DIGITAL ISRAEL
Ministry for Social Equality

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המיזם הלאומי ללמידה דיגיטלית
المشروع الوطني للتعلم الرقمي
Israel's national digital learning initiative

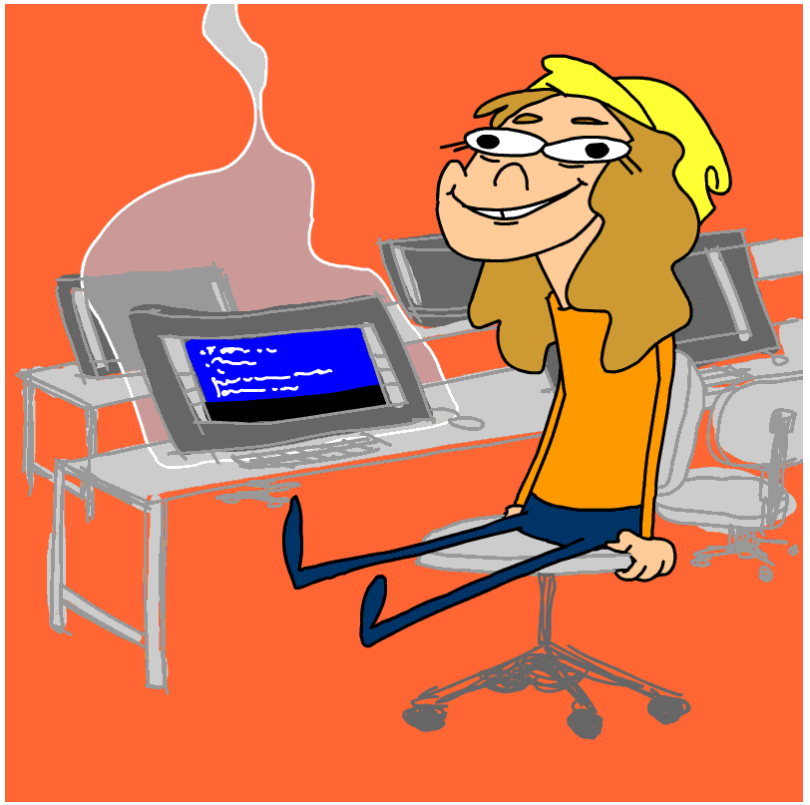
MOOCS – WHAT CAN GO WRONG?

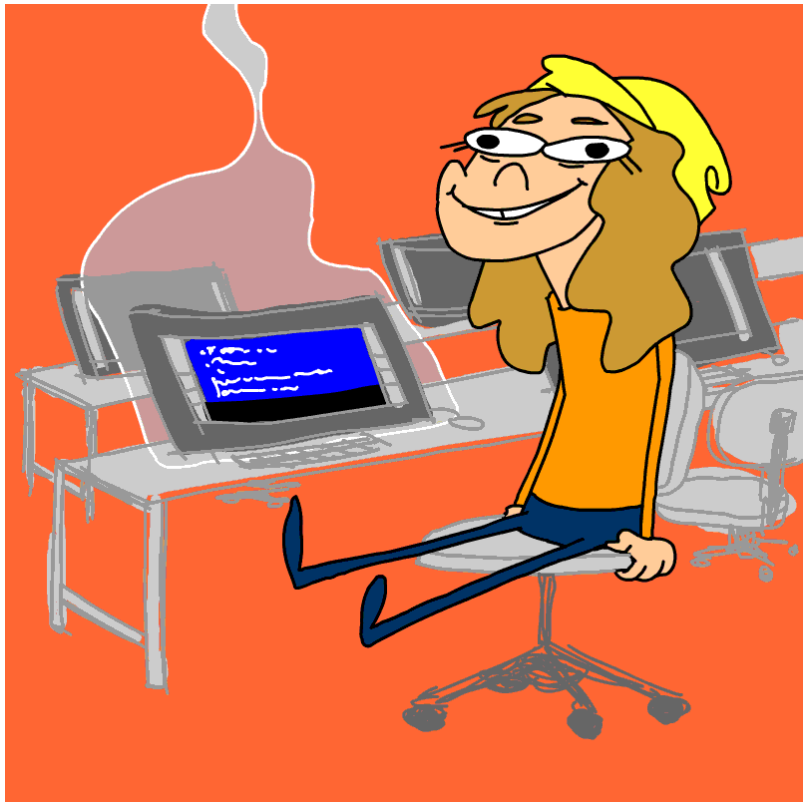
5 lessons learned and some take aways

EMOOCs 2017

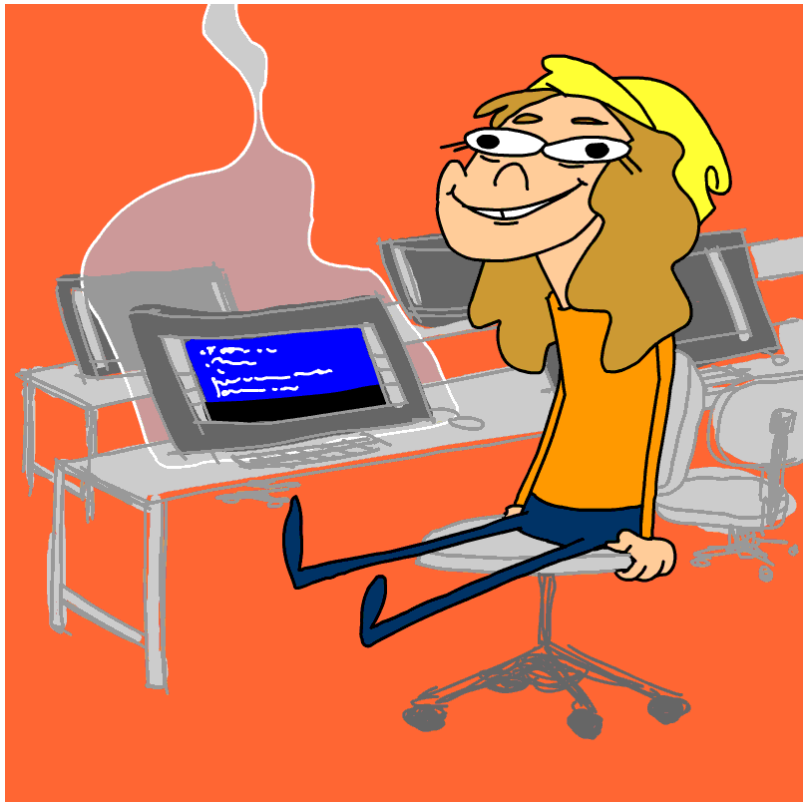
Eran Raviv, Campus-IL, CEO

Israel's National Initiative for Digital Learning





Men plan, God laughs



Men plan, God laughs

"וען דער מענטש טראכט, גאט לאכט."

Campus-IL team

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THE VISION OF THE **CAMPUS** INITIATIVE

"Advancing general, professional,
and academic education in Israel,
in order to reduce social inequality,
and allow for accelrated economic growth"

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CAMPUS – TARGET AUDIENCES

University Students

Underprivileged Populations

Civil Servants

High School Students

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Academia

Introductory Courses

Flagship Courses

Academic teacher's trainings courses

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Underprivileged communities

Financial Literacy

Digital Literacy

English for ultra-orthodox

Hebrew for Arabic speakers

Retirement prep

S.A.T prep

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Public Servants

Citizen Awareness and useful knowledge

Justice

Legal Guardians rights and duties

Professional Development

Lnet

Math Teachers Training for 12th

Vocational Trainings

Basmach

C++ Programming

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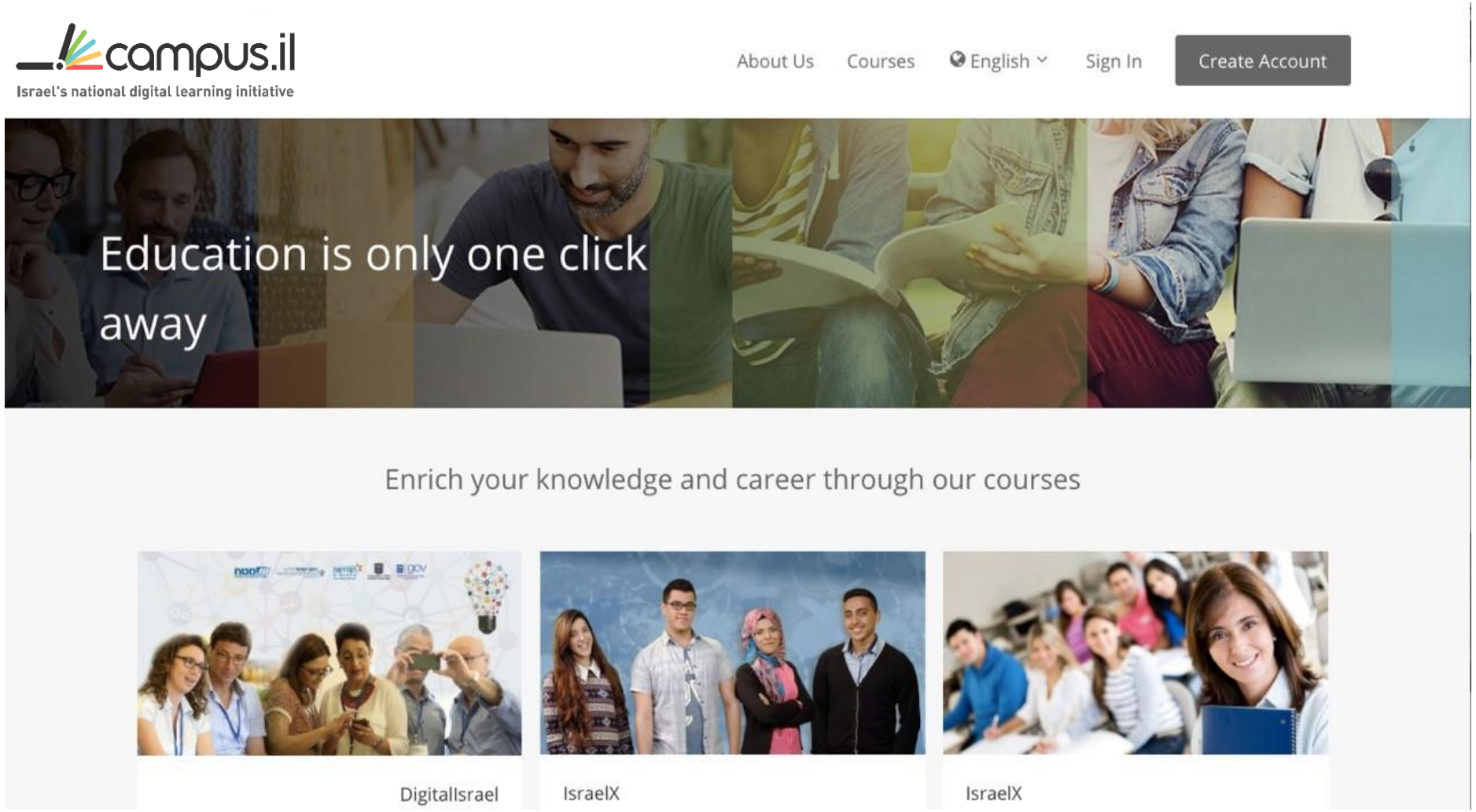
High Schools students

Treaty of Versailles

2017 – Pilot Phase



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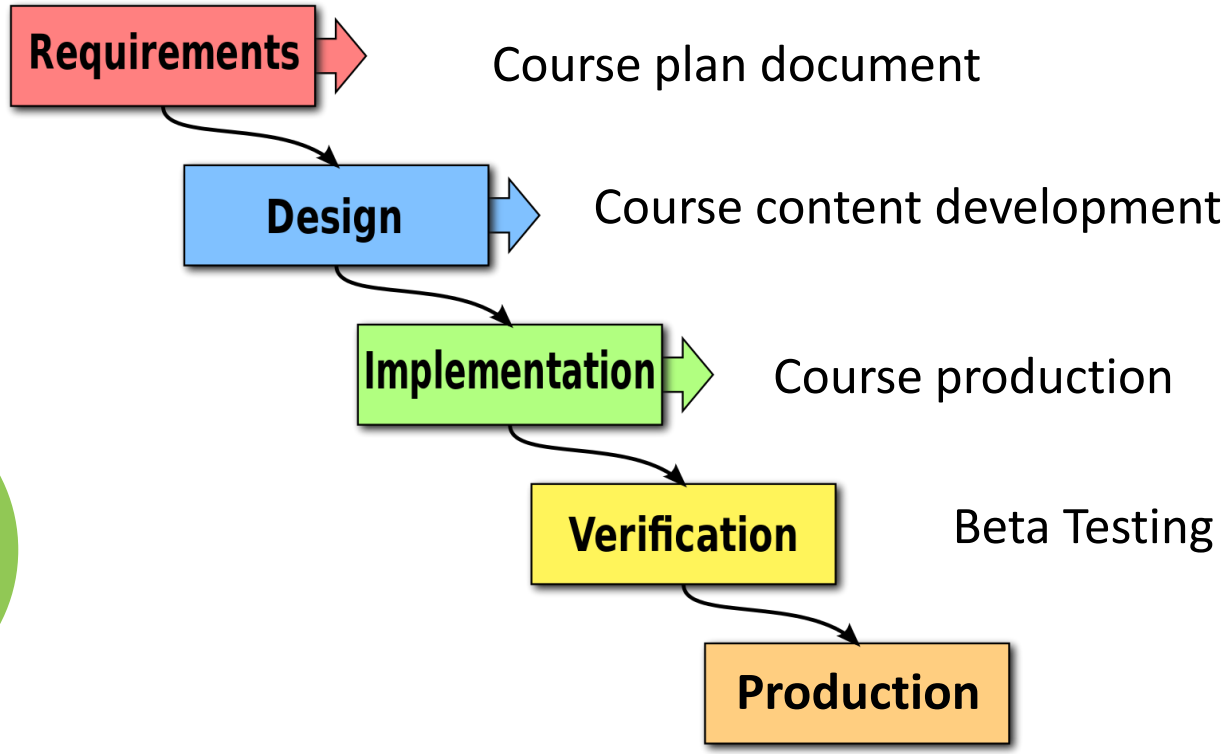
1. “Waterfalling” the development process



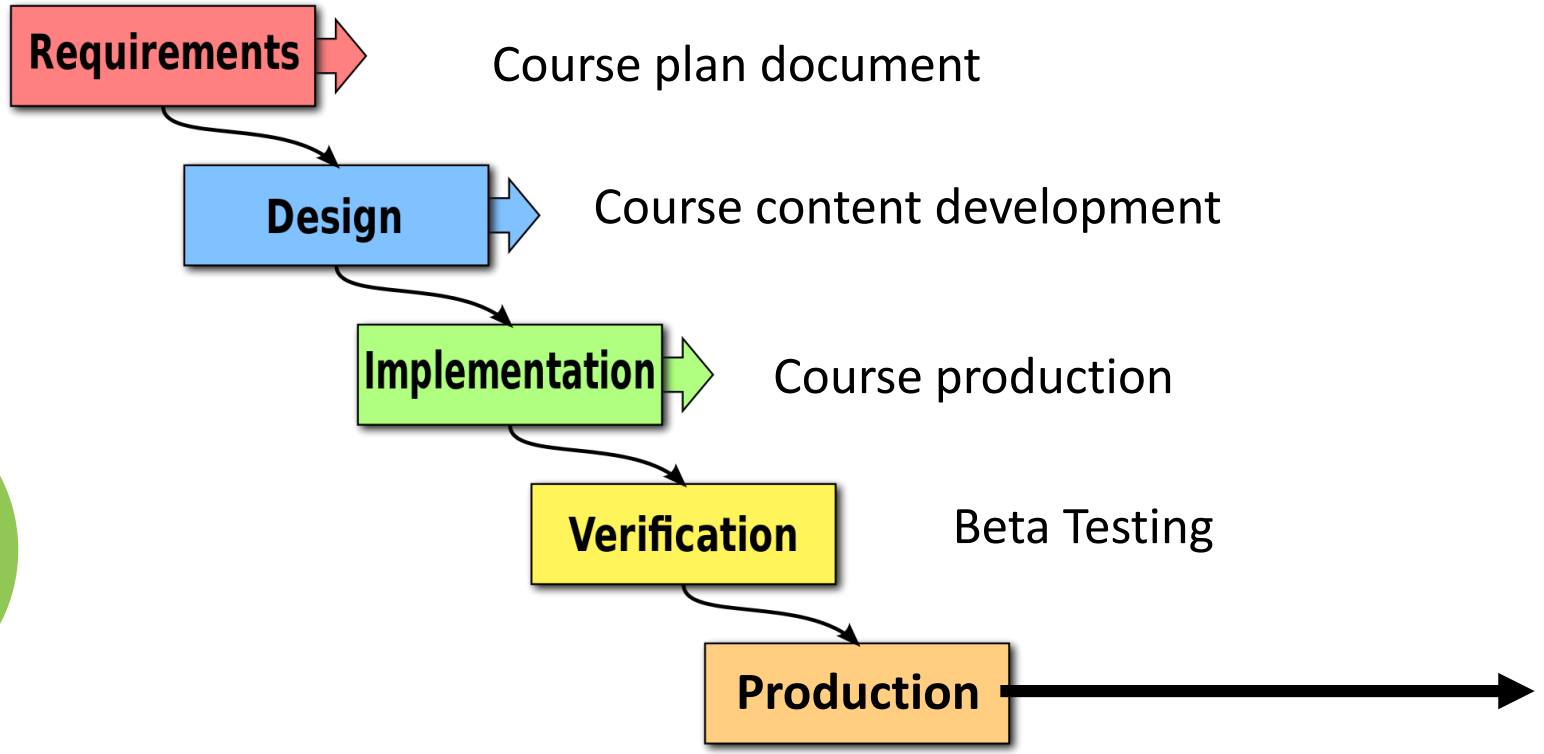
Course plan document

Course content development

Course production

Beta Testing

1. “Waterfalling” the development process



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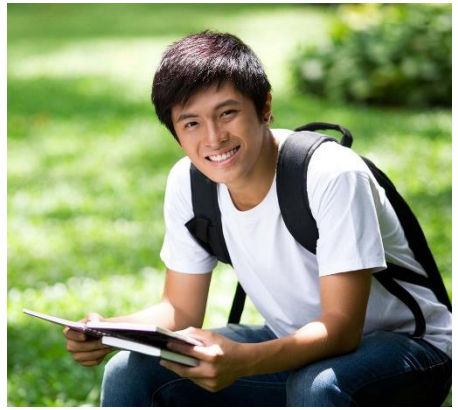

Agile Development Strategy

1st Take Away:
We don’t teach content, we teach human students

2. Inadequate planning of the Assessment Strategy

2. Inadequate planning of the Assessment Strategy

EXAMPLE: **Course characteristics**

Mandatory

Based on videos and exercises

Grade is made of 11 quizzes

EXAMPLE: **Quiz performance analysis vs. Video analysis**

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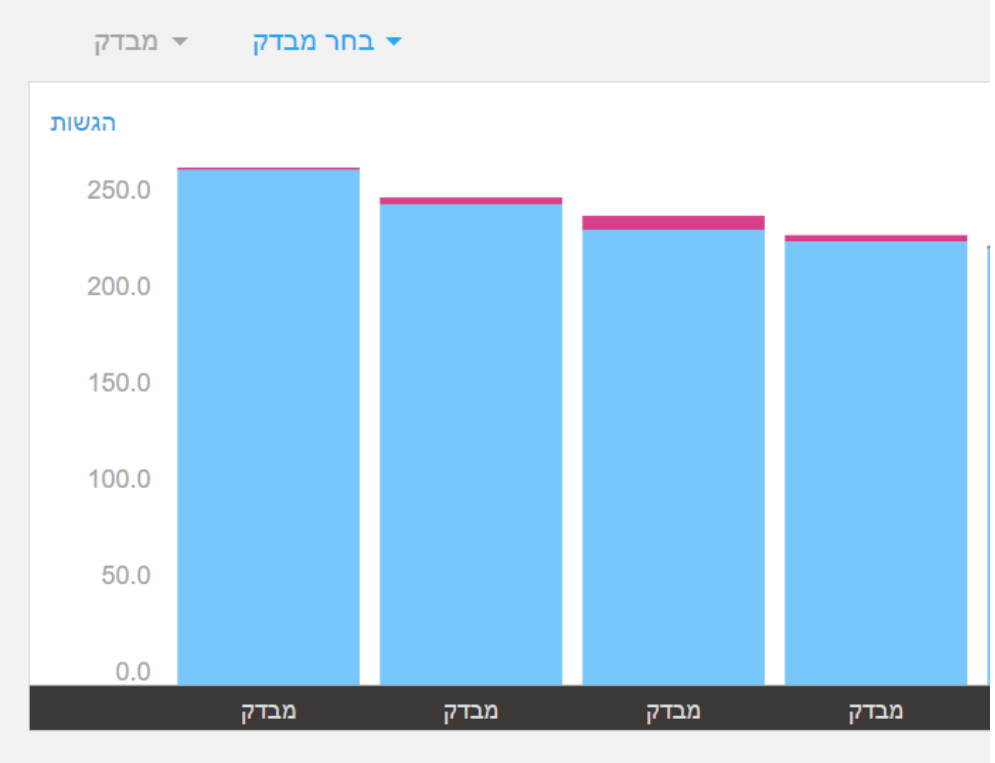
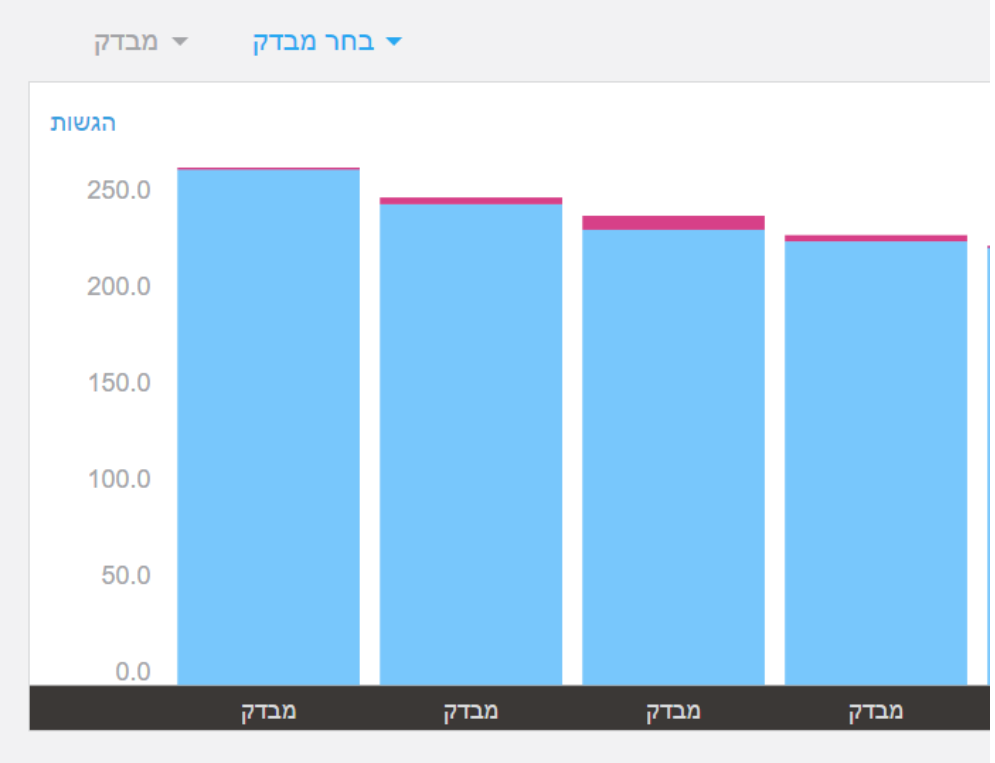
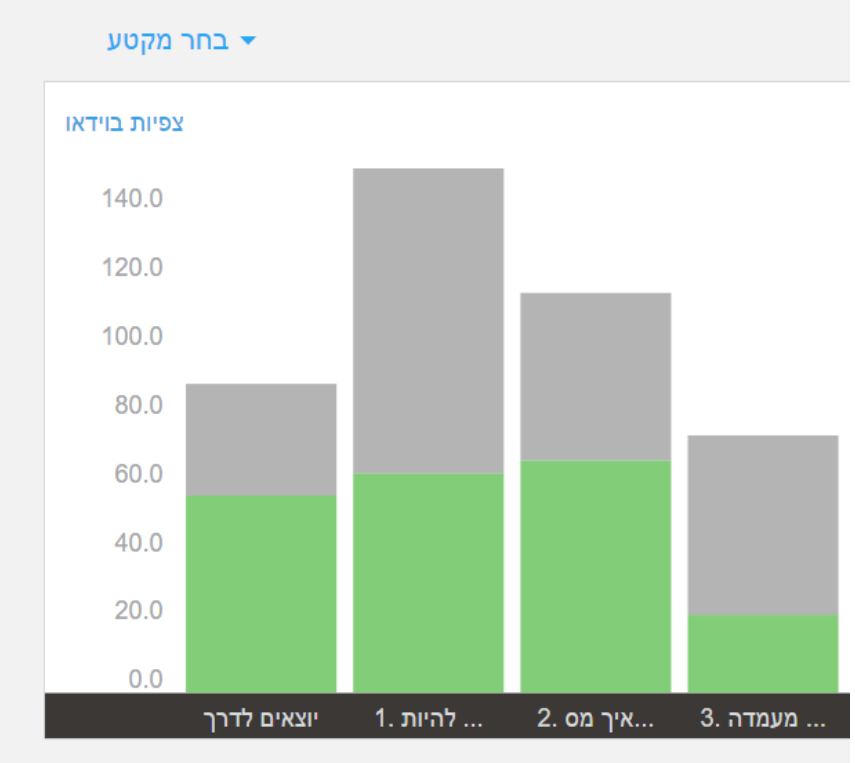


EXAMPLE: **Quiz performance analysis vs. Video analysis**





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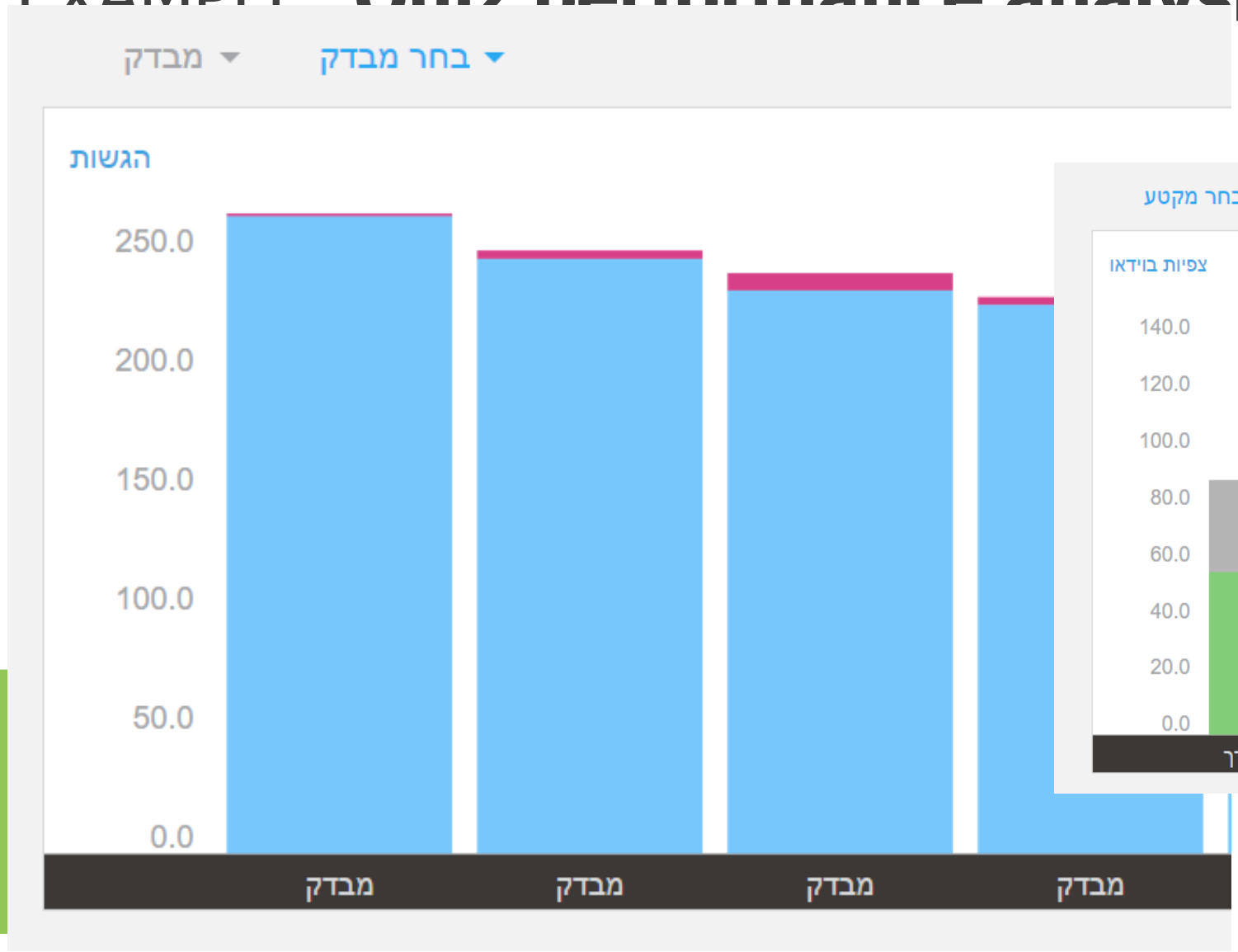

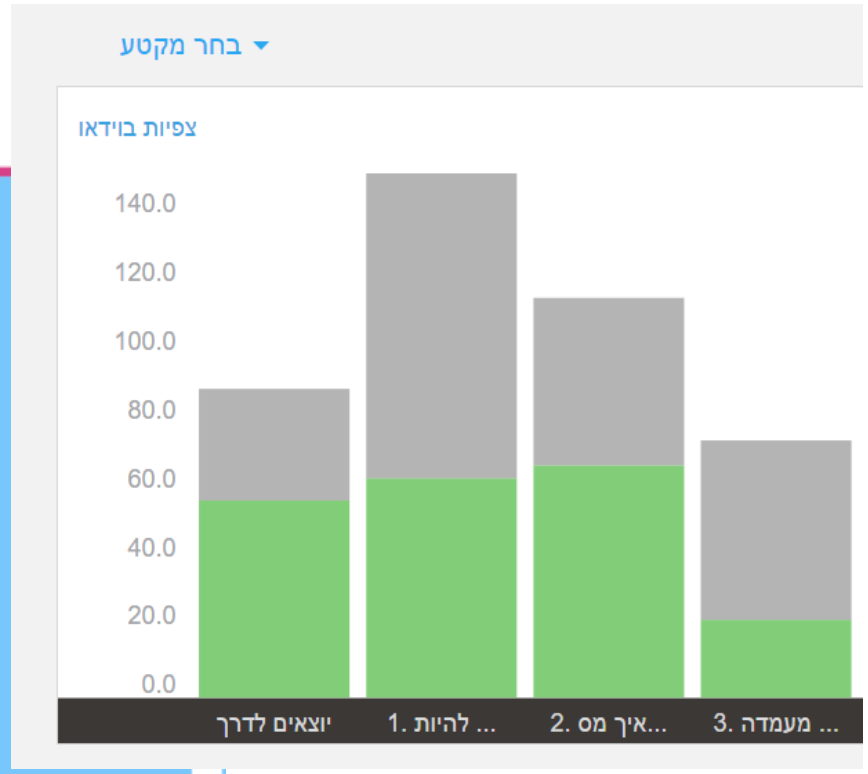

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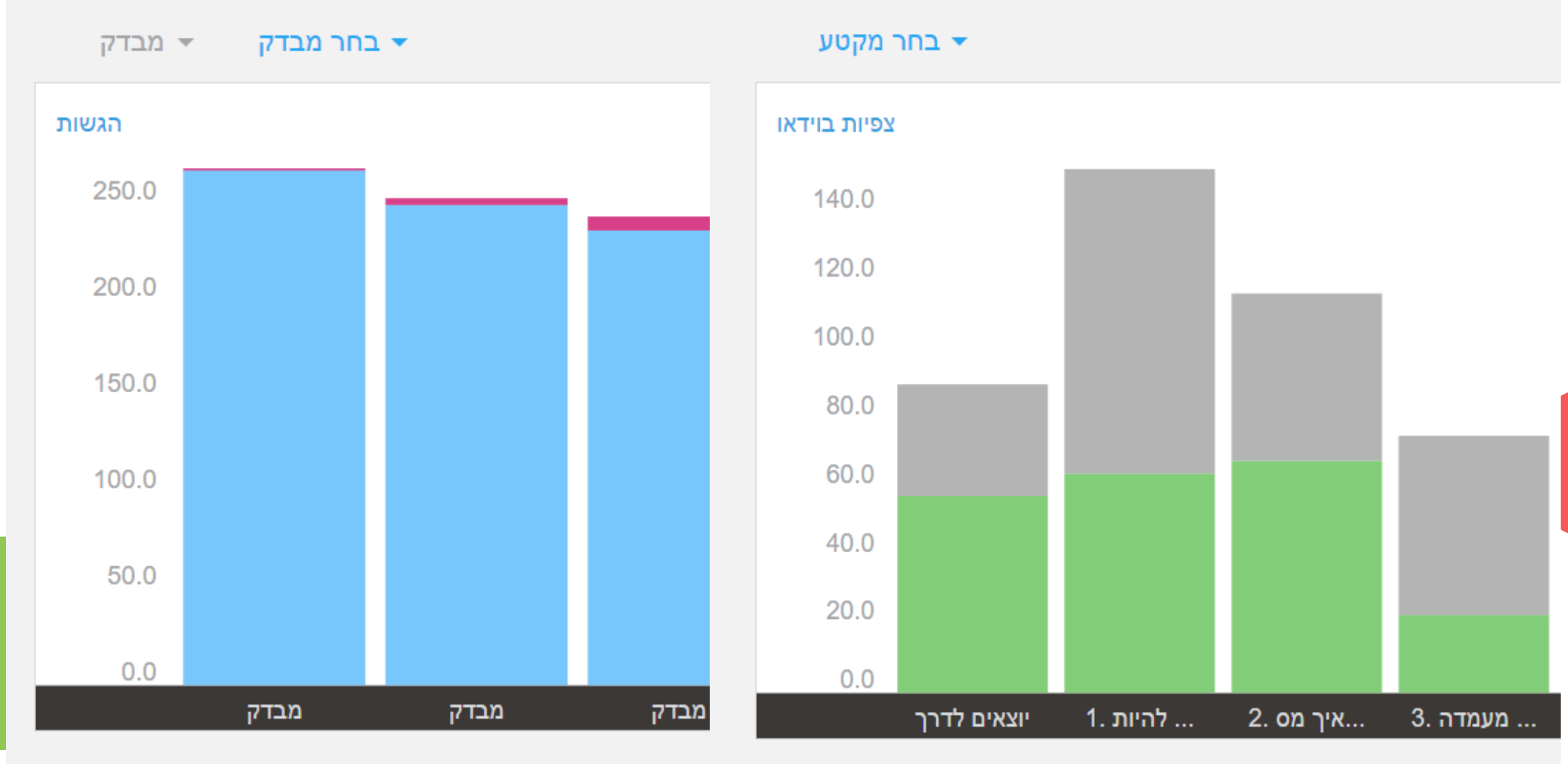

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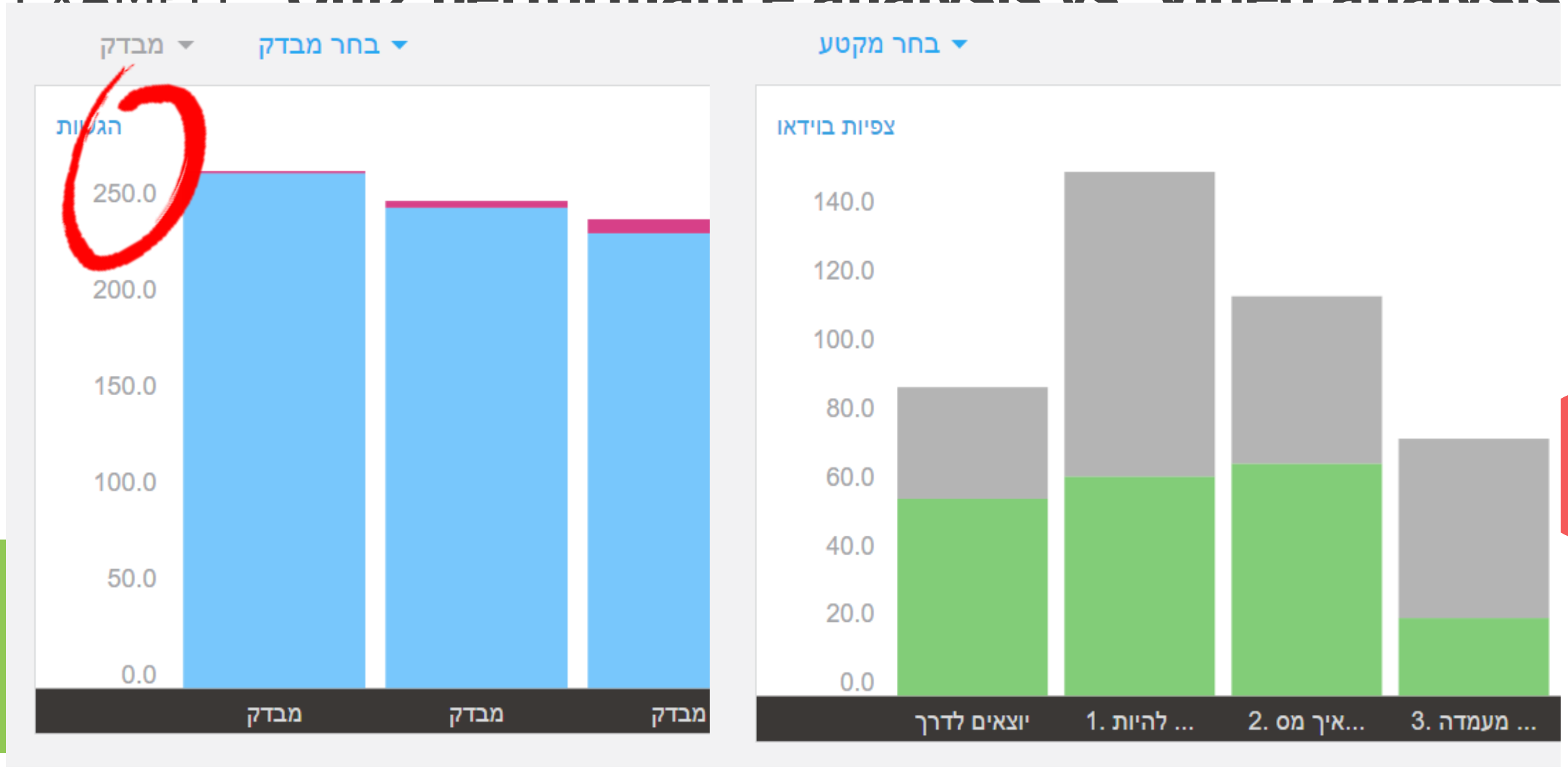

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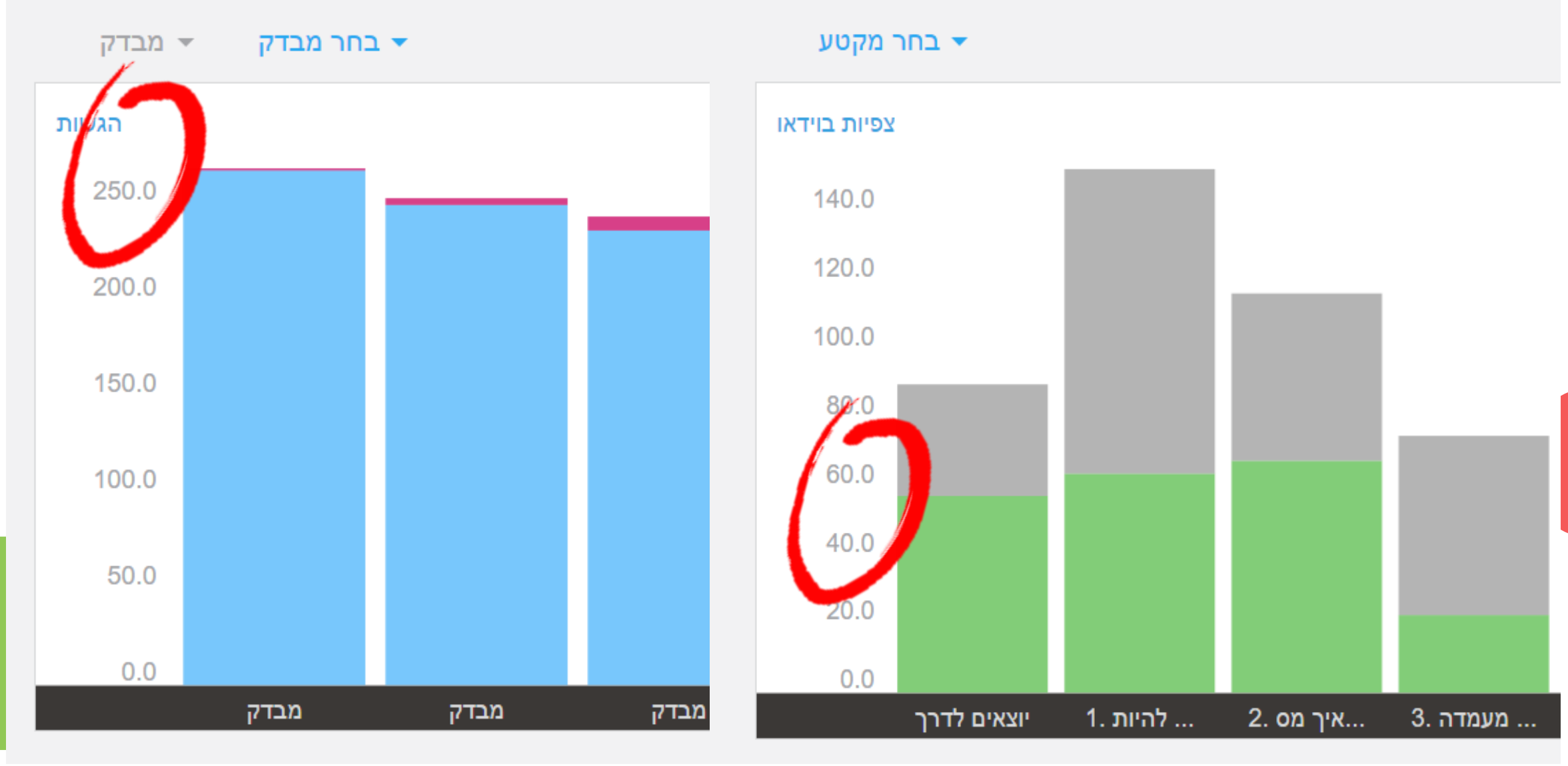

EXAMPLE: **Quiz performance analysis vs. Video analysis**

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2st Take Away:
Plan your assessment policy and implementation strategy coherent with your audience

EXAMPLE: **Quiz performance analysis vs. Video analysis**

2st Take Away:
Plan your assessment policy and implementation strategy coherent with your audience

3rd Take Away:
Alpha Test, Beta Test and Pilot your course before going to the mass

3. Designing a passive learning process

3. Designing a passive learning process

	A	B	D	E	G	H	I	J
1		Section		subsection		Unit	Unit Description	Unit Type
2	0	Trailer	1	-	1	Trailer		
3								
4								
5					1	Unit 1	What is this field all about?	Presentaion Video
6					2	Unit 2	Models and their role in data processing	Presentaion Video
7			1	Subsection 1: Overview of this Field and this Course	3	Unit 3	The Sparsa-Land model	Presentaion Video
8					4	Unit 4	Who works on this and who are we?	Presentaion Video
9					5	Unit 5	Several examples for things achieved in this field	Presentaion Video
10					6	Unit 6	This course scope and style	Presentaion Video
11								
12					1	Unit 1	Under-determined Linear Systems & Regularization	Presentaion Video
13					2	Unit 2	The Temptation of Convexity	Presentaion Video
14	1	Section 1: General Introduction	2	Subsection 2: Warm-Up & Problem Definition	3	Unit 3	A Closer Look at L1 Minimization	Presentaion Video
15					4	Unit 4	Conversion of (P1) to Linear Programming	Presentaion Video
16					5	Unit 5	Promoting Sparse Solutions	Presentaion Video
17					5	Unit 6	Summary & Quiz	Assessment
18								
19					1	Unit 1	The L0 Norm and Implications	Presentaion Video
20					2	Unit 2	The (P0) Problem - Our Main Interest	Presentaion Video
21			3	Subsection 3: Turning to L0	3	Unit 3	The Signal Processing Perspective	Presentaion Video
22					4	Unit 4	Summary & Quiz	Assessment
23								
24								
25					(Skip) 1	Unit 1	Uniqueness and Uncertainty - Defining our Goals	Presentaion Video
26					(Skip) 2	Unit 2	The Two-Ortho Case	Presentaion Video
27			(Skip)1	Subsection 1: Baby Steps into Theory – The Two-Ortho Case	(Skip) 3	Unit 3	An Uncertainty Principle	Presentaion Video
28					(Skip) 4	Unit 4	Uncertainty of Redundant Solutions	Presentaion Video
29					(Skip) 5	Unit 5	From Uncertainty to Uniqueness	Presentaion Video
30					(Skip) 6	Unit 6	Summary & Quiz	Assessment
31	2	Section 2: First Steps into Sparse Representations – Uncertainty & Uniqueness						
32					(Skip) 1	Unit 1	Uniqueness Analysis for the General Case	Presentaion Video
33					(Skip) 2	Unit 2	Uniqueness via the Spark	Presentaion Video
34			(Skip)2	Subsection 2: Moving to the General Case	(Skip) 3	Unit 3	Uniqueness via the Mutual Coherence	Presentaion Video
35					(Skip) 4	Unit 4	Uniqueness via the Babel Function	Presentaion Video
36					(Skip) 5	Unit 5	Summary & Quiz	Assessment

	A	B	D	E	G	H	I	
1		Section		subsection		Unit	Unit Description	
2	0	Trailer	1	-	1	Trailer		Presentaion Video
3								Presentaion Video
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5					1	Unit 1	What is this field all about?	Presentaion Video
6					2	Unit 2	Models and their role in data processing	Presentaion Video
7			1	Subsection 1: Overview of this Field and this Course	3	Unit 3	The Spiral-Level model	
8					4	Unit 4	Who works on this and who are we?	
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10					6	Unit 6	This course scope and style	Presentaion Video
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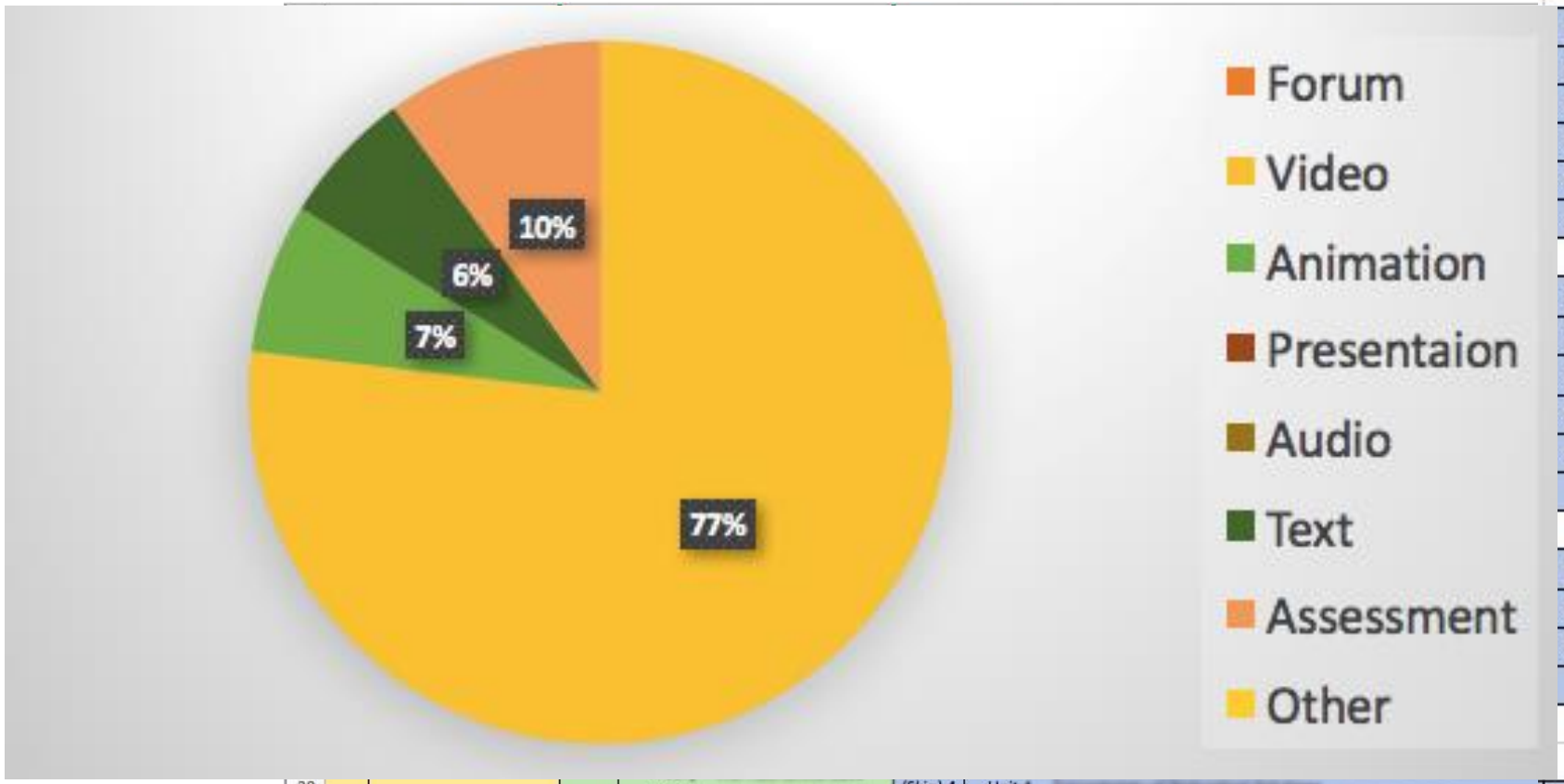

							Presentaion Video
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							Assessment
28					(Skip) 4	Unit 4	[illegible]	Presentaion Video
29		Section 2: First Steps			(Skip) 5	Unit 5	[illegible]	Presentaion Video
30		[illegible]			(Skip) 6	Unit 6	[illegible]	Presentaion Video
31	2							Presentaion Video
32					(Skip) 1	Unit 1	[illegible]	Presentaion Video
33			(Skip)2	Subsection 2: Moving to the General Case	(Skip) 2	Unit 2	[illegible]	Presentaion Video
34					(Skip) 3	Unit 3	Uniqueness via the [illegible]	Presentaion Video
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Active learning increases student performance in science, engineering, and mathematics

Scott Freeman[a,1], Sarah L. Eddy[a], Miles McDonough[a], Michelle K. Smith[b], Nnadozie Okoroafor[a], Hannah Jordt[a], and Mary Pat Wenderoth[a]

[a]Department of Biology, University of Washington, Seattle, WA 98195; and [b]School of Biology and Ecology, University of Maine, Orono, ME 04469

Edited* by Bruce Alberts, University of California, San Francisco, CA, and approved April 15, 2014 (received for review October 8, 2013)

To test the hypothesis that lecturing maximizes learning and course performance, we metaanalyzed 225 studies that reported data on examination scores or failure rates when comparing student performance in undergraduate science, technology, engineering, and mathematics (STEM) courses under traditional lecturing versus active learning. The effect sizes indicate that on average, student performance on examinations and concept inventories increased by 0.47 SDs under active learning (n = 158 studies), and that the odds ratio for failing was 1.95 under traditional lecturing (n = 67 studies). These results indicate that average examination scores improved by about 6% in active learning sections, and that students in classes with traditional lecturing were 1.5 times more likely to fail than were students in classes with active learning. Heterogeneity analyses indicated that both results hold across the STEM disciplines, that active learning increases scores on concept inventories more than on course examinations, and that active learning appears effective across all class sizes—although the greatest effects are in small ($n \leq 50$) classes. Trim and fill analyses and fail-safe n calculations suggest that the results are not due to publication bias. The results also appear robust to variation in the methodological rigor of the included studies, based on the quality of controls over student quality and instructor identity. This is the

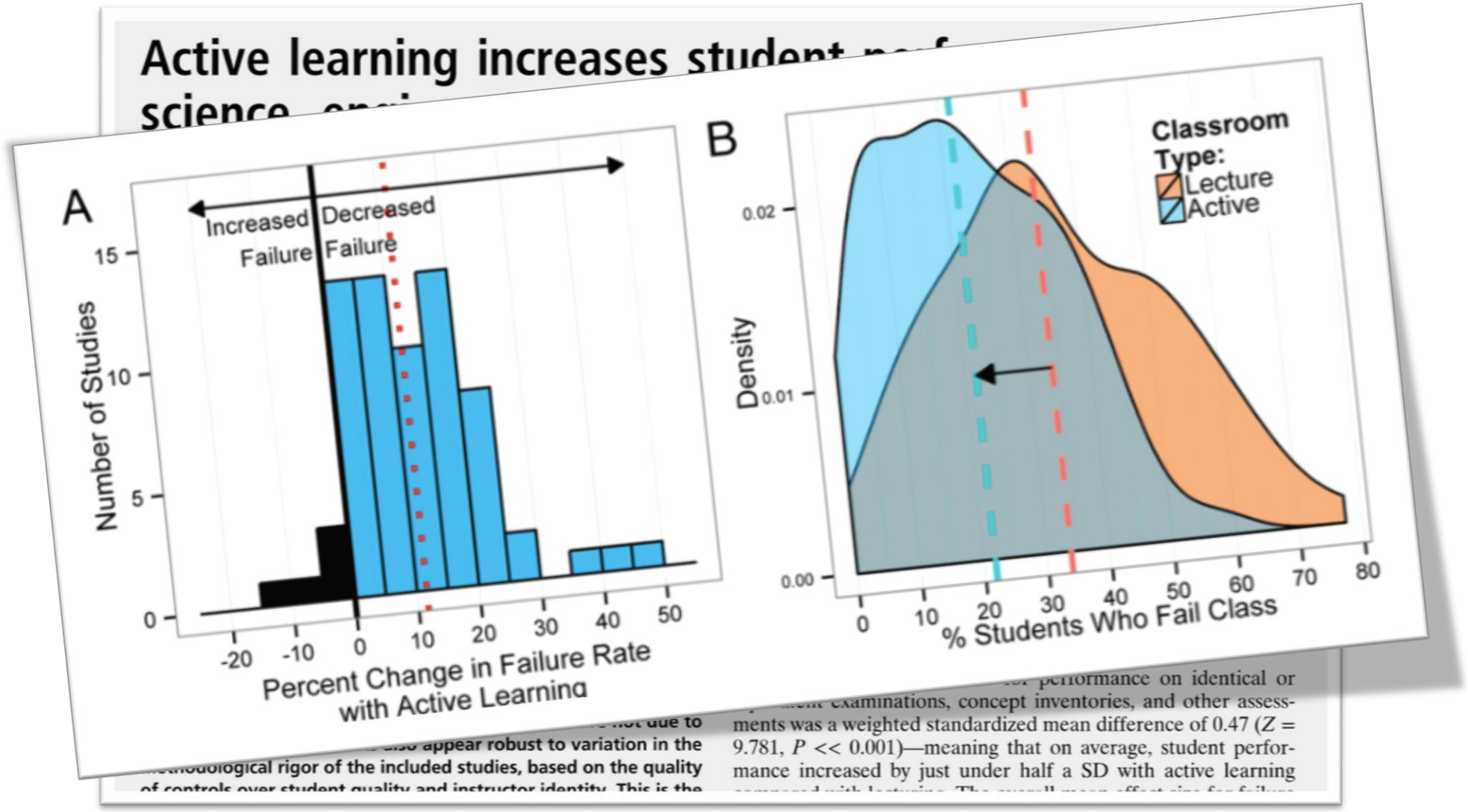
225 studies in the published and unpublished literature. The active learning interventions varied widely in intensity and implementation, and included approaches as diverse as occasional group problem-solving, worksheets or tutorials completed during class, use of personal response systems with or without peer instruction, and studio or workshop course designs. We followed guidelines for best practice in quantitative reviews (*SI Materials and Methods*), and evaluated student performance using two outcome variables: (*i*) scores on identical or formally equivalent examinations, concept inventories, or other assessments; or (*ii*) failure rates, usually measured as the percentage of students receiving a D or F grade or withdrawing from the course in question (DFW rate).

The analysis, then, focused on two related questions. Does active learning boost examination scores? Does it lower failure rates?

Results

The overall mean effect size for performance on identical or equivalent examinations, concept inventories, and other assessments was a weighted standardized mean difference of 0.47 (Z = 9.781, $P << 0.001$)—meaning that on average, student performance increased by just under half a SD with active learning

http://www.pnas.org/content/111/23/8410.full.pdf



http://www.pnas.org/content/111/23/8410.full.pdf

4th Take Away:
Videos may be engaging but effective learning path must involve active learning

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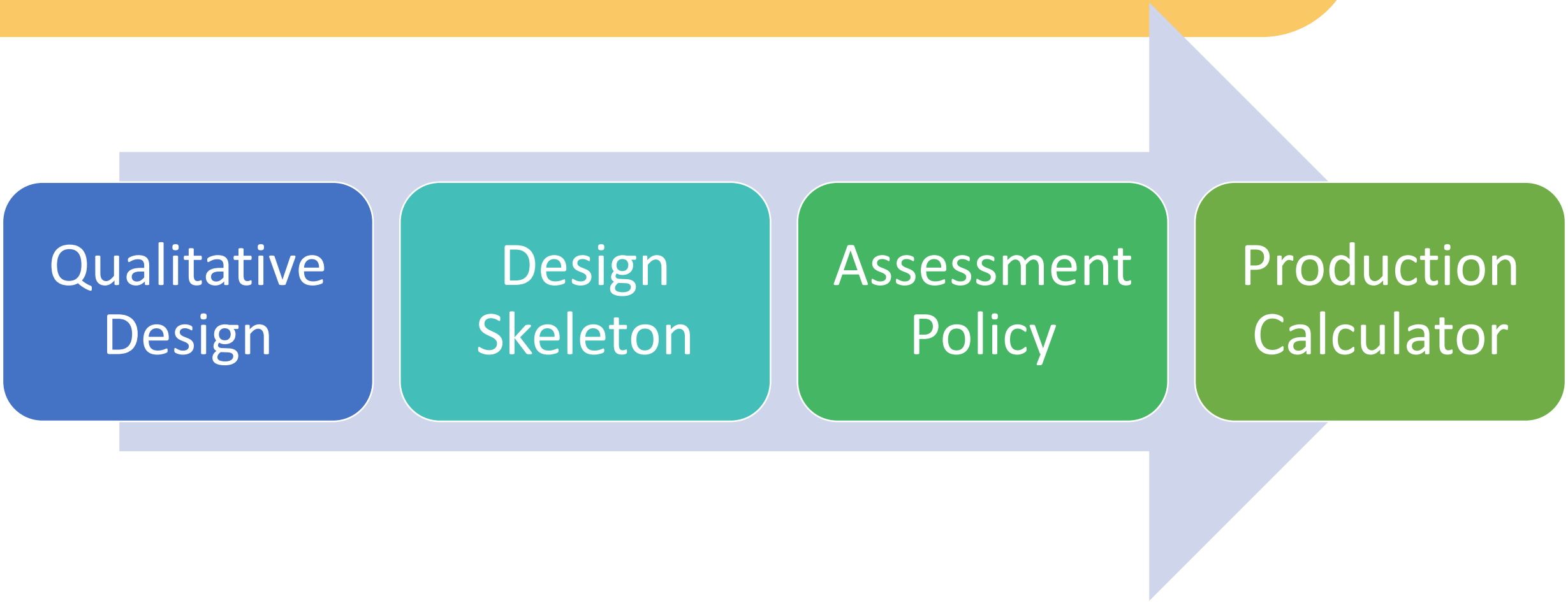
Videos may be engaging but effective learning path must involve active learning

5th Take Away:
Careful and rigorous planning is crucial for an effective course development

Course Design Protocol



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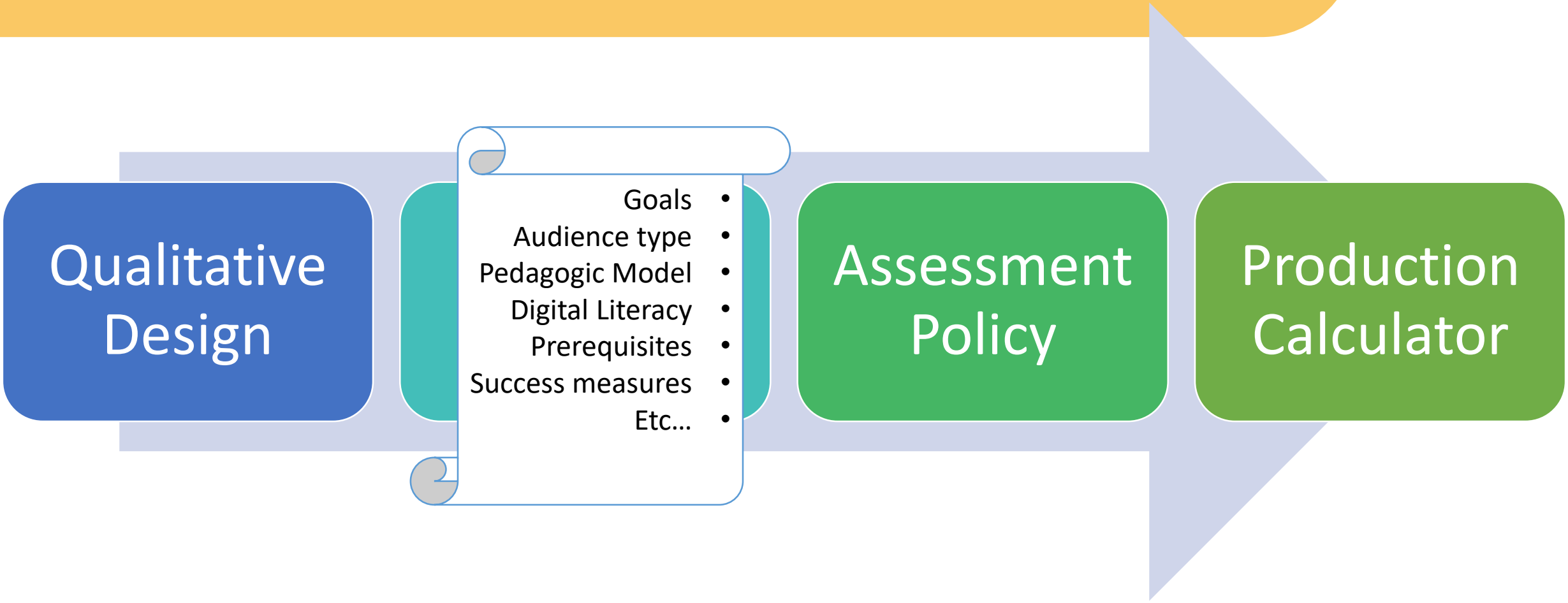

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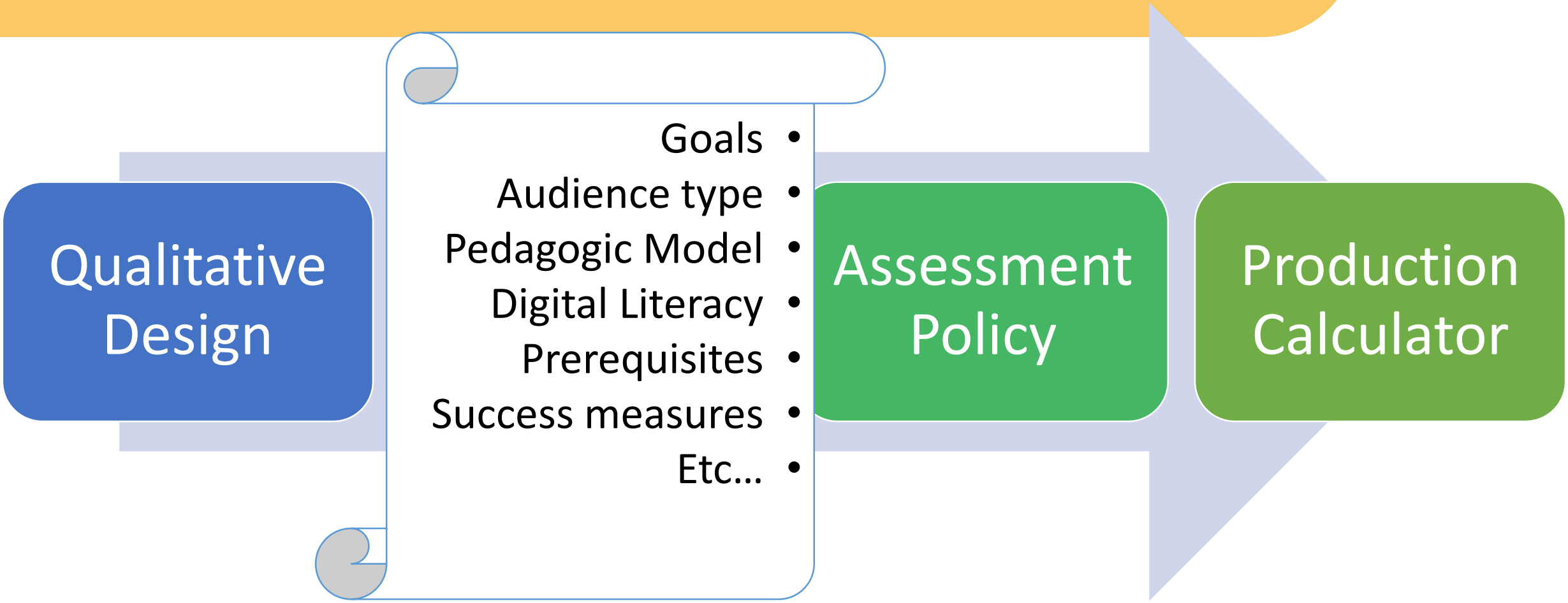

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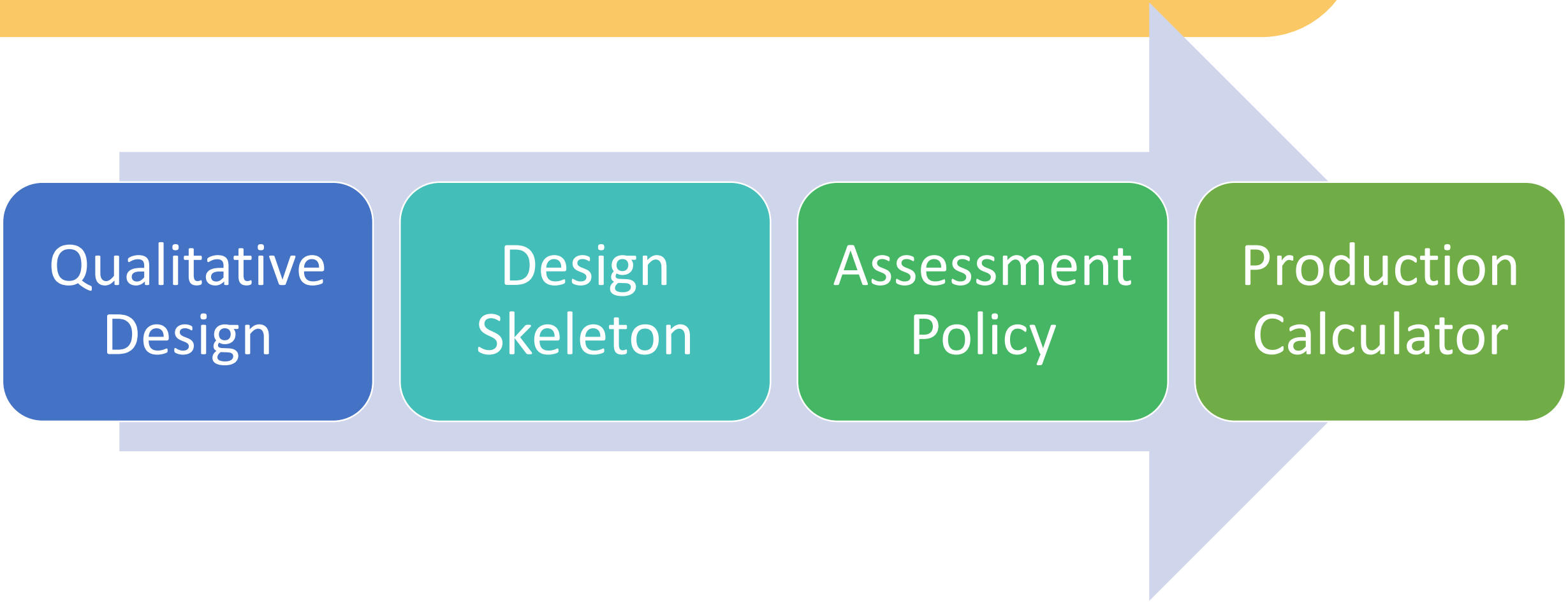
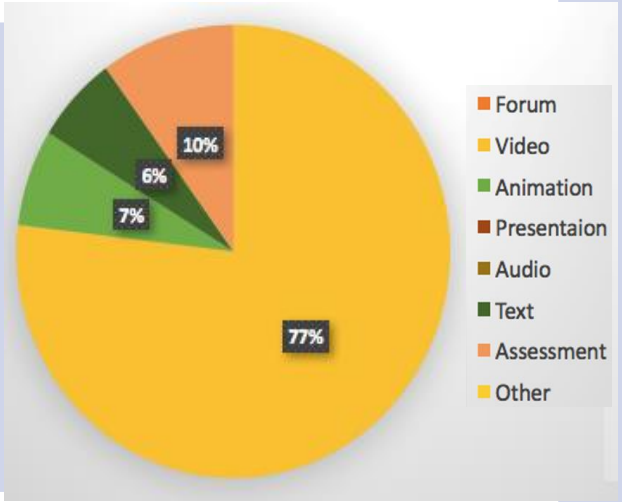


Course Design Protocol

Qualitative Design

Design Skeleton



Production Calculator

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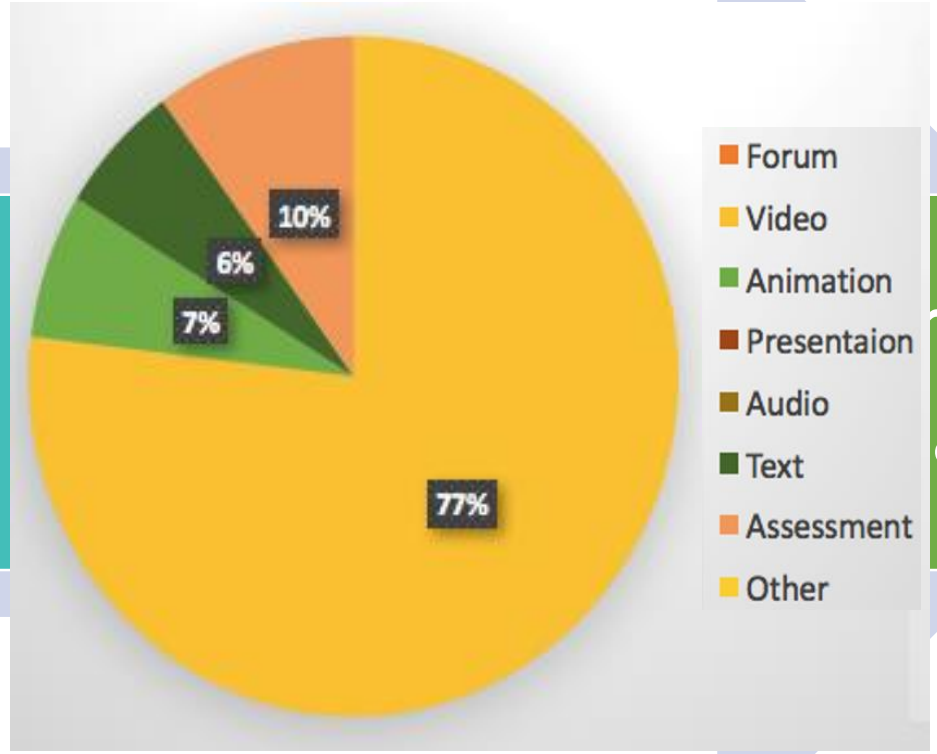
Course Design Protocol

Qualitative Design

Design Skeleton



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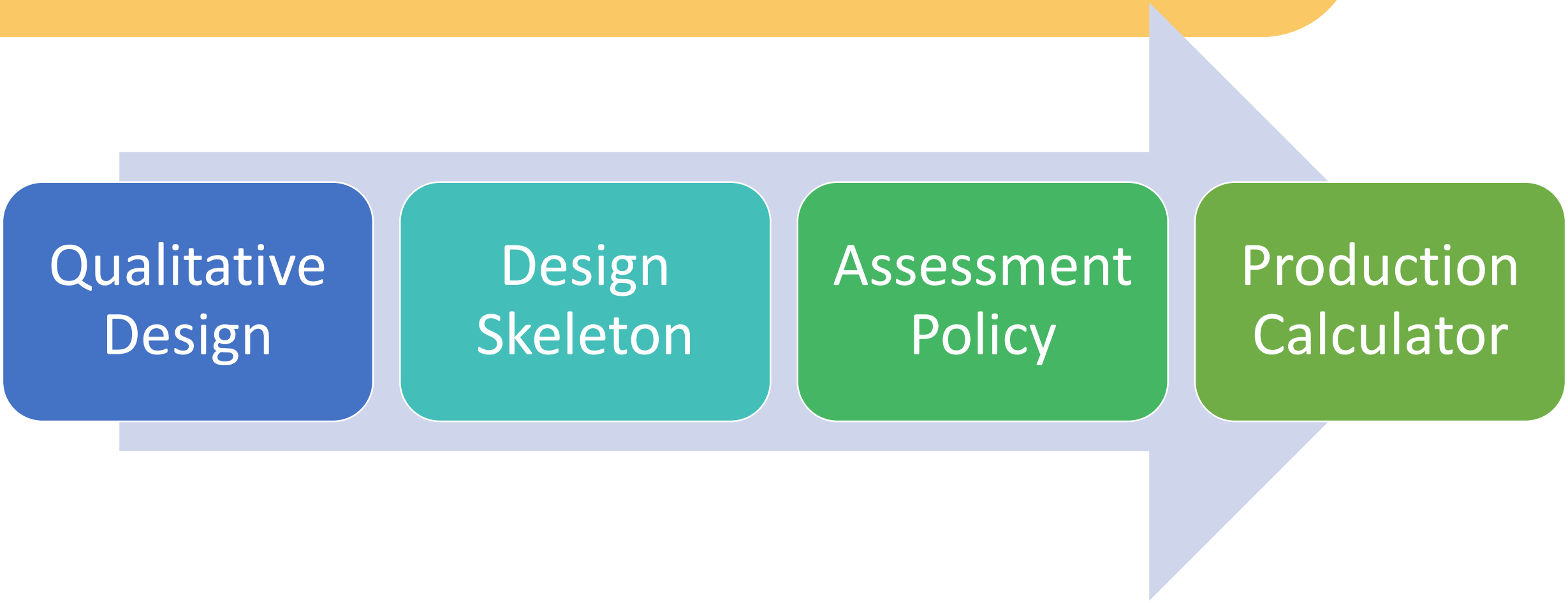

Course Design Protocol

Qu

Assessment Type\Tool	Weight	Planned	Time
Open Response	30%	5	1.5 hrs
Quiz	30%	15	2 hr
Peer Assessment	20%	2	2 hr
Simulation	10%	1	3 hr
Essay	10%	1	2 hr

Assessment Policy

Production Calculator

Course Design Protocol

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Production Calculator

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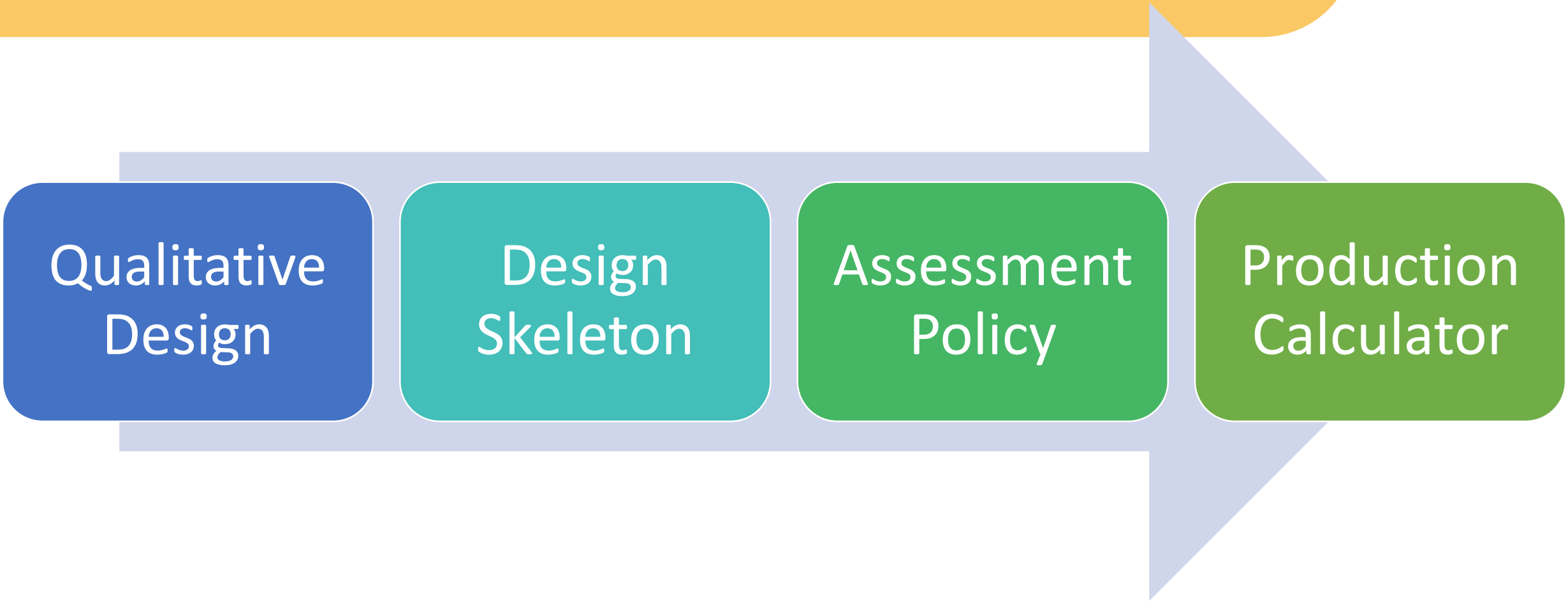
Course Design Protocol



Course Design Protocol

Qualitative Design

Design Skeleton

Output	L1	L2	L3
Video (1 min.)	47		
Animated slides (10 units)		33	
Animation (1 min.)	2	8	
Static slides (10 units)	12	5	
Audio (1 min.)			15
Text (250 words)	22	30	
Problem (1 assignment)	19	5	2
Total	€ 120,000		

Production Calculator

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Course Design Protocol

Qualitative Design

Design Skeleton

Output	L1	L2	L3
Video (1 min.)	47		
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roduction
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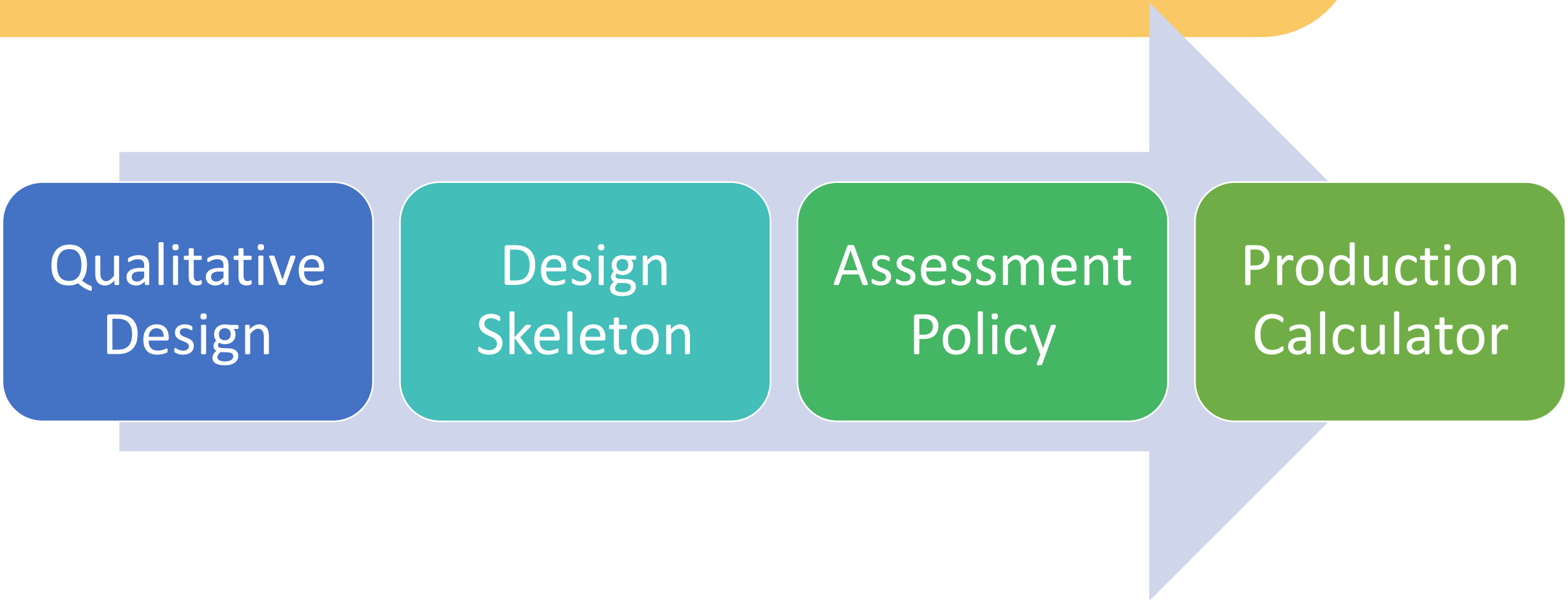
Course Design Protocol



4. Misplanning development schedule or budget

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December 18, 2020

As Customers and Providers are lost in translation…

Customer

Lost in Translation

Providers

Don’t know
what they don’t know

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As Customers and Providers are lost in translation…

Customer

Providers

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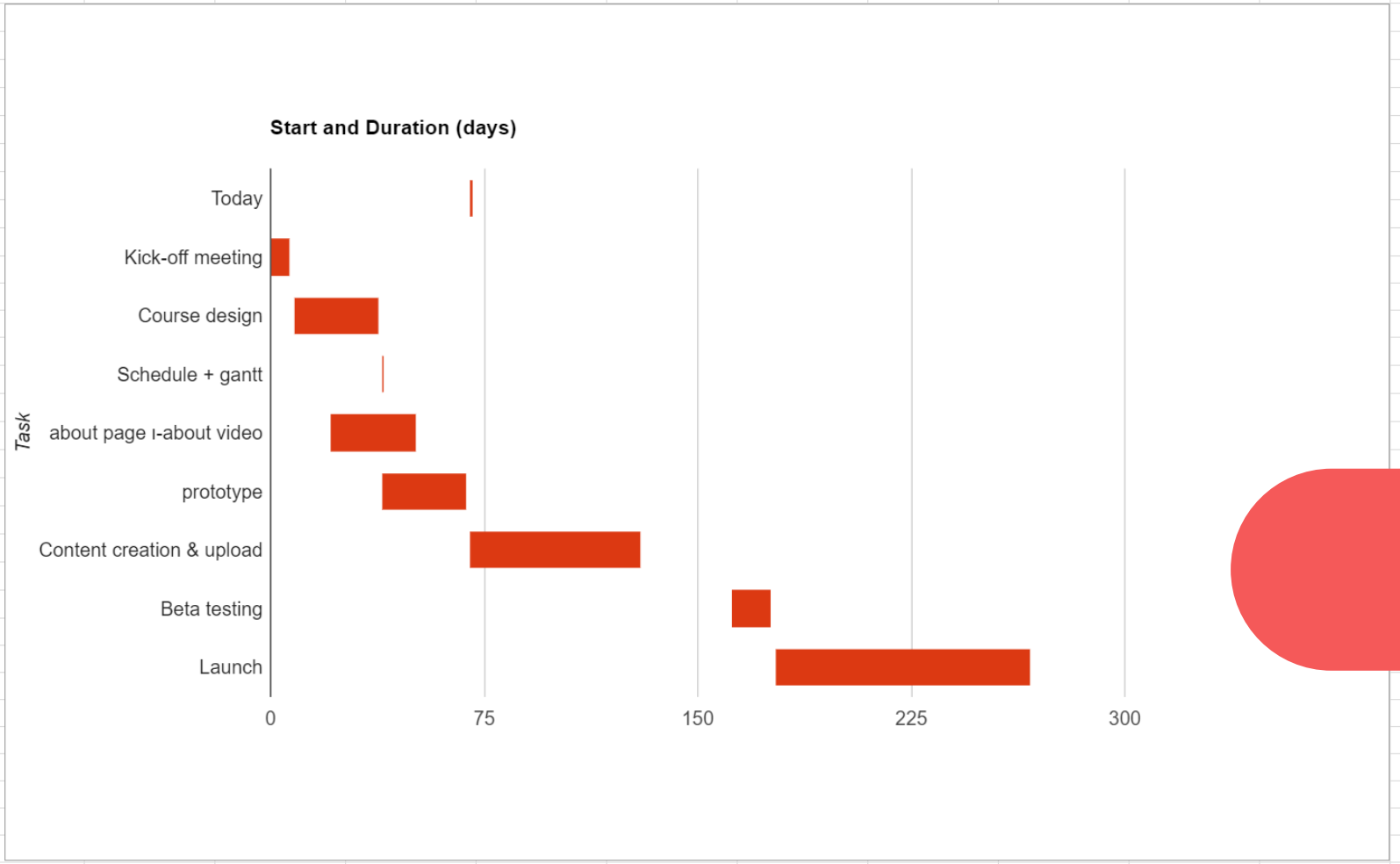
חזרה לדשבורד

Task	Start	Duration (days)	End	
Today	11-Mar-2016	1		
Kick-off meeting	1-Jan-2016	7	8-Jan-2016	בוצע
Course design	9-Jan-2016	30	8-Feb-2016	בוצע
Schedule + gantt	9-Feb-2016	1	10-Feb-2016	בוצע
about page ו-about video	22-Jan-2016	30	21-Feb-2016	-19
prototype	9-Feb-2016	30	10-Mar-2016	-1
Content creation & upload	11-Mar-2016	60	10-May-2016	
Beta testing	11-Jun-2016	14	25-Jun-2016	
Launch	26-Jun-2016	90	24-Sep-2016	



6th Take Away:
One POC on customer side, One POC on MOOC platform side, One POC on Provider's side

6th Take Away:

One POC on customer side, One POC on MOOC platform side, One POC on Provider's side

7th Take Away:

Expectation settings, availability and responsiveness might be the difference between success and failure

5. Making profound promises at the very beginning

5. Making profound promises at the very beginning

Wednesday, May 24 • 13:45 - 14:20

Muckup night: MOOCs – Mistakes from Marketing to Materials

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What are the top ten mistakes people make when developing MOOCs? As a national platform which brings together courses from a wide range of academic institutions, Campus-IL has been able to identify the most common mistakes in MOOCs. In this highly practical session, attendees will learn how to avoid these errors and develop successful courses.

Speakers

Eran Raviv

CEO, Campus-IL

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8th (and last) Take Away:
Keep an ongoing, frequent and open dialogue with customer (No alarms, No surprises)

The Stage is yours!

Eran Raviv

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