

MyCOS Intelligent Teaching Assistant

Jiao Guo
MyCOS

Wanliuyichen Center A-18
Beijing China 100083
(+86)1058819001-352

amanda.guo@mycos.com

Xinhua Huang
MyCOS

Wanliuyichen Center A-18
Beijing China 100083
(+86)1058819001-352

xinhua.huang@mycos.com

Boqing Wang
MyCOS

Wanliuyichen Center A-18
Beijing China 100083
(+86)1058819001-169

boqing.wang@mycos.com

ABSTRACT

In this preliminary study, we introduce MyCOS Intelligent Teaching Assistant (MITA). It is an open learning platform tailored for a specific challenge of Chinese universities, i.e., undergraduates report less student-faculty interaction than those in the U.S.. Compared with existing classroom tools like Socrative, MITA leverages the app-within-an-app model of WeChat (the largest social app in China) instead of a stand-alone app. Which model is the future is debatable. MITA also uses prompt feedback to engage learners and dashboards to inform teachers and administrators. It now serves more than 3,200 teachers and near 110,000 students from 600+ Chinese universities. What the data from the platform reveal about learning deserves further study.

Keyword

Open learning platform, student engagement

1. INTRODUCTION

Researchers found that the gap in student-faculty interaction (SFI) between Chinese universities and their American peers. Based on a comparative study of 2009 National Survey of Student Engagement (NSSE) results, 27% Tsinghua (a Chinese research university) undergraduates had never received prompt feedback from faculty on academic performance while the average in the American research universities was 7% [1].

MyCOS Intelligent Teaching Assistant (MITA) is an open learning platform tailored to the context of Chinese universities. Different from existing tools such as Socrative, MITA enables teachers to interact with students through the app-within-an-app model of WeChat (the most popular social app in China). Whether this model is better than a stand-alone app to engage college students is debatable. It would be interesting to explore similar learning tools that leverage Facebook or other social apps in different countries and then compare.

Inspired by the 2011 proposal of open learning analytics [2], MITA tracks learner behaviors and provides prompt feedbacks. It has data dashboards for teachers (see Figure 1) and administrators to monitor learning process and take informed actions. Since launched in September 2016, MITA has been used by more than 3,200 teachers and near 110,000 students in 600+ Chinese universities. It is a real case of collaboration across research, industry and education sectors. The fast development and nationwide deployment of MITA can produce data useful for further study.

The rest of the poster sections is organized as follows. In section 2 we describe the data sample; in section 3 we report the learning

behavior patterns the data reveal; in section 4, we discuss the need for further analysis.

2. DATA SAMPLE

The sample used in this preliminary study was selected from MITA clickstream data between 2016/09/10 and 2017/02/06. During the time period, 1,599 teachers and 45,383 students registered. Among them, 766 teachers and 32,305 students have verified their institute information and interacted through MITA at least once. They are defined as active teachers and active students in this study.

To assess student engagement, we focus on the related learning patterns the MITA data reveal. Specifically, the patterns discussed below (in section 3) are student attendance, quiz participation and questions answered.

The sample covers 278 Chinese universities, including 199 four-year universities (71.6%) and 99 three-year vocational colleges.

3. BEHAVIOR PATTERNS

3.1 Student Attendance

Existing studies on student attendance were limited within an institution, e.g., a 2015 research on 2,141 classes of a four-year Chinese university found the average attendance rate of 89% [3]. The student attendance pattern based on the MITA sample extends to nationwide and the numbers fall within a reasonable range. The average attendance rate is higher in three-year vocational colleges (92.8%) than that of four-year universities (89.2%).

Daily attendance behaviors demonstrate a similar pattern: the attendance rate of three-year vocational colleges is higher than that of four-year universities every weekday except Friday. The lowest daily attendance rate for three-year colleges is on Friday (88.9%) while for four-year universities is on Monday (87.9%). Hourly attendance behaviors show a common challenge for both categories of universities: classes scheduled in the evening (6-9 pm) have the lowest attendance rates (85% for three-year vocational colleges and 83.9% for four-year universities).

3.2 Quiz Participation

Quiz participation is one of indicators used by researchers to monitor online learning behaviors [4]. MITA enables us to conduct the similar learning analysis in a real classroom. When students take a quiz in class by MITA, they can view the progress in realtime and get the feedback immediately after submission. With the fine-grained data, the teacher can check who participate, who get the answer wrong and which part of the course content is most challenging.

Based on the MITA sample, the quiz participation rate on average is 84.5% for 3-year vocational colleges and 81.7% for 4-year universities. Both are higher than the quiz participation rate in MOOCs. A 2014 study found that 40%~70% learners completed zero quiz in two live-MOOCs (i.e. in-session, instructor-led course with possibility of obtaining a statement of achievement) [5].

3.3 Questions Answered

Asking questions is one of teaching strategies used in college classroom. In a 2013 study, a researcher observed 30 English classes in a four-year Chinese university for two months. She also surveyed 25 teachers and 237 students to analyze the behaviors of asking and answering questions in class [6]. Data collection becomes more efficient with MITA. Based on the MITA sample data, nearly half teachers in three-year vocational colleges (51.7%) use MITA to ask questions in every class session. The proportion is lower in four-year universities (41.6%).

The proportion of answering questions, however, is quite low for students. The MITA data show that 96.7% students in three-year vocational colleges and 98% in four-year universities never answered a question in class. The result looks plausible given the large class size in the sample: 36.8% classes in three-year vocational colleges and 47.2% classes in four-year universities are larger than 50 students. It indicates that some alternative strategy (e.g., an open question in a quiz) can engage more students.

4. DISCUSSION

The focus of this preliminary study is to enhance student-faculty interaction in a real classroom. Besides, MITA has the data on learning behaviors before class (e.g. viewing the course PPT) and after class (e.g. submitting an assignment) for further exploration.

Further study is using EDM & LA (e.g. user behavior modeling) to explore the MITA data in terms of student motivation, performance and satisfaction. More clickstream data (e.g., the number of attempts students try with a quiz) can be collected and analyzed. Different learning patterns can be compared across not only institutional type (four-year universities vs. three-year vocational colleges) but also class size (small, medium and large) or course type (required courses vs. elective courses). The comparison can provide actionable information for teachers and administrators.

Based on the 2015 IMPACT report from Purdue University, nearly half faculty (48%) chose the ICT-supplemental learning model to redesign their courses, 46% chose the hybrid or flipped model and only 6% chose online-only [7]. It indicates the possibility of developing and deploying MITA or similar learning tools for a real classroom in different countries. Experiments of Facebook in classroom has been explored in the U.S. [8], Canada [9], and Singapore [10], but more third-party applications like MITA are needed to extend the capability of Facebook as a learning tool and more debate on whether we should ban or embrace using such a tool is ongoing.



Figure 1. Teacher Dashboard of MyCOS Intelligent Teaching Assistant (MITA).

5. REFERENCES

- [1] Ross, H., Cen, Y. and Zhou, Z. 2011. Assessing Student Engagement in China: Responding to Local and Global Discourse on Raising Educational Quality. *Current Issues in Comparative Education*, Vol. 14(1): 24-37
- [2] Siemens, G., D. Gasevic, C. Haythornthwaite, S. Dawson, S. B. Shum, R. Ferguson, E. Duval, K. Verbert, and R. S. J. d. Baker. 2011. *Open Learning Analytics: An Integrated & Modularized Platform*. SoLAR. DOI=<http://www.elearnspace.org/blog/wp-content/uploads/2016/02/ProposalLearningAnalyticsModelSoLAR.pdf>
- [3] Yao, L.M., Zhu, L.M. and Hu, J.L. 2015. Survey and Analysis on College Student Attendance. *Jiangsu Higher Education*, Vol.15(3):67-70
- [4] Wang, Y. 2014. *MOOC Learner Motivation and Learning Pattern Discovery: A Research Prospectus Paper*. In the Proceedings of the 7th International Conference of Education Data Mining, DOI=http://educationaldatamining.org/EDM2014/uploads/procs2014/YRT/452_EDM-2014-Full-Proceedings.pdf
- [5] Campbell, J., Gibbs, A., Najafi, H. and Severinski, C. 2014, A Comparison of Learner Intent and Behavior in Live and Archived MOOCs, *The International Review of Research in Open and Distributed Learning*, Vol.15(5) DOI=<http://www.irrodl.org/index.php/irrodl/article/view/1854/3097> [6] Tian, J. 2013. *A Study on the Pattern of Asking Questions in College English Classes*. Shanxi Finance & Economics University. DOI=<http://cdmd.cnki.com.cn/Article/CDMD-10125-1013203176.htm>
- [7] Purdue University. 2015. *Instruction Matters: Purdue Academic Course Transformation (IMPACT) Annual Report*. DOI=[https://www.purdue.edu/impact/assets/documents/IMPACT%20annual%20report%202015\(I\).pdf](https://www.purdue.edu/impact/assets/documents/IMPACT%20annual%20report%202015(I).pdf)
- [8] Walsh, K. 2011. *Facebook in Classroom, Seriously*. EmergingEdTech. DOI=<http://www.emergingedtech.com/2011/03/facebook-in-the-classroom-seriously/>
- [9] Malhotro, N. 2013. *Experimenting with Facebook in College Classroom*. Faculty Focus. DOI=<https://www.facultyfocus.com/articles/teaching-with-technology/articles/experimenting-with-facebook-in-the-college-classroom/>
- [10] Wang, Q., Woo, H. L., Quek, C. L., Yang, Y. and Liu, M. 2012. Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, Vol. 43(3):428-438