#### Research Issues and Findings of MOOCs: Learning to Better Design Practices

Curtis J. Bonk| cjbonk@Indiana.edu Indiana University Bloomington

Meina Zhu| meinazhu@wayne.edu Wayne State University May 27, 2020



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#### **Talk Outline**

- 1. MOOC News and Trends
- 2. MOOC ID Considerations and Challenges
- 3. MOOC ID for Self-directed Learning
- 4. MOOC personalization.



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Poll #1: Who in here has taken a MOOC? Poll #2: Are you happy or frustrated when you take a MOOC?



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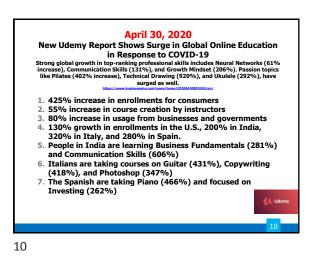
## MOOC Trends and Recent Data



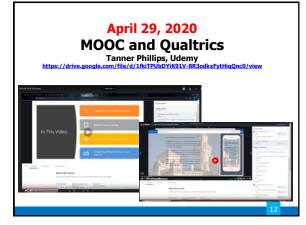


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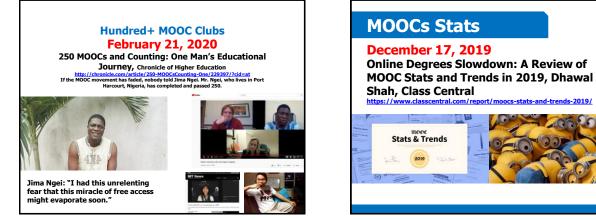
April 30, 2020 New Udemy Report Shows Surge in Global Online Education in Response to COVID-19 There has been an immense surge in enrollments in courses related to Telecommuting (21,598% increase) and Virtual Teams (1,523%), as well as Decision Making (277%), Self Discipline (237%), and Stress Management (235%). Udemy Topic Enrollment Trends Growth in our top 10 skills Surging enrollments 1 46% 1920% Technical Dr. 1531% Art for Kids 402% Pilate 1375% Coding for Kid 1292% Ukulele + 290% Microsoft Tea 1 Udemy 44

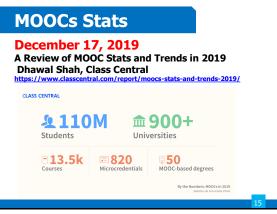




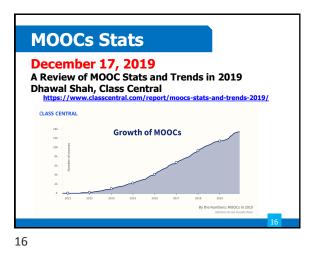




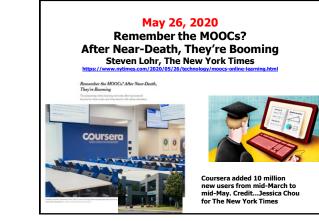




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	Learners	Courses	Microcredentials	Degrees		2017	2018	2019
oursera	45 million	3.800	420	16	Coursera	4	11	16
dX	24 million	2.640	292	10	FutureLearn		3	23
338.	24 million	2,640	292	10	Udacity	1	1	1
Idacity	11.5 million	200	40	1	Total	10	39 (+29)	50 (+11)
		880	49	23	But in 2019, the hype	seems to have sub-	sided: only 11 onlin	e degroes were
utureLearn 2,4	10 million				announced this year.			







### Study #1 MOOCs Design Considerations and Challenges

Zhu, M., Bonk, C. J., & Sari, A. (2018). Instructor experiences designing MOOCs in higher education: Pedagogical, resource, and logistical considerations and challenges. *Online Learning*, 22(4), 203-241.

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#### **Research Background**

- MOOCs can be beneficial to both learners and instructors (Hew & Cheung, 2014).
- Instructional design is critical for online learning (Johnson & Aragon, 2003; Phipps & Merisotis, 1999).
- Instructors are one of the five main components of MOOCs (Kop, 2011).
- Few studies have examined instructional design from MOOC instructors' perspectives (Margaryan et al., 2015; Watson et al., 2016).

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#### **Research Purpose**

The purpose of this study is to provide suggestions for future MOOC instructors and instructional designers in higher education through exploring MOOC design considerations and challenges from the instructor's perspective.

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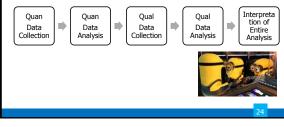
#### **Research Questions**

- 1. What are the design considerations of instructors when designing MOOCs?
- 2. What challenges do instructors perceive when designing MOOCs?
- 3. How do instructors address the challenges that they perceive related to MOOCs?

#### Research Design

 $\cdot\,$  Sequential mixed methods design (Creswell &

#### Clark, 2017)



#### **Data Collection**

• Data Collection:

 $_{\odot}$  Survey, interview, and course review

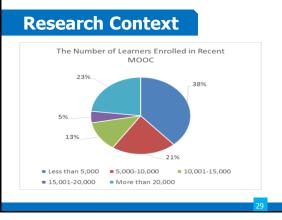
- Participants:
  - 143 survey participants (10% response rate)
  - o 12 interviewees



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	Data Analysis	
RQs	Data Sources	Data analysis
	Survey-multiple-choice questions	Descriptive statistics
RQ1	Survey-open-ended questions	Content analysis (Elo & Kyngäs, 2008)
RQ1	Interview	Content analysis
	MOOC review	Content analysis
	Survey-multiple-choice questions	Descriptive statistics
RQ2	Survey-open-ended questions	Content analysis
	Interview	Content analysis
RQ3	Survey-multiple-choice questions	Descriptive statistics
1.25	Interview	Content analysis

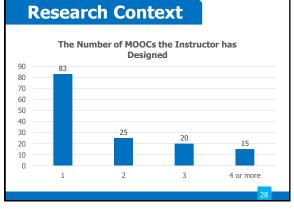
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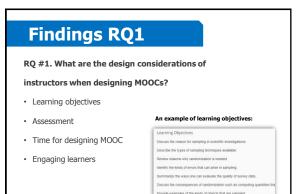
#### **12 Interviewees**

No.	Countries	Subject areas	Platforms
1.	The U.S.	Language and Literacy	Coursera
2.	The U.S.	Education	Coursera
3.	The U.S.	Education	Canvas
4.	The U.S.	Chemistry	Coursera
5.	UK	Medicine and Health	FutureLearn
6.	UK	Language and Literacy	FutureLearn
7.	Hong Kong (China)	Math	Coursera
8.	Mainland China	Math	Coursera
9.	Canada	Psychology	Coursera
10.	Australia	Medicine and Health	Open2Study
11.	Sweden	Computer Science	edX
12.	India	Management	edX

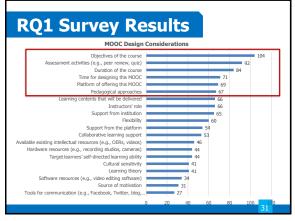
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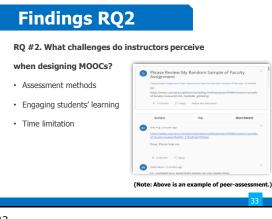


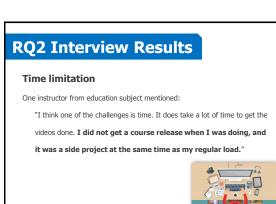
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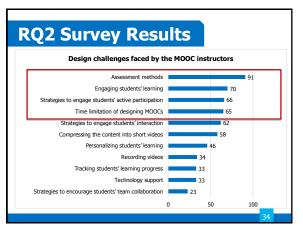


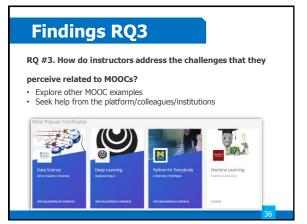


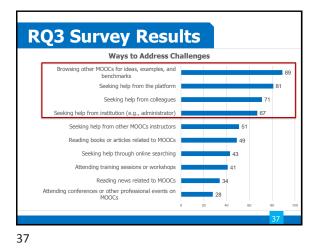


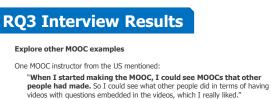


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#### Discussion

- The time limitation of creating MOOCs was the primary logistical consideration (Hew & Chung, 2014; Watson et al., 2016) and challenges.
- The pedagogical factors were the primary design considerations (Watson et al., 2016) and challenges in MOOC design.
- The **assessment and engagement strategies** are the main considerations as well as challenges.

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Study #2 MOOCs Instructional Design to Facilitate Participants' Selfdirected Learning

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# Key Terms Self-directed learning (SDL) (Garrison, 1997) (1) self-management (2) self-monitoring (3) motivation

#### **Research Background**

- Learners need self-directed learning skills and strategies to be successful in MOOCs (Halawa, Greene, & Mitchell, 2014; Littlejohn & Milligan, 2016), as there is a lack of personalized interaction with teachers.
- Self-directness of a learner might vary in different learning environments which means that the learners could be more self-directed in one learning environment than another (Hiemstra, 1994).

#### **Research Background**

- Instructional design can greatly influence students' interaction and engagement (Garrison & Cleveland-Innes, 2005) and success in online learning (Song, Singleton, Hill, & Koh, 2004; Swan, 2001)
- · However, few studies have examined instructional design and the delivery of instruction using MOOCs from instructor perspectives (Margaryan et al., 2015; Watson et al., 2016); especially lacking is research on instructors' perception of SDL and how they design MOOCs to facilitate students' SDL.

#### **Research Purpose**

**Research Design** 

(Creswell & Clark, 2017)

Pilot survey with 48

Pilot interviev with 4

• The purpose is to inform instructors or instructional designers and MOOC providers of the current practices of designing MOOCs to facilitate learners' SDL.

Explanatory sequential mixed methods design

Review 22 MOOCs of

Survey

198 tructor

Interview 22

instructors

Review 22 MOOCs of



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#### **Research Questions**

- 1. How do MOOC instructors perceive participant SDL skills?
- 2. How do MOOC instructors perceive their facilitation of participant SDL skills?
- 3. How do instructors design and deliver MOOCs to facilitate participant SDL skills?

a. How is technology being used by MOOC instructors to support the development of participant SDL skills?

b. What technology features or functions do MOOC instructors

want to have to improve their facilitation of MOOC participant SDL skills?

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#### **Data Collections**

#### Survey:

• Volunteer sampling (Creswell & Clark, 2017)

• 198 instructors responded to the survey (10% response rate)

#### Interview:

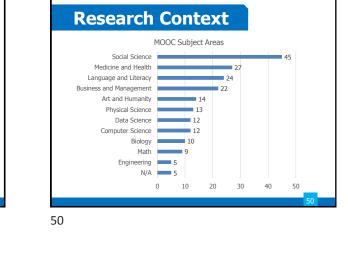
- Homogeneous purposeful sampling (Creswell & Clark, 2017; Patton, 2002)
- Maximal variation sampling (Creswell & Clark, 2017)
- · 22 interviewees
- MOOC review:
- · Reviewed 22 interviewees' MOOCs

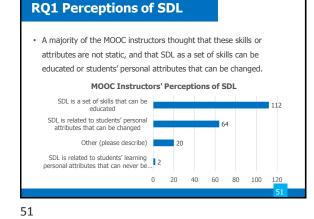


Pseudonym	Country	Subject area	Platform	Gender	No. of O/B	No. of M	Mode of the M
Lucas	US	Social science	edX	м	0	1	I without T
Branden	US	Education	Udacity	м	0	5 or more	Self-paced
Logan	US	Literacy and Language	Coursera	м	5 or more	5 or more	I with T
Emma	US	Literacy and Language	Coursera	F	2	1	Self-paced
Jason	US	Science	edX	м	1	1	I with T
Jackson	US	Medicine and health	Coursera	м	5 or more	1	Self-paced
Samuel	US	Education	FutureLearn	м	4	3	Self-paced
Hannah	US	Education	Blackboard	F	5 or more	1	I with T
Ashley	US	Education	EdX	F	0	5 or more	I with T
Andrew	UK	Art	FutureLearn	м	0	3	I with T
Emily	UK	Medicine and health	FutureLearn	F	2	2	I with T
Aiden	UK	Social science	FutureLearn	м	0	1	Self-paced
Henry	UK	Social science	FutureLearn	м	0	1	Self-paced
Joseph	UK	Medicine and health	FutureLearn	м	1	1	Self-paced
Joshua	UK	Literacy and language	FutureLearn	м	2	2	I with T
Mason	Australia	Education	Coursera	м	5 or more	1	I with T
Ethan	Australia	Business	Coursera	м	3	1	I without T
Ben	Australia	Social science	edX	м	1	1	I with T
Paul	France	Computer Science	Coursera	м	1	1	I with T
Fernando	Belgium	Research methods	Blackboard	м	5 or more	3	I with T
Jacob	Netherland	Science	Coursera	м	0	1	I with T
Dylan	Israel	Science	Coursera	м	5 or more	3	I without T

#### Data Analysis RQs Data Sources Data analysis Tools Survey Descriptive statistics SPSS RQ1 Content analysis (Elo & Kyngäs, 2008) NVivo Interview Descriptive statistics SPSS Survey RQ2 Interview Content analysis NVivo Content analysis NVivo Interview RQ3 Course review Content analysis NVivo

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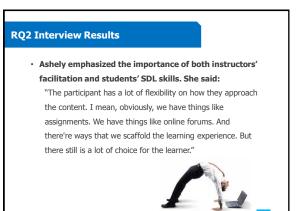




**RQ2 Perceptions of Facilitation of SDL** · Most of MOOC instructors thought that they can intentionally or unintentionally facilitate students' SDL. Participants' Perceptions of Their Role in Facilitating Students' SDL Instructors can intentionally create a 171 learning environment to help. Other (please describe) 📕 14 Instructors can unintentionally create 13 a learning environment that. Instructors can do nothing for 0 students' SDL skills. 0 50 100 150 200

#### **RQ1 Interview Results**





#### **RQ3 Strategies to Facilitate SDL**

 Students' intrinsic motivation plays an important role. However, extrinsic motivation provided by the MOOCs might help transfer extrinsic motivation to intrinsic motivation.

	Churchanian
Motivations	Strategies
Entering	MOOC instructors helped students identify the
motivation	needs and goals of learning and sense of
	achievement.
Task motivation	MOOC instructors motivated students through
	instruction, learning materials, feedback, and
	learning community.

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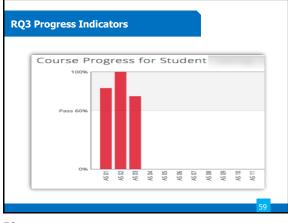
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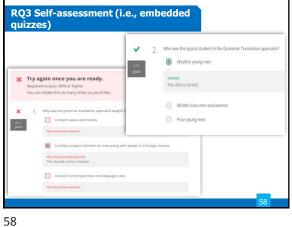
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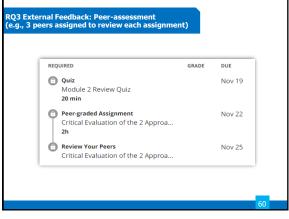
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• Both in	ternal fee	o Facilitate SDL edback and external feedback were students' self-monitoring.
Self-monit	or	Strategies
Internal feedback	Cognition Meta-cog	MOOC instructors provided quizzes for self-assessment, tutori on technology use, learning advice, navigation of the course, progress indicators, resources, and instructional modeling, etc MOOC instructors encouraged students to reflect and think
		critically by providing reflection questions and building learnin community.
External		MOOC instructors, teaching assistants, and peers were involve
		in providing external feedback.

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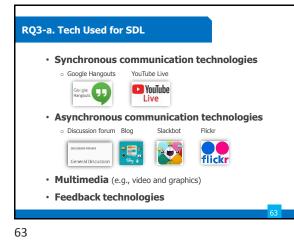


#### **RQ3 Strategies to Facilitate SDL**

 They helped students' self-management concerning setting learning goals, time management, resources and support management although among the three elements of SDL, MOOC instructors had less control over students' management.

Self-management	Strategies
Enactment of learning goals	Providing discussion questions, reflections, survey, and appreciation students' learning goals.
Time management	Providing time frame, progress indicator, short learning units, and flexible timeline.
Management of resources and support	Providing flexible learning resources, peer-assessment, accessibilities, clear expectations, and short learning units.
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START	WEEK 1	WEEK 2	WEEK 3	O WEEK 4	_ >
RESUME					
Pick up where you Don't let the great t week.	left off hings you learned fade away! Re	set your deadlines ar	nd complete your assignmen		y deadlines
WEEK 1				Estimated Time	: 1h 7m 🔿
'he Swing of the F	Pendulum: A Brief Look at ES				
	Videos 🔵 7 min left Readings 🔵 20 min lef	t 20		GRADE	but Nov 12

#### Discussion

- SDL can be Changed
- MOOC Instructors can Facilitate SDL
- Strategies to Facilitate SDL: A variety of strategies can be used to facilitate student SDL skills in terms of motivation, selfmonitor, and self-management.
- Tech for SDL: Tech plays a vital role in facilitating SDL skills.
- Tech expectations: Adaptive learning systems, artificial intelligent systems, and learning analytics were expected to have to support SDL.

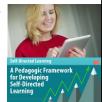
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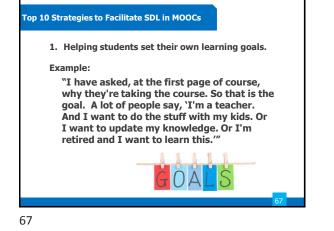
#### Top 10 Strategies to Facilitate SDL in MOOCs

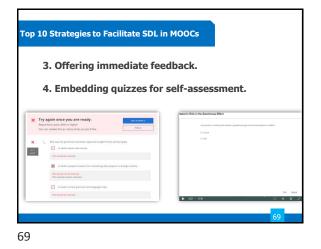
- 1. Helping students set their own learning goals.
- 2. Building learning community.
- 3. Offering immediate feedback.
- 4. Embedding quizzes for self-assessment.
- 5. Providing progress indicators.
- 6. Providing reflection questions.
- 7. Designing short learning units.
- 8. Providing flexible timelines.
- 9. Highlighting estimated time frames.

10. Making available optional learning materials.



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# 68 Top 10 Strategies to Facilitate SDL in MOOCs 5. Providing progress indicators Ourse Progress for Student Ourse Progress for Student

Top 10 Strategies to Facilitate SDL in MOOCs

2. Building learning community.

Joshua from the UK mentioned: We use a

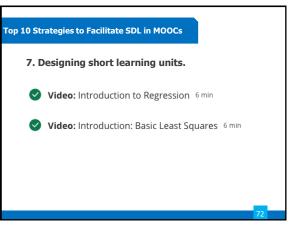
we use the MOOC discussion board as a

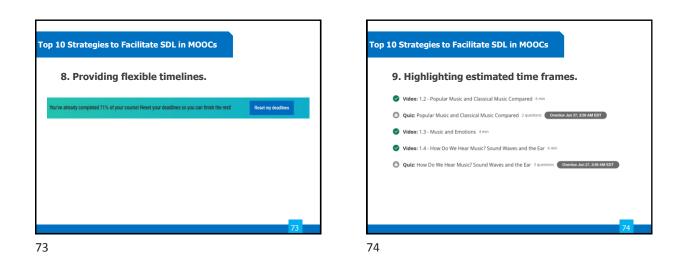
lot of resources that already exist. And then

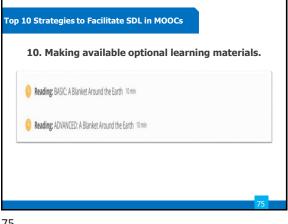
place to where they, kind of, point out and

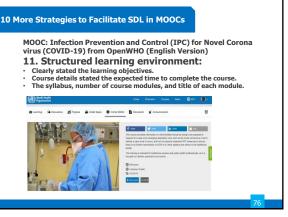
say, "I've seen this. And this is useful. Well,

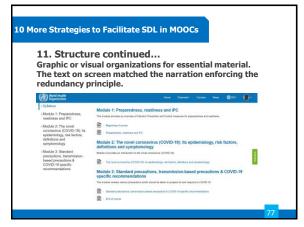
I use this, and this is good. I created this."



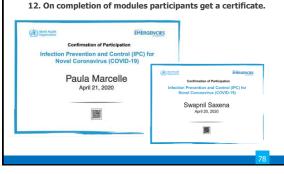




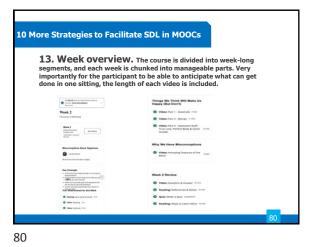




# 10 More Strategies to Facilitate SDL in MOOCs

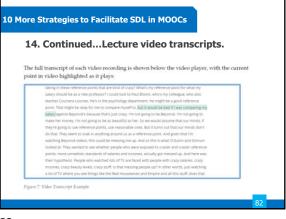




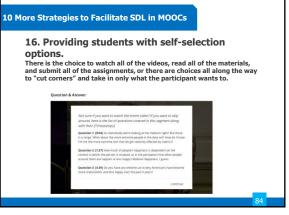


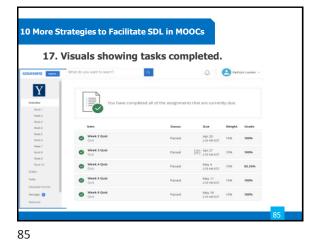






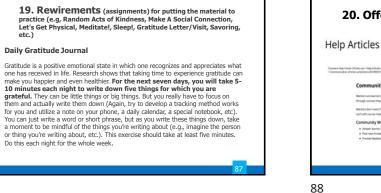


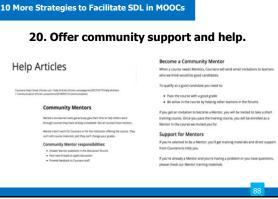


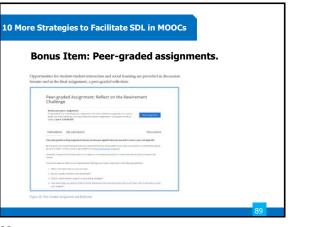


10 More Strategies to Facilitate SDL in MOOCs

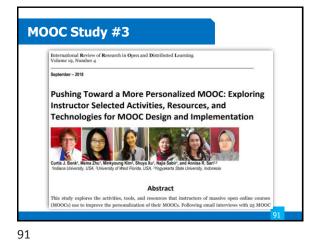
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WEEK 6	~
WEEK 7	Estimated Time: 45 min
Start Your Final Rewirement Challenge	
Videos 🔘 Done	
Readings 🕥 10 min left	<b>@</b>
Practice Exercises 30 min left	Nothing due
Prartice Provinces O 35 min left	Nothing due

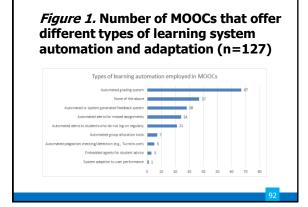


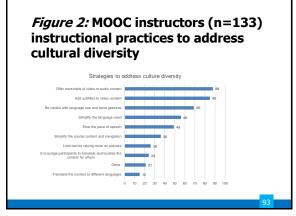


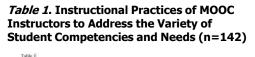












Items	Response percent	Response count
Establish learner-based discussion forums	81.0%	115
Embed supplementary course materials	78.2%	111
Post timely course announcements and emails	63.4%	90
Record video tutorials or walkthroughs	40.8%	58
Emphasize project-based learning over exams	34.5%	49
Using preexisting online videos (e.g., Lynda.com, TED talks, YouTube, etc.)	32.4%	46
Other	26.1%	37
Hold synchronous lectures, meetings, and events (e.g., Skype, Google Hangouts, Zoom, etc.)	23.9%	34
Establish study groups	19.0%	27
Establish learner reflection journals or blogs	16.2%	23
Schedule virtual office hours and meetings	14.1%	20
Offer face-to-face meet-up opportunities	7.0%	10

