

Instructor Experiences in Designing and Delivering Interactive MOOCs in Higher Education

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E-Learn, Vancouver, Oct 19th, 2017

2015

Instructional quality of Massive Open Online Courses (MOOCs).

Margaryan, Bianco, & Littlejohn, *Computers & Education*, 80, 77-83.
<http://www.sciencedirect.com/science/article/pii/S036013151400128X>

"As MOOCs proliferate, drawing in increasing numbers of faculty and learners worldwide, the issue of their instructional quality becomes increasingly pressing."
(p. 82)

October 2015

Predictors of Retention and Achievement in a Massive Open Online Course

Greene, Oswald, & Pomerantz, *American Educational Research Journal*, 52(5), 925-955.
<http://aer.sagepub.com/comments/doi/10.1177/0013164415584621>

"If MOOCs are to fulfill their promise as a way of providing all learners with opportunities to obtain education at a low cost, much more research is needed regarding how to engage these students and help them to be successful in these environments." (p. 952)

September 2016

MOOCs, Graduate Skills Gaps, and Employability: A Qualitative Systematic Review of the Literature

David Santandreu Calonge and Mariam Aman Shah, *IRRODL*, 17(5), 67-90.
<http://www.msof.org/online-ajp/irrod/articles/view/26752881>

"In 2013, research had already indicated that MOOCs offered unprecedented choice, customization and gave thousands of participants the possibility to have greater ownership and control over their learning experiences "rather than being constrained by centralized, instructor-controlled learning based on delivery of pre-fabricated curriculum (McLoughlin, 2013)." (p. 78.)

2015

Digging deeper into learners' experiences in MOOCs: Participation in social networks outside of MOOCs, notetaking and contexts surrounding content consumption
Veletsianos, Collier, & Schneider, *BJET*, 46(3), 570-587.
<http://online.sagepub.com/doi/10.1177/0304372715584621>

"To gain a deeper and more diverse understanding of the MOOC phenomenon, researchers need to use multiple research approaches (e.g., ethnography, phenomenology, discourse analysis) add content to them." (p. 583.)

Research Background

The Numbers: MOOCs in 2016 (Dec 25th, Class Central)



MOOCs in 2016. Analyzed by Class Central

Research Background

Cumulative Growth in Number of MOOCs (2011-2017)

Month	Number of MOOCs
October 2011	3
June 2012	34
December 2012	108
June 2013	446
December 2013	859
June 2014	1,524
December 2014	2,090
June 2015	2,940
December 2015	4,007
June 2016	5,397
December 2016	6,563
June 2017	7,465

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Research Background

Top 5 MOOC providers by number of registered users (2017)

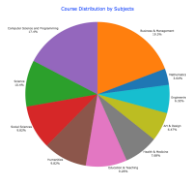
Rank	Provider	Registered users
1.	Coursera (U.S.)	27 million
2.	edX (U.S.)	11 million
3.	XuetangX (China)	7 million
4.	FutureLearn (Britain)	6.3 million
5.	Udacity (U.S.)	6 million

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August 17, 2017

By the Numbers: MOOCs in 2016
Class Central, Dhawal Shah

<https://www.class-central.com/report/mooc-stats-2016/>



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Providers

With 1700+ active courses, Coursera is still the largest MOOC provider even after discontinuing hundreds of courses.

edX is not far behind with 1300 courses, followed by FutureLearn with 480 courses.

After this there is Latin American MOOC provider Miriada X with 350 courses in Spanish followed by XuetangX with 300+ courses in Chinese.

August 7, 2017

FutureLearn and Coventry University to Roll Out 50 Online Degrees (Last year Deakin University announced a similar partnership with FutureLearn)
Class Central, Dhawal Shah

<https://www.class-central.com/report/futurelearn-coventry-university-roll-50-online-degrees/>

Degree	Provider	University	Cost
MS Computer Science	Udacity	Georgia Tech	\$6,600
MS Analytics	edX	Georgia Tech	\$10k
MBA	Coursera	University of Illinois	\$22k
MS CS Data Science	Coursera	University of Illinois	\$19.2k
MS Accounting	Coursera	University of Illinois	\$27.2k
Masters in Innovation and Entrepreneurship	Coursera	HEC Paris	\$20k
Cyber Security (Masters)	FutureLearn/Deakin University		\$24k
Development and Humanitarian Action (Masters)	FutureLearn/Deakin University		\$24k
Professional Practice: Information Technology (Masters)	FutureLearn/Deakin University		\$24k

June 15, 2017

Massive List of MOOC Providers Around The World, China and Korea
(Where to Find MOOCs: The Definitive Guide to MOOC Providers)
University of China MOOC / China Class Central, Dhawal Shah

<https://www.class-central.com/report/mooc-providers-around-the-world-china-and-korea/>



June 15, 2017**Massive List of MOOC Providers Around The World
IndonesiaX**

(Where to Find MOOCs: The Definitive Guide to MOOC Providers)

Class Central, Dhawal Shah<https://www.class-central.com/report/mooc-providers-list/>**August 7, 2017****FutureLearn and Coventry University to Roll Out 50 Online Degrees (Last year Deakin University announced a similar partnership with FutureLearn)
Class Central, Dhawal Shah**<https://www.class-central.com/report/class-central-coventry-university-rolls-out-50-online-degrees/>

Research Background

- MOOCs have grown during the past few years to over 7,000 courses (Shah, 2016, 2017)
- MOOCs can be beneficial to both learners and instructors (Hew & Cheung, 2014)
- Design and final delivery greatly influence students' interaction and engagement in online learning (Garrison & Cleveland-Innes, 2005).

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Research Background

- MOOCs have faced criticisms, including insufficient and low quality instructional design (Ferreira, 2014; Margaryan, Bianco, & Littlejohn, 2015) and low online interaction.
- Instructional design is critical for online learning (MOOC) (Johnson & Aragon, 2003; Phipps & Merisotis, 1999)

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Research Background

- Most research on MOOCs has mainly focused on enrollment, perspectives, behaviors, completion rates, and participation patterns in MOOC environments from a learner perspective (Breslow et al., 2013; Liyanagunawardena, Adams, & Williams, 2013)
- A scarcity of studies that focus specifically on MOOC design and delivery (Margaryan, Bianco, & Littlejohn, 2015); especially online interaction and engagement (Wang, Anderson, Chen, & Barbera, 2017)

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Research Background

A Systematic Review of Research Methods and Topics of the Empirical MOOC Literature (2014-2016)

Zhu, M., Sari, A., & Lee, M.

1. What are the research methods researchers employed in empirical MOOC studies?
2. What are the research topics or focuses in MOOC studies?
3. How are researchers of empirical MOOC studies geographically distributed?

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Research Background

(Zhu, M., Sari, A., & Lee, M. study)

No.	Journal	Total
1	International Review of Research in Open and Distance Learning (IRRODL)	31
2	Computers & Education	12
3	British Journal of Educational Technology	9
4	Online Learning	7
5	Distance Education	5
6	Educational Media International	5
7	Internet and Higher Education	5
8	Journal of Computer Assisted Learning	5
9	Computers in Human Behavior	4
10	Open Learning	4
11	Journal of Online Learning and Teaching	3
12	Journal of Asynchronous Learning Network	3

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Research Background

(Zhu, M., Sari, A., & Lee, M. study)

Location of MOOC Research Team Members (2014-2017)



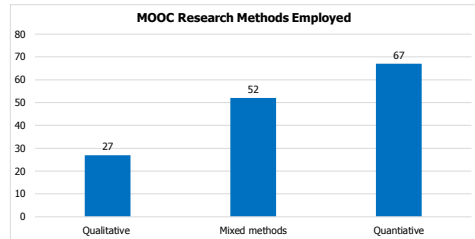
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Country of Origin of MOOC Delivery (2014-2017)



Research Background

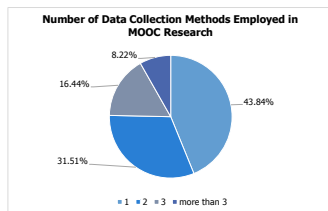
(Zhu, M., Sari, A., & Lee, M. study)



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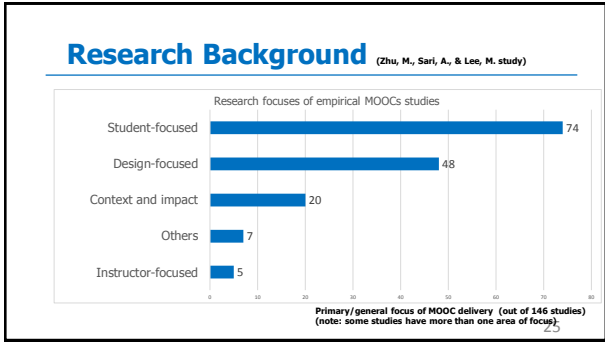
Results-RQ1-Data Collection Methods

• RQ1: What are the research methods researchers employed in empirical MOOC studies?



Primary Data Sources for MOOC Research (2014-2017)

MAIN SOURCE	TOTAL
SURVEY	43
INTERVIEW	24
QUIZ, TEST (GRADE)	17
DISCUSSION FORUM	11
CONTENT ANALYSIS	8
DATABASE	8

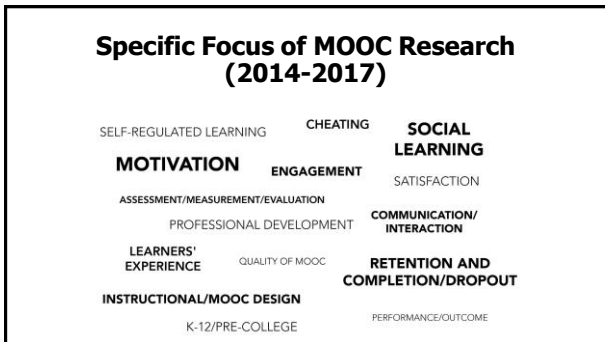
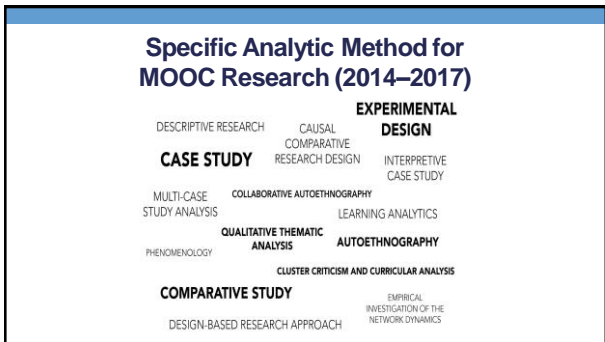
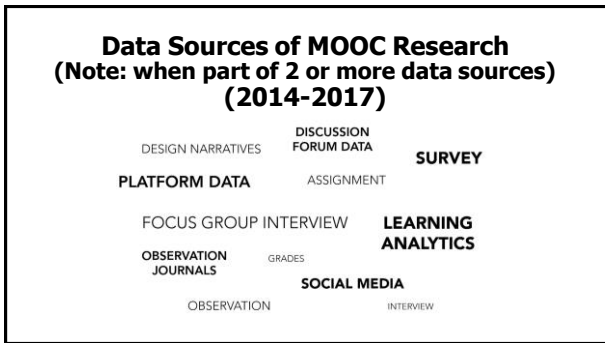
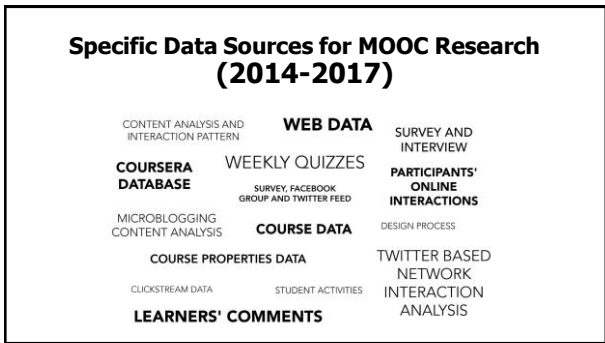


Research Background (Zhu, M., Sari, A., & Lee, M. study)

Research methods used in each research topic (out of 146 studies)

	Quantitative	Qualitative	Mixed methods
Student-focused	39	9	26
Design-focused	19	12	17
Context and impact	9	6	5
Instructor-focused	0	3	2

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Research Purpose & Questions

Help reveal common and successful instructional design and delivery practices in terms of online interaction within MOOCs.

Research Questions:

1. How do MOOC instructors design their courses to encourage interaction among learners?
2. How do MOOC instructors design their courses to encourage interaction between instructor and learners?
3. How do MOOC instructors design their courses to encourage learner-content interaction?

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Research Methods

- **Research Design:** sequential mixed methods design (Creswell & Clark, 2007)
- **Data Collection:** survey, interview, and course review
- **Participants:** 143 survey participants (10% response rate) and 12 interviewees

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Qualitative Research Methods

MOOC instructors interviewed

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	Public health	FutureLearn
6.	UK	Language and Literacy	FutureLearn
7.	Hong Kong	Math	Coursera
8.	Mainland China	Math	Coursera
9.	Canada	Psychology	Coursera
10.	Australia	Public Health	Open2Study
11.	Sweden	Computer Science	edX
12.	India	Management	edX

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Data Analysis

RQs	Data Sources	Data analysis
	Survey-multiple-choice questions	Descriptive statistics
RQs	Interview	Content analysis (Elo & Kyngäs, 2008)
	MOOC review	Content Analysis

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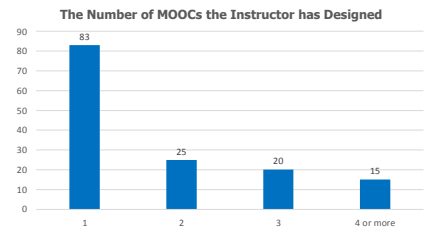
Analytical Framework

Moore's (1989) Three types of interactions

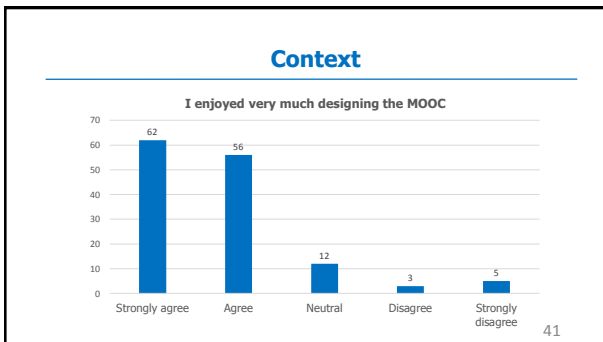
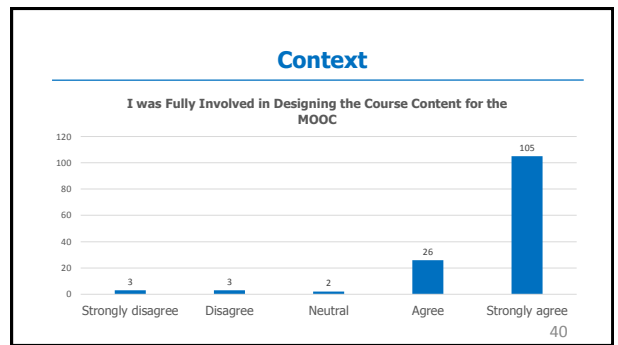
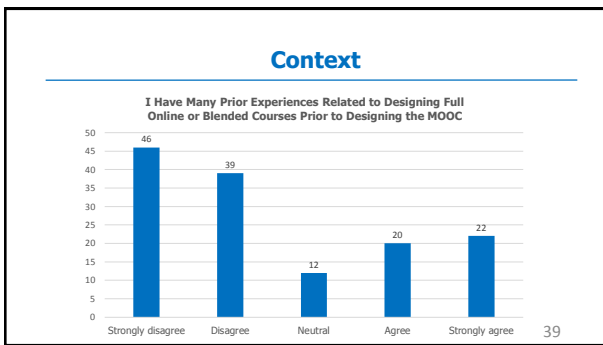
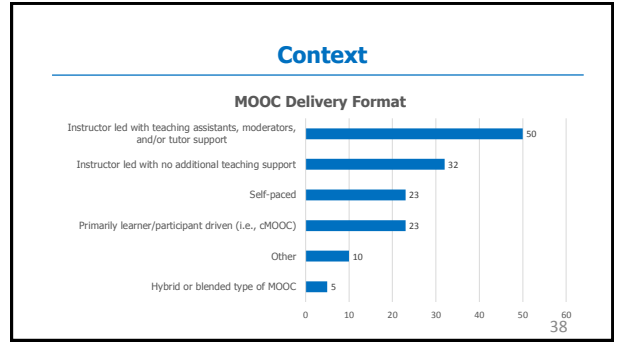
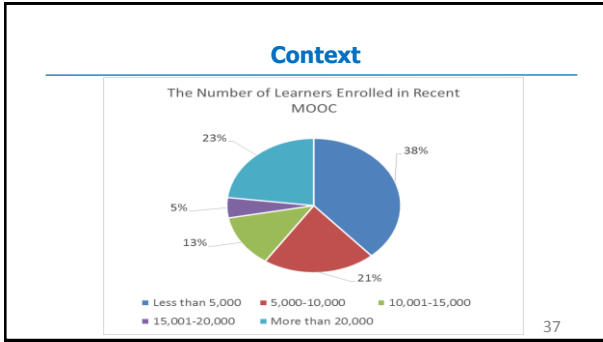
Interactions	Examples
Learner-learner	Peer-feedback
Learner-instructor	Instructors' facilitation
Learner-content	Learn from online resources

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Context



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Findings

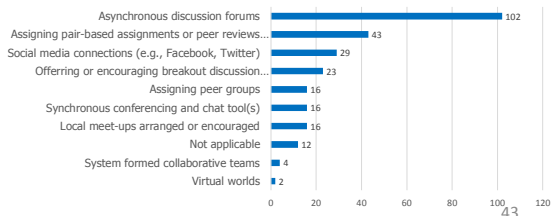
RQ #1. How do MOOC instructors design the course to encourage interaction among learners?

- **Asynchronous discussion forums**
- **Pair-based types of tasks**
- **Social media**

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Findings

Peer interaction encouraged in MOOC (out of 136)



Findings

• Asynchronous discussion forums

One instructor mentioned:

"And then there's also an **asynchronous discussion board** within each module. So there will be prompt...And then there were a **lot of discussions back and forth** with students about suggestions on things they could consider, or maybe there were stuck on something and so they would like help...Within discussion forum, there's a showcase and that is the opportunity to get feedback from peers."

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Findings

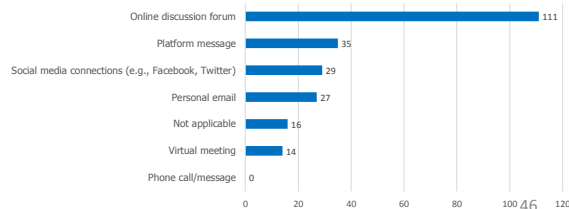
RQ #2. How do MOOC instructors design the course to encourage interaction between instructor and learners?

- Online discussion forums
- Platform messages
- Social media connections

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Findings

Instructor-learner interaction encouraged in your MOOC (out of 136)



Findings

• Online discussion forum

One instructor mentioned:

"We monitor discussion boards as well. That would not necessarily be like formal assessment. We're just wondering how students are engaging with material. So it's an **indicator** for us but **not a measurable one**"

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• Not much instructor-learner interaction

One instructor mentioned:

"Because **there's not much interaction**, even between me and students. When I first launched this MOOC, I paid closer attention. Maybe I replied to some students. Now I think Coursera somehow grabs some students to be mentors or something. **There are other people commenting. It seems like I do not have to do anything.** Every week, perhaps three hundred more students register. **Nobody bothers me.**"

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Findings

• **Not much instructor-learner interaction**

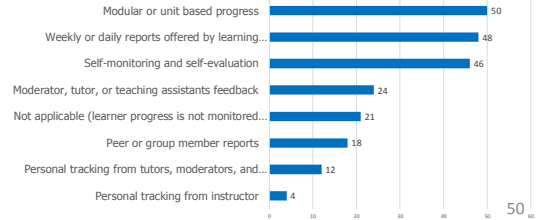
One instructor from the U.S. mentioned:

"In the classroom there's more of an interaction at least a reaction between like the instructor and the students, students and student, and you can't really simulate that in this kind of MOOC format."

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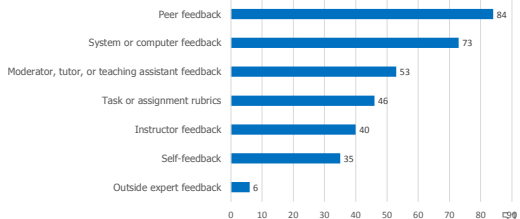
Findings

Ways to monitor learners' learning



Findings

Ways that learners get feedback



Findings

An instructor from the US mentioned

"Within discussion form, there's a showcase and that is the opportunity to get feedback from peers. And also we have facilitators, who are volunteers, who go in and offer feedback."

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Findings

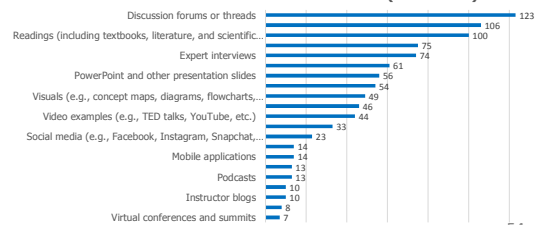
RQ #3. How do MOOC instructors design the course to encourage learner-content interaction?

- Discussion forum
- Embedded video lectures and tutorials
- Article or book readings

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Findings

Learner-Content Interaction in MOOCs (out of 136)



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Findings

One professor from the U.S. stated that:

"Besides **videos**, there was a **suggested book**."

Another instructor noted that she used visuals in her MOOC "I had a **whole lot of graphical material** that I used in class. And I had got them from one of the texts that were published in the area and had been allowed to use them, because I was recommended the textbook."

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Discussion

- Most MOOC instructors emphasized a variety of strategies to encourage learner-learner interaction by using asynchronous discussion forums, pair-based assignments or peer reviews, and social media to encourage peer interaction.
- Learner-instructor interaction were encouraged through online discussion forum, platform messages, and social media connections.
- Learner-content interaction: discussion forums or threads, video lectures and tutorials in the MOOC, readings, practice quizzes and exams were primarily used in MOOCs.

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Conclusions

- This study indicated that MOOC instructors are trying to encourage online interaction in MOOC; however, there is no universal understanding of strategies of encouraging online interaction and instructor-learner interaction is still not optimal.

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Future Directions

- Further observations and analyses are needed to better understand how MOOC instructor design and deliver their MOOCs to encourage online interaction and learner success.

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Limitations

- Limited to MOOCs which are mainly delivered in English
- Volunteer bias
- Only review 12 MOOC Courses

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Thank you!

Questions and Comments...

E-Learn, Vancouver, October 19th, 2017

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