The Connected Campus:
Using Sports Technology to Improve Student Health, Well-being, and Success
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Introduction:

The average six-year graduation rate for undergraduates attending four-year institutions as of 2015 is 59.4%.[1] This means that only 3 out of 5 students pursuing a bachelor's degree are actually obtaining a degree. Health and well-being are an important aspect of academic success and retention; when a student is healthy in mind and body, they are better able to focus on and complete their studies.[2] By taking measures to improve a student's health and well-being, an institution is actually helping themselves by potentially increasing their student's GPAs and graduation, and retention rates.

Background:

Georgia Institute of Technology (Georgia Tech) is one of the many colleges that are taking steps to remedy this problem. The goal of Georgia Tech's Health & Well-Being is to have the campus community flourish and be fulfilled individually and within our communities where we live, learn, work, and play. As one of three vital stakeholders in Health & Well-Being, the Campus Recreation Complex (CRC) is fulfilling this vision by providing space and opportunities for students to discover and affirm their own well-being practices in five different dimensions (emotional, physical, social, professional, spiritual) that lead to a healthy lifestyle. Indeed, 10 years of data collected at the CRC's turnstiles show a correlation between the frequency of visits to the CRC and the GPA/retention rates of Georgia Tech Students. Independent research has shown that being physically active is a precursor to mental and overall health. The challenge, however, is that students don't always feel that they have enough time to go to the CRC or engage in active lifestyle activities outside of the CRC due to a number of factors: machine/space availability in the CRC, incredibly busy schedules, or some other barrier preventing them from focusing on their health and well-being. Ultimately, the CRC is invested in capturing student engagement and behavior beyond the turnstile.

Solution:

In March of 2017, Georgia Tech's Campus Recreation Complex (CRC) launched a pilot version of a health and wellness platform, created by Cytilife, to the full student body. The pilot, which was set at 100 maximum users, attracted 67 students to participate. The goal was to help improve Georgia Tech students' overall health by making the CRC an integral part of the student's everyday life, one where they both use the CRC and enjoy the experience. The platform takes into account a student's schedule, their personal gym time preferences, as well as how crowded the gym is, and uses these data points to inform the student about what time would be the best for them to go to the gym. The platform also has the ability to help the students plan with their friends a good time to go to the gym, though it should be noted this feature was not utilized during the pilot program. The platform may also have the ability in the future to let the students

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[1] "The Condition of Education At a Glance." National Center For Education Statistics. 2017. Accessed July 26, 2017. https://nces.ed.gov/programs/coe/ataglance.asp.

[2] Grizzell, Jim, MBA, MA, CHES, FACHA, and Michael McNeil, MS. *Linking Health to Academic Success and Retention*. University of North Dakota. University of North Dakota. February 2007. Accessed July 26, 2017. https://und.edu/health-wellness/healthy-und/linking-health-to-academic-success-retention.pdf.

know if there is parking available near the CRC or the best way to get to the CRC without delays.

Technology:

Cytilife's advanced analytics and IoT platform relies on a few different sources to help gather data. The platform connects to Georgia Tech's T-square system, which hosts a student's academic schedule, so that it can proactively help the student plan time for physical fitness with real time alerts. It also integrates student preference and interest in physical fitness activities through an app interface. The platform also uses movement detecting and heat mapping sensors, placed manually onto the cardio machines, to know if the machines are in use. The platform shows the user a near-real time availability of the machines through a digital map replica of the gym floor and machines, with green marking available and grey denoting in use.

Challenges:

As with any new program, there are going to be a few challenges along the way. One of the major challenges stemmed from the sensors themselves. For example, it would show a machine as available even if it was out of use for repairs, because the sensor conveyed nobody actually using the machine. If a machine was taken off line to repair, that particular sensor had to be manually turned off – and then back on – from a Cytilife team member. This meant communication between the operations staff at the CRC and the Cytilife team had to be frequent as well as correct. Another challenge was the hurdle of direct communication between Cytilife and the Georgia Tech's IT department. Since this pilot was led by the Campus Recreation Complex, communication flowed from Cytilife to the CRC to Georgia Tech's IT department and back again, making it difficult for some permissions with firewalls, wifi access, and other IT issues to be quickly granted and efficiently solved.

Result:

The first phase of the pilot started in March of 2017 and has successfully delivered on the deployment of the technology, use by students and data insights for Georgia Tech's Campus Recreation Complex to act upon. The CRC believes that they have greater insight into: 1) how their students utilize the CRC cardio machines and how to make improvements to their fitness floor to capitalize on this information. For example, data from the pilot showed that users preferred to use machines that were in the center of the floor, regardless of machine type. This data will be used to configure new design layouts that optimize both the machines and user engagement; 2) students' physical fitness preferences to better segment and define incentives and programs; 3) what physical activity students may be doing inside and/or outside the CRC; and 4) to what degree are students meeting their goals that they define for themselves in the app and if the platform is effectively helping the students improve their health and well-being (i.e. reducing barriers).

Advice:

If another campus were to undertake a similar initiative such as the one implemented at Georgia Tech, there are a few important things to keep in mind. One, having a partnership with the IT group on campus is crucial, because this unit will ultimately be responsible for granting access to the school's wifi systems, giving certain permissions for the platform interface, and dealing with privacy and security issues. In addition, running the platform or initiative by the Institutional Review Board (IRB) is usually something that many universities will require. Another thing to keep in mind is to start small, like Georgia Tech's Campus Recreation Complex's pilot. A smaller version or pilot is a great way to work through various challenges and scenarios the program will likely encounter and mitigate these issues before scaling up. Also, remember to practice TIPPSS (Trust, Identity, Privacy, Protection, Safety & Security) to make sure that the students are protected and that the platform you use is not a security risk. Lastly, try to understand how the Recreation Center on your college campus operates, as these recreation professionals are subject matter experts in both the equipment they provide as well as the well-being practices this platform encourages. Finding well-being at the intersection of recreation and technology can lead to a path of success for the students on your campus.

Keywords:
- college retention rates
- data driven decisions
- positively affect 6-year graduation rates
- 5 dimensions of health and wellbeing
    - professional (student engagement and lifelong learning), spiritual (purpose and meaning), emotional (mental health), physical (going from nothing to something has the biggest impact), social (relationships and substance abuse)