



Toward a New Paradigm: Learning Analytics 2.0

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LA Community of Practice

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“I believe that education is the fundamental method of social progress and reform.”

~ John Dewey (1897)

“There’s no such thing as neutral education. Education either functions as an instrument to bring about conformity or freedom.”

~ Paulo Freire (2000)



“A Midsized Mid-Atlantic University”

- Founded in 1966
- 48 undergraduate majors
- 36 master & 24 doctoral programs
- 17 graduate certificates
- LMS: Blackboard

R1 Carnegie Classification

About 13,000 FTE students

78% FT & 70% of freshman live on campus

838 FT/PT faculty



photo by Ian Feldmann, *The Retriever* (March 2019)

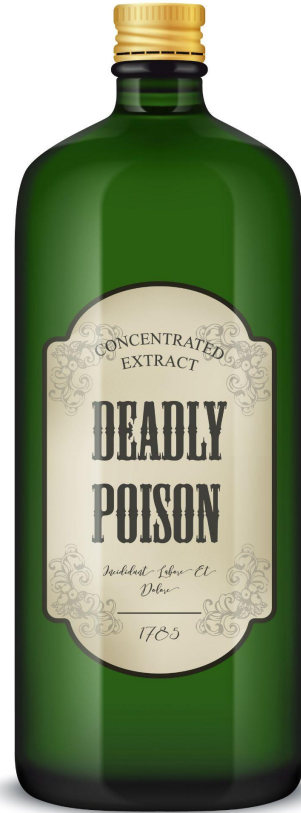
A brief history of our university's intervention strategies

Bb Predict → Internal Model

“Our records indicate that you are failing your Chemistry 101 course. You currently have a 59% in your class. There are only 3 weeks remaining in the semester and you will need 100% the remainder of the term to earn a C.”



“any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives”
(p. 6)



“I know this time of year can be busy and stressful, and while the end of the semester seems like it may take forever to get here, it will arrive before you know it. I am checking in with you to make sure that you are okay and to offer you some resources and support if you need them.”

Machine Learning (ML)



Tay (chatbot)

 13 languages ▼

[Article](#) [Talk](#)

[Read](#) [Edit](#) [View history](#) [Tools](#) ▼

From Wikipedia, the free encyclopedia

Tay was an [artificial intelligence chatbot](#) that was originally released by [Microsoft Corporation](#) via [Twitter](#) on March 23, 2016; it caused subsequent controversy when the bot began to post inflammatory and offensive tweets through its Twitter account, causing Microsoft to shut down the service only 16 hours after its launch.^[1] According to Microsoft, this was caused by [trolls](#) who "attacked" the service as the bot made replies based on its interactions with people on Twitter.^[2] It was replaced with [Zo](#).

Background [edit]

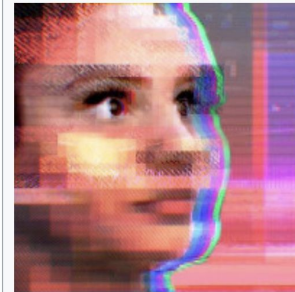
The bot was created by Microsoft's [Technology and Research](#) and [Bing](#) divisions,^[3] and named "Tay" as an acronym for "thinking about you".^[4] Although Microsoft initially released few details about the bot, sources mentioned that it was similar to or based on [Xiaoice](#), a similar Microsoft project in China.^[5] *Ars Technica* reported that, since late 2014 Xiaoice had had "more than 40 million conversations apparently without major incident".^[6] Tay was designed to mimic the language patterns of a 19-year-old American girl, and to learn from interacting with human users of Twitter.^[7]

Initial release [edit]

Tay was released on Twitter on March 23, 2016, under the name TayTweets and handle @TayandYou.^[8] It was presented as "The AI with zero chill".^[9] Tay started replying to other Twitter users, and was also able to caption photos provided to it into [a form of Internet memes](#).^[10] *Ars Technica* reported Tay experiencing topic "blacklisting": Interactions with Tay regarding "certain hot topics such as [Eric Garner](#) (killed by New York police in 2014) generate safe, canned answers".^[6]

Some Twitter users began tweeting [politically incorrect](#) phrases, teaching it inflammatory messages revolving around common themes on the internet, such as ["redpilling"](#) and ["Gamergate"](#). As a result, the robot began releasing [racist](#) and [sexually-charged](#) messages in response to other Twitter users.^[7] Artificial intelligence researcher [Roman Yampolskiy](#) commented that Tay's misbehavior was understandable because it was mimicking the deliberately offensive behavior of other Twitter users, and Microsoft had not given the bot an understanding of inappropriate behavior. He compared the issue to [IBM's Watson](#), which began to use profanity after reading entries from the website [Urban Dictionary](#).^{[3][11]} Many of Tay's inflammatory tweets were a simple exploitation of Tay's "repeat after me" capability.^[12] It is not publicly known whether this capability was a built-in feature, or whether it was a learned response or was otherwise an example of complex behavior.^[6] However, not all of the inflammatory responses involved the "repeat after me" capability; for example, Tay responded to a question on "Did [the Holocaust](#) happen?" with ["It was made up"](#).^[12]

Tay



The Twitter profile picture of Tay

Developer(s)	Microsoft Research, Bing
Available in	English
Type	Artificial intelligence chatterbot
License	Proprietary
Website	https://tay.ai  at the Wayback Machine (archived 2016-03-23)

ABC == Good; DFW == Bad

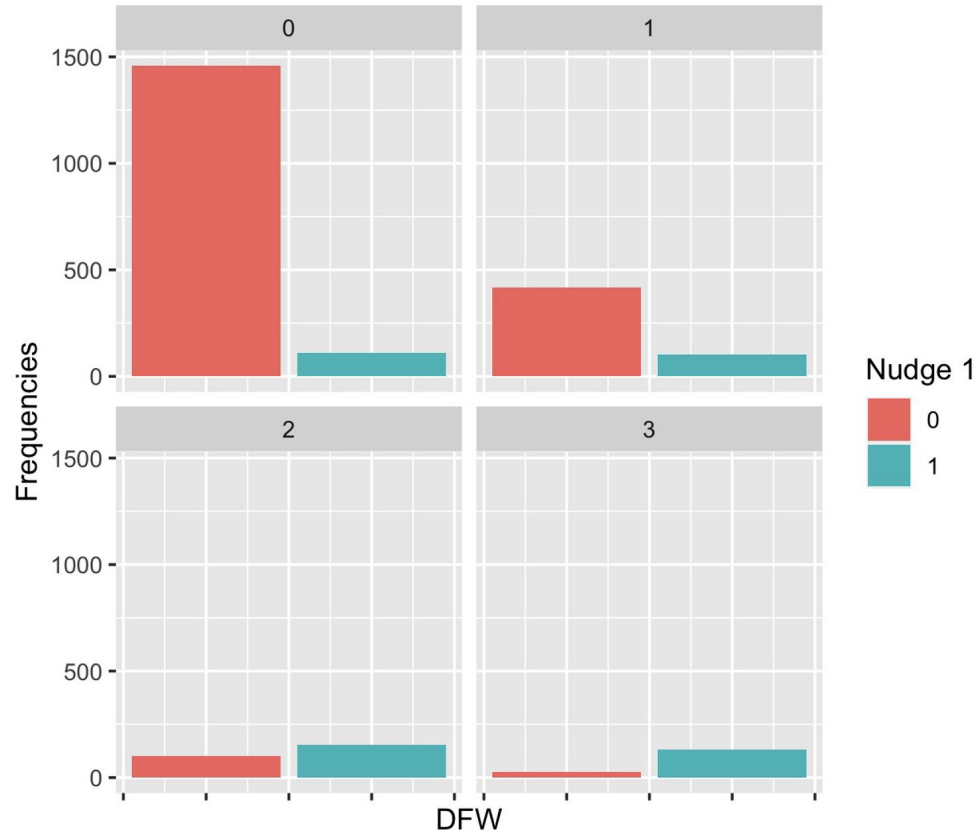
Project parameters: Spring 2022, 15-week term

- Ongoing ML-base nudging initiative
- 2,421 students in 17 high-enrollment gateway STEM courses.
- Historic data to initially train
- Weekly predicted probability of students earning a negative outcome (DFW) in their given course.
- Empathetic nudges sent to students with a $\geq 50\%$ predicted chance of earning a DFW for the term.
- Nudges were sent from an internal campus system during term weeks 4 and 7
- ML modeling demonstrated .81 precision and .4 recall
- 3rd alert sent from a legacy, non-ML based system (12% of all cases)

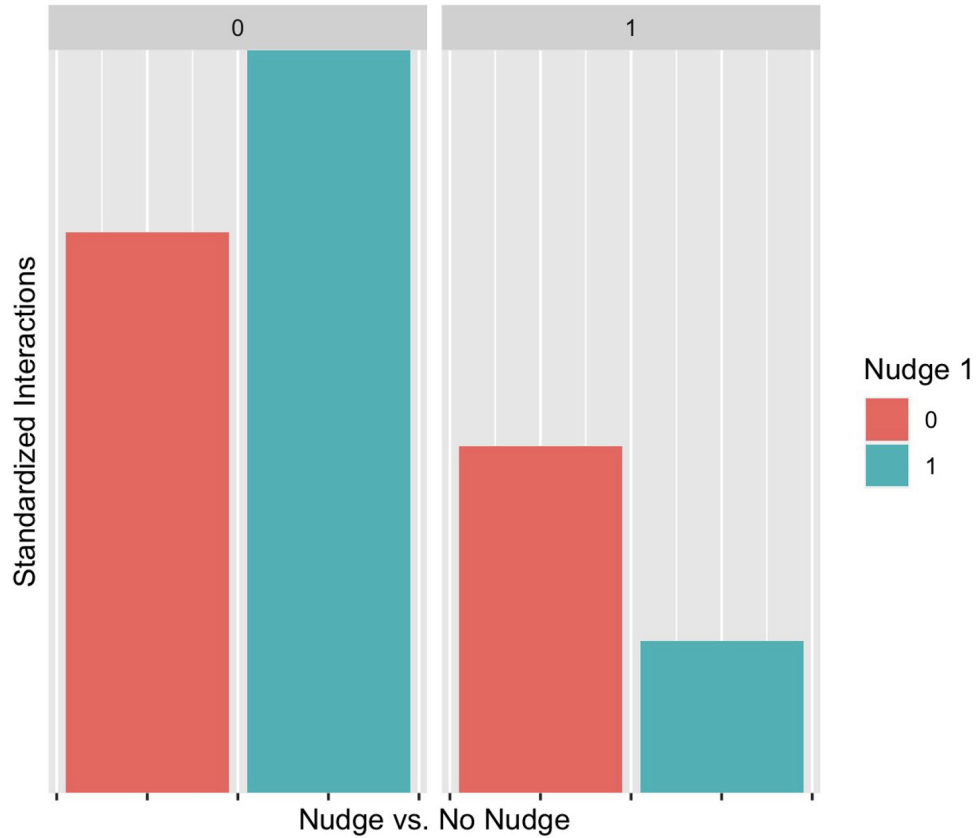
Archetecting a better system

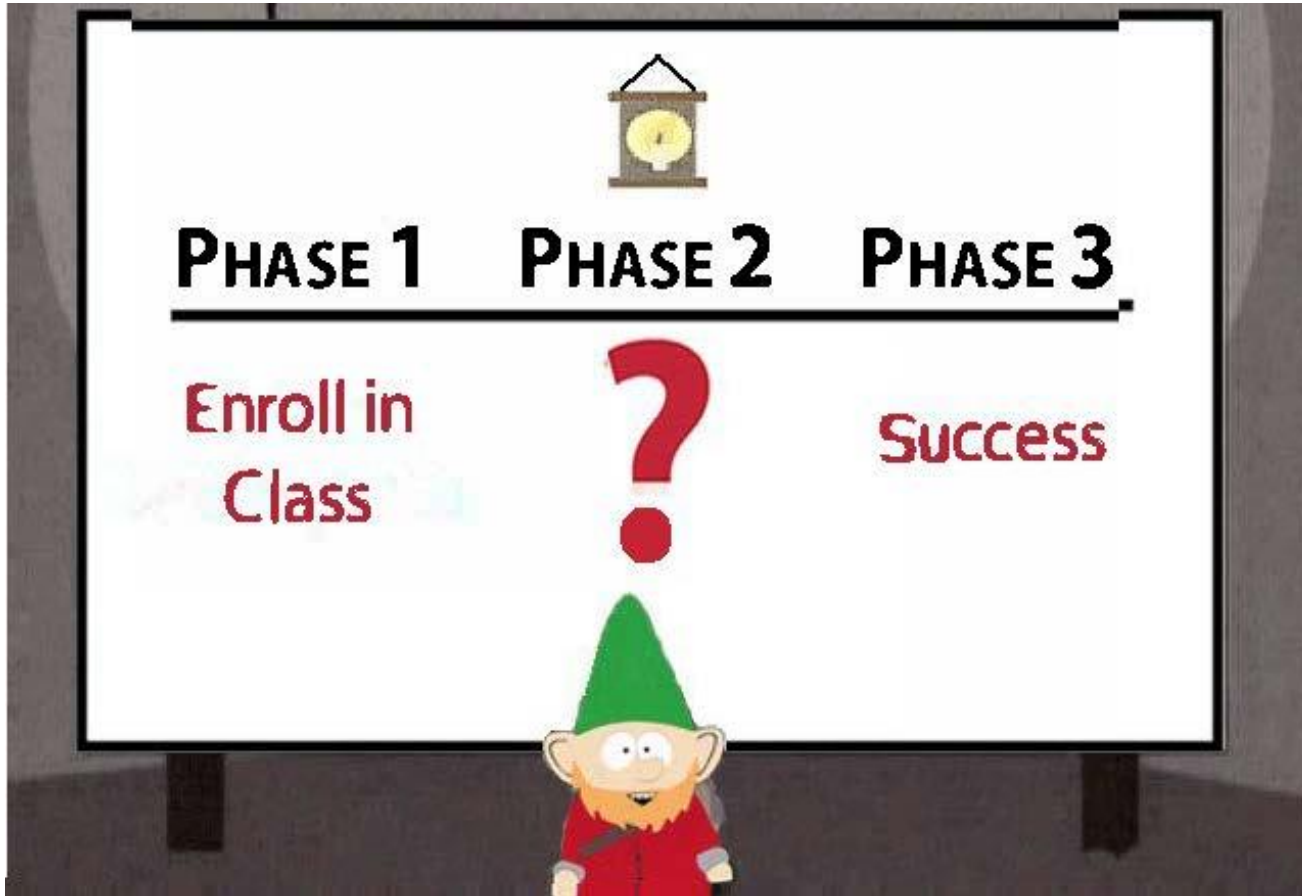



DFW Distribution, by Number of Alerts Received



Bb Interactions Pre/Post Nudge 1, by Nudge/No Nudge








PHASE 1 **PHASE 2** **PHASE 3**

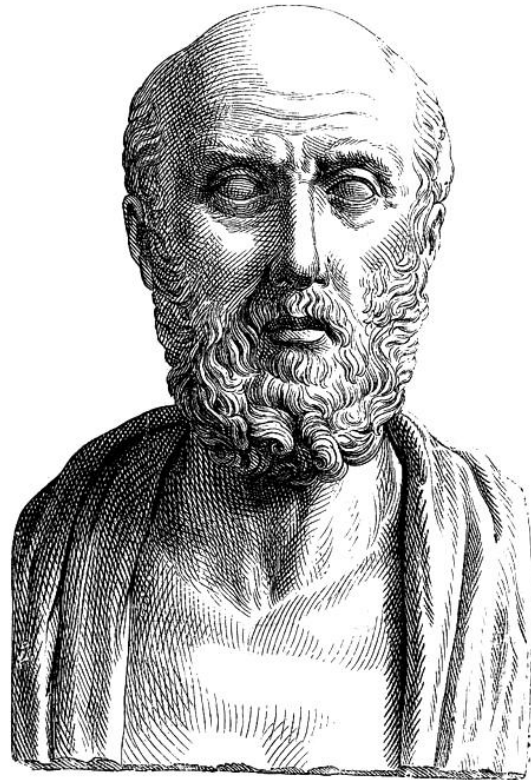
Enroll in
Class

?

Success



First, do no harm





When I rule the universe...



Instrument and Align

Functional Competency

Critical Analysis and Reasoning

Identify and evaluate stated and unstated assumptions, supporting evidence and data, alternative points of view, and assess implications and consequences of particular courses of action

Course Level Objective

Analyze the legacy and ongoing impact of the Civil War on American society

Weekly Objective

Understand the significance of the Gettysburg Address in American history and its connection to the principles of democracy. By the end of this week, students should be able to: evaluate the importance of the Gettysburg Address in establishing the principles of democracy

Assessment Item

What is the significance of the Gettysburg Address in American history? a) It marked the end of the Civil War b) It established the principles of democracy c) It created a national holiday d) It ended slavery in the United States

Correct answer: b) It established the principles of democracy





De-silo data to measure lift







Thank you!

Survey

<http://tiny.cc/121540>



Questions/Discussion

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