Edexcel DiDA

Diploma in Digital Applications

Using ICT

Advance Teacher's Notes Extract

Chapters 3 – 5
Unedited proofs

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CHAPTER 3 MAKING USE OF INFORMATION SOURCES

Overview

In this chapter the spotlight is on the '4th W' – What information do I need?

Students may be tempted to skim through this chapter because there's nothing for them to produce. Don't let them! The quality of their final publications has as much to do with their research/information gathering skills as it has with their ICT skills. They will be expected to produce publications covering topics that at the outset they know nothing about – their ability to carry out research, assimilate information for various sources and differentiate between sources will be the key success factor.

Digimodule

The digimodule for this chapter comprises 5 components. The first component is a video clip and the four other components provide the focus for whole class discussion.

What content is needed? (pp. 32 - 34)

Students should be familiar with the use of mind mapping from the starters and plenaries in chapters 1 and 2. Many packages such as presentation and desktop publishing packages can be used effectively for mind mapping exercises.

Students should use their ActiveBooks to consider pages 32 and 33 before undertaking Activity 3.1

Activity 3.1 – Mind mapping is a great way of organising ideas and thinking about how to group ideas and concepts. If you have mind mapping software this activity is a good opportunity for students to practise using it but any suitable software or even pencil and paper could be used.

In this instance, the focus is on using a mind map to generate ideas. The activity would work well in groups. Ask students to concentrate on getting their ideas down without worrying too much about what their diagrams look like. Elsewhere in the book students are encouraged to use a mind map to structure and group information.

Talking Point 3.1 – Another chance to use mind mapping software – this time as part of a whole class discussion. Depending on how familiar students are with mind mapping software, you may want to do this as a class activity using the electronic whiteboard, prior to students tackling Activity 3.1 themselves.

The mind map here focuses on the questions students would need to ask before they can start to create a pack for the town council, e.g. new releases cannot be viewed at home. It could be extended to include possible sources of the information.

Students must understand what it is they are going to produce at the end, in order to understand what it is they need to know. 'I have to produce a presentation for the council, so what will that need to have in it?'
What information is needed?
What do I know already?
What do I need to find out?
Where's the best place to get it from?

Making life easier for yourself (pp. 35)

Talking Point 3.2 – This talking point is designed to draw attention to the fact that the same information can often be used for more than one purpose. Information gathering is a time-consuming activity so it makes sense to 'recycle' information that has been gathered whenever possible. This skill will certainly save time when it comes to working on the SPB.

Information sources (p. 36)

Students are required to use both primary and secondary sources. They must include evidence in their eportfolio that they have assessed a number of sources and have selected the most appropriate. They will be expected to give reasons for their choices – why they used one source in preference to another.

Talking Point 3.3 – Keep the students focused on the requirements of *Bliss* magazine – they may need to revisit the digimodule to remind themselves of the methods used by *Bliss* to gather information from primary sources. Encourage them to produce a table identifying the advantages and disadvantages of each method.

Using secondary sources (pp. 37 – 39)

Talking Point 3.4 – Students often find large chunks of text, particularly on the internet, and copy the whole lot into a publication or folder. The skill of selecting relevant extracts is one that every DiDA student needs to acquire. Strategies to try out: reading the title, subtitles and subheadings, looking at the illustrations, reading the first and last sentence of each paragraph, skimming the whole text to take in key words. Students should conclude that a combination of these strategies is likely to work best. Extend the discussion to talk about why skim reading techniques are necessary for DiDA students.

Talking Point 3.5 – Students should be encouraged to experiment with advanced search facilities, to think about effective key words to use in searches, strategies for pinpointing evidence etc. Suggest additional words such as 'rules', 'rink', etc to get them started.

Activity 3.2 – This activity is an extension of Talking Point 3.5 – do different search engines produce different results? How do you decide which one to use? You might want to provide a list of search engines that students can try out.

Activity 3.3 – This activity is also an extension of Talking Point 3.5. Students often find it difficult to differentiate between 'or' and 'OR' as well as between AND

and OR. Make sure they understand what is happening when they use these operators or put quotations round a group of words. They need to understand that the web is full of spelling errors and that if they don't get it right the search won't tell them and will most likely still find results.

Talking Point 3.6 – This Talking Point is an extension of Activity 3.3. The idea is to make students aware of the strengths and weaknesses of different search engines and, therefore, better placed to choose which one to use for what.

Activity 3.4 – This activity is designed to make students aware of directories as sources of information and appreciate the advantages of an online directory over a paper-based one.

Capturing information *(pp. 40 - 44)*

Activity 3.5 – This activity re-visits the mind map produced for Talking Point 3.1. Encourage students to consider both primary and secondary sources and to produce a table similar to the one on page 40. You may want to make this a group or whole class activity.

Activity 3.6 – It's probably a good idea to do Activity 3.7 prior to completing the table. Make sure students understand the difference between primary and secondary sources and understand that they must use both in this unit. Again, this lends itself to group or whole class work.

Activity 3.7 – You may want to do this activity prior to Activity 3.6. It gives students the opportunity to focus on the effects of image resolution without a particular purpose in mind. Even if students have already had experience of capturing images, a memory jogger is no bad thing. Ideally, they should be given the opportunity here to try out various methods of data capture so that they can see the advantages and disadvantages of each. They need to understand the implication on size and quality of image size and resolution. You might want to give them some images of varying size and quality to work with.

Activity 3.9 – Capturing audio/digital information from the web may well be new to some of your students. Again issues of copyright etc need to be emphasised. Students need to be aware that very little sound or video can be freely downloaded from the internet, that the situation is constantly changing, and that they need to look out for resources that can be copied for study purposes.

Talking Point 3.7 – This is a very simple example of a misleading chart and you should encourage students to come up with other ways that information can be misrepresented – there are certainly much worse examples!

Activity 3.10 – This activity is a good way of introducing students to self-help tutorial sites such as Quick and BBC Webwise. They are a good way of developing and practising skills and supplement the 'Can I do this?' self-help sections in the book. You may want to find one or two other sites that you consider appropriate for your students before they attempt this activity. Students should bookmark these sites and refer tot hem when using the internet, particularly for the SPB.

Acknowledging sources (p. 45)

All sources must be recorded appropriately and in the appropriate places within the publications. Students should get into the habit of recording sources as they go along. This includes images as well as text.

***Tackling THE PROJECT** (p. 64)*

Students should produce individual mind maps to develop their ideas as to the primary and secondary sources they may wish to use to gather the information they will need to produce their final publications.

CHAPTER 4 MAKING USE OF SURVEYS

Overview

Students may well have encountered survey work elsewhere in the curriculum prior to starting DiDA. The digimodule may act a memory jogger.

Conducting a survey is one of the ways students must gather information to use in their final publications. What makes this part of the course challenging is the fact that they must use a spreadsheet in conjunction with a questionnaire to analyse the responses they collect and present their findings. The key is to be clear at the outset what information is required and to make sure that the questionnaire will gather the data in a form which can be analysed effectively by a spreadsheet. The complexity of the analysis they carry out on the data they collect will have a bearing on the mark they get for this strand.

Digimodule

The digimodule for this chapter comprises 4 components. The first component is a video clip and the three other components provide the focus for whole class discussion.

Students may benefit from viewing the clip, 'Speed cameras – good or bad' in its entirety before watching it again whilst taking notes. This video contains a lot of very important information and it may be a good idea to pause the video occasionally to allow the students to make full notes for use later in the lesson.
The second component 'Andrew's survey' provides a structure that will allow the students to engage in a discussion of the main points raised in the video clip – students should use their notes to help them draw meaningful conclusions.
Students need to consider how Andrew will use the results that he has gathered to draw conclusions. This component demonstrates how a spreadsheet can be used to do this for him.
The fourth component will allow students to consider what conclusions can be drawn from the results calculated by the spreadsheet. How can these be communicated and used.

Students should consider other questions Andrew could have used to gauge attitudes to road safety. How could these questions be phrased to make sure that the results gathered can be analysed using a spreadsheet application?

Conducting a survey (pp. 48 – 51)

Activity 4.1 – This introductory activity gives students an opportunity to explore the results of a large scale survey. The link takes students to one particular section but they should be encouraged to explore further to see what types of information have been gathered. The activity also leads neatly into the next topic – using a sample. Whereas every household is required to complete a census return, most surveys are based on representative samples. The question is how representative is it?

Talking Point 4.1 – How similar are the results from the group/class and those from Withington – if very similar does that mean that they accurately reflect the views of all teenagers? If not, which of the two results is more representative? How can the discrepancies be explained? Draw attention to the importance of understanding what you need to know – are you interested in your class, year group, school/college, local area, etc?

Activity 4.2 – A straight-forward activity, but a useful reminder of how to produce meaningful charts. Use as a vehicle for talking about components of charts, e.g. headings, labels, legends and what type of chart/graph is appropriate. Ask students to review each others and offer feedback. They should then incorporate feedback where appropriate and ensure that their charts are fit for purpose.

Activity 4.3 – You may decide to make this a group or whole class activity. It builds on Talking Point 4.1.If students want to gather accurate information then they need an unbiased sample. Asking people from similar backgrounds with similar characteristics is likely to produce skewed/unrepresentative results.

Talking Point 4.2 – Encourage students to consider safety issues when discussing advantages and disadvantages. Other areas for discussion include bias, availability, accessibility, language.

Talking Point 4.3 – Focus on particular questions, think about the purpose and how the results might be analysed in a spreadsheet.

Activity 4.4 – The questionnaires that students collect will be an important resource for Talking Points 4.5 and 4.6 and should include both screen and paper-based examples. You may want to get them started collecting examples right at the start of this chapter.

The second part of Activity 4.4 should be carried out in class. Ask students to work in pairs to assess one of the questionnaires they have collected and present their findings to the rest of the class using the electronic whiteboard. (See next lesson.)

Creating a questionnaire (pp. 52 – 55)

There's a lot of important information in this section. Getting reliable results from surveys is not easy. Students need to understand the main issues but will need help to avoid the pitfalls even when they know what they are. They need to provide evidence in their eportfolio that they have considered these issues when designing their survey.

Talking Point 4.4 – This talking point is a focus for discussion of leading questions – how the way a question is worded can influence people's responses. It leads nicely into Activity 4.5. Think about other ways that people could be influenced as well as the best way to ask the question.

Activity 4.5 – Follows on from Talking Point 4.3. If possible, allow students to make their own recordings.

Talking Point 4.5 – Follows on from Activity 4.4. This will depend on what resources students have gathered. Encourage them to find questions that are difficult to analyse and to think about why they are included. Should they be changed or removed? If some questions are unclear, is this because they are intended for a different, perhaps specialist, audience?

Talking Point 4.6 – Follows on from Activity 4.4 and Talking Point 4.5. All questionnaires should be easy to complete and their purpose should be obvious.

Activity 4.6 – A practical activity that reinforces the importance of getting feedback. It's not enough to ask one person. The prototyping process is iterative. Having made the changes suggested by the reviewer there may still be room for improvement.

Building spreadsheets to analyse results (pp. 56 – 63)

There's a lot of important material to cover in this section and you may need to adjust the timings accordingly.

Students need to think ahead and have a clear idea about the type of data analysis they want to carry out on the data they collect so as to ensure that they avoid getting the wrong sort of responses, i.e. those that cannot be analysed in a spreadsheet. Open-ended questions should generally be avoided.

Activity 4.7 – It is important that students understand what the formulae are doing. The spreadsheet is a relatively simple example, using totals rather than individual responses. They might want to use comment boxes to explain what each of the formulae does. Make sure that students fully explore the spreadsheet, referring to the questionnaire where necessary. For level 1 it might help to produce a version without absolute cell references.

Talking Point 4.7 – Follows on from Activity 4.6. Encourage students to offer constructive feedback to each other.

Talking Point 4.8 – Another opportunity to emphasise the need to customise charts to make sure that they are meaningful. Minimum age for what? 15% of how many?

Talking Point 4.9 – Follows on from Talking Point 4.8. You might want to do the first one as a whole class activity and then divide students into groups to identify improvements for these charts. They include most, if not all, of the essential information so concentrate on finer details – font sizes and styles, use of legend, colour scheme, labelling, etc.

***Tackling THE PROJECT** (p. 64)*

Students should work on their questionnaires, remembering to ask for feedback and revsing their work to reflect the feedback that they receive. Students should complete their questionnaires.

Students should create designs for the spreadsheet that they will use to store the data that they will collect.

Students should enter their information into their spreadsheets. They should use the facilities of their spreadsheet application to present the results in the most effective way.

CHAPTER 5 MAKING USE OF DATABASES

Overview

Students should already be familiar with the concept of a database from their work in Key Stage 3. They do not have to create or work with relational databases. Instead, the emphasis is on using searches and sorts to extract useful information from data and producing database reports to present information in a format that is suitable for audience and purpose.

Students working at Level 1 are not expected to create database structures. They work with a given database pre-populated with data.

Digimodule

The digimodule for this chapter comprises 4 components. The first component is a video clip and the three other components provide the focus for whole class discussion.

Students may benefit from viewing the clip, 'What is the Boots Advantage Card' in its entirety before watching it again whilst taking notes. This video contains a lot of very important information and it may be a good idea to pause the video occasionally to allow the students to make full notes for use later in the lesson.
The second component of the digimodule illustrates how Boots capture customer data via their website. The animation demonstrates a typical customer completing the online form. Students should consider the fields used and what use Boots may make of each item of data.
The third component gives details of the uses of the data explained in the first component and asks students to think of other possible uses.
The fourth component gives a list of interesting facts gathered from the database. Students should be asked to think of the 'questions' that would have been asked to gather this information.

Why use a database? (pp. 66 – 67)

Activity 5.1 – This activity follows on from the digimodule. Students will probably already be familiar with the Boots Advantage card scheme. They may even have registered for one themselves. Ask them to consider why Boots has asked for each piece of information on the form. How much does it tell them about the applicant? What does Boots do to try to ensure that the correct data is collected from each applicant?

Talking Point 5.1 – Big brother is watching you! You may need to give students some ideas to start them off – many of them will have cash cards, Young Person's Railcards, ID cards, etc. If not they should focus on friends and family members.

Talking Point 5.2 – Follows on from Activity 5.1.

Talking Point 5.3 – Follows on from Talking Point 5.1. Give them some ideas to start them off – library, local DVD store, examples from your centre.

Activities 5.2 and 5.3 – These activities introduce students to the concept of a database providing content for a website. The focus here is on extracting useful information, but you may want to initiate a discussion about the advantages of using a database in conjunction with a website. Visitors to the website can access the information in a number of ways but the source is always the database.

Designing a database structure (pp. 69 – 72)

Activity 5.4 – A straightforward activity which you can use to familiarise your students with the database software they will be using including the effects of formatting.

Students could extend Activity 5.4 to add other fields and to format those fields correctly. Students should add several records to experiment with the concept of varying data types.

Talking Point 5.4 – It's important that students understand the effect of using different operators and combinations of operators.

Talking Point 5.5 – This Talking Point is a lead in to Activity 5.5.

Activity 5.5 – Students should revisit the 'Can I do this?' if they're not sure how to use database software to create the database structure. They do not need to test the structure until the next activity but should be encouraged to check that it is accurate. Messages that offer help to users should be included for the validation rules.

Activity 5.6 and Activity 5.7 – These two activities focus on testing. Testing yourself and getting other people to test it. It's important that students realise that it isn't being helpful to say nice things about each other's products (unless they're justified) and much better to try and find things that don't work or can be improved.

Working with a large data set (pp. 73 – 74)

Only students working at Level 2 need to be able to import data into a database structure they have created. Edexcel will supply the data set for each SPB. It will be sufficiently large to give plenty of scope for searches and sorts.

Students will need to study the dataset and decide which items can and should be validated. They should only apply validation to database fields where this is appropriate, ie when they know for certain what the complete range of acceptable values is.

Some database software allows data to be imported into a general structure which can then be edited. Clearly this is not good practice and is not to be encouraged.

Talking Point 5.6 – This Talking Point is designed to consolidate students' understanding of this difficult topic. The text file can be a little daunting at first.

Concentrate on the first row and match each item with the corresponding description in the list. Make sure that students realize that every row contains the same items. There is no need to import the data into a spreadsheet or other table.

Activity 5.8 – This Activity enables students to put theory into practice. It's best undertaken in the classroom where there is help on hand if and when they get stuck! It is crucial that students create the structure as specified. If they import the data correctly, one record will be rejected.

Managing the database (pp. 75 – 77)

Students working at both levels must be able to produce data entry forms that are suitable for the job. They need to learn that whilst a 'wizard' may speed up processes such as form design, they still need to customise its output to make it properly fit for purpose.

Talking Point 5.7 – Lots of room for improvement on this form! But will students think it's OK as it is? Think about the audience and purpose. Remind students that wizards are there to help and that they will need to customise features, especially labels, if their forms are to make sense.

Talking Point 5.8 – Some good design features worth emulating! The form is much improved but there is still more that can be done. You might want to discuss this before looking at the Boots form on screen. Anyone, anywhere can apply for an Advantage Card – is the form fit for this purpose?

Activity 5.9 – This activity enables students to put theory into practice. As with spreadsheet charts, the ability to customise the output from a wizard is crucial for data entry forms and here students can explore the various possibilities.

Activity 5.10 – The primary purpose of asking others to use the data entry form is to get feedback on its usability and appearance.

Encourage students to think about how they will evidence feedback from test users. One possibility is to design a form for them to feedback. Alternatively, they could use screen recording software to record verbal or textual comments.

Extracting Information (pp. 78 – 83)

Talking Points 5.9, 5.10 and 5.11 – Links here to the work on devising validation rules. Students need to be clear about the different effects of AND and OR and avoid confusing the various operators such as < and >. They must learn to check that the outcome of a search is correct by looking for any tell-tale signs of errors in the search criteria used.

Spend as long as necessary on these areas, especially complex search criteria on two or more fields.

Activity 5.11, Activity 5.12 and Activity 5.13 – Lots of useful practical activities to consolidate the concepts learnt in this chapter. You may well want to add more searches to the list. Students should compare their results and resolve differences.

Database reports are final publications and are dealt with in Chapter 8. However, you may prefer to deal with them here whilst databases are fresh in students' minds.

Talking Point 5.12 – Mailmerge is optional for students working at Level 1.

Tackling THE PROJECT (p. 84)

Students should design a structure for their Meals data set. They should pay particular attention to which fields can be validated and how.

Students should set up their table structures and should import the data set. It may be a good idea to remind the class as a whole of the method used by your database application to import data.

Students should use a mind map to design the searches and sorts that they will need to produce.