Arlice exam

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| Coverage | |
| Cognitive skills | 24 items |
| Non cognitive skills | 16 items |

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| Framework for Skills | | | |
|  | 1 Establishing and maintaining shared understanding | 2 Taking appropriate action to solve problems | 3 Establishing and maintaining team organisation |
| A Exploring and understanding | Discovering perspectives and abilities | Setting the terms for the type of action to solve the problem | Understanding team roles |
| B Representing and formulating | Negotiating the meaning of the problem | Identifying and describing tasks | Describing roles and team organisation / protocol |
| C Planning and executing | Communicating about the actions to be performed | Enacting plans | Following the rules (prompting team members) |
| D Monitoring and reflecting | Monitoring and repairing the shared understanding | Monitoring results and evaluating success | Monitoring, providing feedback, adapting organisation and roles |

Content and coverage of the syllabus and framework

1. establishing the problem space LO1.1
2. agreeing success criteria LO1.2
3. agreeing how to work A3
4. identifying / delineating the task A1
5. identifying the variables LO2.3
6. identifying limitations LO1.1
7. challenging a constant LO1.2
8. completing the pipeline C1
9. evaluating resources B1
10. assigning roles for humans and machines B2
11. type of model LO3.1
12. benefits and limitations of the model LO3.1
13. limitations of the cause/effect model LO3.2
14. sourcing the data LO2.1
15. noticing problems with team member D1
16. encouraging others A2
17. data structures LO2.3
18. data limitations LO2.3
19. noticing problems with another’s work D3
20. data responsibilities and the law LO2.2
21. reporting on progress C2
22. identifying unintended consequences LO3.2
23. repairing a breakdown D1
24. dealing with missing data LO3.3
25. identifying a breakdown (synonyms) D1
26. old technology and new interpretations LO5.1
27. identifying a mistaken challenge B3
28. celebrating success C3
29. identifying troubling patterns in the data LO3.3
30. identifying own data limitations LO4.2
31. identifying own model limitations LO4.1
32. dealing with human and machine conflict D3
33. overfitting LO4.2
34. noticing falling behind D2
35. reporting the results to stake holders LO5.2
36. false positives and false negatives LO4.2
37. adapting the team organisation D3
38. sharing the results LO5.2
39. Spotting a missed error LO3.3
40. Impact assessment LO5.1

Content

Key

Red = chat

Green = Screen

Blue = Task in screen

Black = Task in chat

*[Grey = directions]*

*[1 establishing the problem space A1]*

SAM: So, the task is to create an algorithm that improves adoption from an animal rescue shelter’

ROBIN: Is it a marketing task, then?

SAM: No, we need to match owners to pets better, I think.

Reason for re-homing a dog

Temperament 43%

Health problems 12%

Size and needs of the dog 45%

You:

A I think it’s a marketing problem.

B The problem seems to be about getting the right owner and pet match.

C I think some people just aren’t suited to pet ownership.

*[Key B]*

Wrong path –

ROBIN: Actually, I’ve just found something online. It’s not about making more people want pets, it’s about being realistic about what type of pet. I think it’s a matching task.

*[2 agreeing how to work A3]*

* What makes successful pet owners?
* Hypothesis description
* Current techniques to match dogs and adopters

SAM: Ok, well, we need to find out first what makes a successful pet-owner match. I already have a report on choosing an animal. I’m halfway through. Do either of you want to take the hypothesis description or current matching techniques?

ROBIN: I wanted to do ‘What makes a successful pet owner?’ I’m thinking of getting one.

You:

A Well, I think that if A as already prepared, it’d be more efficient if she looked at the criteria for choosing.

B You can both have a look if you want.

C Why don’t you decide while I get on with the work.

*[Key A]*

Wrong path

ROBIN: I can’t really find anything, but I’ll give it a few more tries.

You:

A Just go onto techniques to match dogs. I expect A is doing fine.

B That’s great that you’re persisting. Keep trying.

C Don’t worry, I can probably help you in a moment.

*[Key A]*

You: I’ll take hypothesis description.

*[3 identifying / delineating the task A1]*

You have found some research that suggests that the main reason for purchasing a puppy from a breeder rather than going to a shelter is that the family are unsure about the animal’s behaviour. Your objective for this project is to promote the highest number of successful adoptions.

Choose the best hypothesis to recommend testing.

A There are some variables that can predict the success of a dog and owner match.

B There is a category of person that is most suitable as an adopter

C There is an optimal ratio between new dogs arriving and potential adopters.

*[Key A]*

*[4 identifying the variables LO2.3 ]*

Animal retention rates

Strays returned to their owners 11%

Animals adopted successfully 35%

Animals adopted but returned 23%

Still awaiting adoption after one year 31%

What makes a successful or unsuccessful adoption? Drag the groups of animals into one of the two boxes below. You may put more than one group into each box.

relevant

irrelevant

*[Key relevant = animals adopted successfully, animals adopted but returned, still awaiting adoption after one year.*

*Irrelevant = strays returned to their owners]*

*[5 identifying limitations] LO1.1]*

ROBIN: I found something interesting. The average person walks into the shelter and takes just 70 seconds to evaluate the dog. That’s not much.

SAM: I’ve got the main categories for choosing a dog. I’ll share my screen with you both.

Factors that make a dog less likely to be adopted

Health

Behavioural problems

Location of the kennel to the entrance

Breed

Size

Age

Reason why the animal came to the shelter

SAM: What do you think?

You:

A It looks like ‘behavioural problems’ is a bit too general. I think we might need sub categories for that.

B I think we need to get maps on the location of the dogs to solve the location problem.

C That’s good, but we need information on what made an adoption successful or not. We’re trying to improve things.

*[Key C]*

Wrong path A

Sam: It’s ok, there are over 20 different categories of behaviour in one of the data set.

You:

A That sounds like too many, now.

B OK, then, let’s work out what behaviours match with different people.

*[Key B]*

Wrong path B

Sam: No, it’s location in the kennel. Not location around the country.

You:

A Ok, and I guess if we’re doing it online, that doesn’t matter.

B I still think we could get that data from location tracking.

*[Key A]*

Robin: I think we need to start with the obvious parts and we can add the details later.

*[6 completing the pipeline C1]*

SAM: So, I think we should look at what data we have before we try and choose a model;.

You:

A I think the kind of data we need to go and get depends on the model.

B Good idea. We might not have enough, or too much.

C I think we can start building and see how things go.

*[Key B]*

Wrong path A

ROBIN: Do we really have time to look for new data when we already have some?

You:

A No, good point.

B I don’t think it’d take that long, would it?

*[Key A]*

Wrong path C

SAM: I really think we need to have a good look at the data.

You:

A We know what’s in there, don’t we?

B I guess it doesn’t take too much time.

*[Key B]*

*[7 evaluating resources B1]*

ROBIN: One of my files is 180GB big.

SAM: Can we open that and process it?

Computer specifications:

RAM: 34GB

Memory: 1 Terabyte

You:

A It should be fine. We have a terabyte of data.

B I’m not sure, we don’t have enough information.

C No. We’re going to have to take a sample.

Wrong path both ways

ROBIN: I thought we just had 34GB of Ram?

A We do, but we’ve got enough memory.

B We do, you’re right, it won’t work.

C We can do it all online, though.

*[Key B]*

*[8 sampling ]*

SAM: We’re going to have to take a sample.

ROBIN: OK, I’ll take the first 10%

You:

A Can you get a bit more?

B That sounds fine.

C But we need to make it more random.

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28. adapting the team organisation D3
29. sharing the results LO5.2
30. Spotting a missed error LO3.3
31. Impact assessment LO5.1