Ungrading's Impact on Learning and Autonomy: Insights from an Empirical Study

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ABSTRACT

Library and Information Science (LIS) is an interdisciplinary field that integrates principles from various disciplines, including computer science and the humanites, positioning itself uniquely within STEM. This paper explores the adoption of ungrading in STEM-focused LIS courses and challenges grading paradigms to foster more inclusive and effective learning environments. Through a mixed-methods study involving thirteen graduate students, the research examines the impact of ungrading on student engagement, learning effectiveness, and perceptions of the learning environment. The research is ongoing, but preliminary findings suggest that ungrading reduces stress, shifts focus towards mastery, supports interest-driven learning, and promotes student responsibility for their own learning. The effects align with Universal Design for Learning (UDL) principles, suggesting that ungrading can enhance educational access and equity. This study contributes to the discourse on pedagogical innovation in LIS education and advocates for a shift towards assessment methods that emphasize learning and improvement over traditional grading schemes.

ALISE RESEARCH TAXONOMY TOPICS

Pedagogy; Students; Teaching Faculty

AUTHOR KEYWORDS

Ungrading; Teaching and Learning; Universal Design for Learning (UDL)

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INTRODUCTION

Library and Information science (LIS) integrates principles from a variety of disciplines to manage and disseminate knowledge effectively. It engages deeply with the methodologies of computer science, cognitive science, the humanities, and the social sciences. It therefore occupies a unique position within the STEM (Science, Technology, Engineering, and Mathematics) fields. Yet at its core, LIS is grounded in the systematic study and application of information technology, information management, librarianship, and information science. This interdisciplinary approach enables LIS professionals to design, implement, and evaluate information systems and services that meet diverse user needs, making it a STEM field that also branches into areas of social sciences and humanities.

The evolution of LIS reflects its STEM foundations in the adoption of digital technologies and computational methods to process, analyze, provide access to, and archive vast amounts of information. The discipline's engagement with open source software, as detailed by Burns (2011), exemplifies the intersection of technology and social justice within LIS, highlighting its commitment to access and equity through technological means. This commitment is further evidenced in the exploration of digital documents' impact on knowledge dissemination and the tacit knowledge dilemma (Burns, 2021). The digital age challenges traditional notions of documentation and pushes LIS towards innovative solutions that harness technology to preserve, interpret, and share knowledge.

LIS, therefore, represents a fluidity of disciplinary boundaries in the modern academic and professional landscape. It embraces the technical rigor of STEM and navigates the complexities of human information behavior. As such, LIS professionals contribute to a more informed, equitable, and technologically adept society. This work ensures that STEM's benefits are not confined to traditional scientific fields but extend into the work of cultural preservation, education, and community engagement. Its interconnectedness among multiple fields of inquiry is required if the challenges of the ongoing 21st century are to be addressed.

As STEM fields become increasingly central to solving contemporary challenges, educational institutions are pressed to adapt teaching methods that not only convey rigorous content but also engage students meaningfully in the learning process. This necessity is underscored by approaches like Universal Design for Learning (UDL), which emphasizes the importance of accommodating diverse learning variability and challenges to ensure equitable access to educational opportunities (Meyer et al., 2014). Universal Design for Learning (UDL) offers a path forward to support diverse modalities to support learner variability such as cognitive, emotional, motivational, social, cultural, developmental, neurodiverse variabilities. Despite advancement in the prominence of UDL in some higher educational contexts, for the most part it is still considered an ‘add on’ for the average instructor, or a pedagogical approach only required for students with special needs. Further, traditional grading schemes remain a staple of LIS education, which often fail to acknowledge individual learning trajectories and instead foster environments where grades, rather than mastery and improvement, become the focal point of learning (Rapchak, Hands, & Hensley, 2023).

This paper outlines promising findings of an *ungrading* approach from empirical research

of library and information science graduate students taking online STEM-focused LIS courses. For definitional clarity, ungrading is an umbrella term for multiple approaches to decenter grades and to center learning through qualitative feedback and increased student participation in their own assessments. In contrast, traditional grading schemes and approaches are less fluid and flexible, and in so being, often fail to recognize individual learning needs and trajectories, necessitating assessment methods that emphasize mastery and improvement, while taking into account the "whole student."

LITERATURE REVIEW AND GUIDING PERSPECTIVES

Grading schemes, especially those that are consider norm-referenced (with the guiding assumption that grades ought to be normally distributed based on the natural varied aptitude of students) reflect an attempt to measure static (in-time) ability over learning. Grades can therefore also have the effect of encouraging competitive classroom environments that incentivize students to focus on grades over learning. Cooperative-based learning environments, rather than competitive or individualistic-based ones, have been found to lead to higher achievement, better retention, increased ability to apply knowledge and to problem solve (Johnson et al., 1985). In this way, grades may not be effectively producing the desired outcome of instruction, which is (or at least should be) learning. Butler & Nisan (1986) have found that when students receive grades, they tend to ignore comments, and that students who receive only comments alone tend to outperform those who receive grades or no feedback. Qualitative feedback (a necessary part of ungrading), may also reduce instructional bias, which is believed to cause grading disparity between underrepresented minorities (URM and non-UM (Low et al., 2019).

Therefore, the concept of ungrading, which shifts the focus from traditional grading to holistic evaluation processes, presents a promising alternative that aligns with the UDL framework (Blum & Kohn, 2020). Studies of ungrading show that the practice helps students focus on learning, reduces their anxiety, and increases engagement (Greenberg et al., 2023; Kalbarczyk et al., 2023). Preliminary investigations in the domain of library and information science graduate courses suggest that the use of ungrading, as part of a broader UDL approach to pedagogy, can cultivate a more positive learning atmosphere and enhance student engagement and outcomes in STEM-focused courses (Burns, DiGiacomo, & Pusateri, 2023; Burns, et al., 2024). The impact of ungrading in STEM-focused LIS courses, characterized by their rigorous content and conventional grading methods, remains mostly unexplored.

At the same time, recent research underscores the critical need for innovative approaches to STEM education in terms of motivation and persistence, especially for students from underrepresented communities in the field. Studies have shown that learning communities and interventions tailored to address both cognitive and socio-psychological needs of students can significantly improve performance and persistence in STEM fields (Solanki et al., 2019). Moreover, active learning strategies have been identified as effective in boosting student performance and engagement in STEM courses (Freeman, 2014). These findings suggest a fertile ground for investigating the impact of ungrading on learning outcomes in STEM-focused LIS education.

METHODS

This IRB-approved study was conducted by two LIS professors and a trained UDL university leader. One of the LIS professors has over a decade of experience in STEM-focused LIS teaching and the second LIS professor is a trained learning scientist with a research focus on the design of more inclusive and engaging learning environments. Both LIS professors have been using ungrading approaches in their undergraduate and masters' level classes for several years. The third co-investigator is a trained expert in UDL and works for the university's center on teaching and learning and supports university faculty in the design of more engaging and inclusive learning environments, with a UDL perspective in mind. Study participants included volunteers from two Library Science graduate online (asynchronous) courses: Electronic Resource Management and Systems Librarianship. For the purposes of this study, any MSLS student taking one of those two courses during the Academic Year 2023-2024 was eligible to participate and no exclusion criteria were applied.

Ultimately, thirteen students agreed to participate in all aspects of the mixed-methods study, which included taking part in a pre and post course survey (designed by the instructor, with questions focused on course mastery), as well as a mid semester one-on-one interview with one of two of the co-Investigators (neither of whom were teaching the course). The interview protocol was designed to solicit student perspectives on their experiences with course learning and ungrading, and included questions like: *How will you define 'success' for you in this class? How important is it for you to get A's in your courses? (And in this course in particular) What does it mean for you if the typical letter grade system is removed from the course?; What is an ungrading approach to you? (in your own terms); Is this the first time you've experienced this?; How do you feel about this approach? How do you feel about yourself as a learner in the ungrading learning environment? In what ways does the ungrading approach change/shift how you engage the content you are learning?*

Quantitative data from pre- and post-course tests were assessed vis-a-vis an examination of learning outcomes specifically related to course learning goals, including any potential changes or shifts. Qualitative data analysis was informed by a grounded theory approach to analysis to provide novel insights into perceptions and attitudes towards ungrading and instructor-student relationships. We employed a grounded theory approach because of the dearth in extant empirical research on ungrading in a higher education STEM-LIS context that speaks directly to our particular phenomenon of inquiry. However, our own sense-making of learning, broadly conceived, is informed principally by our joint training in a sociocultural approach to human learning and development, which understands learning as a deeply relational and cultural social phenomena (Vygotsky, 1934/1978).

It is important to note this study's limitations, too. Namely, the sample population consisted of a small pool of graduate students, many of whom were at the end of their journey in higher education. In this way, certain pressures on performance might already have been lesser than in other programs or for other students. Additionally, the instructor's high-touch teaching style and evidenced positive student feedback, both in his course structure and his pedagogy, make it possible that the student's positive experience with the class was not due to his ungrading policy alone.

FINDINGS

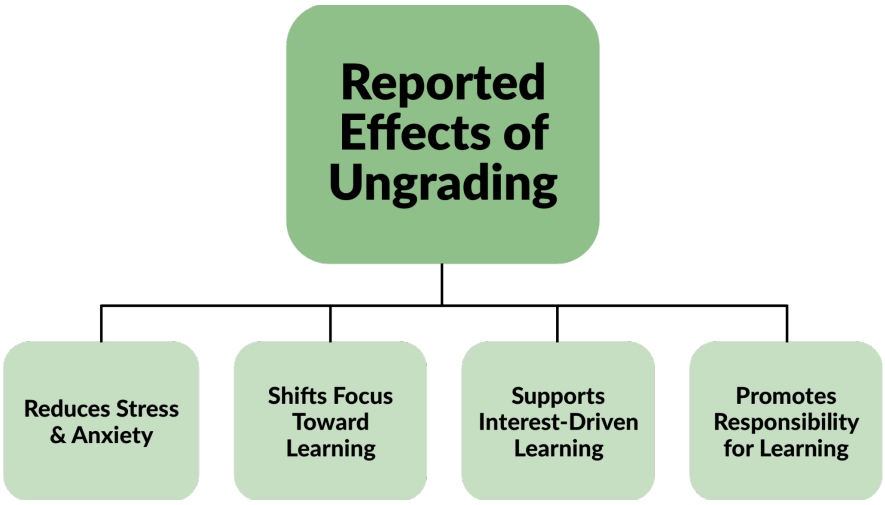
The initial findings from this study indicate that, as a whole, ungrading has had a positive impact on the masters students' learning and grasp of the content/material. In what follows we present the emergent analysis from data collected in the Fall of 2023, organized by student-reported effects of ungraded courses.

Effects

According to our preliminary data, reported effects of an ungraded course are the ways in which ungrading: (1) reduces stress, (2) shifts students' focus toward mastering the learning and away from compliance, and (3) supports interest-driven learning, and (4) promotes students in taking responsibility for their own learning (see Figure 1).

Figure 1

Student-Reported Effects of Ungrading Based on Initial Findings



Ungrading Reduces Stress and Anxiety

The most commonly reported effect of ungrading was that it reduced stress and anxiety for students. One student (Student 105) shared, "I think it takes a lot of pressure off …it quells some of the anxiety of '*Am I doing the right thing?*' and kind of turns it towards '*Am I understanding what I'm learning*?' kind of thing. It's just..it gives me more opportunity to spend time on the subject matter than on, you know, things that probably won't matter in the long run." Another student highlighted their own negative experience in courses that were heavily focused on grading (Student 107): "When I was younger [getting As] was really important to me, like I would agonize over to the point where I would get incompletes because I didn't feel like I was doing adequate work." This student went on to say that they found the ungrading approach to be

especially helpful for reducing stress in this graduate program because the program is mostly made up of working adults.

Proactively designing courses to relieve stress is a concept that is in alignment with the Universal Design for Learning (UDL) checkpoint 7.3: Minimize threats and distractions (CAST, 2018). This UDL checkpoint asks instructors to reduce or remove threatening events and situations in a given learning environment in order to support student engagement. It would appear that this UDL checkpoint is accurate because the next effect shows that students' interest in (and engagement with) learning the content was enhanced by removing a threatening aspect of the course, that is, the grades.

Ungrading Shifts Students' Focus Toward Learning

Another effect that was mentioned frequently in the interviews was that ungrading helped students shift their focus toward learning the content, and away from compliance. Student 103 mentioned, "It's not just about getting an A for me. It's about making sure that I learn everything that I can, and not just learn it, but understand how it works, so that going forward, I can apply that to what I do."

This shift in focus, from an external source of motivation (grades) to an internal source of motivation (learning) is related to the UDL Self Regulation checkpoint, 9.1: Promote expectations and beliefs that optimize motivation (CAST 2018), but also correlates with intrinsic (from within the self) and extrinsic (from outside the self) motivation as laid out in self-determination theory (Ryan & Deci, 2020).

Ungrading Supports Interest-Driven Learning

The third effect of ungrading that students highlighted is that ungrading allowed students to use the course to explore topics and content that is important and relevant to them and allows them to make decisions in their learning. Many students spoke about how an ungrading approach gave them the "freedom to explore aspects of interest" (Student 109). Student 102 said that ungrading "gives the flexibility to select what I want from the content and engage with that, and empower me to figure out what that means specifically to my goals." These student comments align with UDL Checkpoints 7.1: Optimize individual choice and autonomy, and 7.2: Optimize relevance, value, and authenticity.

This effect translated into support for students' *interest-driven learning*– that is, learning that is aligned with and supportive of the students' interests. In the field of the learning sciences, the construct of interest remains high in discussions of learning research, theory and best practice. Hidi and Renninger (2006)'s four phase model of "interest development" characterizes different phases of interest development, triggered situational interest, maintained situational interest, emerging individual interest, and well-developed individual interest. Along with several empirical studies (DiGiacomo et al., 2018; Ito et al., 2013; Penuel et al., 2016, Barron, 2006), the interest-driven theoretical framework highlights the diversity and texture of young people's interests, and their importance for maintaining persistence in the learning process as well as leading to better learning outcomes.

Ungrading Promotes Responsibility for Learning

The final effect that emerged from the data is that ungrading promoted students taking responsibility for their own learning. Student 110 shared that "Ungrading was beneficial to me because it allowed for more self-evaluation and growth instead of focusing on number-based achievements." These thoughts were echoed by Student 111 who said, "It promotes a sense of personal responsibility that, for me, made me more invested in figuring out how I needed to interact with the class content in order to learn best."

Helping students take ownership over their own learning is a strategy that has been shown to support self-regulation through the use of metacognitive practices (i.e., thinking about one's own thinking) (CAST, 2018; Posey, 2018). The CAST UDL Framework (2018) includes the idea of promoting student agency and taking responsibility for one's own learning in at least three different guideline categories within the *Engagement* principle, too. In the *Recruiting Interest* guideline, checkpoint 7.1: Optimize individual choice and autonomy promotes students making learning decisions as a way to get students engaged in their own learning. The *Sustaining Effort and Persistence* guideline suggests that in order to keep students engaged and persisting through difficulties in their learning, it is helpful to "Heighten the salience of goals and objectives" (UDL Checkpoint 8.1). In the Self Regulation guideline, checkpoint 9.3: Develop self-assessment and reflection" asks educators to provide opportunities for students to strengthen their metacognition skills through reflective practices. Purposeful inclusion of metacognitive strategies into course design is also consistent with what is considered best practice in the field of the learning sciences (Bransford et al., 2000), as the more teachers can get students to think about their own thinking and *make their thinking visible*, the more individual responsibility for reflection, iteration, and improvement becomes possible.

CONCLUDING REMARKS

By examining how ungrading influences student engagement, learning effectiveness, and perceptions of the learning environment in STEM-focused LIS courses, this study aims to contribute valuable insights into the pedagogical strategies that can foster more inclusive, engaging, and effective LIS education environments. The significance of this research lies in its potential to challenge and transform traditional grading paradigms, offering an evidence-based approach to support diverse student populations in the LIS field. As such, this paper not only addresses an urgent need for pedagogical innovation in higher education but also holds the promise of enhancing student outcomes and persistence in our crucial discipline. This endeavor aligns with the core principles of LIS: access, equity, and innovation. It proposes an educational model that mirrors the discipline's commitment to adapting and evolving in response to societal and technological changes. Moreover, it paves the way for pedagogical innovation in higher education by addressing an urgent need within our academic community to hold to our promise of enhancing student learning outcomes and persistence in LIS, a discipline that plays a pivotal role in shaping the future of the information landscape.

The findings from this study have the potential to inform and inspire a reimagined approach to teaching and learning in LIS. By embracing alternative methods of assessment, we can better prepare the next, hopefully diverse generation of LIS professionals to navigate and

lead in an increasingly complex and information-rich world that ensures the continued relevance and impact of our crucial discipline in the years to come.

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