

Exercise walk-through

Beneficial and Harmful Effects ■ 5.1

eXercise

You must be able to

- explain how a **computing innovation** 计算创新 can have both beneficial and harmful effects
- describe how a single effect may be **beneficial** to some and **harmful** to others
- explain how an innovation can have an impact **beyond its intended purpose**
- identify **unintended consequences** 意外后果

Method — Both effects

Almost every computing innovation has **both** beneficial and harmful effects, and a single effect may be seen as **good by some** people and **bad by others**.

Method — Beyond the intended purpose

An innovation can have an impact **beyond** what its designers intended — an **unintended consequence**.

Method — Evaluating

Judge an innovation by **weighing** its benefits against its harms.

Practice 2.1 ■ 1 mark

State why a computing innovation can be both beneficial and harmful.

Solution 2.1

Method: Both effects

Worked steps

the same effect can help some people while harming others **B1**.

Practice 2.2 ■ 1 mark

Give an example of an unintended consequence of a technology.

Solution 2.2

Method: Beyond the intended purpose

Worked steps

any reasonable example, e.g. smartphones enabling constant contact but also distraction/addiction **B1**.

Practice 2.3 ■ 1 mark

State how you should evaluate a computing innovation.

Solution 2.3

Method: Both effects

Worked steps

weigh its benefits against its harms **B1**.

Exam-style 3.1 ■ 1 mark

A single effect of a technology can be

- A** only good
- B** only bad
- C** good for some people and bad for others
- D** neither good nor bad

Solution 3.1

Method: Both effects

- A only good
- B only bad
- C good for some people and bad for others 
- D neither good nor bad

Worked steps

C.

Exam-style 3.2 ■ 1 mark

An effect the designers did not intend is

- A** the main purpose
- B** an unintended consequence
- C** a syntax error
- D** a protocol

Solution 3.2

- A the main purpose
- B an unintended consequence
- C a syntax error
- D a protocol



Worked steps

B.

Exam-style 3.3 ■ 1 mark

Social media connects people but can also spread misinformation.

- (a) State one benefit.
- (b) State one harm.
- (c) State how to judge it overall.

Solution 3.3

Worked steps

- (a) it connects people across distances **B1**.
- (b) it can spread misinformation **B1**.
- (c) weigh the benefits against the harms **B1**.