LEVEL 3 IVQ ADVANCED DIPLOMA IN ICT SYSTEMS SUPPORT
(7267-25)

502 – CUSTOMER SUPPORT PROVISION 3

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INTRODUCTION

This learning package is intended for use by those completing the Unit 502 – Customer Support Provision 3 as a requirement for the award of LEVEL 3 IVQ ADVANCED DIPLOMA IN ICT SYSTEMS SUPPORT of the City and Guilds of London Institute.

The theoretical and practical components in this package will help you complete the unit. The aim of this unit is to introduce the learner to:

- Provide technical customer support and understand the process involved in Improving the way in which customer use networked ICT systems

On completion of this unit, learners will be able to do the following:

a) provide technical support to customers
b) Gather and evaluate feedback from customers on improving technical support provision
c) Analyse trends to improve customer use of IT
d) Provide remote technical customer support
e) Provide coaching in technical skills for customers

In each class, there will be self-check exercises and practical activities. Your instructor will schedule additional oral and/or written tests, which may be similar to the self-check exercises. These tests will satisfy specific assessment criteria as required by the awarding body. When you have achieved all the assessment criteria, and your work checked and certified by your assessor; this confirms that you have successfully completed Unit 502 – Level 3 customers support provision 3.

LESSON 1

Topic of Session: Provide technical support to customers

Aim: To appreciate how technical support to provide to customer

Study Outlines

a) Explain the reasons for providing a prompt and professional response to customer requests for technical support

b) Describe reasons for using a structured approach when questioning customers in response to support requests

c) Different methods of technical support provision

d) Determine customer requirements for ICT systems and services support

e) Respond to individual customer requests for technical support using different communication techniques

Customers have expectations from the support unit and it is up to the support unit to uphold these expectations by being prompt and professional. The importance of being prompt and professional lies in the foundation of every business that provides a service to customers. One of the importance of being prompt is when the service has been delivered within the time scale that was agreed on, this will leave the customer having confidence in you and the company which will have a positive effect on the unit. Delivering the service on time with professionalism will define the standards of the service provider. Without the promptness and professionalism, it would make the customers feel very isolated and they would want to cease contracts with the service provider which would obviously leave the unit losing out on revenue. The value of the customer should be the most precious asset to the business, so it is vital that expectations are met with excellence in order to keep customer satisfaction high.

The effects of service being delivered without being prompt and professional

From Customer Side:

1. Poor/delayed service from the Support Unit would result poor/delayed service from the customer to their customer - would have a snowball effect.

2. Downtime for the customer would be costly so being prompt is vital. Prolonged downtime would mean the customer would have to cut back on the level of service that they provide to gain back the loss which they have uncounted, which could result them losing customer satisfaction from their customers.

3. The customer might want to change Customer Support Unit provider which could be time consuming to find a company within company's financial scope, which could result more downtime and loss of earnings for the customer.

From Customer Support Unit:

1. Customers who receive bad service wouldn't want to continue their contract or come back to the Customer Support Unit which would result the unit losing their existing customers. This effect would mean the unit would lose revenue from existing customers plus the Support Unit would have to invest in marking to gain new leads with will affect the finance revenue.

2. Existing customers who are happy with the service are more than likely to give out good referrals which would increase the number of customer's which equals increased revenue for the Support Unit.

3. Bad referrals would be damaging to the company's reputation. A company with a bad reputation would have to invest in making the company more efficient which can be costly and difficult if the company is suffering financially.

The reasons for using a structured approach when questioning customers in response to support requests is to reach a conclusion as soon as possible, ascertain all symptoms and events leading up to them and identify additional problems.

Customer support is about identifying a customer's needs and providing a solution. It is not just concerned with what a technician knows. It is focused on how that knowledge is put across to meet what the customers need. To communicate a message effectively, there are choices as to which method holds best for you and your user at the time the support is needed. Essentially, there are three main **methods of communication.**

- **Verbal communication:** the spoken word involves hearing the message. It could be a one-to-one conversation, either face-to-face or using the telephone, or one-to-many, as in a presentation or demonstration to an audience. Many interactions between a help desk analyst and the customer occur over the telephone. The technician's ability to communicate verbally is critical. They have to be able to solve problems but being remote from the customer means that their choice of language must be clear, confident and at the right pace. Patience and focusing are vital because some customers may need a lot more guidance than others. For example, a technician speaking to a first-time

computer user will need to use more simplistic language when guiding them through a set of instructions.

- **Written communication:** this will involve reading the message. It could be on paper, for example, a report, handout or leaflet, or displayed on a whiteboard, OHP or blackboard. Supporting customers in this way is increasing. Help desk analysts have to write well to log calls, and they may need to develop procedures and to correspond with customers and colleagues via email.

  Many companies now allow customers to directly access the help desk's tracking system to check on the status of their call if it is outstanding. Some companies use their internal company intranet or the internet to publish answers of frequently asked questions [FAQs], hints and tips documentation, etc. clarity and simplicity are vital to display the right image and greatly aid supporting the customer.

- **Practical communication:** with a demonstration you can show the audience, whether it be one-on-one or one-to-many, what you are doing and they can then practice this for themselves. This assists them in developing confidence and memorizing what has been done. Showing a user how to do something and then watching them consolidate their knowledge is effective **training** and gets the message across quickly. Depending on the technician's role, this may be possible and will require all of his or her interpersonal skills.

CLASS ACTIVITY FOR LESSON 1 – PROVIDE TECHNICAL SUPPORT TO CUSTOMERS

Instructions:

1. Obtain a software update or patch as directed by your assessor. Save it onto a storage medium as instructed by your assessor. Rename the patch file to reflect what it is and what its use is.

2. Locate a hardware driver for a device as specified by your assessor. Save it to disk.

3. Provide support to users of ICT systems using the scenario provided by your Assessor. This may be
    - Verbal help or assistance provided face to face or remote (for example, using an internal telephone system where participants cannot see each other)
    - By providing written help, documentation or procedures produced by self or others
    - By practical demonstration or assistance on the users' or another suitable system

CLASS TEST FOR LESSON 1

Unit 502 – Customer Support Provision 3

Topic: Provide technical support to customers

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

**Instructions:** _Answer all questions. Time allowed is 10 minutes_

1.   Explain, in your own words, the reasons why customer service should be prompt and professional, including three disadvantages on the customer if it is not,

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2. In answering requests for customer support, it is usual to adopt a structured approach to questioning customers. Briefly describe three advantages of this approach.

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LESSON 2

Topic of Session: Provide technical support to customers 2

Aim: Candidates will record customers support details following the appropriate procedures,

Study Outlines

a) Explain the reasons for maintaining accurate records of customer request
b) Use manual/electronic methods to record details of the customer request and outcomes

As a professional you will be working with many customers, looking after their systems and ensuring that they can use their computer systems to run their business and hopefully make a profit. You can easily encounter problems when:

- There are many computers that you have to maintain as part of the customer's system
- There are main members of the customer's organization or department that you have to liaise with
- Through time, many faults or issues have occurred with the same system or application

To ensure that the customer is always happy with the service that you provide on behalf of your employer or yourself, it is necessary to keep accurate records during the life of the contract or the existence of the computer system.

Keeping records provides you and your employer with the following advantages:

- Tracking the lifecycle of a request to ensure that the task has been completed
- Being able to identify if a system has the same fault reoccurring
- Being able to identify if the same people are involved
- Tracking the fault history of any system

CLASS ACTIVITY FOR LESSON 2 – PROVIDE TECHNICAL SUPPORT TO CUSTOMERS 2

Instructions:

1. Use electronic methods (create a RDBMS) to record details of the customer request and the outcome giving details of the
    - customer
    - problem
    - date and time of call
    - date and time of first response
    - action taken
    - Time of resolution.

2. Record all details of requests for customer support, including resolution, using the system and procedures provided by your Assessor.

CLASS TEST FOR LESSON 2

Unit 502 – Customer Support Provision 3

Topic: Provide technical support to customers 2

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

Instructions: *Answer all questions. Time allowed is 10 minutes*

1. Describe three different ways of providing technical support, including at least one remote method (other than technical helpdesk).

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2. Explain the reasons for maintaining accurate records of
   - requests for technical support
   - the nature of the problem
   - the type of response given
   - the method of resolution and outcome.

LESSON 3

Topic of Session: Provide technical support to customers 3

Aim: Candidate will provide technical support to customer by downloading software and manuals using the internet

Study Outlines

a) The reasons for recording/logging customer technical support requests, and their outcomes

b) Describe procedures for escalating technical support problems which cannot to resolved and when to invoke escalation procedures

c) Obtain technical support information from other various sources

Keeping a log

Here are a few reasons for recording/logging customer requirements for technical support and the outcomes

- Monitoring system trends
- Identifying potential failures
- Identifying user training needs
- Identifying weak/unreliable areas in the system
- Identifying potential improvements

Other reasons are:

- To aid in troubleshooting
- Comply with SLA
- Charging purpose
- Speed of resolution

Analyzing the results

If a support function is to be effective, there needs to be a system for reporting faults. Whatever the type of setting, procedures for collecting and recording support information are vital and benefits are then available.

•Monitoring system trends

Careful examination of support data can reveal some recurring themes. It could be that individual users or even entire departments may have a tendency to report certain types of problems. For example, a system usage could show a heavy demand for printing during the same 1-hour period every afternoon with at least three jobs in the print queue at any one time.

Recurring problems on a single machine could indicate that the machine requires complete reinstallation replacement, while widespread problems might be solved by installing updated versions of software on a network.

•Identifying any potential failures

Logging faults enables the support section to identify common problems with a particular model of hardware or software. This will then enable them to return goods to the manufacturer under warranty and will influence further purchases of this component, machine or software.

•Identifying user training requirements

Keep accurate log may identify that training is required in the use of particular software or hardware, or for particular users or groups of users. Such training should reduce problems, user frustration and therefore reduce the need for user support.

•Identifying weak/unreliable areas in the system

Any glitches in the system (or network) can be identified.

•Identifying potential improvements

Having collected the data this knowledge base can be used to suggest ways of overcoming problems, time wasting and budget spending. This is valuable in determining the ongoing improvements that are vital to customer support.

The escalation process

A new technician joining the team will need to have an understanding of this structure so that problems that cannot be resolved at this first level of support can be referred (escalated to another point of contact). This is known as second level, then third level.

These are the stages of reporting, although the primary responsibilities lie with the front-line service provider.

- ♦ Receives customer problems, requests and inquiries that may be reported over the telephone, email, fax, the web, etc.
- ♦ Logs the incident having gathered relevant information about the customer and the incident (the electronic ticket is then updated continuously until the incident is resolved).
- ♦ Determines the nature of the customer's incident.
- ♦ Delivers a solution using various options (remote access, knowledge-based information).

- ♦ Documents the resolution thoroughly so that help desk can reuse it. If it cannot be resolved, the front-line service provider determines how quickly the incident needs to be solved so that the problem is escalated to the right person.
- ♦ Records the incident's severity in the ticket, all steps taken by both the help desk and the customer to try to resolve the incident, with any additional information the customer provides (such as directions to their site).
- ♦ Escalates the incident to the correct level 1 specialist or level 2 specialist or external vendor, or subject matter expert (SME).
- ♦ Retains ownership of incidents status to the customer (such as when the customer can expect a field service engineer to arrive or when the ordered parts should arrive).
- ♦ Reviews the incidents resolution once it is identified to learn how the incident was solved or to determine what caused the incident to occur.
- ♦ Follow up with the customer to ensure he or she is satisfied with the resolution.
- ♦ Closes the ticket.

Finding individual for front-line positions with the right mix of technical and interpersonal skills is a challenge that all line managers face in today's marketplace. Getting the right balance is what is preferable; strong technicians my lack the right level of empathy or patience to do the job. On the other hand, customer-focused people may lack the right technical skills required to work in a complex computing environment. Some people prefer a 'hands-on' approach and may become dissatisfied when they realize their position demands that they spend a lot of time on the telephone. The employee and company benefit when the right skills and position are matched with the right person.

The key elements that recruitment staff look for when accepting people for front-line support are those who genuinely like helping people and who work well with others. There are many companies that believe technical skills can be developed more easily than interpersonal skills and are willing to hire people with strong evidence of interpersonal skills, and a customer orientation. The company then bolts on the technical training so that they can do their work effectively.

Companies that are supporting highly sophisticated technology will, at times hire people with strong technical skills and provide extensive customer service training.

CLASS ACTIVITY FOR LESSON 3 – PROVIDE TECHNICAL SUPPORT TO CUSTOMERS 3

Instructions:

1. Download an operator manual as directed by your assessor. Save the document to a local drive or network location and check that you have the correct software to view the contents. Produce a screen print as evidence of the download.

2. On the ICT contact sheet, prepare a list of five telephone numbers for the customer support Centre of major ICT support companies. Include **one** printer manufacturer, **one** software supplier, **one** ICT hardware supplier**, one** hardware maintenance company and one electronic component supplier.

CLASS TEST FOR LESSON 3

Unit 502 – Customer Support Provision 3

Topic: Provide technical support to customers 3

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

Instructions: Answer all questions. Time allowed is 5 minutes

3. Describe **three** reasons for recording/logging customers' technical support requests and their outcomes.

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LESSON 4

Topic of Session: Provide technical support to customers 4

Aim: Candidate will learn how to escalate customer support issues and provide support working with Health and Safety legislations.

Study Outlines

a) Describe legislations and regulations concerning confidentiality and health and safety in provision of support

b) Record and escalate unresolved technical support requests following agreed process

In most organisation you may be asked to create your own escalation form which is used to resolve escalation process.

A normal escalation form will have the following headings:

- Escalation process (date, time)
- Customer
- Job number
- Problem details
- Reporting technician
- Department to whom problem is escalated

In providing support to users of ICT systems you may choose to use any of the following:

- Verbal assistance provided face to face or remote
- By providing written help, documentation or procedures produced by self or others
- By practical demonstration or assistance on the user's or another suitable system

Correctly used system and procedures are:

- logged calls
- correct validation of calls
- identified an escalation need
- correct action of escalation
- identified a complaint correctly
- took correct action when handling the complaint
- identified a fault
- fixed the fault remotely
- used effective communication for the fault diagnosis and fix
- correctly identified coaching needs
- provided effective coaching

Below show you how **each** item of legislation above is relevant to the tasks you will be carrying out.

Examples of, Health and Safety relevance eg
• You must not give advice or instruction to a customer that could put them, other people or property in danger
• When demonstrating equipment to a customer, you must do so safely so as not to endanger self, others or property

Examples of relevance of Confidentiality legislation are:
• You must not disclose customer details outside work situation
• You must not disclose any customers' commercial information seen or received during support activities
• You must store securely any customer information needed for support activity etc.

The Data Protection Act 1998 came into force in March 2000. Its purpose is to protect the right of the individual to privacy with respect to the processing of personal data. The Act laid down eight data protection principles:

1. Data must be processed fairly and lawfully.

2. Personal data shall be obtained only for one or more specific and lawful purposes.

3. Personal data shall be adequate, relevant and not excessive in relation to the purpose(s) for which they are processed.

4. Personal data shall be accurate and where necessary kept up to date.

5. Personal data processed for any purpose(s) shall not be kept for longer than is necessary for that purpose.

6. Personal data shall be processed in accordance with the rights of data subjects under the 1998 Data Protection Act.

7. Appropriate technical and organisational measures shall be taken against unauthorised or unlawful processing of personal data and against accidental loss or destruction of, or damage to, personal data.

8.Personal data shall not be transferred to a country outside the EEA, unless that country or territory ensures an adequate level of protection for the rights and freedoms of data subjects in relation to the processing of personal data.

Health and Safety Act Overview

The Occupational Health and Safety Act impose certain minimum conditions on all workplaces that ensure that workers are provided with an environment that neither impairs their health or imperils their safety.

The following areas are addressed

- Employer's duty requires that the employer ensure the health, safety and welfare of his or her workers.
- Worker's duty requires that the worker take reasonable care to protect his or her own health and that of workers and other persons at or near the workplace.
- A contractor duty requires that a principal contractor ensure that employers, workers and self-employed persons comply with the OHS legislation.
- Supplier's duties require that tools, appliances or equipment supplied comply with OHS legislation.
- An OHS duty outlines the general responsibilities of the Department as relating to Occupational Health and Safety.
- Stop work orders outlines the procedures regarding an order to stop work when conditions at a workplace pose an immediate risk to the health and safety of workers or other persons.
- An appeal outlines the procedure regarding an appeal from an order.
- Right to refuse provides a worker with the right to refuse to do work which he or she has grounds to believe is dangerous to his or her health or safety or that of another person.
- Discriminatory Action outlines the worker's occupational health and safety areas of involvement which are to be free from discriminatory action.
- Accident Reporting establishes procedures regarding the reporting of a workplace accident.
- Occupational Health and Safety Committees outlines the requirements for Occupational Health and Safety Committee.
- Advisory Council establishes a Council to address the Minister on matters relating to Occupational Health and Safety.
- An offence establishes the penalties for non-compliance with Occupational Health and Safety legislation.

CLASS ACTIVITY FOR LESSON 4 – PROVIDE TECHNICAL SUPPORT TO CUSTOMERS 4

Instructions:

1. Design a standard escalation form for the use of a wide selection of support staff. You should include at least six headings to show the type of information required in an escalation situation.

2. Provide support to users of ICT systems using the scenario provided by your Assessor. This may be

   - Verbal help or assistance provided face to face or remote (for example, using an internal telephone system where participants cannot see each other)

   - By providing written help, documentation or procedures produced by self or others

   - By practical demonstration or assistance on the users' or another suitable system.

3. Record all details of request s for customer support, including resolution, using the system and procedures provided by your Assessor

CLASS TEST FOR LESSON 4

Unit 502 – Customer Support Provision 3

Topic: Provide technical support to customers 4

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

Instructions: *Answer all questions. Time allowed is 10 minutes*

1. Name one main item of legislation that you will have been complying with during task #2, concerning

   - Health and Safety

   - Confidentiality.

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2.   Describe, giving two examples, how each item of legislation above is relevant to the tasks you have been carrying out.

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LESSON 5

Topic of Session: Gather feedback from customers

Aim: Candidate will learn how to gather feedback from questionnaires given to customers to improve customer's support.

Study Outlines

a) Factors which affect the design of tools used to gather information from customers
b) The importance of extracting and organising relevant information from data
c) How to draw positive conclusions from analysed data
d) Design a questionnaire for gathering effective feedback from customers to improve technical support provision

No survey can achieve success without a well-designed questionnaire. Unfortunately, questionnaire design has no theoretical base to guide the marketing researcher in developing a flawless questionnaire. All the researcher has to guide him/her is a lengthy list of do's and don'ts born out of the experience of other researchers past and present. Hence, questionnaire design is more of an art than a science.

By following this note, you will

➤ Understand the attributes of a well-designed questionnaire, and
➤ Adopt a framework for developing questionnaires.

The qualities of a good questionnaire

The design of a questionnaire will depend on whether the researcher wishes to collect exploratory information (i.e. qualitative information for the purposes of better understanding or the generation of hypotheses on a subject) or quantitative information (to test specific hypotheses that have previously been generated).

Exploratory questionnaires: If the data to be collected is qualitative or is not to be statistically evaluated, it may be that no formal questionnaire is needed. For example, in interviewing the female head of the household to find out how decisions are made within the family when purchasing breakfast foodstuffs, a formal questionnaire may restrict the discussion and prevent a full exploration of the woman's views and processes. Instead one might prepare a brief guide, listing perhaps ten major open-ended questions, with appropriate probes/prompts listed under each.

Formal standardised questionnaires: If the researcher is looking to test and quantify hypotheses and the data is to be analysed statistically, a formal standardised questionnaire is designed. Such questionnaires are generally characterised by:

- prescribed wording and order of questions, to ensure that each respondent receives the same stimuli
- prescribed definitions or explanations for each question, to ensure interviewers handle questions consistently and can answer respondents' requests for clarification if they occur
- prescribed response format, to enable rapid completion of the questionnaire during the interviewing process.

Given the same task and the same hypotheses, six different people will probably come up with six different questionnaires that differ widely in their choice of questions, line of questioning, use of open-ended questions and length. There are no hard-and-fast rules about how to design a questionnaire, but there are a number of points that can be borne in mind:

1. A well-designed questionnaire should meet the research objectives. This may seem obvious, but many research surveys omit important aspects due to inadequate preparatory work, and do not adequately probe particular issues due to poor understanding. To a certain degree some of this is inevitable. Every survey is bound to leave some questions unanswered and provide a need for further research but the objective of good questionnaire design is to 'minimise' these problems.

2. It should obtain the most complete and accurate information possible. The questionnaire designer needs to ensure that respondents fully understand the questions and are not likely to refuse to answer, lie to the interviewer or try to conceal their attitudes. A good questionnaire is organised and worded to encourage respondents to provide accurate, unbiased and complete information.

3. A well-designed questionnaire should make it easy for respondents to give the necessary information and for the interviewer to record the answer, and it should be arranged so that sound analysis and interpretation are possible.

4. It would keep the interview brief and to the point and be so arranged that the respondent(s) remain interested throughout the interview.

Each of these points will be further discussed throughout the following sections. Figure 4.1 shows how questionnaire design fits into the overall process of research design that was described in chapter 1 of this textbook. It emphasises that writing of the questionnaire proper should not begin before an exploratory research phase has been completed.

The steps preceding questionnaire design

Even after the exploratory phase, two key steps remain to be completed before the task of designing the questionnaire should commence. The first of these is to articulate the questions that research is intended to address. The second step is to determine the hypotheses around which the questionnaire is to be designed.

It is possible for the piloting exercise to be used to make necessary adjustments to administrative aspects of the study. This would include, for example, an assessment of the length of time an interview actually takes, in comparison to the planned length of the interview; or, in the same way, the time needed to complete questionnaires. Moreover, checks can be made on the appropriateness of the timing of the study in relation to contemporary events such as avoiding farm visits during busy harvesting periods.

Preliminary decisions in questionnaire design

There are nine steps involved in the development of a questionnaire:

1. Decide the information required.
2. Define the target respondents.
3. Choose the method(s) of reaching your target respondents.
4. Decide on question content.
5. Develop the question wording.
6. Put questions into a meaningful order and format.
7. Check the length of the questionnaire.
8. Pre-test the questionnaire.
9. Develop the final survey form.

Deciding on the information required

It should be noted that one does not start by writing questions. The first step is to decide 'what are the things one needs to know from the respondent in order to meet the survey's objectives?' These, as has been indicated in the opening chapter of this textbook, should appear in the research brief and the research proposal.

One may already have an idea about the kind of information to be collected, but additional help can be obtained from secondary data, previous rapid rural appraisals and exploratory research. In respect of secondary data, the researcher should be aware of what work has been done on the same or similar problems in the past, what factors have not yet been examined, and how the present survey questionnaire can build on what has already been discovered. Further, a

small number of preliminary informal interviews with target respondents will give a glimpse of reality that may help clarify ideas about what information is required.

Define the target respondents

At the outset, the researcher must define the population about which he/she wishes to generalise from the sample data to be collected. For example, in marketing research, researchers often have to decide whether they should cover only existing users of the generic product type or whether to also include non-users. Secondly, researchers have to draw up a sampling frame. Thirdly, in designing the questionnaire we must take into account factors such as the age, education, etc. of the target respondents.

Choose the method(s) of reaching target respondents

It may seem strange to be suggesting that the method of reaching the intended respondents should constitute part of the questionnaire design process. However, a moment's reflection is sufficient to conclude that the method of contact will influence not only the questions the researcher is able to ask but the phrasing of those questions. The main methods available in survey research are:

· Personal interviews
· group or focus interviews
· mailed questionnaires
· telephone interviews.

Within this region the first two mentioned are used much more extensively than the second pair. However, each has its advantages and disadvantages. A general rule is that the more sensitive or personal the information, the more personal the form of data collection should be.

Decide on question content

Researchers must always be prepared to ask, "Is this question really needed?" The temptation to include questions without critically evaluating their contribution towards the achievement of the research objectives, as they are specified in the research proposal, is surprisingly strong. No question should be included unless the data it gives rise to is directly of use in testing one or more of the hypotheses established during the research design.

There are only two occasions when seemingly "redundant" questions might be included:

· Opening questions that are easy to answer and which are not perceived as being "threatening", and/or are perceived as being interesting, can greatly assist in gaining the respondent's involvement in the survey and help to establish a rapport.

This, however, should not be an approach that should be overly used. It is almost always the case that questions which are of use in testing hypotheses can also serve the same functions.

· "Dummy" questions can disguise the purpose of the survey and/or the sponsorship of a study. For example, if a manufacturer wanted to find out whether its distributors were giving the consumers or end-users of its products a reasonable level of service, the researcher would want to disguise the fact that the distributors' service level was being investigated. If he/she did not, then rumours would abound that there was something wrong with the distributor.

Develop the question wording

Survey questions can be classified into three forms, i.e. closed, open-ended and open response-option questions. So far only the first of these, i.e. closed questions has been discussed. This type of questioning has a number of important advantages;

· It provides the respondent with an easy method of indicating his answer - he does not have to think about how to articulate his answer.

· It 'prompts' the respondent so that the respondent has to rely less on memory in answering a question.

· Responses can be easily classified, making analysis very straightforward.

· It permits the respondent to specify the answer categories most suitable for their purposes.

Disadvantages are also present when using such questions

· They do not allow the respondent the opportunity to give a different response to those suggested.

· They 'suggest' answers that respondents may not have considered before.

With open-ended questions the respondent is asked to give a reply to a question in his/her own words. No answers are suggested.

Example: "What do you like most about this implement?"

Open-ended questions have a number of advantages when utilised in a questionnaire:

· They allow the respondent to answer in his own words, with no influence by any specific alternatives suggested by the interviewer.

· They often reveal the issues which are most important to the respondent, and this may reveal findings which were not originally anticipated when the survey was initiated.

· Respondents can 'qualify' their answers or emphasise the strength of their opinions.

However, open-ended questions also have inherent problems which means they must be treated with considerable caution. For example:

· Respondents may find it difficult to 'articulate' their responses i.e. to properly and fully explain their attitudes or motivations.

· Respondents may not give a full answer simply because they may forget to mention important points. Some respondents need prompting or reminding of the types of answer they could give.

· Data collected is in the form of verbatim comments - it has to be coded and reduced to manageable categories. This can be time consuming for analysis and there are numerous opportunities for error in recording and interpreting the answers given on the part of interviewers.

· Respondents will tend to answer open questions in different 'dimensions'. For example, the question: "When did you purchase your tractor?", could elicit one of several responses, viz:

"A short while ago".
"Last year".
"When I sold my last tractor".
"When I bought the farm".

Such responses need to be probed further unless the researcher is to be confronted with responses that cannot be aggregated or compared.

It has been suggested that the open response-option questions largely eliminate the disadvantages of both the afore-mentioned types of question. An open response-option is a form of question which is both open-ended and includes specific response-options as well. For example,

What features of this implement do you like?

· Performance
· Quality
· Price
· Weight
· Others mentioned:

The advantages of this type of question are twofold:

· The researcher can avoid the potential problems of poor memory or poor articulation by then subsequently being able to prompt the respondent into considering particular response options.

· Recording during interview is relatively straightforward.

The one disadvantage of this form of question is that it requires the researcher to have a good prior knowledge of the subject in order to generate realistic/likely response options before printing the questionnaire. However, if this understanding is achieved the data collection and analysis process can be significantly eased.

Clearly there are going to be situations in which a questionnaire will need to incorporate all three forms of question, because some forms are more appropriate for seeking particular forms of response. In instances where it is felt the respondent needs assistance to articulate answers or provide answers on a preferred dimension determined by the researcher, then closed questions should be used. Open-ended questions should be used where there are likely to be a very large number of possible different responses (e.g. farm size), where one is seeking a response described in the respondent's own words, and when one is unsure about the possible answer options. The mixed type of question would be advantageous in most instances where most potential response-options are known; where unprompted and prompted responses are valuable, and where the survey needs to allow for unanticipated responses.

There are a series of questions that should be posed as the researchers develop the survey questions themselves:

"Is this question sufficient to generate the required information?"

For example, asking the question "Which product do you prefer?" in a taste panel exercise will reveal nothing about the attribute(s) the product was judged upon. Nor will this question reveal the degree of preference. In such cases a series of questions would be more appropriate.

"Can the respondent answer the question correctly?"

· An inability to answer a question arises from three sources:

· Having never been exposed to the answer, e.g. "How much does your husband earn?"

· Forgetting, e.g. What price did you pay when you last bought maize meal?"

· An inability to articulate the answer: e.g. "What improvements would you want to see in food preparation equipment?"

"Are there any external events that might bias response to the question?"

For example, judging the popularity of beef products shortly after a foot and mouth epidemic is likely to have an effect on the responses.

"Do the words have the same meaning to all respondents?"

For example, "How many members are there in your family?"

There is room for ambiguity in such a question since it is open to interpretation as to whether one is speaking of the immediate or extended family.

"Are any of the words or phrases loaded or leading in any way?"

For example," What did you dislike about the product you have just tried?"

The respondent is not given the opportunity to indicate that there was nothing he/she disliked about the product. A less biased approach would have been to ask a preliminary question along the lines of, "Did you dislike any aspect of the product you have just tried?", and allow him/her to answer yes or no.

"Are there any implied alternatives within the question?"

The presence or absence of an explicitly stated alternative can have dramatic effects on responses. For example, consider the following two forms of a question asked of a 'Pasta-in-a-Jar' concept test:

1. " Would you buy pasta-in-a-jar if it were locally available?"
2. "If pasta-in-a-jar and the cellophane pack you currently use were both available locally, would you:

· Buy only the cellophane packed pasta?
· Buy only the pasta-in-a-jar product?
· Buy both products?"

The explicit alternatives provide a context for interpreting the true reactions to the new product idea. If the first version of the question is used, the researcher is almost certain to obtain a larger number of positive responses than if the second form is applied.

"Will the question be understood by the type of individual to be interviewed?"

It is good practice to keep questions as simple as possible. Researchers must be sensitive to the fact that some of the people he/she will be interviewing do not have a high level of education. Sometimes he/she will have no idea how well or badly educated the respondents are until he/she gets into the field. In the same way, researchers should strive to avoid long questions.

The fewer words in a question the better. Respondents' memories are limited and absorbing the meaning of long sentences can be difficult: in listening to something they may not have much interest in, the respondents' minds are likely to wander, they may hear certain words but not others, or they may remember some parts of what is said but not all.

"Is there any ambiguity in my questions?"

The careless design of questions can result in the inclusion of two items in one question. For example: "Do you like the speed and reliability of your tractor?"

The respondent is given the opportunity to answer only 'yes' or 'no', whereas he might like the speed, but not the reliability, or vice versa. Thus it is difficult for the respondent to answer and equally difficult for the researcher to interpret the response.

The use of ambiguous words should also be avoided. For example: "Do you regularly service your tractor?"

The respondents' understanding and interpretation of the term 'regularly' will differ. Some may consider that regularly means once a week, others may think once a year is regular. The inclusion of such words again present interpretation difficulties for the researcher.

"Are any words or phrases vague?"

Questions such as 'What is your income?' are vague and one is likely to get many different responses with different dimensions. Respondents may interpret the question in different terms, for example:

· Hourly pay?
· Weekly pay?
· Yearly pay?
· Income before tax?
· Income after tax?
· Income in kind as well as cash?
· Income for self or family?
· All income or just farm income?

The researcher needs to specify the 'term' within which the respondent is to answer.

"Are any questions too personal or of a potentially embarrassing nature?"

The researcher must be clearly aware of the various customs, morals and traditions in the community being studied. In many communities there can be a great reluctance to discuss certain questions with interviewers/strangers. Although the degree to which certain topics are

taboo varies from area to area, such subjects as level of education, income and religious issues may be embarrassing and respondents may refuse to answer.

"Do questions rely on feats of memory?"

The respondent should be asked only for such data as he is likely to be able to clearly remember. One has to bear in mind that not everyone has a good memory, so questions such as 'Four years ago was there a shortage of labour?' should be avoided.

Putting questions into a meaningful order and format

Opening questions: Opening questions should be easy to answer and not in any way threatening to THE respondents. The first question is crucial because it is the respondent's first exposure to the interview and sets the tone for the nature of the task to be performed. If they find the first question difficult to understand, or beyond their knowledge and experience, or embarrassing in some way, they are likely to break off immediately. If, on the other hand, they find the opening question easy and pleasant to answer, they are encouraged to continue.

Question flow: Questions should flow in some kind of psychological order, so that one leads easily and naturally to the next. Questions on one subject, or one particular aspect of a subject, should be grouped together. Respondents may feel it disconcerting to keep shifting from one topic to another, or to be asked to return to some subject they thought they gave their opinions about earlier.

Question variety:. Respondents become bored quickly and restless when asked similar questions for half an hour or so. It usually improves response, therefore, to vary the respondent's task from time to time. An open-ended question here and there (even if it is not analysed) may provide much-needed relief from a long series of questions in which respondents have been forced to limit their replies to pre-coded categories. Questions involving showing cards/pictures to respondents can help vary the pace and increase interest.

Closing questions

It is natural for a respondent to become increasingly indifferent to the questionnaire as it nears the end. Because of impatience or fatigue, he may give careless answers to the later questions. Those questions, therefore, that are of special importance should, if possible, be included in the earlier part of the questionnaire. Potentially sensitive questions should be left to the end, to avoid respondents cutting off the interview before important information is collected.

In developing the questionnaire the researcher should pay particular attention to the presentation and layout of the interview form itself. The interviewer's task needs to be made as straight-forward as possible.

· Questions should be clearly worded and response options clearly identified.

· Prescribed definitions and explanations should be provided. This ensures that the questions are handled consistently by all interviewers and that during the interview process the interviewer can answer/clarify respondents' queries.

Ample writing space should be allowed to record open-ended answers, and to cater for differences in handwriting between interviewers.

Physical appearance of the questionnaire

The physical appearance of a questionnaire can have a significant effect upon both the quantity and quality of marketing data obtained. The quantity of data is a function of the response rate. Ill-designed questionnaires can give an impression of complexity, medium and too big a time commitment. Data quality can also be affected by the physical appearance of the questionnaire with unnecessarily confusing layouts making it more difficult for interviewers, or respondents in the case of self-completion questionnaires, to complete this task accurately. Attention to just a few basic details can have a disproportionately advantageous impact on the data obtained through a questionnaire.

Use of booklets	The use of booklets, in the place of loose or stapled sheets of paper, make it easier for interviewer or respondent to progress through the document. Moreover, fewer pages tend to get lost.
Simple, clear formats	The clarity of questionnaire presentation can also help to improve the ease with which interviewers or respondents are able to complete a questionnaire.
Creative use of space and typeface	In their anxiety to reduce the number of pages of a questionnaire these is a tendency to put too much information on a page. This is counter-productive since it gives the questionnaire the appearance of being complicated. Questionnaires that make use of blank space appear easier to use, enjoy higher response rates and contain fewer errors when completed.
Use of colour coding	Colour coding can help in the administration of questionnaires. It is often the case that several types of respondents are included within a single survey (e.g. wholesalers and retailers). Printing the questionnaires on two different

	colours of paper can make the handling easier.
Interviewer instructions	Interviewer instructions should be placed alongside the questions to which they pertain. Instructions on where the interviewers should probe for more information or how replies should be recorded are placed after the question.

In general it is best for a questionnaire to be as short as possible. A long questionnaire leads to a long interview and this is open to the dangers of boredom on the part of the respondent (and poorly considered, hurried answers), interruptions by third parties and greater costs in terms of interviewing time and resources. In a rural situation an interview should not last longer then 30-45 minutes.

Piloting the questionnaires

Even after the researcher has proceeded along the lines suggested, the draft questionnaire is a product evolved by one or two minds only. Until it has actually been used in interviews and with respondents, it is impossible to say whether it is going to achieve the desired results. For this reason it is necessary to pre-test the questionnaire before it is used in a full-scale survey, to identify any mistakes that need correcting.

The purpose of pretesting the questionnaire is to determine:

· Whether the questions as they are worded will achieve the desired results

· Whether the questions have been placed in the best order

· Whether the questions are understood by all classes of respondent

· Whether additional or specifying questions are needed or whether some questions should be eliminated

· Whether the instructions to interviewers are adequate.

Usually a small number of respondents are selected for the pre-test. The respondents selected for the pilot survey should be broadly representative of the type of respondent to be interviewed in the main survey.

If the questionnaire has been subjected to a thorough pilot test, the final form of the questions and questionnaire will have evolved into its final form. All that remains to be done is the mechanical process of laying out and setting up the questionnaire in its final form. This will involve grouping and sequencing questions into an appropriate order, numbering questions, and inserting interviewer instructions.

Summary

A well designed questionnaire is essential to a successful survey. However, the researcher must develop his/her own intuition with respect to what constitutes 'good design' since there is no theory of questionnaires to guide him/her.

A good questionnaire is one which helps directly achieve the research objectives, provides complete and accurate information; is easy for both interviewers and respondents to complete, is so designed as to make sound analysis and interpretation possible and is brief.

There are at least nine distinct steps: decide on the information required; define the target respondents, select the method(s) of reaching the respondents; determine question content; word the questions; sequence the questions; check questionnaire length; pre-test the questionnaire and develop the final questionnaire.

- **Data filtering** is when data have been obtained from users of goods and services and is sorted to the user's needs.

- Raw data is unstructured data. By filtering the raw data it makes it possible to be analysed.

- The reason why customer support data is analysed is so if any areas of the customer support that needs to be improved can be identified and a plan can be put in place to rectify the problem/s

These are some areas that could be improved that could have been identified from analysed data:

- Being More Efficient: There could be an area where analysed data showed that the customer support unit were being less efficient than expected and were using more resources then needed. Improvement on efficiency would be needed.

- Technical skill. A result could show that a certain number of staff had a limited level of technical knowledge. Here the company would have to train the staff in order to raise the level of knowledge.

- Customer Satisfaction. A result could find that a large number of customers were not completely satisfied with the level of service provided from the support unit. This would indicate that customer service would be needed to be improved.

Positive conclusions should be drawn from analysed data, identifying recommendations for action, suggestions for improvement and areas of responsibility.

Designing suitable template to collect information from customer during technical problem investigation will have the following sections and headings:

The template should include space to record a full range of diagnosis information enough to make a remote diagnosis, eg

- Customer details
- Hardware and software details
- Symptoms
- Frequency of failure/failure mode
- Priority
- Environmental conditions

CLASS ACTIVITY FOR LESSON 5 – GATHER FEEDBACK FROM CUSTOMERS

Instructions:

1. You have been asked to investigate a technical problem. This fault has already been referred to your senior support specialist and you have to collect full information for them to evaluate.

   Design a template that could be used to collect the information. The template should be divided into sections and headings to show that you have considered all types of relevant information. It must provide the support specialist with enough information to make a remote diagnosis.

   Assume that the specialist will have no other information about the problem except that contained in the template

CLASS TEST FOR LESSON 5

Unit 502 – Customer Support Provision 3

Topic: Gather feedback from customers

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

__Instructions:__ Answer all questions. Time allowed is 10 minutes

1. Briefly describe data filtering?

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2. Briefly describe why filtering is used on raw data.

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3. Outline the reasons why customer support data is analysed. Identify three resulting items that could be used in planning improvements.

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4. Choose any four methods of gathering customer satisfaction information and describe their advantages and disadvantages. One of the methods should best suit the scenario given to you. Briefly describe why it would be suitable

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LESSON 6

Topic of Session: Gather feedback from customers 2

Aim: Candidate will learn how to gather feedback from questionnaires given to customers to improve customer's support

Study Outlines

a) Design a questionnaire for gathering effective feedback from customers to improve technical support provision

b) Obtain feedback from customers using the designed tools

c) Analyse feedback gathered and prepare a report detailing the results of the analysis and recommendations for improvements

You will be expected to supply a range of ICT support services to customers. The **five** categories of information that you would ask for when surveying IT customers for their support requirements are:

• Type of support

• Speed of response required

• Cost

• Cover period

• On-site, remote etc

CLASS ACTIVITY FOR LESSON 6 – GATHER FEEDBACK FRO CUSTOMERS 2

Instructions:

1. Using the scenario provided by your Assessor, Write ten questions that could be asked in a telephone survey of your customers. The survey will be undertaken by non-technical staff and should cover the complete lifecycle of the request for service.

   The questions should collect the maximum information and be suitable for entering into an analysis sheet. You should use two or more styles of answer eg yes/no.

   You do not need to include the following in your questions: customer name, customer address, customer contact name and telephone number, call reference

LESSON 7

Topic of Session: Gather feedback from customers 3

Aim: Candidate will learn how to gather feedback from questionnaires given to customers to improve customer's support

Study Outlines

a) Design a survey form for gathering effective feedback from customers to improve technical support provision

b) Obtain feedback from customers using the designed tools

c) Analyse feedback gathered and prepare a report detailing the results of the analysis and recommendations for improvements

CLASS ACTIVITY FOR LESSON 7 – GATHER FEEDBACK FROM CUSTOMERS 3

Instructions:

1. Create a survey form to collect effective feedback from your customers. You should use at least six headings, or questions in the forms, to show which information you will consider to be the most important when recommending improvements. Produce the form in a format that will allow analysis of the information. You are not required to set up any analysis until directed by your Assessor

CLASS TEST FOR LESSON 7

Unit 502 – Customer Support Provision 3

Topic: Gather feedback from customer 3

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

__Instructions:__ Answer all questions. Time allowed is 5 minutes

1. You will be expected to supply a range of ICT support services to customers. Describe five categories of information that you would ask for when surveying IT customers for their support requirements.

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LESSON 8

Topic of Session: Gather feedback from customers 4

Aim: Candidate will learn how to gather feedback from questionnaires given to customers to improve customer's support

Study Outlines

a) Design a customer satisfaction survey for gathering effective feedback from customers to improve technical support provision

b) Obtain feedback from customers using the designed tools

c) Analyse feedback gathered and prepare a report detailing the results of the analysis and recommendations for improvements

CLASS ACTIVITY FOR LESSON 8 – GATHER FEEDBACK FROM CUSTOMERS 4

Instructions:

1. Design a Customer Satisfaction Survey to collect feedback from ICT users on their perceptions of the ICT facility and their use of it. This should be clear to users.

2. Design a questionnaire with ten questions for gathering effective feedback from customers to help improve technical support provision.

3. Use your questionnaire from Task above to obtain feedback from a number of users.

4. Analyse feedback gathered and prepare a report detailing the results of the analysis and recommendations for improvements.

5. Document your conclusions from analysed data, identifying
   - recommendations for action
   - suggestions for improvement
   - areas of responsibility.

LESSON 9

Topic of Session: Analyse trends to improve customer use of IT

Aim: The Candidate needs to look at a trend and analyse it to improve the customer's support provision

Study Outlines

a) Type of support records or logs which may be used to determine trends in customer support requests

b) Trends that may occur in support requests

c) Common causes for recurring requests

d) Process for resolving recurring requests

e) Describe the main points which should be included in an action plan

Site Log

The Site Log provides a record of all actions related to installing and maintaining the ICT equipment. Keep the log in an accessible place near the appliance chassis so that anyone who performs tasks has access to it.

Site Log entries might include the following:

• Installation progress

• Upgrade, removal, and maintenance procedures—Use the Site Log as a record of ongoing appliance maintenance and expansion history. Each time a task is performed on the appliance, update the Site Log to reflect the following information:

– Installation of new adapter cards

– Removal or replacement of adapter cards and other upgrades

– Configuration changes

– Maintenance schedules and requirements

– Maintenance procedures performed

– Intermittent problems

– Comments and notes

Support call logs

How many telephone support calls did you answer last week? How many calls were made to your help desk line last month? In the last six months? If you can't answer those questions, you need to start keeping a formal log of support calls—that is, if you want to accurately identify where and how you're spending your time.

Why bother?

You may think it's not worth the energy to keep a log of support calls. However, it only takes an extra minute or two to document the call, and that's time well spent. Here's what you get in return:

•You know where your time is going. If you keep a log, you'll be able to determine exactly how much of your time those calls are consuming. You won't have to guess.

•You identify training needs. You'll be able to spot trends that can help you identify users who need additional training or systems that need to be fixed. If the same one or two employees are making the majority of the calls, this will be your signal to focus on training those people. On the other hand, if dozens of people are calling about the same printer error, maybe there's a hardware or software problem you can fix to eliminate those calls.

•You can justify new hires. If you're swamped because you're dealing with vendors, attending meetings, troubleshooting problems, and trying to meet a programming deadline—all at the same time—maybe you need a new hire in your department. Your boss may ask, "Come on, is it really that bad?" Show him or her the phone log.

A few ways to keep the log

Keeping a telephone log is pretty easy. Getting into the habit of keeping the log is the hard part. Ideally, you'd probably want to track these data items:

1. Date of the call

2. Time of the call

3. Call tracking number

4. Your name

5. Caller's name

6. Caller's department

7. Caller's phone

8. Caller's e-mail

9. Problem description

10. Outcome

11. Time spent

To maintain your log, you can use the old pad-and-pencil approach. However, if you're like me, you'll be prone to losing the scraps of paper. That's why I recommend that you create a word processing document or spreadsheet named Phone log and enter the appropriate information every time you receive a call.

I know it's much easier just to deal with the call and move on to the next item on your to-do list. However, when you need to justify a new hire because you're spending too much time on the phone, you'll be glad you took the time.

Site log

Date	Description of task performed or symptom observed	Initials

Call logging sheet

Ref	Time call logged	Customer company	Customer address	Post code	Contact name and telephone number	Reported problem	Type of contract	Required response time	Call passed to

The trends that may occur in support request are:
- Recurring requests from individual
- Recurring request about a particular problems
- Request about specific products or services.

The common causes for recurring request are:
- Poor user skills - the user do not have the training to use & maintain the equipment properly
- Poor media – media with faulty history
- Intermittent fault – occurring at irregular intervals, not steady
- Other external influences like poor environment, inadequate system for workload

The process involve in resolving recurring requests are identifying:
- the causes of the pattern(s)
- the possible resolutions
- Responsibility – which department can handle the problem (software, hardware, sale department etc.)
- Further information require and from whom, and by when

When you have all the details required you have to agree the resolution with the customer and implement the resolution.

Action Plan

An action plan is goal or objective a person or a system plans or intends to achieve. It consists of one or more actions.

The main points which should be included in an action plan are:
- Aim/goal – why it is needed
- What needs to be done
- By whom?
- By when?
- When it needs to be reviewed?
- Who is to review it?

CLASS TEST FOR LESSON 9

Unit 502 – Customer Support Provision 3

Topic: Analyse trends to improve customer use of IT

Candidate's Name: _____

Candidate's Signature: _____ Date: _____

__Instructions:__ Answer all questions. Time allowed is 10 minutes

1. State three types of information needed when logging calls.

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2. State what information is needed on a field service report sheet.

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3. Describe the purpose and structure of an action plan.

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LESSON 10

Topic of Session: Analyse trends to improve customer use of IT 2

Aim: The Candidate needs to look at a trend and analyse it, create an action plan to improve the customer's support provision

Study Outlines

a) Analyse support records or logs identifying patterns of customer support request

b) Write a report recording the analysis and making recommendations for improvement

c) Prepare an action plan to implement the recommendation

CLASS ACTIVITY FOR LESSON 10 – ANALYSE TRENDS TO IMPROVE CUSTOMER USE OF IT 2

Instructions:

1. Fault trends are an important aid to making customer support 'proactive'.
   Look at the trend symptoms on the provided Trend Analysis Sheet. In the spaces provided on the sheet, list **two** possible causes and **two** items of preventative action, for each trend.

2. When customers request ICT support, the calls will have to be logged. Construct a suitable table for
   a) logging calls
   b) field service engineers to report details of repair and maintenance jobs.

3. Using the data on the Trend Analysis Sheet, identify at least two possible trends.

4. Using your answer to above task, prepare an action plan based on providing a solution to a repeated failure of a CPU in an ICT workstation, which has led to major customer dissatisfaction.

LESSON 11

Topic of Session: Analyse trends to improve customer use of IT 3

Aim: The Candidate needs to look at a trend and analyse it, create an action plan to improve the customer's support provision

Study Outlines

a) Analyse support records or logs identifying patterns of customer support request

b) Write a report recording the analysis and making recommendations for improvement

c) Prepare an action plan to implement the recommendation

CLASS ACTIVITY FOR LESSON 11 – ANALYSE TRENDS TO IMPROVE CUSTOMER USE OF IT 3

Instructions:

1. Fault trends are an important aid to making customer support 'proactive'.
   Look at the trend symptoms on the provided Trend Analysis Sheet. In the spaces provided on the sheet, list **two** possible causes and **two** items of preventative action, for each trend.

2. When customers request ICT support, the calls will have to be logged. Construct a suitable table for
   a) logging calls
   b) field service engineers to report details of repair and maintenance jobs.

3. Using the data on the Trend Analysis Sheet, identify at least two possible trends.

4. Using your answer to above task, prepare an action plan based on providing a solution to a repeated failure of a PSU in an ICT workstation, which has led to major customer dissatisfaction.

LESSON 12

Topic of Session: Provide remote technical support

Aim: The Candidate needs to support customers remotely by logging onto their PC in a remote location and carry out diagnostic session

Study Outlines

a) Describe and give examples highlighting the differences between hardware and software related faults
b) Explain the reasons for structured testing during troubleshooting process
c) Describe an give examples of the use of diagnostic tools and when they might be used
d) Determine the customers' requirements for technical support in a remote situation
e) Use available diagnostic tools to remotely investigate and inspect a system or system components as part of a fault-finding process

Difference between software and hardware problems

When problems occur with your computer, or PC, they fall into two categories – issues with the hardware, the physical components of the machine, or with the software, the program data that is installed onto the motherboard or hard drive.

Broadly speaking, hardware and software problems can be differentiated by the following symptoms or effects;

Hardware

Total lack of response from the PC; no discernible activity from lights, fans, sounds or onscreen information
Unusual mechanical noise
Visible mechanical damage
Excessive temperature, or PC randomly stopping and/or restarting by itself

Software

Slow responses
Individual programs fail, but others continue to work

Since a software problem with the PC's operating system can affect all programs, one strategy for differentiating this from a hardware problem is to restart, or boot, the PC from a CD or

floppy boot disk. If it works properly from this, it suggests the hardware is in order, and that some repair or replacement of the installed operating system is called for.

If you suspect a hardware problem, then repair is usually a matter of removal of the faulty part, and replacement. PCs are modular devices, and unless the core component – the motherboard – has failed, ancillary components are easy to remove and replace. Replacing a power supply is merely a matter of unplugging various power leads within the PC (noting which is which), unscrewing the power supply, and replacing it. Other elements which plug into or connect directly to the motherboard – optical devices, RAM memory, graphics cards – are merely unplugged and replaced, in the main.

For software, any problem will usually be resolved by reinstallation, either from an install disc, or from an executable that you've downloaded. If you've purchased the software, it will be found on the install disc that came with the package. If you downloaded, you should use the executable install package, or download it again.

As a regular routine, you should be taking backups of any data that you store on your PC, as insurance against any software or hardware failure. Most crucially, you need to copy any data – documents, spreadsheets, music files, photos – from your primary hard disk to another location. This could be a secondary drive within the PC, an external device, or both. Many commentators suggest that backups of critical data should be kept in more than one remote location.

Checking Your Computer For Errors

It happens to the best of us; we turn on our PC, to happily get on with whatever we want to do, only to find out that we can't happily turn on our PC. Something has broken, something is not the same as it was, and the stubborn thing won't turn on. The most common response is "But I haven't touched anything."

Fact is, PC's can fail to turn on for a variety of reasons, which can be related to software or hardware. The former is probably easier to identify, while the latter may require some time. Here are things you should check if your computer fails to power up.

Recently Installed Drivers

Remove any drivers which you have recently installed, particularly for your video or audio card. These may be responsible in causing incompatibilities with other software, so it is worth

checking on. Uninstall and restart, and see if it makes a difference. You can also use the rollback features of your particular operating system.

Check the Power Supply Unit

Is the power switch at the back on? Is the PSU connected properly to the motherboard? Check both to make sure. If your PC has powered down while a particularly intensive application was running, i.e. video editing program, photo editing, a game, the computer might have shut down as a security measure. Make sure your PSU supports dual-rail, and has an ample Wattage for your whole system.

Check the Motherboard

With the computer off, try removing components one by one, and restarting each time. For instance, remove a video card, then an audio card, then try removing different combinations of your RAM sticks to determine whether they might be a problem. Running utilities like MemTest or ChkDsk to find/fix possible problems with your drive or RAM.

Listen for Beeps at Start Up

Your motherboard's BIOS will have a beep-code, which is usually in the Motherboard's manual. Listen to the beep when you power up your PC, and determine what they mean by checking the manual. This is actually a quicker way than checking for specific components, and may help you determine your hardware-related problem quicker. For instance, a continuous beep may indicate a power supply or motherboard problem, while 3 short beeps may indicate a graphic-adapter error.

In the case where you get no beeps at all, something may be wrong with your CPU, or you may have PSU or motherboard problem. If you are unaware of what to do after these tips, it is always better to contact a technician.

The reasons for structured testing during troubleshooting process is to reach a conclusion as soon as possible, ascertain all symptoms and events leading up to them and Identify additional problems.

Diagnostic Tools for Computers

Computer specialists use a variety of diagnostic software tools.

Your desktop computer comes with several sophisticated diagnostic programs. Technicians use these tools to find the causes of erratic behavior in the computer, slow operation and other problems. These programs consist of software that is built into hardware drivers and components of the Windows operating system.

POST

Your computer completes a Power On Self Test, or POST, every time you turn on your computer. POST performs basic diagnostics on your computer's memory and hard drives, checks for the presence of a keyboard and mouse, and tests the clock and other system settings. POST resides in a small, permanent memory area called BIOS, which stands for Basic Input Output System; this contains compact, simple programs the computer uses when you first turn it on. If a problem exists with the computer's hardware, POST signals this through coded audio beeps. Though hardware makers have produced different versions of POST over the years, they all ensure that the computer works correctly before it starts the operating system.

Check Disk

The program "CHKDSK," or Check Disk, is part of Microsoft's Windows software. It tests and repairs the file system information on hard drives. For example, if you work on your computer during a storm, a sudden power failure may shut your computer down immediately. Electrical noise from the power line may write random data into hard drive files that were open as you worked. This random data can corrupt the Windows file system, making files unreadable. If Windows senses a problem with the file system, it runs Check Disk automatically when you restart your computer; you can run it manually from Windows Explorer or a command prompt. Check Disk scans the file structure, looking for and reporting on problems. If you run it in "fix" mode -- "chkdsk /f" -- the program attempts to repair any damage it finds. Check Disk is sophisticated and fixes file system problems for the vast majority of cases.

Task Manager

The Windows operating system runs dozens of programs on your computer and you will seldom notice them unless problems arise. These programs monitor the state of your printer, network, mobile devices and other hardware. If your computer becomes unusually sluggish, the cause may be one of these programs running excessively. The Windows Task Manager displays a list of all the programs running on your computer, along with the amount of memory they consume and how active they are. To see the Task Manager, press "Ctrl-Shift-Esc." If a program in the Task Manager window uses more than 20 percent of the computer's CPU time for a prolonged period, the program may be caught in an error state. To solve this problem, try restarting the computer.

Windows Defender

If your PC has a malware infection, your computer's performance suffers. Malware may cause your Web browser to display unwanted pop-up ads and you may experience other annoyances. The Windows operating system includes a program called Windows Defender, which scans your hard drives for viruses, spyware and other malicious programs. Windows Defender reports on the problems it finds, isolates the malware and removes it. Windows Defender uses a database of known malware, and the database is continually updated by Microsoft so that the program catches even the newest viruses.

Drivers

Your PC uses a variety of devices for data storage, communications, input and display. Each of these has a program called a driver that carries data between the hardware and Windows. Frequently, drivers have a diagnostic capability that checks the device's operation and troubleshoots problems. Windows organizes these drivers in its Device Manager, which you can see by clicking the Windows "Start" button, right-clicking "Computer," selecting "Properties" and clicking the "Device Manager."

CLASS ACTIVITY FOR LESSON 12 – PROVIDE REMOTE TECHNICAL SUPPORT

Instructions:
1. Remote support organisations often use specialist teams to respond to customer requests for service.

   Design a simple flow chart, with question points, starting from the customer making their initial call and leading to a response by a specialist. The chart should be capable of being used to recommend the layout of an automatic telephone routing system in a call centre handling
   • hardware support
   • software support
   • installations
   • upgrades.
   The call centre supports a wide range of IT equipment, and there should be provision for a customer enquiry that does not fit in to the normal call flow. Check that a customer can ask for progress about an existing call without logging a new call.

2. Using the ICT system and diagnostic tools provided, demonstrate to your assessor that you are able to run a remote diagnostic session. Make detailed notes of the process.

3. The following questions relate to the diagnosis of hardware and software faults on an ICT system.

    a) Describe the main characteristics of a hardware fault that distinguish it from a software fault.

    b) Describe the main characteristics of a software fault that distinguish it from a hardware fault.

LESSON 13

Topic of Session: Provide remote technical support 2

Aim: The Candidate needs to support customers remotely by logging onto their PC in a remote location and carry out diagnostic session

Study Outlines

a) Describe the steps that should be taken in fault-finding and correction when communicating with a user by telephone

b) Why structured fault-finding techniques should be applied to any fault situation on the system

c) Describe the routine and a non-routine problem

d) Guide a remote user through a fault-finding process by suggesting checks or test on a system

The steps that should be taken in fault-finding and correction when communicating with a user by telephone are;

- Validate the call
- Ensure clear understanding of the problem
- Advise user of appropriate steps to carry out
- Obtain feedback on results
- Analyse the results
- Recommend corrective action
- Establish successful resolution

Structured fault-finding techniques should be applied to any fault situation on the system. To achieve a very good result you have to follow the fault-finding techniques

Fault-finding techniques:

- Test the system – make measurement or collect other evidence
- Analyse the result
- Locate fault based on analysis (step 2)
- Determine the original cause of the fault
- Repair the fault (bearing in mind step 4)
- Retest the system

Routine and non-routine problems of computer system

| Routine | One that occurs on a regular and frequent basis, is simple to resolve using standard procedures |
| Non-routine | Occurs less frequently, requires deeper knowledge and more troubleshooting methods to resolve. |

CLASS ACTIVITY FOR LESSON 13 – PROVIDE REMOTE TECHNICAL SUPPORT 2

Instructions:

1. You have listened to a customer call to the customer call center and are concerned at the lack of structure to the diagnosis process. The customer has an ICT workstation that will not operate.

2. Use the diagnosis script sheet to write a short script that a call center diagnosis engineer could use for this type of fault. Include suitable tests that could be carried out remotely. The script will help the diagnosis engineer repeat the diagnosis steps in a logical order for each occasion that this type of fault is reported.

LESSON 14

Topic of Session: Provide remote technical support 3

Aim: The Candidate needs to support customers remotely by logging onto their PC in a remote location and carry out diagnostic session

Study Outlines

a) Guide a remote user through a fault-finding process by suggesting checks or test on a system

b) Record the fault-finding process and the results of tests or checks reported by the customer

c) Advise on the corrective action to be taken

CLASS ACTIVITY FOR LESSON 14 – PROVIDE REMOTE TECHNICAL SUPPORT 3

Instructions:

1. Write three short explanations to enclose with disks that are being sent to non-technical customers on each of the following.

- Installing a new driver.
- Booting from an emergency boot disk.
- Loading and running a diagnostic disk.

2. The instructions must enable the customers to carry out the required actions and should explain the purpose of the operations.

3. Log on to a customer's PC from your own computer to investigate the customers computer and resolve any problem identified.

LESSON 15

Topic of Session: Provide coaching in technical skills for customers

Aim: Candidate will identify customers and their various skills required and prepare a coaching plan

Study Outlines

a) Describe different coaching methods, giving examples of when each is suitable

b) Describe why obtaining feedback and evaluation is important for improving the effectiveness of the coaching.

c) Identify types of customer and their knowledge requirements

The different coaching methods are:

Telephone help-line	Giving instruction over the telephone. Eg a customer call Centre trying to fix an equipment remotely.
Demonstration	The concept of training someone by carrying out the task practically so the person will in turn repeat same.
Writing instruction handouts	This method has to do with you preparing an instructional handout that will enable the learner to carry out the instruction stated. By doing the person will have developed the skill needed to carry out a particular job.
Formal training sessions	This is a kind of training that is conducted in the class room, like the one we are having now. You prepare your materials, coaching plan, activities, exams and deliver to your customer.
Peer-to-peer support	In this type of coaching method individuals with the same capability assist themselves. Peers may have knowledge of a particular subject and support the other in it.

A very important part of your role will be to provide coaching to computer users or staff members. The points to consider when preparing, delivering and evaluating a coaching session to them are.

- existing knowledge and skill
- preferred learning style
- knowledge/skill to be coached
- availability of time, location and equipment
- coaching method
- knowledge/skill after coaching
- Evaluation method (questioning, testing, demonstration, etc.)

CLASS ACTIVITY FOR LESSON 15 – PROVIDE COACHING FOR CUSTOMERS

Instructions:

1. Prepare training materials consisting of ten steps.
2. Provide coaching to the customer in technical skills using the materials generated in the above task
3. Obtain feedback regarding the effectiveness of the Created feedback form

4. Give two reasons why obtaining feedback and evaluation is important for improving the effectiveness of the coaching.

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LESSON 16

Topic of Session: Provide coaching in technical skills for customers 2

Aim: Candidate will identify customers and their various skills required and prepare a coaching plan

Study Outlines

a) Identify types of customer and their knowledge requirements

b) Identify technical skills required by the customer and prepare a coaching plan

Software designer
Designs software applications for specialist and general use. Will have a high level of software knowledge, but may only have a medium level of practitioner skills where hardware and complete systems are concerned

ICT manager
Manages all aspects of ICT systems. Will have a high level of technical knowledge, likely to be above that of a help-desk technician. Likely to have low-medium level of user skills in some applications

Technical Sales Manager in the ICT industry
Manages one or more teams of ICT Sales Engineers. Will have a high level of knowledge of systems design and application, and business use of ICT systems. May lack detailed technical knowledge and will have medium level user skills

Print queue administrator
Organises and operates printing operations on a large multi-user system with centralised printing facilities. Will have high level operator skills on the printer(s) and associated software, but will have limited other ICT skills and knowledge

IT Support centre supervisor
Manages ICT customer support operations. Will have a medium–high level of technical knowledge, but is likely to have limited operator skills in some applications

CLASS ACTIVITY FOR LESSON 16 – PROVIDE COACHING FOR CUSTOMERS 2

Instructions:

1. Using the data provided by your Assessor, together with any Customer Support logs that exist for the ICT facility, identify three trends in support requests
2. Based on your analysis of customer support requests, write a report that
   - identifies trends in customer support requests
   - includes suggestions for improvements based upon identified trends
   - includes an action plan of practical activities to improve customer support
   - includes suggestions for coaching users in identified technical skills to improve customer use of ICT.
3. Produce the supporting materials.

4. Prepare a customer feedback form to be completed by customers after the coaching session. This should be clear so that it can be used by customers.

5. Deliver the coaching session to an individual or group of users.

LESSON 17

Topic of Session: Provide coaching in technical skills for customers 3

Aim: Candidate will identify customers and their various skills required and carry out a coaching session

Study Outlines

a) Provide coaching to the customer in technical skills

b) Obtain feedback regarding the effectiveness of the coaching

c) Evaluate coaching delivered and make recommendations

CLASS ACTIVITY FOR LESSON 17 – PROVIDE COACHING FOR CUSTOMERS 3

Instructions:

1. When dealing with customers, you realise that junior members of staff may not always be aware of the level of ICT knowledge that might be expected from callers requesting support.

2. Look at the Caller Sheet, and write a brief note in the space provided to explain the role of the caller.

3. State whether it is likely that the caller will have high, medium or low ICT practitioner skills.

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4. A very important part of your role will be to provide coaching to junior staff. Describe seven points to consider when preparing,

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5. Delivering, evaluate a coaching session to a junior colleague

PRACTICAL COMPETENCES

On completion of this unit, the learner must be able to do the following:

1. Determine customer requirements for ICT systems and services support
2. Respond to individual customer requests for technical support using different communication techniques]
3. Use manual/written or electronic methods to record details of the customer request an the outcome giving details.
4. Obtain technical support information from other sources, eg manufacturer's help desk
5. Record and escalate unresolved technical support requests following agreed process
6. Design suitable tools for gathering effective feedback from customers to improve technical support provision
7. Obtain feedback from customers using the designed tools
8. Analyse feedback gathered and prepare a report detailing the results of the analysis and recommendations for improvements.
9. Using support records or logs analyse the support records identifying patterns of customer support request
10. Write a report recording the analysis and making recommendations for improvement
11. Prepare an action plan to implement the recommendations.
12. Determine the customers' requirements for technical support in a remote situation
13. Use available diagnostic tools to remotely investigate and inspect a system or system components as part of a fault-finding process
14. Guide a remote user through a fault-finding process
15. Record and advise on the corrective action to be taken to restore a system to working order and to confirm problem resolution
16. Identify types of customer and their knowledge requirements
17. Identify technical skills required by the customer and prepare a coaching plan
18. Provide coaching to the customer in technical skills
19. Obtain feedback regarding the effectiveness of the coaching
20. Evaluate coaching delivered and make recommendations

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