



Algorithmic Systems in Education - Review Quiz

Based on the material covered in the “Algorithmic Systems in Education” training material, select the best answer for each of the questions below and check yourself using the answer guide on the following pages.

Question 1:

Which of the following are benefits to using algorithmic systems to make decisions? (Select all that apply)

- A. They can improve efficiency, freeing up time for practitioners to focus on other tasks.
- B. They never make mistakes, so they are better than having humans make decisions.
- C. They may catch patterns that humans may have missed, so they may spot an issue before it becomes obvious.

Question 2:

Which of the following are concerns about using algorithmic systems in education? (Select one)

- A. They can result in unaccountable decisions, where it is not clear why the system produced a given outcome.
- B. They can introduce or exacerbate biases in the decision-making process.
- C. They can miss signals that a human would have noticed, resulting in students not receiving services or interventions they need.
- D. All of the above.

Question 3:

Are systems that rely on artificial intelligence (AI) or machine learning (ML) considered algorithmic systems?

- A. No
- B. Yes

Question 4:

Which of the following best describes the utility of algorithmic systems? (Select one)

- A. They are efficient and effective at all decision-making tasks, so they are always a good choice if you have the budget.
- B. Algorithmic systems can be useful, but are not a good fit for every problem, so you have to evaluate whether an algorithmic system makes sense for your goal.
- C. Algorithmic systems are untrustworthy and inefficient, and so they should never be used in educational contexts.

Question 5:

Which of the following perspectives could add value and reduce risks of bias, inequity, and unintended consequences when incorporating algorithmic systems? (Select one)

- A. Teachers who will use the system.
- B. Administrators who will use the system.
- C. Students and families whose data will be used.
- D. IT staff who will manage or use the system.
- E. All of the above.

Question 6:

Which of the following better describes bias and algorithmic systems?

- A. Algorithmic systems are unbiased because they are machines, so it does not matter whether the input data is biased, the system will produce good outcomes anyway.
- B. Algorithmic systems are only as good as the data that they consume, so if the data is biased the results will be biased.

Question 7:

Why is it important to keep humans “in the loop” of decisions made by algorithmic systems? (Select all that apply)

- A. It ensures that someone has the capability to understand and override decisions made by the system if necessary.
- B. It helps to provide an avenue for redress for families if they feel a decision made by the system is incorrect.
- C. It is helpful to provide the appearance of nuance to the system, but the human should never actually be able to override the system or use their own judgment because the system knows better.

Question 8:

Which of the following components of an algorithmic system should be subject to data governance practices such as access limits and retention schedules? (Select all that apply)

- A. The data consumed by the system (input data).
- B. The data produced by the system (output data).
- C. Data governance is not necessary when using algorithmic systems.

Question 9:

Should you use a vendor-provided system if the vendor cannot or will not provide information about how they have tested their system for bias and what the results of their tests were?

- A. Yes, it is fine to use that system, because that is proprietary information so schools just have to trust that vendor-provided systems are unbiased.
- B. You should exercise caution before adopting such a system, because the school is ultimately responsible for their students’ education, so they cannot just trust vendors, they need to make an informed decision with all relevant information.

Privacy and Equity in the New School Year - Answer Guide

Question 1:

Which of the following are benefits to using algorithmic systems to make decisions? (Select all that apply)

- A. They can improve efficiency, freeing up time for practitioners to focus on other tasks.**
- B. They never make mistakes, so they are better than having humans make decisions.
- C. They may catch patterns that humans may have missed, so they may spot an issue before it becomes obvious.**

Answers: A and C

Explanation: Algorithmic systems are not always correct, so it is important to incorporate human oversight when using them.

Question 2:

Which of the following are concerns about using algorithmic systems in education? (Select one)

- A. They can result in unaccountable decisions, where it is not clear why the system produced a given outcome.
- B. They can introduce or exacerbate biases in the decision-making process.
- C. They can miss signals that a human would have noticed, resulting in students not receiving services or interventions they need.
- D. All of the above.**

Answer: D

Explanation: These are all concerns when using algorithmic systems.

Question 3:

Are systems that rely on artificial intelligence (AI) or machine learning (ML) considered algorithmic systems?

- A. No
- B. Yes**

Answer: B

Explanation: Both AI- and ML-based systems are types of algorithmic systems.

Question 4:

Which of the following best describes the utility of algorithmic systems? (Select one)

- A. They are efficient and effective at all decision-making tasks, so they are always a good choice if you have the budget.

- B. Algorithmic systems can be useful, but are not a good fit for every problem, so you have to evaluate whether an algorithmic system makes sense for your goal.**
- C. Algorithmic systems are untrustworthy and inefficient, and so they should never be used in educational contexts.

Answer: B

Explanation: There are both benefits and concerns when using algorithmic systems, so it is important to consider whether they make sense for your context.

Question 5:

Which of the following perspectives could add value and reduce risks of bias, inequity, and unintended consequences when incorporating algorithmic systems? (Select one)

- A. Teachers who will use the system.
- B. Administrators who will use the system.
- C. Students and families whose data will be used.
- D. IT staff who will manage or use the system.
- E. All of the above.**

Answer: E

Explanation: Setting a broad table for stakeholders can help to spot issues early on.

Question 6:

Which of the following better describes bias and algorithmic systems?

- A. Algorithmic systems are unbiased because they are machines, so it does not matter whether the input data is biased, the system will produce good outcomes anyway.
- B. Algorithmic systems are only as good as the data that they consume, so if the data is biased the results will be biased.**

Answer: B

Explanation: Because algorithmic systems make decisions based on data they have seen, biased data is likely to lead to biased outcomes. Or, as they say in the data science world: garbage in, garbage out.

Question 7:

Why is it important to keep humans “in the loop” of decisions made by algorithmic systems? (Select all that apply)

- A. It ensures that someone has the capability to understand and override decisions made by the system if necessary.**
- B. It helps to provide an avenue for redress for families if they feel a decision made by the system is incorrect.**

- C. It is helpful to provide the appearance of nuance to the system, but the human should never actually be able to override the system or use their own judgment because the system knows better.

Answers: A and B

Explanation: Because algorithmic systems can exhibit bias or otherwise be incorrect, human managers of the system may need to override the system at times.

Question 8:

Which of the following components of an algorithmic system should be subject to data governance practices such as access limits and retention schedules? (Select all that apply)

- A. The data consumed by the system (input data).**
- B. The data produced by the system (output data).**
- C. Data governance is not necessary when using algorithmic systems.

Answers: A and B

Explanation: Data used and produced by algorithmic systems poses as much of a risk to students as any other data about them, so it is important that it is protected by the same data governance procedures.

Question 9:

Should you use a vendor-provided system if the vendor cannot or will not provide information about how they have tested their system for bias and what the results of their tests were?

- A. Yes, it is fine to use that system, because that is proprietary information so schools just have to trust that vendor-provided systems are unbiased.
- B. You should exercise caution before adopting such a system, because the school is ultimately responsible for their students' education, so they cannot just trust vendors, they need to make an informed decision with all relevant information.**

Answer: B

Explanation: Because the school is ultimately responsible for students, the school needs to ensure the systems it uses are safe and equitable. If the vendor does not provide information about these important issues, the school should work with the vendor to get that information or seek out a different system.