



# (Big) Data: Informed Decision Making in Higher Education

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# Agenda

## › Introduction

- Who Am I?
- Who Are We?
- What is StudyPortals?
- Using StudyPortals Data
- Some Clients to Date

## › Examples of Data Insights

- Competitor Analysis
- Market Analysis
- Informed Decision Making & ROI

## › Conclusions

- Questions Data Can Answer
- Take Home Message



# Who Am I?

## Laurens Vehmeijer

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- › Junior Consultant at Analytics and Consulting Team
- › Background in science and business
  - › BSc Biology
  - › MSc Molecular & Cellular Life Sciences
  - › MSc Science & Business Management
- › Consultant at De Kleine Consultant for 2 years
- › At StudyPortals since January 1st.

# Who Are We?



- › **“ACTing on insight of 16+ million students”**
  - › **Analytics, ROI & Market Insight**
  - › **Consultancy**
  - › **Training**
  
- › **Team of 4 plus 5 associates (and large parent company)**
  - › **Thijs van Vugt** – director
  - › **Meltem Oktay** – senior data consultant
  - › **Laurens Vehmeijer** – junior consultant
  - › **Tara Farzami** – data science researcher

# What is StudyPortals?



134,000 courses - 2,450 universities - 68 countries

16.7+ million unique visitors per year & growing quickly

1+ million registered students

We keep track of **who they are, what they want to study** and **where they want to go**

(anonymized of course)

# Using StudyPortals Data

## Listings

- 9 portals
- 134,000 courses
- 2,450 universities
- 68 countries

## Visitors

- 16.7+ M visitors/year
- 23.8+ M sessions/year
- 89.4+ M page views/year

## Registrants

- 1+ M registered students
- 550 k from 2016 alone



## Demo-graphics

- Gender
- Age category
- Countries of origin

## Search patterns

- Countries of destination
- Discipline interest
- Favorited courses
- Tuition fees & duration

## Other insights

- Competitor analysis
- Technology used
- Year orientation pattern
- Surveys to registrants

# Some Clients to Date



# Examples of Data Insights



# Competitor Analysis

- › If a client has a programme on StudyPortals, we can analyse the traffic using **“Item-by-Item Collaborative Filtering”**
  - Amazon - “Customers Who Bought This Item Also Bought”
  - Netflix - “Top picks for [User]”; “Because you watched [...]”; “Because you liked [...]”
  - Bol.com - “Anderen bekeken ook” (“Others also viewed”)
- › For programme “A” we can show what other programmes visitors who looked at “A” also looked at:
  - Top 20 most competing programmes
  - Top 10 most competing institutions
  - Top 10 most competing countries
  - Competitors’ maximum, minimum, average and median tuition fees & durations

# Competitor Analysis

Related programmes

Relatedness shows the percentage of users that visited, favoured or clicked that programme besides the analysed one.

ID	University	Programme	Tuition fee (EUR/yea	Relatedness
96404	Radboud University	Psychology	€ 6.817	52%
39449	Leiden University	International Bachelor Psychology	€ 16.400	52%
105122	University of Twente (UT)	Psychology	€ 10.581	48%
46271	Erasmus University Rotterdam	International Bachelor in Psychology	€ 6.100	32%
50218	Eindhoven University of Technology (TU/e)	Psychology & Technology (major of the Bachelor's Program Innovation Sciences)	€ 1.984	32%
14936	University of Groningen	Psychology	€ 8.000	32%
46447	Stenden University	Leisure Management	€ 7.400	24%
103284	University of Amsterdam	PPLE	€ 9.000	20%
31360	Zuyd University of Applied Sciences	Hotel Management	€ 7.950	20%
39243	Stenden University	International Hotel Management	€ 7.400	20%
20477	Hotelschool the Hague	Business Administration in Hotel Management	€ 11.845	20%
34541	Dania Academy of Higher Education	International Hospitality Management	€ 8.200	20%
21661	NHTV Breda University of Applied Sciences	International Leisure Management	€ 8.369	20%
20514	Inholland University of Applied Sciences	Tourism Management	€ 7.687	16%
21663	NHTV Breda University of Applied Sciences	International Tourism Management	€ 8.369	16%
21664	NHTV Breda University of Applied Sciences	Bachelor of Science Tourism (Academic)	€ 1.951	16%
15191	Maastricht University	Psychology	€ 8.500	16%
41311	Kauno Kolegija/University of Applied Sciences	Tourism and Hotel Management	€ 2.000	12%
73734	Ca' Foscari University of Venice	Philosophy, International and Economic Studies	€ 4.756	12%
21269	Amsterdam University of Applied Sciences	International Sports Management & Business	€ 7.790	12%

# Market Analysis

- › Countries of destination
- › Countries of origin
- › Discipline interest
  - Relative supply – percentage of programmes
  - Relative demand – percentage of page views
- › Yearly orientation patterns



# Informed Decision Making & ROI

## › E.g. Masters courses in Turkey

- Comparison of top countries of origin
- Comparison of disciplines
- Comparison of demand and supply

## › Significantly more relative interest from:

- › Pakistan, Turkey, Iran, Nigeria, Indonesia & Egypt
- › Higher ROI for marketing in these countries

Origin	Destination		Relative popularity of Turkey
	Turkey	Europe	
Bangladesh	2.82%	2.37%	119.1%
Canada	1.40%	2.74%	51.0%
Egypt	4.46%	3.01%	148.1%
France	1.08%	2.94%	36.7%
Germany	3.97%	8.42%	47.2%
Ghana	1.92%	2.13%	90.2%
Greece	2.44%	5.78%	42.3%
India	9.46%	14.88%	63.6%
Indonesia	4.02%	2.49%	161.2%
Iran	7.71%	3.42%	225.4%
Ireland	0.32%	1.84%	17.2%
Italy	1.20%	3.94%	30.4%
Netherlands	2.73%	3.61%	75.6%
Nigeria	5.99%	3.62%	165.2%
Pakistan	20.91%	5.09%	410.7%
Russia	0.70%	1.88%	37.4%
Spain	1.41%	3.77%	37.5%
Turkey	14.65%	4.33%	338.6%
UK	5.90%	13.64%	43.3%
USA	6.90%	10.10%	68.4%

# Informed Decision Making & ROI

## › E.g. Masters courses in Turkey

- Comparison of top countries of origin
- **Comparison of disciplines**
- Comparison of demand and supply

## › Significantly more relative interest in:

- › **Natural Sciences & Mathematics, Engineering & Technology, Education & Training and Arts, Design & Architecture**
- › Higher ROI for marketing in these disciplines

Discipline	Destination		Relative popularity in Turkey
	Turkey	Europe	
Agriculture & Forestry	0.00%	1.20%	0.0%
Applied Sciences & Professional	0.65%	2.31%	28.0%
Arts, Design & Architecture	6.09%	5.10%	119.4%
Business & Management	16.36%	21.91%	74.7%
Computer Science & IT	6.22%	7.50%	82.9%
Education & Training	3.16%	2.18%	145.2%
Engineering & Technology	24.37%	15.00%	162.5%
Environmental Studies	0.78%	5.04%	15.4%
Hospitality, Leisure & Services	2.29%	1.99%	115.2%
Humanities	3.86%	3.39%	113.9%
Journalism & Media	0.99%	1.22%	81.2%
Law	1.40%	3.45%	40.7%
Medicine & Health	5.18%	7.75%	66.8%
Natural Sciences & Mathematics	12.34%	7.48%	165.0%
Social Sciences	16.32%	14.49%	112.6%

# Informed Decision Making & ROI

## › E.g. Masters courses in Turkey

- Comparison of top countries of origin
- Comparison of disciplines
- **Comparison of demand and supply**

## › Significantly more demand than supply in:

- › **Hospitality, Leisure & Sports, Medicine & Health, Natural Sciences & Mathematics and Engineering & Technology**
- › Higher market opportunity for (new) courses in these disciplines in Turkey

Discipline	Destination Turkey		Market opportunity
	Relative demand	Relative supply	
Agriculture & Forestry	0.00%	0.00%	
Applied Sciences & Pro	0.65%	0.79%	81.7%
Arts, Design & Architec	6.09%	9.09%	67.0%
Business & Managemen	16.36%	15.02%	108.9%
Computer Science & IT	6.22%	5.53%	112.4%
Education & Training	3.16%	5.93%	53.3%
Engineering & Technol	24.37%	18.97%	128.5%
Environmental Studies	0.78%	1.58%	49.2%
Hospitality, Leisure & S	2.29%	1.19%	193.0%
Humanities	3.86%	4.74%	81.3%
Journalism & Media	0.99%	1.19%	83.5%
Law	1.40%	4.35%	32.3%
Medicine & Health	5.18%	2.77%	187.1%
Natural Sciences & Mat	12.34%	9.09%	135.8%
Social Sciences	16.32%	19.76%	82.6%

# Conclusions

# Questions (Our) Data Can Answer

- › Where is the demand coming from?
- › What should be your focus countries?
- › What disciplines are popular?
- › Where lies market opportunity?
- › And much, much more...





# Take Home Message

- › Data can be analyzed to provide **valuable insights**
- › Insights are the basis of **informed decision making** and **performance measurement**
- › Informed decision making can yield **higher Return on Investment**
  
- › **Caveats**
  - Data needs to be **collected** (e.g. tracking) & **contextualized**
    - What data is important to track?
    - More data points → more statistical relevance
  - Your insights are **only as good** as your **data**, your **analytic methods** and your **interpretation**
    - Use correct and relevant sources
    - Use correct analytic methods
    - Be careful how you interpret data  
(e.g. low discipline interest could just mean untapped market)



# THANK YOU!

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