RESEARCH INSIGHTS

Drivers of Success in Guided Projects

BY
Teaching & Learning
Data Science

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The Why Behind This Research

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I’m excited about Guided Projects…

but *HOW* do I make a **great one**?

This research aims to answer that question.

Methodology

- Aligned on pedagogy criteria
- Tagged each Guided Project and combined with existing data
- Cleaned, controlled, analyzed
- Modeled to determine impact
- Assessed findings by subgroups
- Prepared share outs

729,000+ active enrollments

seen across

480,000+ unique learners

within

75 guided projects

in our sample

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Which Guided Projects were tagged?

- Filtered to Data Science & Computer Science projects, selected those with the highest enrollment
- Deliberate mix of older and newer projects to have a broader range of designs
- 40 beginner, 31 intermediate, 4 advanced

Who were these learners?

- Enterprise learners comprised 60%+ of the active enrollments in our sample
- Rest from Consumer and Degrees

Main outcome measures

Guided Project Completion

As our indicator of persistence and retention in their learning

Likelihood of Five Star Rating

As our indicator of satisfaction and enjoyment related to the project

Data analysis technique

- Double machine learning, specifically partially linear regression model (PLR)

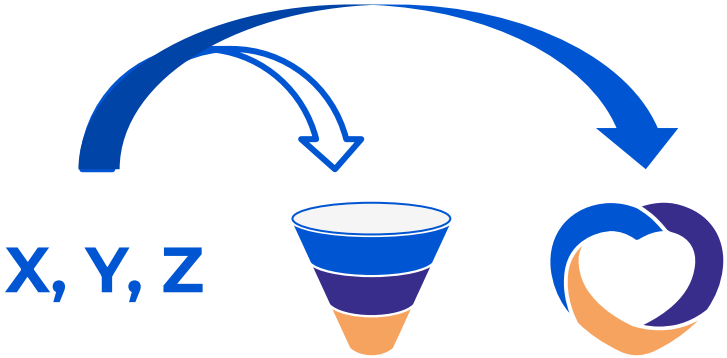
What was controlled for?

- Project Level: subject domain, difficulty level, total number of graded items, median learning session hours, etc.
- Learner Level: enrollment type, country, education, employment status, number of active days before guided project enrollment, number of previous guided project enrollments, etc.

Results

The best part!

Drivers of guided project completion tended to have **same direction, stronger impact** on satisfaction



Factors with strongest positive impact

Support Up Front

Does this guided project instructor use slides and supporting visuals in the first task?

+15% completion

+250% five-star rating (3.5x)

Complex Questions

What portion of the quiz questions use higher-order thinking and avoid copy + paste?

Moving from 0% to 40% complex questions:

+4% completion

+32% five-star rating

Ends with a Challenge

Does this guided project end with a Cumulative Challenge?

+9% completion

+92% five-star rating

Takeaways Document

Is there a key takeaways summary doc provided at the end of this guided project?

+13% completion

+90% five-star rating

More significant impact: The power of practice

Have at least one practice activity in the guided project?

+9% completion

+150% five-star rating (2.5x)

Have at least one practice assessment in the guided project?

+11% completion

+183% five-star rating (2.8x)

Moving from 0% practice across all tasks in the guided project to 15% practice (the 75th percentile) leads to:

+3% completion

+17% five-star rating

Factors mostly boosting satisfaction

Industry Connection Up Front

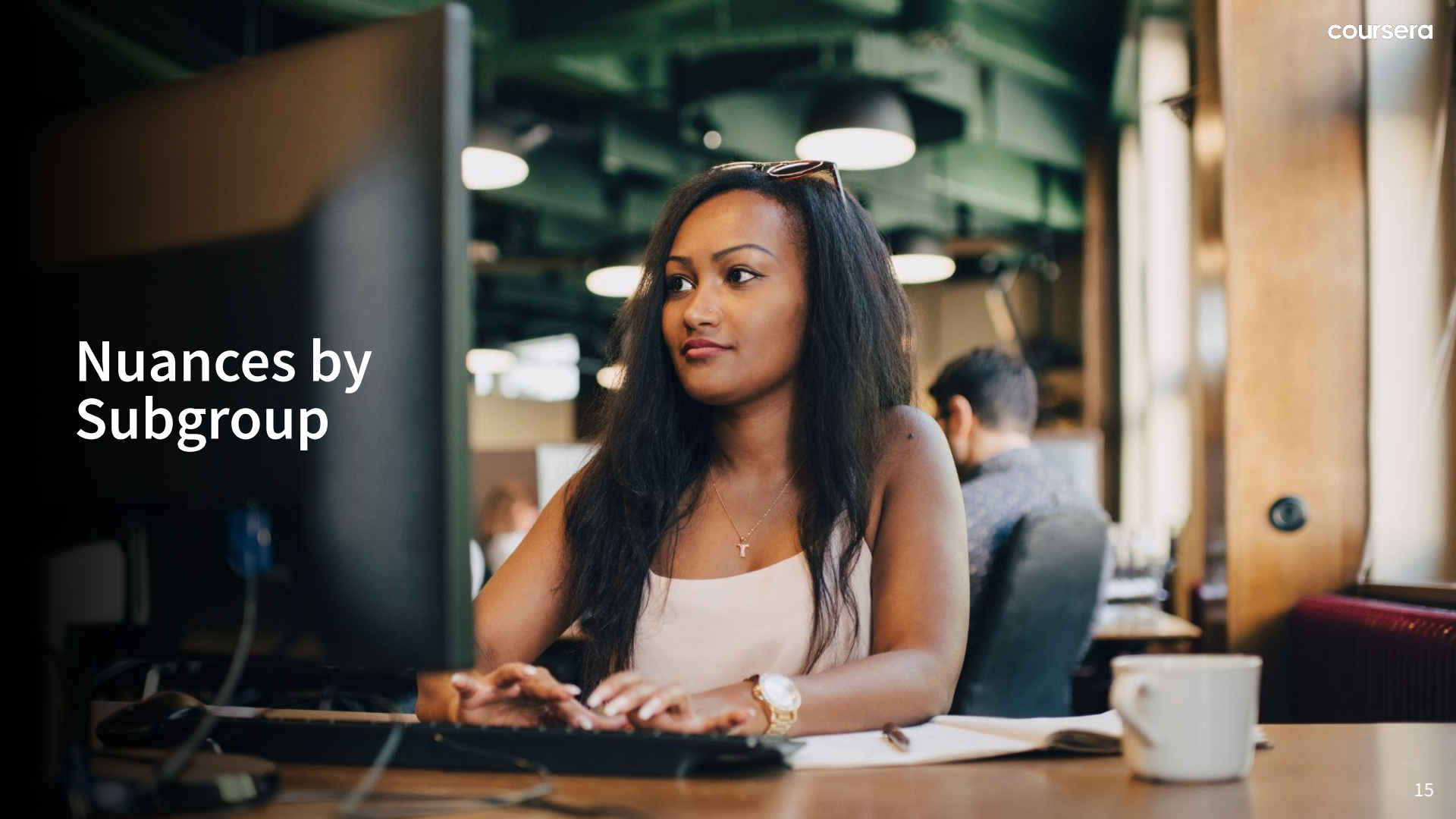
Is there a clear reference to an industry scenario or job role in the first task of this guided project?

+3% completion

+62% five-star rating

Both of these findings are statistically significant!

Nuances by Subgroup



Impact by subgroup

Do **support materials** have a stronger effect in *difficult projects*?

+20% completion for intermediate GPs

+11% for beginner GPs

What about **support materials** on *satisfaction by project difficulty*?

+35% five-star rating in beginner GPs

+28% for intermediate GPs

Does **practice** have a larger impact in more *difficult projects*?

At least one practice activity in the guided project?

+22% completion in intermediate GPs

+11% for beginner GPs

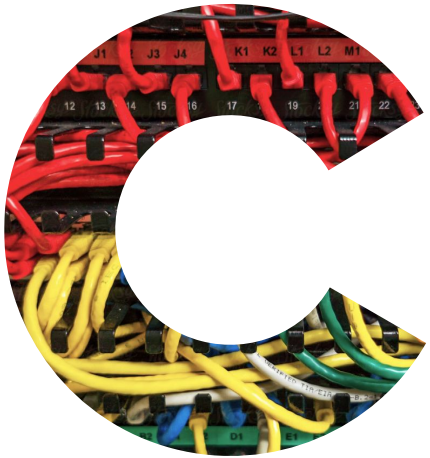
At least one practice assessment in the guided project?

+23% completion in intermediate GPs

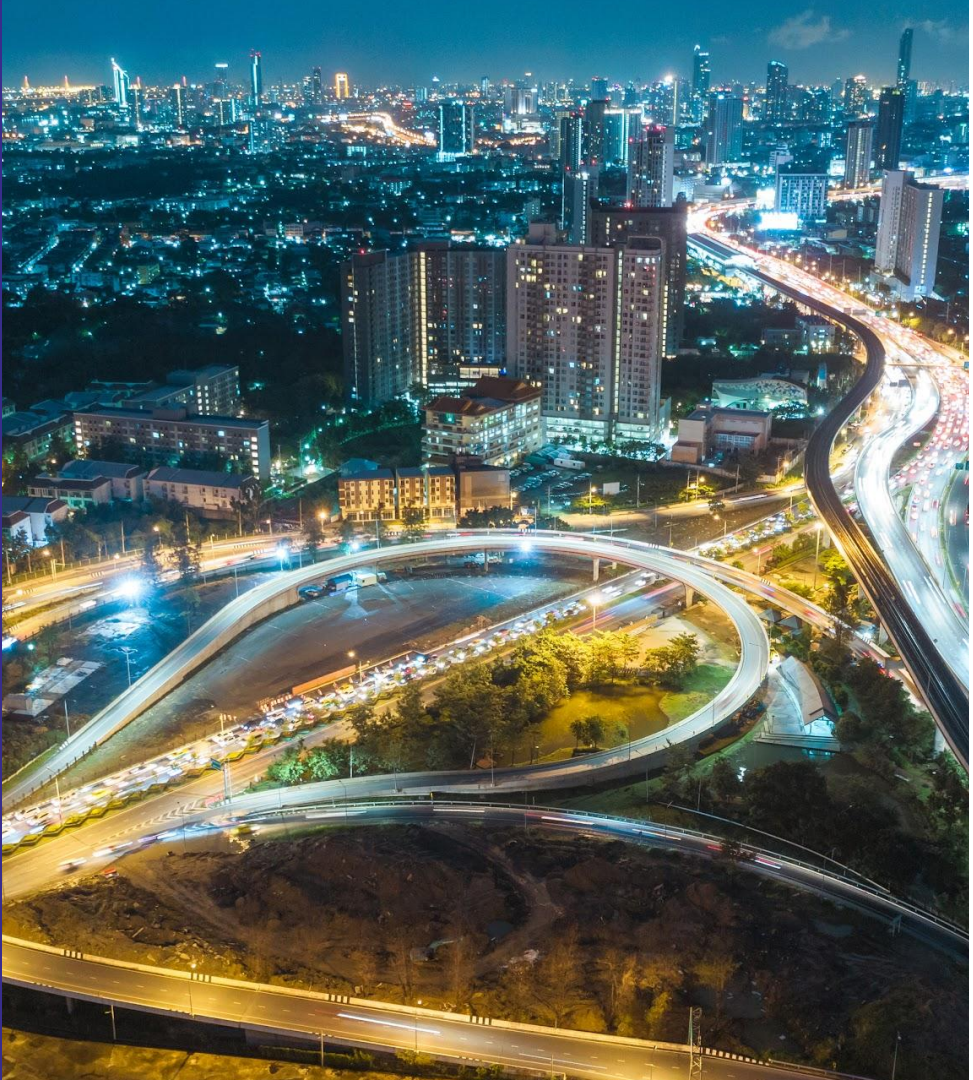
+11% for beginner GPs

No significant difference in the effect of practice on satisfaction by content difficulty level.

Design Takeaways



1. Use all forms of practice to drive retention in and enjoyment of guided projects across difficulty levels.
2. Include slide decks and a summarizing key takeaway document to increase completion and satisfaction.
3. Move beyond recall into apply, create, evaluate questions to drive satisfaction (expected) and completion rate (surprising since these are more difficult questions).
4. Build toward a final challenge activity to boost persistence and enjoyment, just as we see for capstone projects in courses.
5. Provide a clear industry scenario or job role at the start, which mirrors the helpfulness seen in other types of Data Science and Computer Science content when industry connections are made.



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What's Next?

1. Apply these design recommendations to your own Guided Projects.
2. Tell us what's working best for your learners and in your content.
3. Monitor these criteria over time.

Primary Investigators & Authors

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