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The Effect of Information Interventions on Retention among University of Lynchburg Students

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**The Effect of Information Interventions on Retention among
University of Lynchburg Students**

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Senior Honors Project

**Submitted in partial fulfillment of the graduation requirements
of the Westover Honors College**

Westover Honors College

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ABSTRACT

College retention rates are a frequently discussed topic amid declining retention and increasing time to degree completion. My research will evaluate whether a targeted nudging program has any impact on second-year students retaining to their third year at University of Lynchburg. Nudging defined as, "...any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives..." as discussed by Thaler and Sunstein (2008). I will analyze the outcome of nudging student behavior via weekly text alerts centered around Academic, Social, Career, and/or Financial information students have self-selected to receive has on GPA and, post-graduation, retention rates. I find there is no significant difference in GPA between the control and test group. However, the additional alerts do provide an increase in average attendance of events. Results of this study provide knowledge on implementation of a low-cost program that has the potential to increase student engagement.

I. INTRODUCTION

College is becoming the common and expected path for recently graduated high school seniors. Enrollment rates for young adults have increased by five percent from 2000 to 2017 (“College Enrollment Rates”). However, graduating with a college diploma in four years is becoming less and less likely for undergraduate students. Only about 60% of first-time traditional undergraduate students complete their four-year degree within six years causing question of whether the benefit of possibly obtaining a college degree is worth the guaranteed debt accrued (Undergraduate Retention and Graduation Rates). Universities are delving deeper into why students are not retaining and implementing various programs based on feedback in an attempt to better meet the needs and wants of their students hoping to increase their institution’s retention rate. I add to the research and literature by implementing a low-cost nudging program utilizing text message alerts with a sample of Second-Year students, based upon information said sample provided via survey, to determine whether alerts impact second to third year retention rates.

In Section II, I review works concerning the concept of nudging behavior and similar research projects for comparison. In Section III, I depict the data used to determine what information each student received as well as the data collected after the text alerts were completed. Section IV articulates the model used to determine whether the nudges had any impact on retention and Section V explicitly discusses the findings of the model. Ultimately, I conclude whether the tailored alerts had a significant impact on a student's decision to remain at University of Lynchburg from their second to third year.

II. BACKGROUND

Student retention is influenced by a multitude of factors some of which an institution can control for and others of which an institution cannot. There are certain situations an institution can assist with. For instance, if a student is struggling with time management there might be workshops available to teach the student how to better organize their time. However, the student must put in the initial effort of seeking assistance and attending the workshop to receive the benefit of the event. Once the institution has determined and implemented what the general student population needs to increase retention the issue shifts from creating resources to drawing individuals to these underutilized resources. Nudging once again defined as “...any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives...” as written by Thaler and Sunstein (2008), and is a tool with the potential to drive students toward institutional resources they may otherwise be unaware of.

Nudging has been previously utilized to address issues directly related to higher education retention such as “summer melt”, academic performance, student use of campus academic resources, and financial assistance. The studies concerning “summer melt” and financial assistance both had a direct goal of increasing retention, while the remaining too focused on student performance during the semester. Each promotes nudging as an effective low-cost option to influence student behavior in a positive manner with minimal effort administratively.

Retention issues can begin prior to students ever stepping foot on campus through “summer melt”. This is when a certain number of students have enrolled in the institution for the following academic year, but a percentage change their mind for a number of reasons over the

summer thereby decreasing the total student enrollment for the upcoming Fall semester.

Castleman and Page examined whether personalized text messages or peer mentor outreach centered around completing preliminary enrollment tasks could negate this issue (2015). We will further examine the text message portion of the study.

The goal of the study was to predominantly target individuals who may be low income or first generation, therefore, less knowledgeable about and more likely to struggle with the college admission process increasing their likelihood of failing to finish the enrollment process. Text messages were selected as the means of communication for a few reasons. First, small amounts of information could be sent at a time decreasing the chance of overwhelming the student. For instance, all the information that was sent via text message is included in the original letter from the university informing the student of their admission, however, is often overlooked or overwhelming and bogged down with contractual syntax and wording. Second, text messages provide timely reminders according to the individual student. A letter in the mail reminding a student to register for orientation is great; however, if it comes late or to a student who cannot register due to failing to complete a prior step is useless. Thus, text messages allow for individualization and ensure the student receives information pertinent to them. Finally, Castleman and Page (2015) found text messages were the most common form of electronic communication used among young people with sixty three percent sending a text daily; thus becoming the most plausible option for soliciting a response from students (Castleman and Page, 2015). Overall, it was found the messages increased enrollment by at least four percentage points and as high as eight percentage points. The increase varied depending on geographical location and was higher in areas with less college planning support thereby supporting Castleman and Page's hypothesis that nudging would improve retention rates.

The financial burden of higher education serves as another indicator of retention and is speculated to influence where a student decides to attend college. Castleman et al. delved deeper into this area of concern and constructed a four message texting campaign at the University of Virginia (UVA) highlighting the benefits of filling out the FAFSA and CSS Profile. Again, messages consisted of easily digestible information, timely reminders, and quick ways to communicate concerns to a financial advisor thereby effectively targeting students of lower socioeconomic status.

The goal of the study was to determine whether nudges would increase the filling out of the FAFSA and CSS profile and whether this would impact enrollment at University of Virginia or “selective colleges” defined as an institution being in one of the top two Barron’s selectivity categories (Castleman et al., 2017). Findings concluded that there was no impact on whether a student enrolled at UVA or another selective institution. However, overall filing of the forms increased by 5 percentage points and on-time filing increased 4.3 percentage points, both of which were statistically significant (Castleman et al., 2017).

Both Castleman & Page and Castleman et al. studies focus on influencing student behavior prior to students arriving on campus. Both focus on barriers to entering and beginning college. The following studies, however, concentrate on improving a student's academic performance, a large factor in retention rates, when enrolled in college.

A common issue in higher education is students performing poorly in a course but waiting until the last minute to attempt to remedy the situation or seek assistance. As a result of grading structures and implications of mathematical averages, raising an extremely poor grade with very few assignments left to complete is incredibly difficult if not mathematically

impossible to accomplish by the time a student seeks help. Smith, White, Kuzyk, and Tierney analyzed whether “e-mailed grade nudges” would have an impact on this issue.

Utilizing similar online courses, students had a .50 probability of receiving an additional email message with every assignment stating what their current grade was, their expected grade given good performance on the assignment, their expected grade given poor performance on the assignment, and their expected grade if they failed to complete the assignment. Providing this information to the student early on without making the student do any of the calculations or look up their current grade was hypothesized to increase academic performance. Smith et al. found their hypothesis to be correct. The earlier a student received a nudge the better they performed on the assignments (Smith et al., 2018).

Rodriguez, Piccoli, and Bartosiak attempt to negate procrastination on assignments while simultaneously providing students with an additional study tool via a chatbot (2019). The bot was implemented in an introductory course titled, “Introduction to Management and Information Systems” and could be utilized via text messages (Rodriguez et al., 2019). The notion of utilizing a chatbot comes from decreased classroom resources, increased class sizes, and the decrease in meaningful professor and student interaction which can lower motivation of students and professors (Rodriguez et al., 2019). The chatbot gave students an additional resource to obtain information about upcoming exam/assignment dates and practice answering test questions similar to meeting with a professor during their office hours. However, the bot did not provide explanations to missed problems during practice and possible answer choices were randomized, therefore, requiring students to return to material if they wanted to find the correct answer. This was an important factor of the chatbot as Rodriguez et al. did not want to create negative incentives for students or encourage them to simply retake the practice questions until they were

committed to memory (2019). A key aspect of the chatbot was the students' ability to choose the optimal times of day to receive reminders or silence alerts when desired, providing the student control over all aspects of communication (Rodriguez et al., 2019).

The overall goal of the study was to reduce procrastination amongst students; however, the main finding was an increase in final exam grades (Rodriguez et al., 2019). The bot was not implemented into the course until prior to the last exam. Comparison of exam grades found a significant difference for the students that used the bot at least once, 15 students out of 22 who took the last exam, performed, on average, 13.30% better than those who did not utilize the bot (Rodriguez et al., 2019). Additionally, Rodriguez et al. concluded that the students who used the bot at least once outperformed their own previous test scores by, on average, 23.83% (2019). An increase in test scores was not the goal of the study; however, grades and procrastination have been shown to be interrelated (Rodriguez et al., 2019). The results of the study further support nudging to have positive impacts on student outcomes overall.

We have determined nudging can have an impact on students inside and outside of the classroom. Additionally, nudges can encourage certain behavior. However, thus far all studies have encouraged small tasks such as completing a form or an assignment. We want to examine whether nudges can impact larger behaviors such as attending an event. Pugatch and Wilson examined a similar idea with respect to attendance for peer tutoring. Peer tutoring simultaneously offers peer support and academic assistance, both useful factors in retention rates. The study sought to determine whether sending postcards to students promoting tutoring through small financial incentives or destigmatizing the service, etc. would increase attendance. Pugatch and Wilson concluded the likelihood of a student attending one session was increased by seven percentage points and the likelihood of a student attending more than one session was increased

by six percentage points. Interestingly, reception to the postcards did not vary based upon academic year. In other words, even students who had been enrolled for multiple years and were believed to have prior knowledge of the service were equally more likely to attend after receiving a postcard as a first-year student with minimal or no knowledge of the service (Pugatch, Todd, & Wilson, 2017).

Overall, previous literature and studies have found positive impacts when utilizing nudging. Castelman and Page discovered their messaging program increased enrollment specifically with their target population of individuals who had less knowledge and resources on the college enrollment process (2015). Castelman et al. concluded their messaging program aimed at increasing filing of the FAFSA and CSS and enrollment at University of Virginia led to an increase in on time filing of forms but not an increase in UVA enrollment (2017). Smith et al. utilized email to nudge students to complete assignments on time and ask for help early in the course. Results indicated the nudges were effective and an increase in grades was observed (2018). Rodriguez et al. implemented an interactive chatbot to remind students of exam dates and provide additional study resources in hopes to decrease student procrastination. The bot was found to be effective in increasing students' performance on exams which Rodriguez et al. concluded was correlated with a decrease in procrastination (2019). Each study provided positive results concerning the implementation of nudging and reinforced the feasibility of creating and implementing nudging programs.

The aforementioned studies were able to implement the nudges in a cost-effective manner even if the institution was larger in size. This is a crucial aspect for any institution; however, specifically those struggling financially or with limited resources. The programs were also all simple to run and required minimal labor once implemented. This allows for an institution to

create and implement similar programs without hiring additional staff or faculty. Finally, the programs provide information in digestible pieces allowing students and/or their families to receive critical information in a concise and clear manner regardless of their educational or socioeconomic background.

A gap discovered during background research was the lack of assessing nudging impacts with respect to retention rates. Studies appeared to be focused on positively altering specific behaviors related to retention such as procrastination on class assignments. Research often was geared towards a student's success in one class or one area of their college experience, not their overall success as an individual and completion of degree in a timely manner. The research design constructed in the following section sought to fill this gap in the literature creating a nudging program aimed at increasing retention rates. The program was constructed to take into account the multidimensional needs of students.

III. RESEARCH DESIGN

University of Lynchburg requests Second-Year students complete a Second-Year Student Assessment (SYSA) prior to beginning their second year at the institution. This survey analyzes what factors the students themselves indicate to be of most importance to their success at the institution. For the purposes of research, these were narrowed down to four categories of assistance to form the subgroups: Academic, Social, Financial, and Career. The four categories were selected based on the design of the SYSA and research of factors which heavily influence whether a student retains at an institution.

A frequently emphasized stumbling block when discussing success in higher education is the lack of academic preparedness for college. Students are believed to be underprepared in terms of self-discipline and time management skills; therefore, struggle with balancing their

newfound responsibilities and classes simultaneously resulting in poor academic performance leading to consequences such as academic probation or even suspension based upon GPA. Institutions have coursework, GPA, and test score standards for admittance but often will accept individuals below their average expectations for various reasons. These students are then simply placed in lower level classes and given extra advising support in hopes they succeed at the institution. However, rather than a small group of students who were exceptions being placed in remedial classes, approximately a third of college students during the 2011-12 academic year were taking remedial classes upon matriculation to four-year institutions (Remedial Coursetaking at U.S. Public 2- and 4-Year Institutions, 2016). These courses increase the amount of credits the student needs to graduate; thereby, creating a heavier workload for the student each semester and/or extending time to degree. These events create unanticipated obstacles for which students are unprepared. All the unanticipated obstacles create a situation the student is not prepared for. Thus, a student in the Academic group received messages promoting resources on campus such as peer tutoring schedules, academic deadline reminders, or time management mentors to assist with these obstacles.

Failure to find one's "place" in the campus community has been linked directly to retention; however, attempts at remedying this through programs such as learning and living communities have been unsuccessful in increasing retention despite improved academic performance (Bettinger, et al., 2011). This result creates a conundrum because despite a student's academic abilities, if they cannot obtain a feeling of belonging at their institution they will leave (Bettinger, et al., 2011). Therefore, students in the Social group received messages about fun events on campus where they would have the opportunity to meet friends or socialize with other like-minded individuals. Additionally, for this group one might argue that simply receiving a

personalized message weekly would help the individual feel more included and/or connected to the campus community.

The financial burden tuition places on students is a heavily discussed topic and a large worry for students. The National Student Financial Wellness Survey (2015) found, “60% of all students agree that they worry about having enough money to pay for school” out of a sample size of 18,795 students across 52 colleges and universities across the country (Ohio State University, 2015). According to NCES, tuition, room and board, and fees, on average for the 2015-2016 academic year, cost \$16,757 at public institutions, \$43,065 at private nonprofit institutions, and \$23,776 at private for-profit institutions (“Digest of Education Statistics”). In other words, prior to scholarships and grants, the lowest cost option for an eighteen to twenty-two-year-old working full time with an estimated annual income of \$31,252 (male) and \$27,144 (female) is a public institution at \$67,208 (BLS, 2019). Messages for this group addressed ways to decrease the financial burden through scholarship information, budgeting resources, and potential job ideas while in college. However, in planning message alerts it was discovered University of Lynchburg did not hold financial based events for students throughout the semester. This was concerning for the project and the institution’s students overall as education about affording college and paying back student loans should be easily accessible and prevalent in higher education. Partnering with the Second-Year success committee, events were created later in the academic year which were then promoted via messages.

The choice to include career information as one of the four subgroups was not based on literature and previous research as Academic, Social, and Financial were. Preliminary analysis of the institution’s SYSA data found, out of the four subgroups, students requested career assistance the most often. Therefore, this subgroup was created to address an institutional specific need.

Messages were tailored to campus services and events held by University of Lynchburg's Career and Professional Development Center.

Once the potential subgroups were determined, stratified random sampling was used to create a control group and test group. Students were matched on gender, race, and major prior to being ranked in order of GPA. Then, a coin flipped randomly determined which of the top two students would be assigned to the treatment group and which to the control group. This was repeated until all students were assigned to the test group or control group. If there was an odd number of students, then the last individual was randomly entered into treatment or control. Each subgroup within the test group was then populated based upon the individual student's SYSA responses. In other words, if the student had requested assistance with one of the four categories, they were placed into the subgroup automatically. A student in the test group had the potential to be in one or all of the four subgroups. Students received a text message once a week promoting an event or providing information related to their subgroup or subgroups.

Overall, all students in the test group received at least one message per week throughout the Fall semester. Messages were sent on varying times and days of the week; however, if it informed the student of an on-campus social event that did not require registration it was delivered the day of a few hours prior to the event occurring. This choice was based on previous polling of students by University of Lynchburg's Second-Year success committee that found students were most likely to attend events if reminded of them a few hours prior. It is important to note all on-campus events promoted via text alert were previously advertised through email to all students enrolled at the institution.

IV. DESCRIPTION OF DATA

The data set used consists of information from the SYSA and the results of this study. It is categorized by those who were invited to receive text alerts and accepted, those who were invited and did not accept, and those who were not invited i.e. the true control group. It includes what each individual stated was their Gender and Ethnicity on the SYSA. Gender had the option of being “Male” or “Female”. Ethnicity had the following options: White, Black/African American, Hispanic, Asian, 2 or More Races, Native Hawaiian/Other Pacific Islander, International, or Unknown. Additionally, a percentile ranking for each student with respect to Academic Confidence, Commitment to College, Ease of Transition, Family Support, and Financial Security. These percentiles were calculated based on the individual student’s responses to a portion of the SYSA questions. These specific variables were chosen due to their direct relation to the message alert topics. Unfortunately, there was not a percentile measure for anything directly Career related in the SYSA dataset obtained. The data also includes the number of promoted via text alert events each student attended, where possible, and the students Fall semester GPA.

Preliminary analysis of the Academic group indicates that of those invited 16% of males joined, 15% of females joined, 20% of those who chose “White” as their race joined, and 6% of those who chose “Black/African American” joined. No one in the remaining ethnicity categories joined. The average percentage for Academic Confidence, Commitment to College, Ease of Transition, Family Support, and Financial Security are as follows:

Table 1: Academic Group Averages

Academic	Academic Confidence %	Commitment to College %	Ease of Transition %	Family Support %	Financial Security %	N
Enrolled	73.17	82.80	78.36	78.04	61.59	15

Non enrolled	74.41	83.63	79.50	78.29	60.19	138
Total	74.41	83.63	79.50	78.29	60.19	153

Preliminary analysis of the Social group indicates that of those invited 18% of males joined, 30% of females joined, 35% of those who chose “White” as their ethnicity joined, and 13% of those who chose “Black/African American” joined. No one in the remaining ethnicity categories joined. The average percentage for Academic Confidence, Commitment to College, Ease of Transition, Family Support, and Financial Security are as follows:

Table 2: Social Group Averages

Social	Academic Confidence %	Commitment to College %	Ease of Transition %	Family Support %	Financial Security %	N
Enrolled	75.26	85.37	76.79	75.52	61.16	12
Non enrolled	75.3	85.19	77.63	75.76	62.31	35
Total	75.30	85.19	77.63	75.76	62.31	47

Preliminary analysis of the Financial group indicates that of those invited 14% of males joined, 24% of females joined, 25% of those who chose “White” as their ethnicity joined, and 12% of those who chose “Black/African American” joined. No one in the remaining ethnicity categories joined. The average percentage for Academic Confidence, Commitment to College, Ease of Transition, Family Support, and Financial Security are as follows:

Table 3: Financial Group Averages

Financial	Academic Confidence %	Commitment to College %	Ease of Transition %	Family Support %	Financial Security %	N
Enrolled	73.14	81.67	77.41	75.24	53.33	16
Non enrolled	73.43	82.14	77.64	75.40	53.03	64
Total	73.43	82.14	77.64	75.40	53.03	80

Preliminary analysis of the Career group indicates of those invited 9% of males joined, 29% of females joined, 26% of those who chose “White” as their ethnicity joined, and 20% of those who chose “Black/African American” joined. No one in the remaining ethnicity categories joined. The average percentage for Academic Confidence, Commitment to College, Ease of Transition, Family Support, and Financial Security are as follows:

Table 4: Career Group Averages

Career	Academic Confidence %	Commitment to College %	Ease of Transition %	Family Support %	Financial Security %	N
Enrolled	75.75	84.30	80.82	77.22	62.53	26
Non enrolled	76.25	84.79	80.90	77.20	62.80	94
Total	76.25	84.79	80.90	77.20	62.80	120

The SYSA is filled out by the student themselves; therefore, a primary source of information. However, some variables may be subject to response bias if the student felt as if they should answer a certain way despite feeling another way. This could help explain the similarity in those who enrolled and those who did not. However, it is important to note that there are mitigating factors in enrollment such as those who simply overlooked the message or had an incorrect phone number on file. Additionally, the small sample size of the enrolled groups has a large impact on analysis.

The dataset was complete; therefore, no entries had to be deleted. The only transformations made to the data were converting text to categorical variables for Gender and Ethnicity. Variables in percentile form will be analyzed accordingly in the Results section. Overall, the data is the best possible source for this specific project; however, a larger sample size would have provided the possibility of more insightful analysis.

V. METHODOLOGY

The impact of the text message alerts was measured in multiple ways. Impact of academic messages were evaluated through student's GPA for the semester they received the alerts, social messages were evaluated through event attendance tracked by the institutions Director of Second-Year Success, and career messages were evaluated through attendance tracked by the institutions Career and Professional Development Center. Unfortunately, due to the lack of financial events on campus, financial messages predominantly consisted of online links to information of which interaction was not able to be tracked. Additionally, due to unforeseen circumstances data was not able to be obtained concerning Career events. A t-test for difference in means was performed to determine statistical significance for the Academic and Social categories.

The goal for the Academic category was to see an increase in semester GPA for those in the treatment group who enrolled in the message alert program compared to those in the control group or those in the treatment group that did not enroll. However, after analysis with a test statistic of 1.2552 for the Control vs. Overall Treatment group and a test statistic of 0.0519 for the Treatment Non Enrolled vs. Treatment Enrolled we conclude that there does not exist sufficient evidence to support the claim stated above at a significance level of 0.05 with the means, standard deviations, and sample sizes as follows:

Table 5: Fall 2019 GPA Impacts

Fall 2019 GPA	Mean	SD	N
Control Group	2.9667	0.7926	145
Treatment Group, Non Enrolled	2.8492	0.8289	138
Treatment Group, Enrolled	2.8354	0.9877	15
Treatment Overall	2.8479	0.84210	153

The goal for the Social Category was to increase event attendance among those in the treatment group who enrolled in the message alert program compared to those in the control group or those in the treatment group that did not enroll. We conclude with a test statistic of -2.3676 there does exist sufficient evidence to support the claim that there is a difference in the mean of average event attendance between the control and overall treatment group at a 0.05 significance level. However, with a test statistic of -1.5849 there does not exist a difference in the mean of average event attendance between those in the treatment group that enrolled and

those that did not enroll at a 0.05 significance level. The means, standard deviations, and sample sizes are as follows:

Table 6: Social Event Attendance Impacts

Social Event Attendance	Avg Events Attended	SD	N
Control Group	0.66	1.1534	145
Treatment Group, Non Enrolled	0.83	1.8287	35
Treatment Group, Enrolled	1.83	1.9054	12
Treatment Overall	1.33	1.8287	47

The goal for the Financial and Career categories was to increase event attendance similarly to the Social group. However, after learning financial based events did not exist past First-Year orientation the new goal became implementing events with hope of creating enough events to track attendance in future years. Two events were successfully created during the semester and the goal is for that number to increase in the future. Due to unforeseen circumstances, data on career related events was not successfully obtained. Therefore, results of the alerts for this category were not able to be analyzed.

VI. RESULTS

Out of the two groups analyzed, only the claim that there is a difference in the mean of average event attendance between the control and overall social treatment group was found to be significant at the 0.05 level of significance. All remaining claims tested for the Academic and

Social groups were found to be statistically insignificant. The claims for the Financial and Career groups were unable to be analyzed due to insufficient data.

VII. CONCLUSION AND DISCUSSION

Overall, small but positive impacts were found from the implementation of targeted text alerts. Unfortunately, not every group of the project could be analyzed; however, meaningful information was still gained from each group to help aid the institution in future event planning. Future goals include analyzing whether the alerts have any significant impact on Second-Year students' retention to the Fall of 2020. Furthermore, even if the alerts prove to be insignificant in terms of retention there is indication alerts would be useful to increase event attendance thereby increasing student involvement in campus activities for a relatively low cost. However, unexpected events occurred between the Fall semester of 2019 and the Fall semester of 2020 which will need to be accounted for in future analysis.

During the Spring of 2020, a worldwide pandemic occurred, COVID-19, causing disruption in every aspect of everyone's life. Spring Break quickly became an indefinite one and the goodbyes college students thought would last a week became indefinitely permanent. Institutions across the country swiftly moved to online classes providing professors with minimal time to prepare and students minimal time to acclimate. Students struggled to obtain their things from a dorm room they foresaw themselves returning to in a week and professors were forced to seamlessly convert in person lesson plans to online lectures. Institutions attempted to assist students with adjusting to the best of their abilities by providing pass/fail options, virtual counseling, and continuing campus programs as best they could via online video conferencing. However, one can only provide so much assistance virtually to the student with an unhealthy

homelife, poor or nonexistent internet connection, or complete loss of motivation as every normality of their life is stripped away one email notification at a time.

University of Lynchburg's decision to switch to online classes and their response to COVID-19, from a student perspective, is an absolutely vital part of future analysis. The pandemic itself could have a significant impact on a student's decision to return as a result of altered financial situations or loss of loved ones. Additionally, if the student feels the institution handled the situation poorly this would greatly impact his or her decision to return to the university. Thus, COVID-19 will need to be taken into account greatly when analyzing future results.

If the program was repeated, there are three main adjustments that should be made. First, addressing the issue of low enrollment. Rather than students receiving a message asking them to join, the code and number to join should be announced during check in encouraging students to join as a part of the move in process. A student should not be made to join, however, should directly be told of the program face to face. This would negate any technology issues of having the wrong cell phone number when initially inviting the student or the student not receiving the initial invite. Second, at least one in person event biweekly for all categories should be decided upon prior to the semester beginning. This would negate issues of insufficient data for analysis and ensure all categories had equal access to in person event opportunities. Finally, establish an accurate, easy to manage, and simple to implement attendance system for promoted events. The system would ensure all event attendance could be tracked providing accurate data for analysis.

After the initial work of categorizing students into alert groups, sending alerts could become a daily task for an already existing staff member. Additionally, alerts could be further

targeted by utilizing additional data the University has or obtains throughout the semester on students. Nudging via text alerts might not drastically increase retention rates; however, if allocating fifteen minutes a week to sending students targeted messages causes one student to retain who previously would have withdrawn the benefit for the institution and the student has far outweighed the cost of the text alert program.

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