Does income shape how learners engage with Imago? _

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TLDR;

Strategic goal

> *How are Imago lessons (product lines) used across learners of different communities, specifically across income levels? Having a clearer picture helps Imago improve lessons and provide clearer message about engagement with different user needs and communities.*

Problem and opportunity

> *We want to be confident that Imago's lessons are accessible and usable across different communities across income levels (one of many proxies to differentiate user groups).*

Research question

> *Are there any associations between Imago usage (i.e., lesson copmletion, time to complete lessons, and most used lessons) and partner/organization differences (specifically median household income levels)?*

Department impacts

Customer Success: Confidence and partner messaging around accessibility of content and products. Marketing and Sales: Strengthen claims about working across underserved communities and/or learners. Product: Better understanding of lesson length and time to complete lessons. Additionally, helps understand if there are differences across user groups. If so, activates the need to make product changes to address user groups.

Method

Data sources: Legacy Imago platform (`prod_df`) and new Imago platform (`vista_df`) completions, public data on median household income by zip code.

Analysis

Descriptive (min, median, mean, max) and inferential (correlation) analyses.

What if conclusions

If income does shape engagement metrics, we may need to refine content or encourage different usage patterns by groups, and provide different onboarding focuses and different best practices.

Overview

This report combines lesson completion data from Imago's legacy platform (`prod_df`) and Imago's new platform (`vista_df`), and links it to community median household income for 92 partner organizations. This report focuses on three questions:

1. Who are we reaching by income level?
2. Do learners in lower-income communities engage (i.e., completions and time-to-complete lessons) with Imago differently?
3. What kinds of lessons are most used across median household income categories?

Method and results

We pulled completion data from each platform's database. The `vista_df` data comes from the new Imago platform. Each row in `vista_df` represents one lesson completion. ... The `prod_df` data comes from the legacy Imago platform. Each row in `prod_df` represents a single, deduped learner–lesson–facility completion (`lesson_compl_user_id`, `lesson_id`, `facility_id`). ...

Counts of dataframes

There are 15 organizations in `vista_df`. There's 54,478 rows of copmletions, 3,346 disctinct learners, and 98 distinct lessons completed.

For `prod_df`, there are 134 organizations after removing 16 organizations. In total, there's 1,295,652 rows of completions, 104,811 distinct learners, and 482 distinct lessons completed.

Completion time per lesson

For `vista_df`, the minimum time to complete a lesson was 0.14 minutes (~8 seconds), maximum time to complete a lesson was 161,801 minutes (3-4 months) which is within a school-calendar year, and the mean time to complete a lesson was 678 minutes (~11 hours). Lastly, the median time was 13.4 minutes.

For `prod_df`, the minimum time was 0 minutes and maximum time was 3,858,191 minutes (~7 years). This range of completion can be explained by several events: system errors, test lessons with single slides, learners opening a lesson once and the system recorded the closure years later. The mean time completion is 9,852 minutes (6-7 days) which makes sense as learners may start in one week and finish it at the end of the week or beginning of the next class session as week later. Lastly, the median completion time was 15.35 minutes, which is typical for a full lesson in one session.

dataframe	minimum	maximum	mean	median
vista_df	0.14	161,801	678	13.40
prod_df	0.00	3,858,191	9,852	15.35

These descriptives suggests that across platforms, learners overall are taking a similar amount of time to complete lessons. Given our knowledge of each platform, the `vista_df` platform is delivering shorter, relatively newer lessons compared to the full library that the `prod_df` platform offers.

In both cases, the mean minutes provide insight that some learners take days to complete lessons. This suggests that learner inactivity may be due to lack of sufficient time to complete a lesson in one session. The point is, while there are outliers, they aren't glitches in the matrix. The median on the other hand provides a good measure of central tendency, showing how a majority of learners are completing lessons.

source <chr>	n_non_missing <int>	min_minutes <dbl>	max_minutes <dbl>	median_minutes <dbl>	mean_minutes <dbl>
prod	1295560	1.166667e-07	3858191.2	15.35086	9851.8800
vista	53106	1.388833e-01	161801.6	13.40314	678.4119

2 rows

Median household income

We merge both databases into one `prod_vista` and label the `facility_name` of each organization with socioeconomic labels (zip code and median household income). With these 92 organizations, we searched zip codes and median household income of that community.

There are some limitations to using zip code and median household income ...

That said, we felt it was still important to use a simple proxy (like zip code and median household income) for learner context so we can start exploring lesson usage across communities. In this instance, we use median household income at the organization-level (not an individual measure). ... 53 out of 92 Imago organizations/partnerships serve communities with a median household income that sit between $50k and $89k. Within this band, the biggest block is the $50k–$69k range with 30 organizations (33%). The other 23 organizations (25%) fall in the $70k–$89k range.

Three organizations are below $30k, and 17 sit between $30k and $49k. Together they make up about 22%. The upper end in median household income contain six organizations that serve communities above $110k (about 6% of the total).

All together, the median sits at $66,804. Most partners operate in communities with mid-$60k incomes, with only a handful far below or above that amount. This median is about $17k below the national median household income of $83,730 according to the U.S. Census (2024). 72 of Imago's 92 partner organizations (~78%) are serving communities below that line.

income_bucket <fctr>	n <int>	pct <dbl>
< $30k	3	3.26087
$30k–49k	17	18.47826
$50k–69k	30	32.60870
$70k–89k	23	25.00000
$90k–109k	16	17.39130
$110k+	3	3.26087

6 rows

Median income and usage

Next we bucketed organizations by median household income levels and merged that information with total lesson completions, median completions per organization, and total number of learners. ...

income_bucket <fctr>	n_orgs <int>	total_completions <int>	median_completions_per_org <dbl>	total_learners <int>	median_learners_per_org <dbl>
< $30k	3	23	1.0	7	1.0
$30k–49k	17	14778	51.0	3287	6.0
$50k–69k	30	999640	397.0	69566	80.5
$70k–89k	23	45994	91.0	4527	26.0
$90k–109k	16	33676	16.5	3998	8.0
$110k+	3	13169	77.0	636	10.0

6 rows

We ran a correlation analysis using the same 92 organizations, with expectations that there's no correlation between median household income and lesson completion. This would be a good sign.

The results indicate that the relationship between income and completions is flat. The correlation rounds to zero (-0.01), the confidence interval is wide, and the p-value is high, which suggests that there's no relationship in either direction (t=-0.13 [90], p=0.89). This means organizations with a higher median household income aren't completing more lessons, and those associated with lower median household income aren't completing fewer. ... Next we want to explore the relationship between median household income and the time it takes (in minutes) to complete lessons.

Once again, there's no connection between income and the time it takes learners to finish a lesson. The correlation is near zero (-0.03). The confidence interval is wide, and the p-value is high (t=-0.26 [90], p-value=0.80). This means learners of organizations that were associated with a lower median household income aren't taking longer or quicker to complete lessons.

Next, we want to explore if there's any commonality or differences in which lessons each median household income group uses most.

In general, there aren't many differences that are striking in terms of themes that are specific to a particular median household income bucket. Across the board, organizations are using career preparation lessons, e.g., appearance and hygiene, and interviewing skills. ...

rank	< $30k	$30k–49k	$50k–69k	$70k–89k	$90k–109k	$110k+
1	Exploration – Education, Child Development, & Family Services	Financial Literacy	Self-Awareness	Your Interview Story	Interviewing Body Language	Eye Contact
2	Attention	How To Manage Your Spending	Digital Safety	Engagement	Interviewing Appearance & Hygiene	Etiquette
3	Interviewing Appearance & Hygiene	What Is A Credit Score?	Communication Skills	Empathy's Impact	Interviewing Verbal Communication	Appearance
4	Interviewing Verbal Communication	How to Pay for College	Teamwork	Digital Communication	Effective Listening	Hygiene
5	Resumes - Action Plan	What You Need to Know About Credit Cards	Self-Control	Design Solutions	Personal Development	Tell Me About Yourself (Inexperienced)

Takeaways

Historically, Imago has partnered with 92 organizations, where ~78% of them serve communities below the national median household income is $83,730, and ~22% serve communities with a median household income below $50k.

When it comes to engagement (i.e., time to complete lessons and total number of lesson completions), there's no correlation between income and engagement metrics. This means income levels have no influence on engagement volume. This is a positive indicator, suggesting no gap in access of information.

Across both platforms, median completion time range between 13–15 minutes. This is consistent with typical lesson length.

Looking at the top five lessons in each income bucket, the themes of career preparation and soft skills learning were broadly present. Across all buckets, the most used lessons are soft skills like communication.

Taken together, the data suggests that Imago's used across a broad range of communities, many which are below the national income median, and a sizable amount in low-income areas. Once

partners are actively using Imago, completions and the time to copmlete lessons do not differ by income level.

This points to a story of equal access to educatoinal resources and information regardless of income levels. Imago provides programming for a broad learner base from high income communities to communities that may be underserved or underresourced. Regardless of this gap, all communities they're in partnership with are provided the same core content to build the same social and career skills.