by interviews or questionnaires.

TOP TIPS

- ✔ Create a test plan that covers all of your interactive elements on all pages/screens.
- ✔ You will need to ask for client and user feedback and evidence this through the most appropriate method of primary research.

Read about it

Allanwood, G. and Beare, P. (2014) *Basics Interactive Design – User Experience Design: Creating designs users really love*, Fairchild Books

Widjaja, S. (2013) *Adobe Edge Animate: Using Web Standards to Create Interactive Websites*, Rocky Nook

Codecademy to learn JavaScript, HTML5 and CSS3: www.codecademy.com

Learn JavaScript using Mozilla technology: https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference

Web developer and tutorial site: www.w3schools.com