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# Instructors as communication strategists: using multimodal communication to implement a new course policy on assignment extension due dates

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This study examines the implementation process and impact of a new course policy, the Emergency Button (EB), that was introduced to enhance the previously established penalty-free assignment extension policy (EWP) in a large introductory course. While the previously published EWP provided a short-term assignment extension, the EB allows students to submit one assignment even after the extension due date. The findings reveal that students without the EB could have faced a 5% grade reduction due to the missed assignment. While the EWP use was higher than in the semester when it was introduced, only 15% of the students chose to use the novel EB, and half of those did so because it allowed them to reprioritize other academic tasks. A larger percentage of first-generation college students benefited from the EB policy than others (27% vs. 13%). A comprehensive communication strategy was developed to ensure successful policy implementation. The strategy included information dissemination through the syllabus, lectures, labs, peer instruction, course website, and infographics. While the syllabus was the primary source of information, other oral and visual channels were necessary to improve the clarity about the new course policy. Increasing the number of communication channels decreased the confusion about the extension policies. Despite using the same communication strategy, students indicated less confusion about the established EWP policy compared to the novel EB policy, highlighting the additional challenges associated with introducing new pedagogical strategies. This study underscores the significance of strategic communication in implementing new course policies, suggesting that using a blend of visual and oral communication modalities engages students more successfully.

## KEYWORDS

undergraduate, extensions, inclusion, structure, deadline, flexibility, communication

## Introduction

In the ever-changing environment known as the college classroom, most educators aim to improve the climate for their students by eliminating barriers and allowing access to resources needed to accomplish the learning objectives (Sarvary et al., 2022; Ruesch and Sarvary, 2024). In the post-pandemic teaching landscape, students expect more flexibility, from office hours and assignment submissions (Sarvary et al., 2022) to flexible deadlines and relaxed attendance (Flaherty, 2023). This had led to the development and

implementation of many new course policies (Supiano, 2023). Delivering policy-related content to students can be difficult due in part to students only finding its value when they need to make use of the policy. Increasing the diversity of intake may be a viable direction, utilizing verbal and non-verbal pathways as a vehicle for improved retention (Paivio, 2014). While it has been studied what technologies faculty use for communicating discipline-specific course materials (Guy and Marquis, 2016; Meletiou-Mavrotheris et al., 2021), little is known about how course policies are communicated effectively.

Effective communication of policy is crucial for the implementation of any successful program aimed at addressing social, educational, or health-related issues (Hudson et al., 2019). Clear communication ensures that all stakeholders comprehend the policy's objectives, methods, and expected outcomes (Farrington, 2011). Effective policy communication must be accompanied by regular evaluation, and its developers must be open to adaptation to address the evolving dynamics among target audiences (Coleman et al., 2017). Moreover, policies should be rigorously scrutinized to ensure that their implementation can sustain the intended benefits without opening avenues for exploitation. When policies are not effectively communicated, there is a risk of misuse or abuse by the intended beneficiaries, which can subvert the policy's intentions and lead to outcomes that contradict its original goals (Dukes et al., 1997). Additionally, instances where participants used the information provided for unintended purposes highlight a form of policy abuse, where the disseminated information is used contrary to its original purpose (Rosenbaum and Hanson, 1998). For example, many policy campaigns about alcohol and drug use or environmental protection failed because of incorrect communication of social norms (Cialdini, 2003). These cases underscore the importance of designing policies with clear, achievable goals and communicating them in a manner that minimizes the potential for misuse and unintended outcomes. In this paper, the authors present a new student-centered assignment submission policy and assess the communication channels through which this policy reached the students.

## The theoretical foundation of assignment extension policies

If instructors fully embrace the principles of the Universal Design for Learning, then their classrooms should be designed with multiple means of engagement, expression, and representation to prepare the grounds for all students to succeed (Silver et al., 1998). Since formative and summative assessments are often part of this classroom environment, one tool for setting students up for success can be a flexible assignment deadline policy. Using flexible assignment due dates has been shown to have many positive impacts, including improved mental health, better time management (Ruesch and Sarvary, 2024) and sense of belonging (Basu et al., 2024), however in some cases students maximized the time they had, which can be considered procrastination (Conner, 2024). The Extension Without Penalty system (EWP) is a type of flexible assignment policy that was previously implemented and assessed in a large introductory course by the authors of this paper

(Ruesch and Sarvary, 2024). This penalty-free extension policy allowed students to submit some selected assignments 1 or 2 weeks after the "ideal" due date, providing flexibility with assignment submission, while maintaining a scaffolded assignment structure (Ruesch and Sarvary, 2024). The application of this policy has led to a more inclusive classroom by reducing the bias of the instructors and giving agency to a diverse student population to increase their interaction with the content of the course (Ruesch and Sarvary, 2024).

Flexibility in course expectations without structure can impair a student's ability to progress in the course by hindering their ability to engage and retain new material; however, by adding structure to the flexibility, an instructor can create an effective and inclusive learning environment (Supiano, 2023; Ruesch and Sarvary, 2024). As described in self-determination theory (SDT), introducing a sense of autonomy in learning enables students to modify their approach to assignments (Ryan and Deci, 2000). Students can find more intrinsic motivation for their learning by diving deeper into the topics allotted to them and engaging more with the content. According to SDT, students do not only develop more self-regulation, but by using these autonomous practices, they can also improve mental wellness as they reduce anxiety and eliminate the sense of being micromanaged. Additionally, by improving students' ability to seek their own positive outcomes, flexibility can encourage a growth mindset toward their education, having them recognize that their failures and successes contribute to their development (Canning et al., 2024). Students are capable of learning the new material that they are struggling with (Deci et al., 1999).

The implementation of assignment extensions also intersects with other educational concepts, such as differentiated instruction (Tomlinson et al., 2003) and inclusive education (Hogan and Sathy, 2022). Differentiated instruction involves tailoring teaching and learning to meet each student's unique needs and preferences (Subban, 2006; Suprayogi et al., 2017), while inclusive education centers on adapting the learning environment to cater to all students (Hoffman et al., 2019; Oleson, 2021). By incorporating assignment extensions, educators can personalize the learning process to individual timelines, thereby supporting the fundamental principles of differentiated instruction. However, since these policies apply to everyone, instructors also promote inclusivity.

From a psychological standpoint, the utilization of assignment extensions can be analyzed through the framework of cognitive load theory, which considers the amount of information that working memory can effectively process at any given time (Sweller, 1988). For students grappling with high cognitive loads, whether due to personal, educational, or psychological obstacles, extensions can offer the necessary relief to help them manage their cognitive resources more efficiently (Duran et al., 2022; Patel and Alismail, 2024).

## Communicating course policies

An assignment extension policy in a large introductory course can increase the opportunities by which students can achieve learning objectives (Ruesch and Sarvary, 2024). However, a

classroom policy can only be successful if it is established as a norm and clearly communicated to the students (Castelli and Sarvary, 2021).

Part of effective communication is the retention of information. Many educators strive to “inject” knowledge into students’ brains using the deficit model of communication (Scheufele, 2014; Kelp et al., 2024), where the instructors are the experts and students are empty vessels required to be filled with knowledge. This communication approach is reflected in the “sage on the stage” lecturing, where the expert instructor shares the knowledge without encouraging active conversations. This approach has failed both in science communication and in education, partly because, as constructivism posits, it is better if students (the audience) can construct their own understanding through active participation and experiences (Harris and Alexander, 1998; Green and Gredler, 2002). To avoid the deficit model, instructors can utilize the cognitive theory of multimedia learning, capitalizing on the mental integration of verbal and visual channels, creating a coherent whole (Mayer, 2024). In addition, communication in the classroom can benefit from social learning when students observe and imitate their peers, including prior students, especially if the classroom makes use of undergraduate teaching assistants who have taken the class recently (Deaton, 2015; Asgari and Sarvary, 2020).

Developing social norms in the classroom environment can help create a more effective and inclusive learning space (Castelli and Sarvary, 2021). If class policies, such as the EWP, become a descriptive norm (what other students usually do), it may have a greater positive impact on the student population. Cialdini et al. (1991) discuss the theoretical basis of social norms, which can be applied to various situations from protecting the environment (Cialdini, 2003) to online teaching (Castelli and Sarvary, 2021). Communicating pedagogical choices explicitly with the students helps set these norms and prevent students’ resistance (Seidel and Tanner, 2013). Students come to the first class with many perceptions and expectations (Meaders et al., 2019) and ask questions, from “how should I study and learn” to “how should I manage my time” (Meaders et al., 2021). Addressing these questions by clearly and explicitly communicating course policies can benefit both the instructors and the students. The syllabus is one of the first documents that the students receive from the instructors and it can communicate information from course topics through grading policies to learning objectives (Eberly et al., 2001; Doolittle and Siudzinski, 2010; Heil et al., 2024).

However, the syllabus is not the only communication pathway to reach the students in the class. Many institutions use Learning Management Systems (LMS), such as Blackboard, Canvas, eClass, or Moodle, through which students and instructors can communicate and share course policies, materials, and assignments.

Current undergraduates use a wide variety of technologies to communicate (Edwards et al., 2018). Utilizing these technologies to share course policy can be a new direction for instructors to reach their students effectively (Van Den Beemt et al., 2020). In addition, when it comes to visual communication, it is often argued to be a more effective way of sharing complex messages than verbal communication (Dur, 2014). For example, infographics (a visual representation of information accompanied by minimal text) have been an effective tool for both teaching and learning in higher

education (Alrwele, 2017; Jaleniauskiene and Kasperiuoniene, 2023) but are rarely used to discuss complex course policies. However, improving the course syllabus by using elements of infographics has become popular recently (Jayme Dyer, n.d.). Regardless of which modality the instructors choose to communicate course policies or students’ progress in the class, having good intentions to disseminate information is not enough; the tone and language of the communication are fundamental for its success in making behavioral change (Acosta, 2020).

## Objectives of the study

In an effort to build upon available evidence on assignment extension policies within the classroom, further studies on the Extension Without Penalty (EWP) were performed (Ruesch and Sarvary, 2024). While the EWP policy has significantly decreased the number of assignment extension requests the instructors received, there were still a few instances where students needed additional support due to unforeseen circumstances. In 2022, when the EWP was first used, nearly one-third of the students expressed confusion about this newly implemented policy, highlighting a gap in the dissemination of information (Ruesch and Sarvary, 2024). In this current work, the authors respond to these two issues raised during the initial study. To support those students who needed additional help and to eliminate the confusion about the policy by reaching all the students, the authors seek solutions to: (i) how to support those students who experienced difficulties outside of the penalty-free extension period, and (ii) what is the most effective modality of clearly communicating a new course policy about assignment extensions. A survey instrument was developed to measure the continued usage of the EWP and the usage of a new feature, the emergency button (EB), which can be used for one assignment beyond the EWP. Student grades were compared against usage of the EB to verify the expectation that this new assignment extension policy had no negative impact on student performance. It was hypothesized that the improved multi-channel communication strategy would enhance the clarity of both extension policies.

## Methods

### The study environment

The study was performed in an inquiry-based laboratory course that teaches the scientific method, science communication, and statistics (Sarvary et al., 2022). With a maximum enrollment of 432 students, both the lecture and laboratory portion of the course have active learning components (Asgari et al., 2021), such as engaging students using Poll Everywhere, an online response system (Sarvary and Gifford, 2017), and teaching transferable skills (Deane-Coe et al., 2017) like science communication through peer review (Biango-Daniels and Sarvary, 2021). In addition, the course utilizes group work (Asgari et al., 2024), and scaffolded exercises to build critical thinking and science literacy skills (Sarvary and Ruesch, 2023).

In the end-of-semester survey, students were given the option to answer demographic questions, with the ability to skip or choose not to disclose this information available. Self-reported responses allowed for division into groups such as persons excluded from science based on ethnicity or race (PEER), gender, first-year students, and first-generation college status.

In the spring semester of 2024, 386 students were enrolled in the class, and 366 students took part in the end-of-semester survey. Twenty-five of those were excluded from this study due to incomplete responses or lack of consent. Self-reported demographics included PEER ( $n = 97$ ) and non-PEER ( $n = 220$ ), first-generation college students ( $n = 60$ ) and non-first-generation-college students ( $n = 264$ ), women ( $n = 218$ ), men ( $n = 107$ ), and non-binary ( $n = 3$ ). First-year students totaled 263, with non-first years being 78 total (Sophomores [ $n = 49$ ], Juniors [ $n = 22$ ], and Seniors [ $n = 7$ ]).

## The extension policies

In Fall 2022, an extension policy was developed. This “Extension Without Penalty” (EWP) allowed students to submit their work after the ideal due date for many assignments (Ruesch and Sarvary, 2024). Building on that baseline policy, in Spring 2024, an “Emergency Button” (EB) was added that allowed students to submit one assignment until week 12 of the 15-week-long semester. The EB was not extended to the very end of the semester to allow the instructors enough time to grade the submissions. The following information was included in the syllabus about the EWP and EB policies, respectively:

“We understand that there can be circumstances when students need more time to complete their assignments. All assignments have ideal due dates, and most of the assignments also have penalty-free extension due dates. We highly recommend that you submit the assignments by their *ideal* due dates to maintain a good rhythm of learning in the class. You can submit assignments by the *extension due date without any penalty*. We are providing the extension due dates so you can use them when you have other exams, sickness, or just need a break and do not want to think about an assignment.”

“Life can be unpredictable, and unforeseen circumstances may prevent you from submitting an assignment, even with an extension. In case of an emergency, you can press the *emergency button* for ONE assignment, and you will be allowed to submit that ONE assignment until the beginning of Lecture 12.”

The assignment structure included many small stake assignments, in-class activities, written assignments with peer review and instructor feedback, presentations, and a practical exam. Some of them are considered formative and some of them are summative assignments. For a small number of assignments, the EWP or the EB policies were not applicable. Since the EB could only be used until week 12 of the 15-week-long semester, a few assignments fell out of the EB timeline. For transparency, the assignment list with the grade distribution, due dates, the EWP due dates, and the EB possibility is published in the [Supplemental material](#). This can be valuable for

instructors who plan to modify the EWP & EB policies for their own courses.

## Communication of the extension policies

In response to students’ previous confusion regarding changes in the course structure and interventions like the EWP (Ruesch and Sarvary, 2024), a diverse range of communication modalities was implemented throughout the semester to enhance students’ comprehension and familiarity with the EWP and EB. The policies were thoroughly discussed with the 12 laboratory instructors and 15 undergraduate teaching assistants to allow them to distribute information to students if they asked questions about the policies during the lab sections or office hours. Additionally, an infographic was created for a more condensed and easily graspable concept that was then shared during the lectures as well as displayed on a screen as one of the rotating images in the hallway where students attended lab (See [Figure 1](#)). The infographic was posted to Canvas with the syllabus and included in the slides with the recorded lectures so it could be accessed throughout the semester. The information could also be accessed via the course website (<http://investigativebiology.cornell.edu>) by downloading the syllabus and the infographic or reading the Frequently Asked Questions (FAQs).

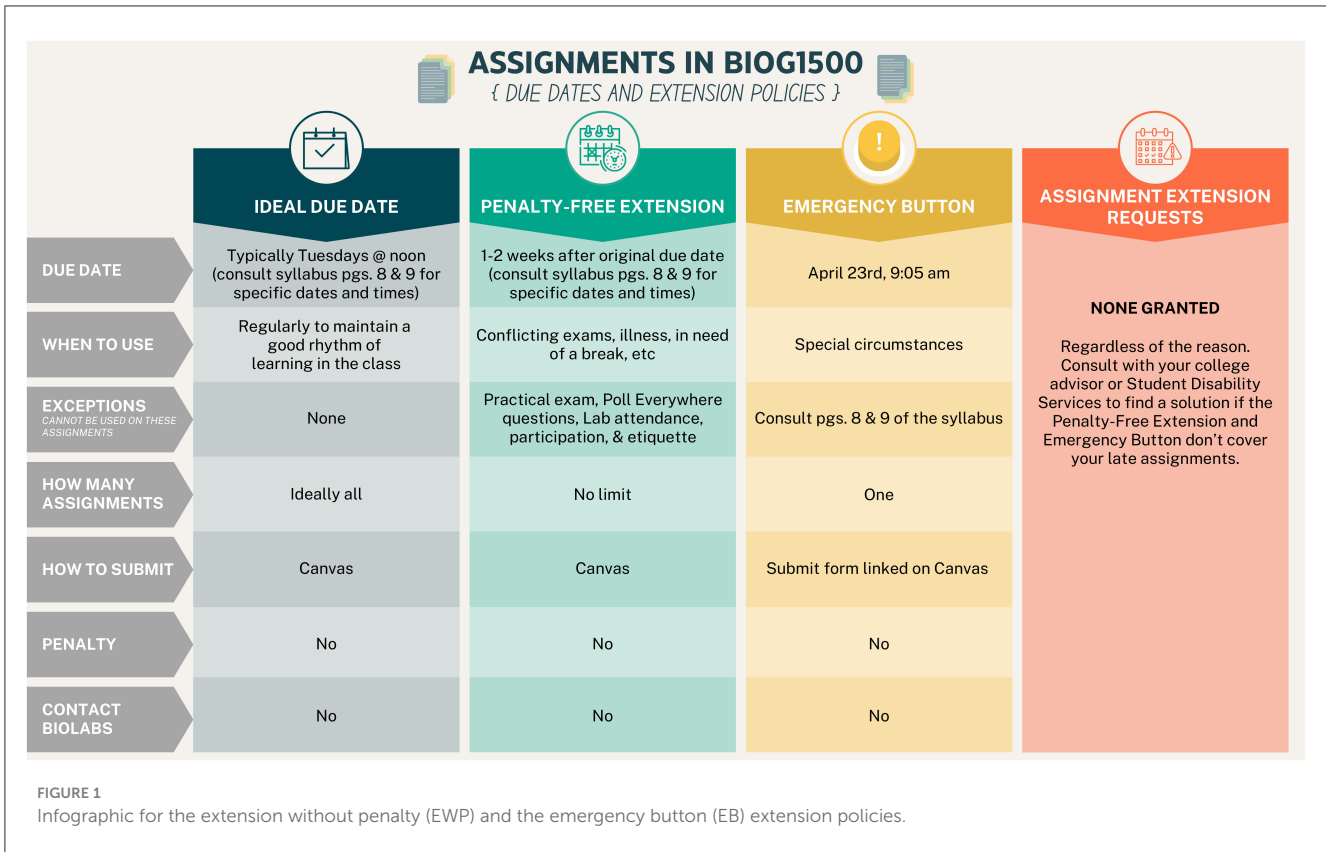
## Survey validation and distribution

Single-select and multiselect categorical questions about the usage of the EWP and the EB were written and presented to a group of undergraduate teaching assistants ( $n = 15$ ) who had taken the class prior and were currently participating in teaching it. With their spread of knowledge, making them well-informed for validation, they were asked to provide feedback about each question, identify any unclear questions, and improve the language therein. The questions were provided in advance of the meeting with the validators, and feedback was provided both written and orally (Ouimet et al., 2004; Vogt et al., 2004).

The anonymous end-of-semester survey was distributed to students in class with no associated grades related to responding to the survey. Sufficient time was given to complete the survey in class, and instructors left the classroom during the survey. The survey was conducted using the Qualtrics software, and the validated and distributed survey instrument was published in the [Supplementary material](#). This study’s proposal was granted exemption from Institutional Review Board review by the University’s Office of Research Integrity and Assurance (2109010595).

## Usage of the EWP, EB policies, and associated final grades

The LMS, called Canvas, was set up so that assignment ideal due dates (by the time the students were expected to submit an assignment) were marked as “due dates”. The EWP due dates were set up in Canvas as the “expiration dates” of the



assignment. Students did not need to contact the instructors to be able to submit the assignments before the expiration date on Canvas. After the assignment expired on Canvas, if it was allowed (see [Supplementary material](#)), the assignment could only be submitted using the Emergency Button. Students submitted their one permitted EB assignment via the software Jotform, and their usage was recorded. Assignments could not be swapped, meaning if an assignment was already submitted using the EB, it could not be switched to a higher-stakes assignment later.

Percentage scores of the final grades were downloaded from the LMS to allow comparison of usage to their final grades and determine if it had an impact. The scores were only downloaded after the final grades were submitted to the registrar, but regardless, the data were deidentified.

Information presented in this paper was based on the student survey, and considered self-reported, except the use of the EB that was directly calculated from the Jotforms and the grades that were downloaded from Canvas.

### Statistical analysis

Statistical analyses were conducted in R statistical software (v.4.3.0) (Crawley, 2012; R Core Team, 2023). The statistical analysis of the dataset was discussed with the Cornell Statistical Consulting Unit, and their expert advice on the selection of the appropriate statistical methods and the analysis of the data was followed. Comparison between the two semesters for the EWP usage was made using a chi-squared test (alpha level set at 0.05

for all tests). Students were assessed for their usage of either, neither, or both policies as well as whether the EB users were distributed disproportionately to more usage of the EWP policy. To examine the factors influencing EB usage, we employed a generalized linear model (GLM) with a binomial distribution. The model included PEER, gender, first-year status, and first-generation status as predictor variables. This approach allowed us to estimate the probability of EB usage based on the aforementioned predictors, providing insights into each factor's relative importance. The rank sum test was employed when comparing final grades for students who made use of the EB. Whether the EB use impacted the final grades and what those final grades would have been if the EB policy had not been implemented was also calculated. Which assignments and the percentage of students who used the EWP and EB were looked at for each applicable assignment.

To see differences between communication modalities, each modality was compared between the EB and EWP using chi-squared tests with no multiple correction measures, as this was exploratory (Bender and Lange, 2001). The use of audio and visual communication modalities was similarly compared. A chi-squared test was also used to compare the difference in overall clarity of each policy to the students. An average clarity for each of the modalities that students could use (Very Unclear = 1, Somewhat Unclear = 2, Somewhat Clear = 3, Very Clear = 4) was calculated based on whether the student used it and what they had self-reported for clarity of the policy. Clarity was also used to assess whether students reporting of a larger total number of modalities resulted in greater clarity. This was analyzed using a Spearman Rank Correlation test.

## Results

### Extension without penalty usage

The EWP policy was first implemented in Fall 2022, and a detailed assessment of its reception as a novel policy has been published (Ruesch and Sarvary, 2024). In the Fall of 2022, the EWP was novel, while in Spring 2024, it was an already established policy that incoming students may have heard about from their peers and advisors. We were interested in how the use of this baseline extension policy has changed now that it has been established for several semesters. A significantly larger proportion of the students used the EWP in Spring 2024 (84%) than in Fall 2022 (78%) when it was first introduced ( $\chi^2 = 85.898$ ,  $df = 2$ ,  $p$ -value  $< 0.01$ ). In Spring 2024 ( $n = 341$ ), 16% of the students did not use the EWP, 14% used it once, and 70% used it more than once. When compared to Fall 2022 ( $n = 347$ ), when the policy was introduced, 22% of the students did not use the EWP, 41% used it once, and 37% used it more than once (Ruesch and Sarvary, 2024). The trend shows that more students in 2022 did not use the policy or used it only once, compared to 2024. Therefore, this significant difference in EWP usage between the two semesters was influenced by the increase in the “more than once” usage in this study compared to the previous one (See Figure 2).

### Emergency button usage

The EB was a novel policy introduced in the class in the Spring of 2024. Fifty-six students made use of the Emergency Button (15%), with 326 abstaining. All but one of those students who used the EB used it in conjunction with the EWP. The remaining 69% who used the EWP, never took advantage of the EB policy. Of those who used the EB and EWP, 94% of them used the EWP more than once (see Supplementary material). When analyzed by demographics using the binomial generalized linear model, there was no significant impact by PEER group, by gender, or by first-year student status ( $p$ -value = 0.29, 0.94, 0.34, respectively). However, first-generation college students made use of the EB more often than others (27% vs. 13%) ( $p$ -value = 0.0136: see Supplementary material for full model). The impact on final grade was significant ( $W = 11247$ ,  $p$ -value = 0.005514), with students who used the EB having, on average, a 2% lower grade. Without the EB, that grade difference would have been 5% more, meaning that students who missed the assignment could have received 7% lower grades at the end of the semester if the EB did not exist. Students used the EWP most often on the Statistics Worksheet 2 (46% of the students), Write and Self-Grade the Proposal (45%), and the Poster and Self-Grading of the Poster (44%), while the EB was most often used on the Write and Self-Grade the Proposal

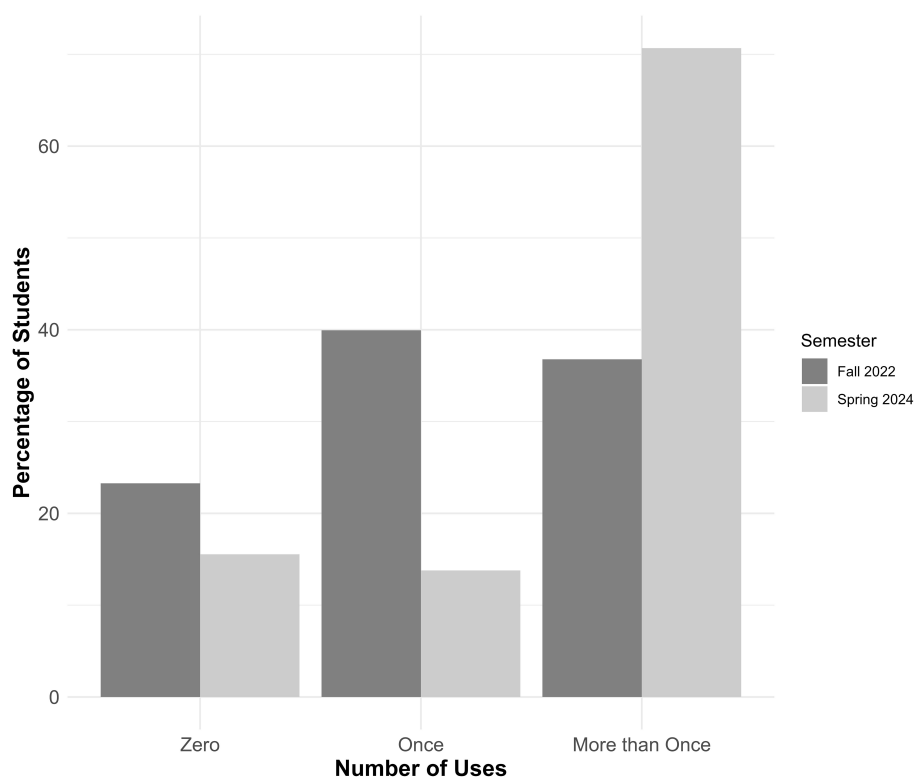


FIGURE 2

Comparison of Fall 2022 extension without penalty usage and that of Spring 2024. Significant differences were found between the two semesters ( $p$ -value  $< 0.05$ ).

**TABLE 1** Survey selections in response to the question, “Why did you use the emergency button?”

Answer	%	Count
I reprioritized my tasks because the emergency button provided the option to do so	50.00%	26
One week extension was insufficient to resolve my emergency	11.54%	6
My lack of understanding of the extension system led to me needing to use the emergency button	11.54%	6
An emergency occurred during the extension week and I needed the emergency button	26.92%	14
Total	100%	52

(9.1%), Statistics Worksheet 2 (3.8%), and Statistics Worksheet 1 (1.6%) (see [Supplementary material](#)).

Students were asked about the reasons for using the EB. The reasons for their usage included “I reprioritized my tasks because the emergency button provided the option to do so” (50%), “An emergency occurred during the extension week and I needed the emergency button” (27%), “One week extension was insufficient to resolve my emergency” (12%), and “My lack of understanding of the extension policy led to me needing the use of an emergency button” (12%) (See [Table 1](#)).

## Communication of assignment extension policies

Communication of the policies occurred through various avenues, and responses were compared between the two aspects of the policies: EB (the novel intervention) and EWP (the established course policy). All answers could be selected by students as multiple encounters with communication modalities were likely. As reported by the students, the most common method to learn about the EWP and EB was the syllabus (78 and 71%, respectively). The syllabus was found to be used more for the EWP ( $\chi^2 = 4.75$ ,  $df = 1$ ,  $p$ -value = 0.0292) than for the EB. When the other communication modalities were compared (syllabus excluded), students used the visual and oral communication methods equally to learn about course policy (15.8% visual vs. 15.7% audio). That was true for both learning about the established EWP policy (18.2% visual vs. 19.8% audio) and the novel EB policy (13.4% visual vs. 11.4% audio).

The syllabus, as the most utilized communication tool, was followed by the infographic seen during the lecture (35% EWP and 31% EB) and heard about the policy from the lecturer (31% EWP and 24% EB). Only a small percentage of the students learned about the interventions on the course website, read about them in a Canvas announcement, saw them on the digital display near the lab rooms, or discussed them during office hours or with their undergraduate teaching assistant (see [Figure 3](#)).

Information about the new intervention (EB) reached significantly fewer students via discussions with their peers ( $\chi^2 = 22.293$ ,  $df = 1$ ,  $p$ -value < 0.01) and their lab instructors ( $\chi^2 = 22.176$ ,  $df = 1$ ,  $p$ -value < 0.01) than news and policies about the

EWP that was introduced in an earlier semester. The same pattern was shown regarding consuming the information on the LMS. Significantly more students remembered learning about the EWP than the EB by reviewing slides on Canvas ( $\chi^2 = 7.640$ ,  $df = 1$ ,  $p$ -value < 0.01) or accessing the information on Canvas through the syllabus or infographic ( $\chi^2 = 10.797$ ,  $df = 1$ ,  $p$ -value < 0.01). However, we did not see this difference when comparing Canvas announcements for the two policies.

Clarity of communication was investigated and a larger number of students reported greater clarity with the EWP over the EB ( $\chi^2 = 20.489$ ,  $df = 3$ ,  $p$ -value < 0.01). Students found the communication about the established EWP policy either “Very clear” (64%) or “Somewhat clear” (28%). While communication about the novel EB intervention was still predominately Very or Somewhat clear to the students (50 and 33%), we saw significantly more students being confused about the new (12% Somewhat unclear and 4% Very unclear) than the established policy (5 and 2%, respectively) (see [Figure 4](#)).

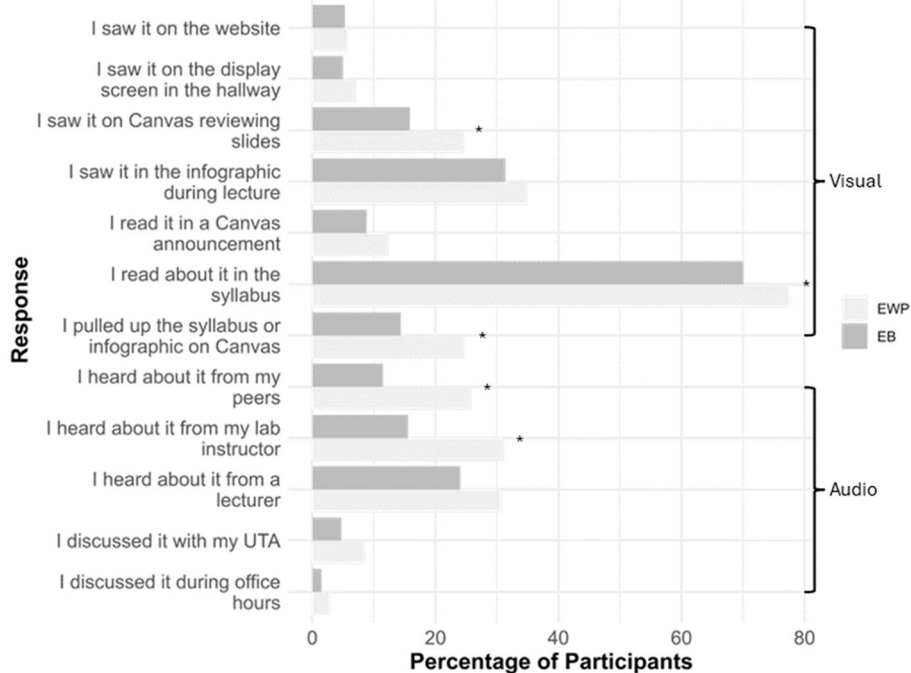
When looking at each communication modality for average clarity that students who used it to learn about the policies, all fell between 3.1 and 3.9 with “I discussed it during office hours” being the highest for both the EB and EWP communication (see [Supplementary material](#) for full table). Additionally, the more modalities that a student reported using to learn about the policies, the better the clarity they reported (for EWP:  $p$ -value < 0.01,  $\rho = 0.239$ , EB:  $p$ -value < 0.01,  $\rho = 0.244$ ) (see [Figure 5](#)). Those students who used more than four communication channels have no longer reported being unclear about the policies, and students who used more than nine communication channels to learn about the policies all reported them being very clear.

## Discussion

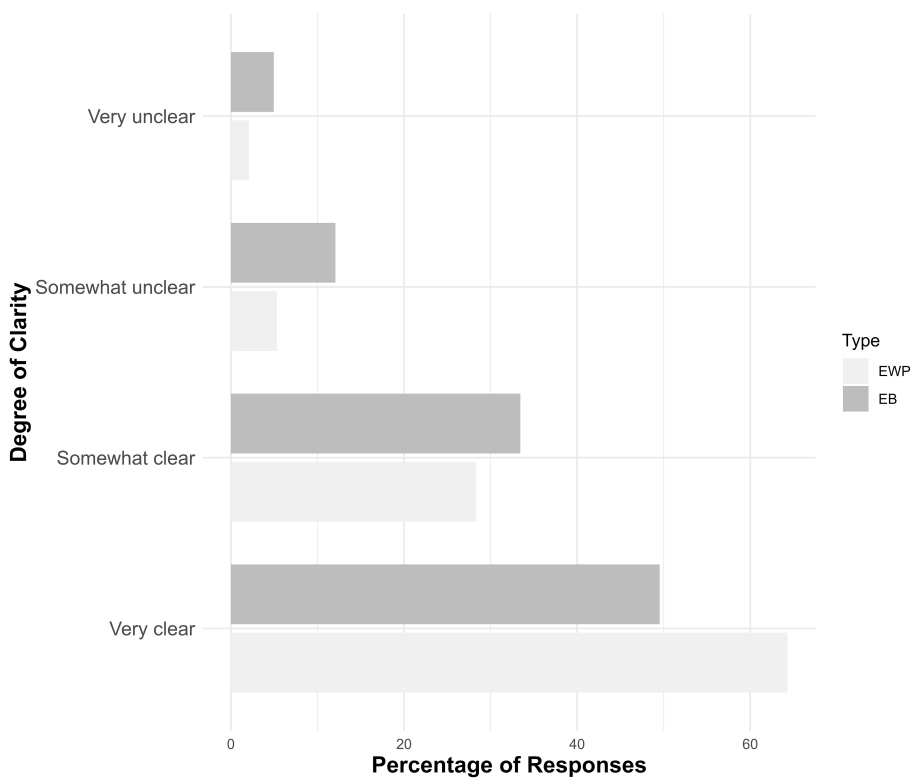
Student emergencies are a constant when running a large course, and the difficulties of such scenarios impact the students and staff ([Ruesch and Sarvary, 2024](#)). When responding to emergencies, it is important to avoid introducing the instructor’s bias in decisions and, ideally, not increase the strain on a struggling student ([Boysen et al., 2009](#); [Goode et al., 2020](#)). Well-studied policies supported by evidence can provide instructors with tools to address these issues and create opportunities for an inclusive and more accessible classroom ([Röhl, 2021](#); [Symeonidis, 2024](#)).

### Extension without penalty usage

With the addition of the Emergency Button (EB) to the established baseline extension due date policy (EWP), the EWP increased in usage compared to a previous semester. This may be due to students’ workload increasing during the semester in other courses or external factors. We can speculate that by having an additional extension available, students were more comfortable using the EWP, as described by the Risk Compensation Theory ([Wilde, 1982](#)). This theory is based on the concept that if we feel safer, we are more willing to take risks (such as driving faster because we have on our seatbelts or, in this case, feeling

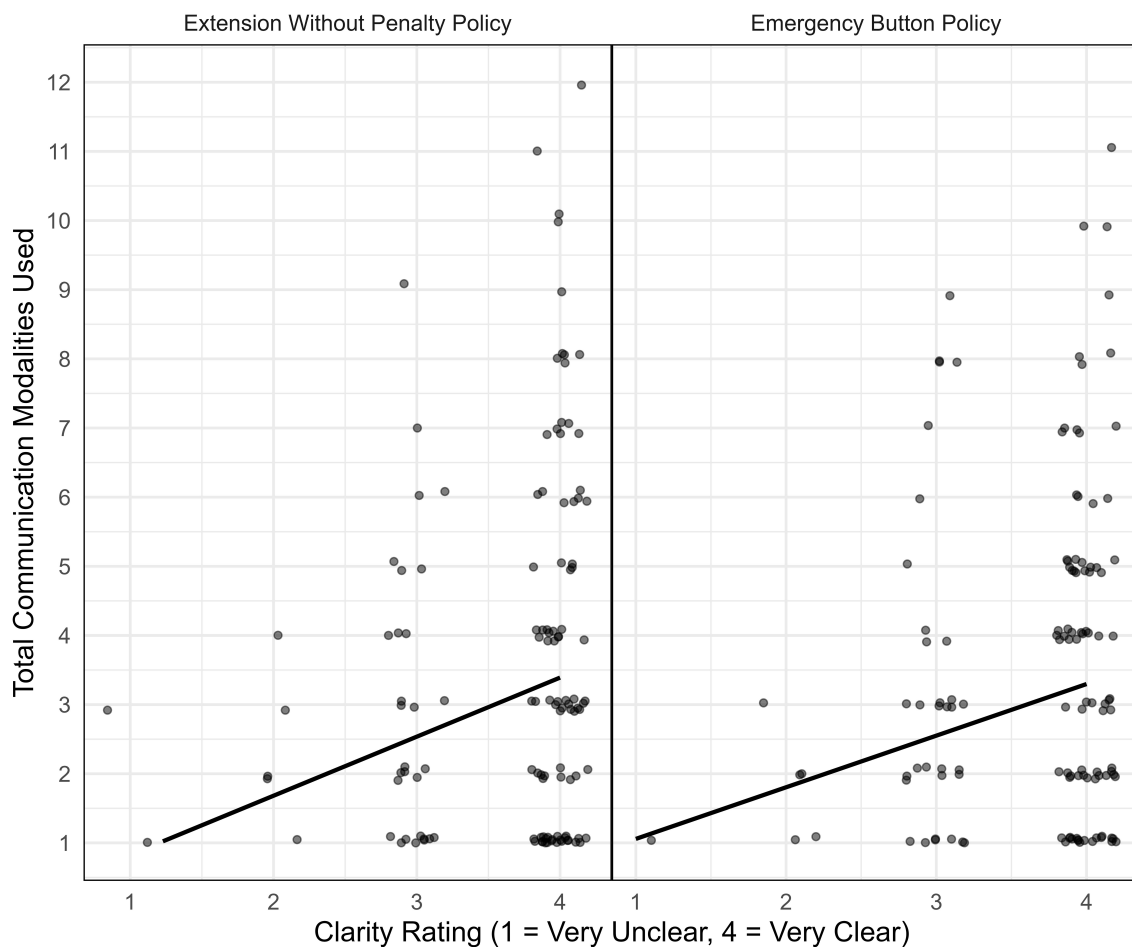


**FIGURE 3** Percentage of students who used each communication modality for the extension without penalty (EWP) and the emergency button (EB) extension policies. Modalities were grouped by visual and audio communication types. Significant differences are marked with \* ( $p$ -value < 0.05).



**FIGURE 4** Clarity of the the extension without penalty (EWP) and the emergency button (EB) extension policies to students (self-reported). The EWP was found to be significantly clearer to students than the EB ( $p$ -value < 0.01).





**FIGURE 5**  
 Total communication modalities used by students as a source to learn about the extension without penalty (EWP) and the emergency button (EB) extension policies and their resultant self-reported clarity. Clarities were as follows: very unclear = 1. Somewhat unclear = 2, somewhat clear = 3, very clear = 4. The number of modalities and the clarity were significantly correlated for both the EWP and EB ( $p$ -value < 0.01 for both).

at ease missing the assignment deadline because of the additional extension policy). Still, this theory has mixed support at best (Pless, 2016; Millest et al., 2024). Another explanation for the differences may be the fact that the EWP was no longer a novel intervention but rather a part of the “academic generational information” of the student body, meaning that students enrolling in the course have already heard about this policy from their peers and advisors. Cornell University has a very strong student advisor, academic advisor and faculty advisor network; therefore it is likely that students know a lot about the courses they are selecting. The more established nature of the EWP by itself may have been sufficient to cause the differences in the EWP usage between the semesters.

### Emergency button usage

With both policies in effect throughout the semester, we saw an EB usage of 15%. This relatively low percentage provides evidence that the EWP by itself can offer sufficient coverage for most students and that students are managing their time rather than just procrastinating. However, it is notable that almost all students

who applied the EB policy also used the EWP more than once, taking full advantage of the flexible assignment arrangements. Most students used the EB for the Write and Self-Grade of the Proposal, which, as a more complex assignment, may provide further support for time management as the reason they used the EB. Of all the analyzed demographic groups, we only saw a difference in first-generation college students, with a larger percentage of them making use of the EB. Usage of the EB showed a significant negative difference on students’ final grades, with a 2% difference between those who used the EB and those who did not. However, it is very important to point out that without the EB policy, students would have lost the points for those unsubmitted assignments, resulting in a mean reduction in their final score by 7%. Therefore, the impact of implementing the EB intervention should still be considered positive on students’ final grades (by 5%). This benefit, particularly to first-generation college students, who can struggle in their early college classes due to unfamiliarity with college policies often buried in the hidden curriculum, is notable (Ives and Castillo-Montoya, 2020; Wilbur, 2021; Startz, 2022). Students learn as they complete assignments, and good assignments help instructors assess students’ knowledge. Therefore, allowing students to submit

assignments late, instead of dropping assignments, not only helps them receive better grades but also helps them meet the learning objectives of the course.

Many educators seek to establish a good work ethic and successful strategies for future careers via the classroom setting (Zepeda and Nokes-Malach, 2021; Dughi et al., 2023). Judgment of whether students are correctly following the policy provided for them can be difficult to determine (Vanbuel and Van den Branden, 2023; Carlin, 2024). We observed that students who used the EB were most likely to have used the EWP more than once. Hence, we asked students categorically why they used the EB. Students self-reported usage of the EB imply that students were able to use the EB to manage their time, respond to emergencies, and make up for difficulties arising from the policy (something that is not meant to be punitive). Therefore, with a relatively small input from the instructors, instead of missing assignments, students were able to complete assignments using the EB. If these formative assessment methods are designed correctly, they facilitate learning as students complete them, and the instructors can identify gaps in students' skills and knowledge (Bennett, 2011). It is a win-win situation for both the instructor and the student.

## Communication of the EWP and EB policies

When the EWP policy was implemented in 2022, nearly one-third of the students expressed confusion about the policy (Ruesch and Sarvary, 2024). To address this issue, in this study multiple communication avenues were employed, studied, and analyzed. When comparing the clarity of the communication of the new policies, EWP in 2022 (Ruesch and Sarvary, 2024), and EB in 2024, there was a 13% improvement in students finding the novel policy of the given semester to be clear. This was accomplished by improving policy communication by implementing both visual and auditory techniques. Students were reached using written descriptions in the syllabus, an infographic, verbal reinforcement during lectures and lab, and distribution of this information using the LMS, the course website, and digital displays near the lab rooms. Instructors may look at this approach as a communication strategy for their courses. With the application of Communication Science Theories for Strategic Communication (Lock et al., 2020), instructors of large courses may become similar strategists to Public Relations or marketing campaign managers who wish to engage their audiences successfully using multiple channels defined within their communication strategy (Andersson, 2020). A strategic communicator wants to go where the audience is; therefore, when communicating a new policy to a 400+ student introductory class, it is important that the instructor uses a variety of modalities. The syllabus (the most common modality across classrooms) was shown to be the most effective way to communicate to students about these interventions and course policies (Doolittle and Siudzinski, 2010). However, there were many other modalities that students indicated that they learned about the course policies. Getting information from the syllabus was followed by the infographic, and third, hearing about it from the course instructor during the lecture. So, students who prefer visual cues, such as infographics, verbal reinforcement, or announcements in lectures, benefited from the

variety of delivery modalities. This applied to both the new (EB) and established (EWP) policies. Overall, students used the visual and oral communication methods equally (when the syllabus was excluded from the analysis), and that was true for both learning about the EWP (18.2% visual vs. 19.8% oral) and the EB policies (13.4% visual vs. 11.4% oral).

When instructors think about communicating course policies, they often turn to the classic possibilities, which are the syllabus, the LMS, and announcements by the instructor and the teaching assistants. This study highlighted some challenges with these modes of communication, emphasizing the importance of using a combination of these channels instead of relying only on one or two. For example, the LMS didn't reach as many students as the authors had hoped. Despite multiple announcements on the LMS used in this study (Canvas), only a small proportion of students learned about the course policies this way, but they downloaded the presentation slides and used the LMS for assignment submission. This kind of content-driven interaction with the LMS may be a force of habit, as seen in other studies (Wilcox et al., 2016; Demmans Epp et al., 2020). While the LMS was a weak communication channel, it was still more effective in distributing both established and new course policies than the course website.

In large courses, another common way to communicate is by sharing information through teaching assistants. Although undergraduate teaching assistants (UTAs) were aware of the extension policies, students reported only a few cases where they learned about them from the UTAs. While UTAs play an essential role in the classroom (Asgari and Sarvary, 2020), students don't necessarily turn to them for answers to course policy questions. Relatedly, the fewest students chose office hours as the source of information about the EWP and EB. Despite offering office hours during the week and on weekends, it seems that course policies are not frequently discussed during those times (Guerrero and Rod, 2013). Similarly, even though we assume our students are attracted to screens and use the internet frequently (Hedderson et al., 2023), neither of these communication pathways has reached many students. The digital screen in the hallway that distributed information about the course policy reached only a small portion of the students with information about the EB and EWP, similar to information distributed on the course website. Accessing the course website may be an extra step that students prefer to avoid, and the course policy in the hallway was displayed on a rotating slide deck. Therefore, the frequency with which a particular student sees the policy there can be very low. When instructors attempt to communicate important course policies to students, these methods may not justify the time and financial investments.

## Clarity of course policy communication

It can be challenging to communicate new policies or pedagogical interventions clearly and effectively. When the EWP policy was first introduced, one-third of the students stated that it was unclear to them (Ruesch and Sarvary, 2024). This inspired the authors to develop a multi-modal communication system and try to reach all the students using these modalities. According to

the students, the communication about the now-established EWP policy was very clear and somewhat clear (93% total), and only 7% of the students said that it was somewhat unclear and very unclear. This is an improvement compared to the first semester when the EWP policy was introduced without this communication strategy. The novel EB policy was somewhat unclear or unclear to 16% of the students. The students who did not find the two policies clear have all used fewer than five sources. The positive correlation between clarity and the number of communication channels indicated that students better understood both policies when they had engaged with the information on multiple communication channels, and the multi-modal communication method helped reach more students with the course policy.

In addition to the improved communication, the fact that the EWP policy was already established several semesters earlier may have also contributed to its success. The established EWP policy was recognized more frequently than the novel EB policy, as reported by students, in all measured communication modalities. Significantly more students reported that they gained information about the EWP policy than about the EB from the syllabus, the lecture and lab slides, and the infographic on Canvas. The established EWP policy was also reported to be distributed to more students via oral communication channels by the lab instructors and peers. This is likely because the lab instructors have more familiarity with the policy they already used in the previous semester, and students may have heard about the established course policy of the extensions from students who have taken the course earlier (academic generational knowledge). The novel EB policy was new to both the students and their lab instructors. Therefore, students relied on information from the course instructors and course documents, such as announcements in lectures and the syllabus. The importance of verifying that all instructors (teaching assistants, lab instructors, discussion leaders, learning assistants etc.) are well-informed about new policies so they can act as reliable sources of information for students cannot be understated.

The EWP policy was established in earlier semesters, so students may have heard about it before enrolling in the class. According to studies on academic performance, the best metric for a high grade in the course is prior knowledge of the subject (Jeffreys, 2007; Binder et al., 2019). Prior knowledge of course materials and policies can come from personal study, overlapping material garnered in an earlier course, or from students who have taken the course before. This academic generational knowledge is not only passed directly to students but also can be in the form of notes, study guides, and may be found online or on social network sites (Asterhan and Bouton, 2017; Bar-Tal and Asterhan, 2017). This type of passing of academic generational knowledge may partially explain why more students found the established EWP policy clearer than the new EB intervention despite both being communicated using the same modalities. Students may be more receptive to course policies that have been used before as they may have heard about them from their advisors or previous students in the class. Academic generational knowledge may serve many students very well, establishing expectations that ease the burden of the first week in the semester, wherein so much new information is passed onto students. But it is not something to which all students have access. The lack of understanding of a new policy by students who did not have access to this type of academic

generational knowledge is analogous to the experience of first-generation students unfamiliar with the academic processes when they arrive on campus. This only reiterates the value of frequent and varied communication of new instructional interventions, not just through the syllabus.

## Conclusions

As detailed in our paper about the implementation of the EWP, these flexible assignment extensions can provide a variety of benefits to both instructors and students (Ruesch and Sarvary, 2024). Instructors can adjust the EWP to fit their courses, allowing for assignments that make sense in the learning environment they create. It not only removes instructor bias from extension decisions but also introduces fairness, especially in cases where multiple co-instructors apply this policy, and most importantly, it makes assignment extension requests manageable in large courses. While the assignment extension requests have significantly decreased after implementing the EWP policy, some students still needed further support. The EB for course assignments offers a valuable addition, addressing difficulties such as emergencies when the EWP falls short. By aiding students in prioritizing their schoolwork, it addresses a crucial need. With the multitude of assignment deadlines each semester, this resource can be transformational. Notably, first-generation students, who often require more time to adapt to academic demands, benefit significantly from the EB. These assignment extension policies are not yet widespread, although many colleagues have expressed interest in adopting them. We hope that our studies have shown how flexibility and structure can co-exist and benefit both students and instructors. While established course policies like the EWP are familiar to students and thus more easily utilized, novel policies such as the EB can require more effort from the instructors to implement effectively. Effective communication of novel interventions is key, and it requires multi-modal channels to ensure clarity. Visual, oral, and written communication, supplemented by well-informed teaching assistants and peers, is essential. Peer teaching extends beyond course material, encompassing course policies as well. Instructors who implement new policies or pedagogical interventions should develop a multi-modal communication strategy to ensure that these interventions reach all students and are communicated clearly to their diverse student body. This study has shown that the increased number of communication channels enhanced the clarity of understanding by the students.

The combination of flexibility and structure has been shown to provide numerous benefits in large courses. A limitation of this study is the learning environment, a large introductory laboratory course, where formative and summative assessments may differ from those in a regular lecture course or a small seminar course. Our measurements, which include student self-evaluation, calculation of grades in Canvas, and the EB requests on the Jotforms, reflect our findings in our learning environment. However, the EWP and EB policies can easily be modified for any course size and type, allowing instructors to evaluate whether their students benefit from these pedagogical interventions. The communication channels we utilized were restricted to what was available during the semester of the study.

Instructors implementing multi-modal communication to share their course policies may devise more creative strategies to engage their students.

## Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

## Ethics statement

The studies involving humans were approved by Cornell University Institutional Review Board for Human Participants. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

## Author contributions

JR: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Visualization, Writing – original draft, Writing – review & editing. MS: Conceptualization, Funding acquisition, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

## Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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## Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/feduc.2025.1558758/full#supplementary-material>

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