

MARKING SCHEME

ATW 202 BUSINESS RESEARCH METHODS

Part 1 Objective Answers

1	C	21	A
2	D	22	B
3	D	23	B
4	D	24	A
5	A	25	B
6	B	26	A
7	B	27	B
8	B	28	B
9	D	29	B
10	C	30	A
11	C	31	B
12	D	32	B
13	A	33	A
14	B	34	B
15	C	35	B
16	D	36	A
17	C	37	A
18	B	38	B
19	B	39	A
20	C	40	A

Bahagian B: Soalan Senario.
Section B: Scenario questions.

Soalan 2/Question 2 (10 markah/marks)

Based on the scenario given, please state how the researcher can devise a research design by looking at each of the criteria listed below. (Please give reason why).

A supervisor of production lines in HP Malaysia thinks that air conditioning plays a big role in the prediction of the production output of operators. He posted this idea at the suggestions board of the company. One senior manager picked up the suggestion and invited him to a meeting. After the discussion the senior manager decided to do a research on the idea presented. So he brought 3 lines of product operators to Singapore. There they set up a production unit whereby the first line was given very low air (warm) conditioning, the second line moderate air condition level (pleasant) and the third line very high air condition (cold) levels. Their productivity was monitored for a period of 1 week to see the effectiveness.

(a) *Purpose of Research.*

Causal as the researcher wants to see the effect of air condition on employee productivity.

(b) *Extent of researcher interference.*

Experimental as the researcher will manipulate the air condition setting.

(c) *Research Environment.*

Experimental as it involves any manipulation in an artificial environment.

(d) *Time Dimension.*

Longitudinal as data will be collected before and after for 3 lines.

(e) *Unit of analysis.*

Production lines.

Soalan 3/Question 3 (10 markah/marks)

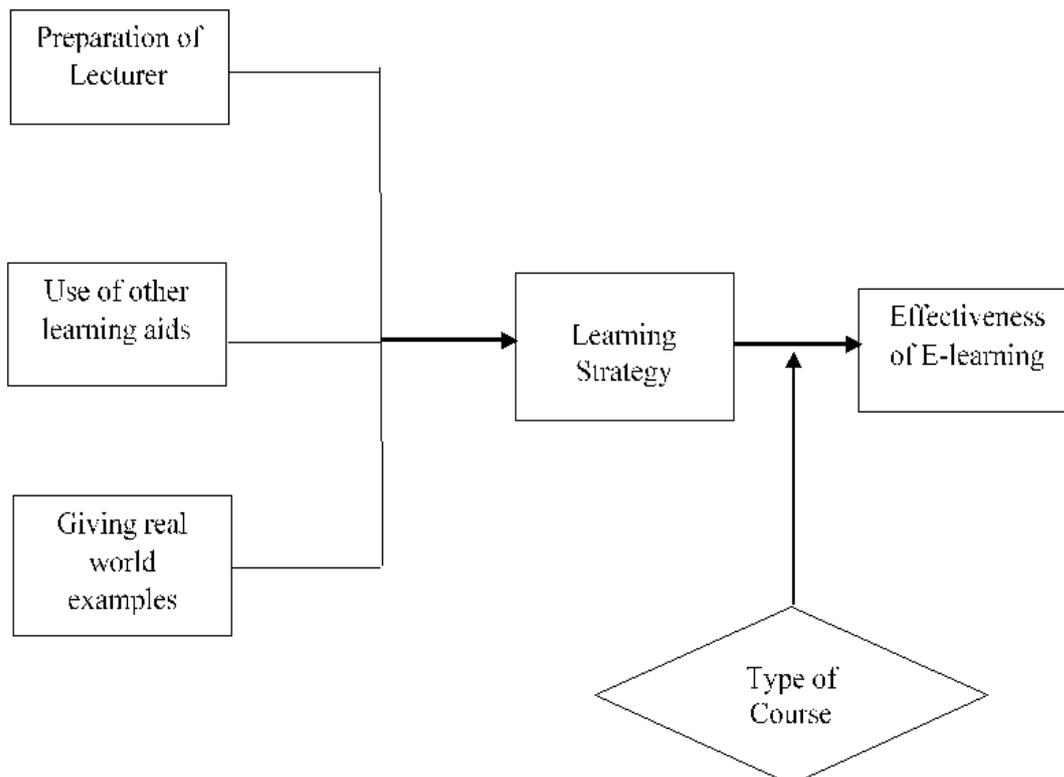
Although e-learning has been introduced in many institutions of higher learning, the effectiveness of the usage is still being questioned. Ali, a lecturer in a public university wanted to model what factors leads to effectiveness of learning. From the literature he found that lecturer's preparation, use of other learning aids and giving real world examples in class are important factors in predicting e-learning effectiveness. He also further found that the learning strategy of the students are also an important issue to be considered. Although lecturer's preparation, use of other learning aids and giving real world examples in class helps effectiveness but it is also related to the learning strategy that the students use. If they use the suitable learning strategy then that will lead to more effectiveness. Ali also found that the type of course (quantitative or reading subject) the students are enrolled in also has a role in the learning strategy and whether they are effective. The relationship seems to work well for subjects that are not quantitative in nature. Taking these inputs, Ali was requested by the university management to develop a research framework for a short study.

Based on the description given above, answer the following questions.

(a) What is the research problem?

What factors influences effectiveness of e-learning?

(b) Develop a suitable research framework.



(c) *Develop 4 hypotheses to be tested. (Students only need to write any 4 of these)*

- H1: Preparation of Lecturers has a positive effect on Learning Strategy
- H2: Use of other learning aids has a positive effect on Learning Strategy
- H3: Giving real world examples has a positive effect on Learning Strategy
- H4: The positive relationship between learning strategy and E-learning effectiveness will be stronger for non-quantitative courses
- H5: The relationship between Preparation of Lecturers and Effectiveness will be mediated by learning strategy
- H6: The relationship between use of other learning aids and Effectiveness will be mediated by learning strategy
- H7: The relationship between Giving real world examples and Effectiveness will be mediated by learning strategy

Soalan 4/Question 4 (20 markah/marks)

By giving suitable examples, explain each of the following:

(a) *Compare and contrast basic and applied business research. Discuss an example of each.*

Applied business research is conducted to address a specific business decision for a specific firm or organization. It is relatively specific, and an example might Wendy's fast food restaurant trying to determine if its new veggie burger will be successful or Marriott Hotels trying to determine if it should convert all of their hotels' pools to saltwater.

Basic business research is conducted without a specific decision in mind, and it usually does not address the needs of a specific organization. It attempts to expand the limits of knowledge in general, and as such is not aimed at solving a particular pragmatic problem. For example, a marketing researcher might study the effects of music on consumption in a restaurant setting, or a financial researcher might study the long-term impact of varying financial options.

(b) *Discuss the factors that influence whether or not business research is needed.*

The determination of the need for research centers on:

- (1) **Time constraints** - systematic research takes time, and sometimes the urgency of a situation precludes the use of research.
- (2) **Availability of data** - when managers lack adequate information, data need to be collected from an appropriate source in a timely fashion.
- (3) **Nature of the decision** - in general, the more strategically or tactically important the decision, the more likely it is that research will be conducted.
- (4) **Benefits versus costs** - when deciding whether to make a decision without research or to postpone the decision in order to conduct research requires examining whether the payoff or rate of return will be worth the investment, whether the information gained by marketing research will improve the quality of the marketing decision enough to warrant the expenditure, and whether the proposed research expenditure is the best use of the available funds.

(c) *How does a hypothesis differ from a proposition?*

Propositions are statements explaining the logical linkage among certain concepts by asserting a universal connection between concepts. A **hypothesis** is a formal statement of an unproven proposition that is empirically testable.

P1: Job satisfaction leads to Organizational Commitment

H1: Job Satisfaction has a positive effect on Organizational Commitment

(d) *Explain what is stratified random sampling and when is it useful?*

In drawing a sample with **stratified sampling**, the population is divided into subpopulations or strata and uses simple random on each strata. Results may be weighted or combined. The cost is high.

Stratified sampling may be proportion or disproportionate. In proportionate stratified sampling, each stratum's size is proportionate to the stratum's share of the population. Any stratification that departs from the proportionate relationship is disproportionate.

This sampling is often used when you want **representation from all the strata** and there is **logical argument for stratifying for example based on gender, age group or income levels**.

(e) *What is meant by parsimony? Explain.*

- **Simplicity in explaining complex situations** or statistical analysis is always preferred to complex and complicated results and findings.
- If two or three specific variables in the work situation are identified, which when changed would raise the organizational commitment of the employees by **45%**, that would be more useful and valuable to the manager than if it were recommended that he should change 10 different variables to increase organizational commitment by **48%**.

Soalan 5/Question 5 (20 markah/marks)

Based on the output given, answer the following questions.

(a) Determine the best fitting regression equation.

$$\text{SALARY} = 7248.752 + 9.960 (\text{PROFIT}) + 1097.226 (\text{YEARS}) + 30536.979 (\text{GRADUATE})$$

(b) Can we develop a regression equation based on the results of the analysis?

Yes, the $F = 53,350$ and $\text{Signif of } F = 0.000 < 0.01$ so we can conclude that all the 3 independent variables together can significantly explain the variation in SALARY.

(c) Develop and test these 3 hypotheses at the 1% level:

- When **PROFIT** is high then **SALARY** will be high
- When **YEARS** increases the **SALARY** will also increase
- **GRADUATES** will have a lower salary than **NON-GRADUATES**

Variable	Beta	t-value	p value	Decision
$H_0 \quad b_1 = 0$ $H_1 \quad b_1 > 0$				
PROFIT	0.618	8.402	0.000 $p < 0.01$	Reject H_0
$H_0 \quad b_2 = 0$ $H_1 \quad b_2 > 0$				
YEARS	0.553	6.925	0.000 $p < 0.01$	Reject H_0
$H_0 \quad b_3 = 0$ $H_1 \quad b_3 < 0$				
GRADUATES	0.791	9.851	0.000 $p < 0.01$	Do not Reject H_0 As the sign is +

(d) Calculate **SALARY** if given the values below:

- **PROFIT** = 3,850,000
- **YEARS** = 26
- **GRADUATE** = NO

$$\text{SALARY} = 7248.752 + 9.960 (3850) + 1097.226 (26) + 30536.979 (0)$$

$$\text{SALARY} = \text{RM } 74,123$$

(e) *Interpret the coefficient of determination.*

$R^2 = 0.838$. We can conclude that 83.8% variation in SALARY can be explained by all the 3 independent variables; about 16.2% variation cannot be explained.

(f) *Has all the assumptions of the analysis been met? If not explain how they can be assessed.*

Can be assessed

- **There is no multicollinearity as $VIF < 5$ and Tolerance > 0.1 also Conditional index is LESS than 30**
- **The histogram indicates normal distribution with mean = 0 and SD = 1**
- **P-P plot shows the errors are normally distributed**
- **Partial plots indicates the variables are linearly related to Y**
- **There are no outliers**
- **D-W is 1.720 as such there is no issue of autocorrelation.**

Cannot assessed

- **P-P plot is not given as such the normality of the errors cannot be ascertained**

(g) *Write a short report on how the education department can use the results.*

Based on the results all 3 variables are significant. Based on the Standardized Beta values, GRADUATE has the most influence ($\beta = 0.791$) followed by PROFIT ($\beta = 0.618$) and YEARS ($\beta = 0.553$) indicating that and GRADUATE which means that those who have a relevant degree have higher salary compared with those who do not have one. This suggest that continuous education is important. PROFIT of the company is also important which points to employees must also perform to get the increased salary. YEARS was also significant indicating that the companies are also rewarding loyal employees who serve them longer with a higher salary. It pays to be loyal.