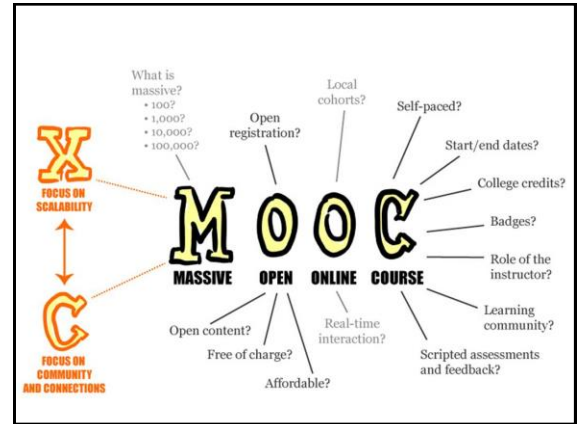**Analysis of Beyond Positive and Negative Emotions: Looking into the Role of Achievement Emotions in Discussion Forums of MOOCs**
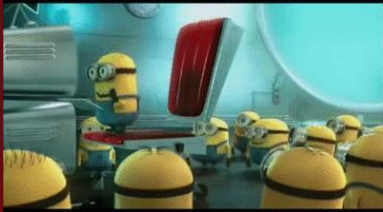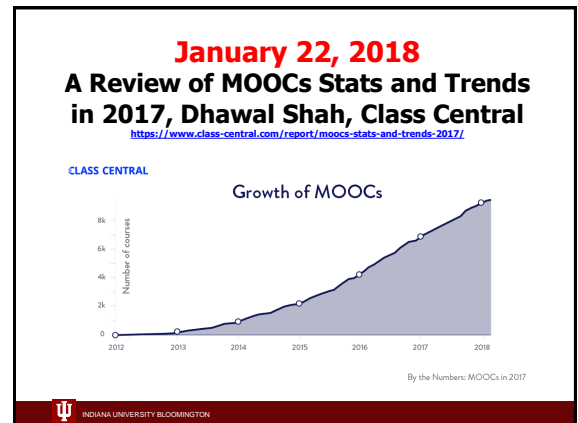**by Wanli Xing, Hengtao Tang, & Bo Pei**

Discussants:
Curtis J. Bonk
Meina Zhu
Indiana University

School of Education, IST   INDIANA UNIVERSITY BLOOMINGTON

Recent MOOC Data

January 22, 2018
A Review of MOOCs Stats and Trends in 2017, Dhawal Shah, Class Central
https://www.class-central.com/report/moocs-stats-and-trends-2017/

CLASS CENTRAL

Growth of MOOCs

By the Numbers: MOOCs in 2017

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December 25, 2016
A Review of MOOCs Stats and Trends in 2016, Dhawal Shah, Class Central
https://www.class-central.com/report/mooc-stats-2016/

58M Students   **700+** Universities   **6850** Courses

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January 22, 2018
A Review of MOOCs Stats and Trends in 2017, Dhawal Shah, Class Central
https://www.class-central.com/report/moocs-stats-and-trends-2017/
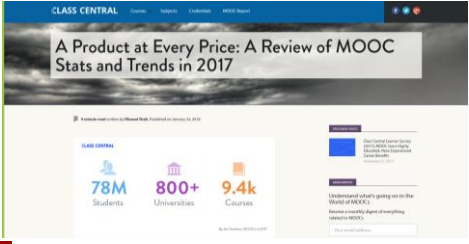

78M Students   **800+** Universities   **9.4k** Courses

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January 22, 2018
A Review of MOOCs Stats and Trends in 2017, Dhawal Shah, Class Central
https://www.class-central.com/report/moocs-stats-and-trends-2017/

Here is a list of the top five MOOC providers by registered users:

1. Coursera — 30 million users.
2. edX — 14 million users.
3. XuetangX — 9.3 million users.
4. FutureLearn — 7.1 million users.
5. Udacity — 5 million users.

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August 19, 2018
MOOC Course Distribution by Subject, 2011-18 Almanac 2018, Chronicle of Higher Education
https://www.chronicle.com/article/MOOC-Course-Distribution-by/244091?cid=cp216
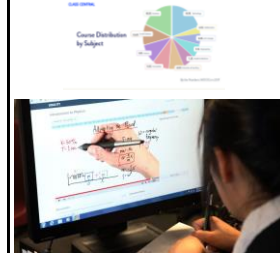
Rank	Subject	Percentage
1.	Technology	20.7%
2.	Business	15.6%
3.	Social sciences	10.0%
4.	Science	9.6%
5.	Humanities	9.4%
6.	Education and teaching	8.4%
7.	Health and medicine	7.2%
8.	Engineering	7.1%
9.	Art and design	5.3%
10.	Mathematics	3.2%
11.	Personal development	2.7%

Email inbox: June 10, 2018
edX
https://www.edx.org/course

Email inbox: June 10, 2018
edX
https://www.edx.org/course

June 10, 2018
edX
https://www.edx.org/course

Email inbox: June 11, 2018
Coursera
https://www.coursera.org/

June 14, 2018
Free MOOCs Face the Music
Lindsay McKenzie, Inside Higher Ed
https://www.insidehighered.com/news/2018/06/14/edx-introduces-support-fee-free-online-courses

May 21, 2018
The Second Wave of MOOC Hype Is Here, and It's Online Degrees
Dhawal Shah, Class Central
https://www.edsurge.com/news/2018-05-21-the-second-wave-of-mooc-hype-is-here-and-it-s-online-degrees
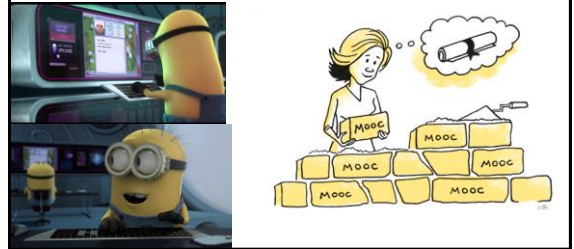
September 12, 2018
Coursera's CEO on the Evolving Meaning of 'MOOC'
Dian Schaffhauser, Campus Technology
https://campustechnology.com/articles/2018/09/12/courseras-ceo-on-the-evolving-meaning-of-mooc.aspx

Jeff Maggioncalda, Coursera CEO

Study Intro...

MOOC RESEARCH

Are you happy or frustrated when you take a MOOC?

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Analysis of: Beyond Positive and Negative Emotions:

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3

Article Premise: Learning is an emotional experience

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Who in here has emotions?

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Theoretical Framework

– **"The control-value theory of achievement emotions (Pekrun, 2006) provides an integrative framework to understand emotions in academic settings." (p. 6)**

– **"The theory categorizes achievement emotions into four groups, namely positive activating, positive deactivating, negative activating, and negative deactivating emotions." (p. 6)**

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April 24, 2018
Yes! Digital Learners are Emotional – Insights from the Irish 101 MOOC
Elaine Berne, Learning Bits, Bytes and Delights, The Ideas Lab, National Institute for Digital Learning, Dublin City University
https://nidl.blog/2018/04/24/yes-digital-learners-are-emotional-insights-from-the-irish-101-mooc/

Assumptions

p. 7. **"Achievement emotions hold the potential of reinforcing or undermining learning performance and commitment."**

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Assumptions

p. 14. **"In this study, we examined how achievement emotions at a time point influenced the subsequent tendency of a student to drop out of the MOOC. Compared with standard regression models, survival analysis can estimate the truncated nature of time series data in a less biased manner (Yang et al, 2011)."**

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Positive Aspects of this Study

General Comments

– Clear research purpose
– Appropriate research methods
– Results were well presented
– Great discussion by connecting this study to previous studies.
– Good alignment in the entire study

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General Comments

– Solid references in top tier journals
– Grounded in psychological literature
– Excellent overall flow to paper
– Important societal topic

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Unique Perspectives

– This work focused on exploring achievement emotions and their complex impact on student dropouts in MOOCs.
– Use machine learning to analyze MOOC discussion forum data.
– A survival modeling technique was used to quantify the effect of different achievement emotions on student attrition longitudinally.

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Issues and Concerns

Some Little Things…

1. Check for typos and grammar.
2. Make Figure 1a and Figure 1b separate figures and larger size.
3. Check APA in a few of the references.

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Clarify Sentence

"MOOCs can enable thousands of students to take courses at their convenience without cost." (p. 2)

-Perhaps add "without cost or low cost"
-Add citation of this sentence.

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Initial MOOC Enrollment?

p. 10-11
"2,084 active forums users who posted at least once in the course forum and 13,513 posts."

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What is meant by "Accurate"…How can you be sure it is accurate?

Abstract:
"Specifically, we first built an accurate machine learning model to automatically detect the achievement emotions in the forum posts. Then survival analysis was used to quantify the influence of achievement emotions on student dropout."

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Who is "Us"…

p. 3
"This suggests that there are students struggling to stay involved. Understanding the participation of struggling students as they struggle and ultimately quit the course can help us find potential ways to provide appropriate intervention and scaffolds to support them."

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Clarify Concepts

"Many studies explored the relationship between students' behavioral patterns and MOOC dropouts using the summative measure (e.g., Alraimi, Zo, & Ciganek, 2015). " (p. 5)
--Maybe the authors can define the meaning of "drop out" in this study.
--It would be great if you also provide some detailed examples about this study

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Clarify Concepts

"Nevertheless, these models are usually based on behavioral engagement patterns, and therefore, they have limitations in suggesting pedagogically sound intervention designs. " (p. 5)

-What is difference between what you mentioned above and the current study?

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Citation

"Positive activating emotions include enjoyment, hope, and pride. Learners with positive activating emotions are dedicated to the learning activities with positive appraisal of the activities and outcomes. " (p. 6)

-Is this from your definition or other papers? If the latter, you might want to cite the paper.

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Clarify Concepts

"For example, Daniels et al. (2009) insisted positive activating emotions (e.g., hope, enjoyment) were indicators of positive valence and agency of the goals and are thus negatively related to dropout rates" (p. 7)

-You may want to clarify whether this is in face to face course or online course.

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Clarify Concepts

"Exposed Emotion (four variables): It was calculated by the total number of posts in the threads initiated by the student falling into certain achievement emotions divided by the number of weeks the student initiated a discussion. " (p. 7)

-We could not quite understand this one. You may give some examples

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Confusing Terms
(Perhaps create a term table...)

p. 6-7
1. **Positive activating emotions (e.g., hope, joy, pride)**
2. **Positive deactivating emotions (e.g., relaxation, relief)**
3. **Negative activating emotions (e.g., anger, shame, anxiety)**
4. **Negative deactivating emotions (e.g., boredom, hopelessness)**

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Confusing and Complex
(do you have an example?)

p. 8
"The emotional contagion transfers the affective signals to peers in a shared social setting, and these transferred signals do not only influence the emotional states of peers, but also their cognition, attitudes, and behaviors, as well as the dynamics of the social setting (Barsade, 2002)."

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Confusing and Complex
(can we catch a cold cold?)

p. 8
"In addition, Hancock et al. (2008) reported that emotional contagion also takes place in text-based computer-mediated communication. That is, achievement emotions emerging from the texts in the forums are also contagious to peers. Furthermore, Barsade (2002) hypothesized that the mechanism for emotional contagion differs by the valence (i.e., positive or negative) of emotions."

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Confusing and Complex (restate in English…)

p. 15
Dependent Variable

"Dropout: A student was considered a dropout from the MOOC forum if the student had no activities in the discussion forum. Therefore, student dropout was a binary variable, a true variable if a student has forum activity in the last week, and a false variable otherwise."

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Confusing and Complex (restate perhaps with an example)

p. 18
"Since all the variables were standardized in this study, the hazard rate predicted the change of the probability of whether a student left MOOC forums when there was a unit increase in the number of these eight independent variables. Table 5 and Figure 2 show the survival analysis results."

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Confusing and Complex (give examples)

p. 18
"Specifically, students expressed positive deactivating emotions one standard deviation more than the average were 50.8% (100% * (1.508 - 1)) more likely to quit the course. **The dropout probability for students expressing negative activating emotions was even higher (75.9%) than those who expressed deactivating emotions.** Students' expressed positive activating emotions and negative deactivating emotions had no influence on students' survival time in the course."

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Confusing and Complex (ok…so what does this mean? Can a MOOC instructor interpret this?)

p. 20
"…third, only the exposure to deactivating emotions is positively related to learner survival; especially, the exposure to positive deactivating emotions is the largest positive contributor to learner survival;…"

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Confusing and Complex (and…so what does this mean?)

p. 21
"…; fourth, surprisingly, neither the students' expressed nor exposed positive activation has any effect on student survival in the course."

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Confusing and Complex (If two negatives makes a positive, what do three negatives make?)

p. 21
"In addition, students expressed **negative** activating emotions and also the exposures to these emotions are **negatively** related to learner retention, but the exposures to **negative** activating emotions have the larger influences on the dropout. Our take-away message from this finding adds to the discussion about the power of different types of emotions during the course of emotional contagions."

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Confusing and Complex (Say what?)

p. 21
"The influence of exposures to negative activating emotions is larger than the exposures to any of these two deactivating emotions. So, activation/arousal might be another sector for researchers to determine the power of different types of emotions in contagions."

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Limitations and Future Directions

Limitations…

"This study just focuses on students who have posted on the forum. Therefore, it might overlook the students who are lurkers, just reading and continuously participating in the MOOC forums." (p. 24)

-It is great that the authors pointed out this limitation as most of the learners might watch all the videos without participating any discussion.

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Future Research Might Explore…

1. "Future studies can conduct **interviews and surveys** with students to examine why they stay or leave the course." (P24)
2. "Investigate emotions in **multiple MOOCs** with diverse subjects to determine the generalizability of the findings." (P24)
3. **Combine** both discussion **forum data** and **student log data** to predict student drop out rate.

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Future Research Might Explore…

1. Future studies might **compare content areas** or disciplines.
2. Future studies might explore **MOOCs of different lengths** for indicators of positive and negative emotions.
3. Future studies might ask students to **retrospectively analyze** their own data.

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Thanks A Minion! THANK YOU!

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Meina Zhu, IU, meinzhu@iu.edu

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FULFILLING *the* PROMISE

9