

RAM Caliper Use Cases

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Vince Kellen, University of Kentucky

Student Profile

The student profile includes several hundred data elements on students currently and continues to expand and evolve. Real-time personalized messaging utilizes cluster analysis from the student profiles following in-house and external research on how to improve student learning and student success. For the purposes of real-time personalized messaging the portions of the student profile that are currently most pertinent include:

- 1) High school GPA
- 2) ACT/SAT scores and subcomponent scores
- 3) Level of unmet financial need
- 4) University GPA
- 5) Ethnicity
- 6) First generation
- 7) University placement test scores
- 8) Psycho-social survey responses (non-cognitive factors, planning skills, effort regulation, grit, conscientiousness)
- 9) Class attendance
- 10) Learning system click stream data (recency, frequency, time, value metrics)
- 11) Video player click stream data
- 12) Prior micro-survey responses

Cluster analysis reveals different segments for treating students. Segments examples include, but are not limited to:

- a) High readiness, high planning, high class engagement
- b) High readiness, low planning skills
- c) High readiness, low class engagement
- d) Low readiness, high planning
- e) Low readiness, high engagement
- f) First generation, lower readiness
- g) High stress students
- h) High financial unmet need, low class engagement
- i) Highest levels of class engagement

Messaging Vehicles

We have the ability to send messages to students, instructors and advisors several different ways. These include:

- Push notifications to the cell phone (via mobile app) and/or SMS
- Microsurvey questions to the cell phone (via mobile app)
- Mobile feed message (the mobile app 'inbox')
- Learning system student home page (or class page)
- E-mail
- Alert entered in the academic alert system, which triggers university advisors to follow up
- Advising hub (IPAS system)

Personalization

Personalized messages are messages that are tailored for a specific student segment, or individually (1:1 personalization) based on data within the student profile. Instructional designers and faculty can develop the messages and identify the triggers for sending the messages. Triggers are based on events in the various systems which include key learning system clickstream events (e.g., posting a discussion item, instructor posting a grade) or key administrative system events (e.g., new financial aid data posted, student changing their major) or key mobile app events (students checking-in for class attendance, reviewing feed items, etc.).

Use Cases

#1 - Identify students having difficulty very early

Description: Send students messages immediately upon determination of low and failing grades in early assignments. Personalizing the message text and provide additional recommended content based on the student segment and on specific faculty needs.

Trigger: Immediately based on determination of first assignment grade

Messages: Log entry in the advising hub, message in the instructor mobile feed, message in the student mobile feed, message in the learning system student home page

#2 - Class attendance reminder

Description: Send students messages immediately after electronic class attendance (via iBeacon/card swipe UK Tagger mobile application). Personalizing the message text and provide additional recommended content based on the student segment and on specific faculty needs.

Trigger: Immediately after class attendance is taken at the start of class

Messages: Push notification to the student mobile phone, log entry in the advising hub, message in the instructor mobile feed, message in the student mobile feed

#3 - Immediate help with difficult topics/concepts

Description: Send students, instructors and peer tutors a message for those students who are struggling in a specific topic or concept in a class. Topic areas are established initially through *a priori* classification of discussion threads and assessment questions. Personalize the message to the student.

Trigger: Upon detection of difficulty (based on significant video replay, low assessment scores in discrete topic/concepts and trigger phrases in discussion posts)

Messages: Student mobile microsurvey (Would you like to talk with a peer tutor?), optional push notification to the student mobile phone, message in the instructor mobile feed

#4 - Encourage increased class engagement

Description: For those students who are engaged significantly less than their peers in the class, send a personalized message from the instructor with content and recommendations

Trigger: Upon detection of low engagement at different points within the first two weeks of class. Low engagement is determined by recency and frequency of clickstream, discussion/message/question length

Messages: Send a personalized message in learning system student home page, message in student mobile feed, message in instructor mobile feed, log entry in advising hub, optionally enter an alert in the student academic alert system

#5 - Recognize high student interest in a class topic/concept

Description: Detect and respond to students exhibiting a high level of engagement with specific class topics/concepts with a personalized message from the instructor that recognizes the student interest and

provides additional links and content

Trigger: Immediately upon detection of a student moving into a high engagement category with defined class topics/concepts. High engagement is determined by the recency and frequency of discussion/message posts, video clickstream related to a topic/concept, relative to other concepts (e.g., find topics/concepts with significantly higher levels of engagement relative to other topics/concepts)

Messages: Send a personalized message in the learning system student home page, message in student mobile feed, message in instructor mobile feed, log entry in advising hub, optionally enter an alert in the student academic alert system

#6 - Improve student planning skills

Description: Send a personalized message to students with low planning skills from the instructor with content and links to resources for improving planning skills.

Trigger: Immediately upon detection of students moving into a low planning skill category. Planning skill is determined by psycho-social survey responses and late/last minute assignment responses, late/last minute discussion posts, lower levels of class attendance, late class attendance

Messages: Send a personalized message in the learning system student home page, message in student mobile feed, message in instructor mobile feed, log entry in advising hub, optionally enter an alert in the student academic alert system

#7 - Online class preparation

Description: Send a personalized message to students who enroll in online classes with content and links to resources for students to self-assess their readiness for online classes and learn what skills they will need to perform well

Trigger: Immediately upon registering for an online class

Messages: Send a personalized message in the learning system student home page, message in student mobile feed, log entry in advising hub

#8 - Abrupt class disengagement behavior

Description: Send a personalized message to students who exhibit sudden class disengagement behavior.

Trigger: Immediately upon detecting sudden class disengagement. Disengagement is determined by the recency, frequency and value (depth) of class clickstream and class attendance data

Messages: Send a personalized message in the learning system student home page, message in student mobile feed, log entry in advising hub, message to the instructor mobile feed, optional push notification to the student mobile phone, enter an alert in the student academic alert system

#9 - Negative affect/sentiment

Description: Send a message to students who exhibit excessive negative affect or sentiment

Trigger: Upon detection of significantly negative affect or sentiment relative to the student's peers. Negative affect or sentiment is determined by text mining algorithms (TBD) based on discussion posts, messages and responses created by students

Messages: Personalized message in student mobile feed, message to the instructor mobile feed