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Making Recognition: Designing Awards as a Playful Pathway to Human-Centered Learning

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Abstract

This Teaching, Curriculum & Pedagogy paper describes a classroom intervention implemented in a sophomore mechanical engineering project course focused on product design and development. In the activity, student teams design and prototype physical awards intended to recognize peers at the end of the semester. Introduced mid-semester, the exercise is structured as a rapid, low-fidelity design sprint and asks students to practice human-centered design, requirement development, and paper prototyping while reflecting on what kinds of experiences, behaviors, and contributions are worth celebrating in a design learning environment.

Rather than rewarding "the best" or "the most," students are intentionally constrained to define awards that recognize effort, persistence, creativity, collaboration, and growth. Teams first specify award criteria, then sketch and build three-dimensional prototypes from cardboard and other simple materials. The awards are stored and revisited at the end of the semester, when students assign them to peers based on observed experiences during the course. This delayed recognition creates a reflective loop that connects early projection with lived experience.

The activity originated as a faculty development exercise and was adapted for undergraduate use to support both design skill development and community formation. Data for this paper include student award descriptions, sketches, prototype photographs, and end-of-semester reflections. A qualitative thematic analysis examines patterns in how students initially conceptualized recognition, how those ideas were embodied through prototyping, and how the awards were ultimately interpreted and given.

Findings suggest that designing recognition serves as a productive form of playful reflection. Students consistently emphasized process over product, using humor and metaphor to make sense of iteration, failure, teamwork, and persistence. The activity supported intrinsic motivation by giving students agency to define what mattered, and it contributed to a shared classroom culture grounded in empathy and mutual appreciation. By treating recognition itself as a design problem, the exercise helped students experience human-centered design not only as a method for creating artifacts, but as a way of shaping learning environments and relationships.

The paper concludes by discussing pedagogical implications for integrating playful, low-stakes, and reflective interventions into engineering design curricula, and by offering guidance for instructors seeking to cultivate curiosity, belonging, and process-oriented learning through human-centered teaching practices.

Keywords: engineering design education, human-centered design, gamification, reflective learning, communities of practice

Introduction

This Teaching, Curriculum & Pedagogy paper examines a classroom intervention designed to surface and reinforce what students value about learning in engineering design. The intervention asks students to design and prototype physical awards for their peers, not as a capstone celebration but as an early-semester design activity. By treating recognition itself as a design problem, the activity invites students to reflect on effort, persistence, creativity, and collaboration while practicing core design skills. The work presented here is grounded in classroom practice and aims to inform instructors seeking practical, human-centered approaches to teaching design.

Context and Motivation

Engineering design courses routinely emphasize iteration, teamwork, and learning from failure, yet students often experience these courses through an outcome-driven lens. Grades, deliverables, and formal evaluations can unintentionally signal that success is defined primarily by the quality of a final artifact. Even when instructors stress the importance of process, students may struggle to internalize those messages when assessment structures prioritize results.

Research in engineering and design education has repeatedly shown that learning to design involves more than acquiring technical skills. It requires interpretation, empathy, reflection, and social negotiation [1], [2]. Design problems are inherently human-centered, shaped by values, assumptions, and context rather than purely analytical optimization [3]. However, undergraduate students frequently encounter design as a checklist of tasks rather than as a practice of inquiry and meaning-making.

These tensions are especially visible in early project-based design courses. Sophomore students are often engaging in sustained, team-based design work for the first time. They are learning how to collaborate, manage uncertainty, and respond to failure while still developing confidence as engineers. Without explicit attention to these dynamics, students may interpret struggle as personal inadequacy rather than as an expected and productive part of design learning [4]. Creating instructional experiences that normalize iteration and support psychological safety is therefore a persistent pedagogical challenge.

The intervention described in this paper emerged from a simple question: *What would happen if students were asked to design the recognition that would later be given in the course?* Instead of receiving praise or awards defined by the instructor, students were invited to imagine what kinds of experiences, behaviors, or contributions might be worth celebrating by the end of the semester. In this framing, recognition became a design problem—one that required perspective-taking, projection, and interpretation.

This approach is grounded in work on reflective practice, which emphasizes that professional learning involves framing and reframing experience rather than simply applying techniques [1]. By asking students to define what might matter before outcomes were known, the activity encouraged forward-looking reflection rather than retrospective justification. Students articulated values while the learning process was still unfolding, aligning with experiential learning models that emphasize cycles of anticipation, action, and reflection [2].

Motivational research further supports this framing. Studies grounded in self-determination theory highlight autonomy, competence, and relatedness as key drivers of intrinsic motivation [5]. Traditional recognition structures in engineering courses often emphasize external validation through grades or rankings. In contrast, peer-defined recognition gives students agency in setting values, opportunities to demonstrate competence through creative expression, and connection through shared acknowledgment.

Finally, this work responds to growing attention within engineering education to classroom culture and belonging. Learning occurs through participation in communities of practice, where norms and values are negotiated collectively over time [6]. Small, well-timed pedagogical interventions can meaningfully shape these communities by making values visible and shared.

Course Setting

The activity was implemented in a sophomore mechanical engineering project course focused on product design and development. The course introduces students to open-ended design practice and serves as a bridge between foundational engineering coursework and more advanced project-based experiences. For many students, it represents their first sustained exposure to ambiguity, user-centered thinking, and collaborative design work.

The course typically enrolls 40-60 students organized into teams of four to six. Teams work on a semester-long design project that includes problem framing, needs identification, requirement development, concept generation, prototyping, and final presentation. Instruction combines short lectures with hands-on studio sessions and design workshops. While students have access to a campus makerspace for their primary projects, the awards activity intentionally relies on low-fidelity materials such as cardboard, paper, tape, and glue.

The awards activity was introduced in Week 5 of the semester, after teams had formed and begun early project work but before project concepts had fully converged. At this stage, students had enough shared experience to recognize common challenges, yet the outcomes of their projects remained uncertain. The activity was implemented as a single 50-minute in-class design sprint structured around defining criteria, generating concepts, and building prototypes.

After the initial session, the award prototypes were stored and revisited during the final week of the semester. At that time, students assigned the awards to peers based on observed experiences during the course. This delayed recognition created a reflective loop connecting early projection with lived experience.

Purpose of the Study

The purpose of this paper is to examine how a playful, student-driven awards activity can support reflection, intrinsic motivation, and community formation in an undergraduate engineering design course. Rather than evaluating effectiveness through comparative or experimental measures, this study seeks to understand how students engaged with recognition as a design task and what that engagement reveals about their perceptions of design learning.

The study addresses three guiding questions:

1. How do students conceptualize recognition and success when asked to design awards for peers in a design course?

2. What themes emerge from students' award ideas, prototypes, and final presentations across the semester?

3. How does designing and giving recognition shape reflection on design process, motivation, and classroom culture?

To explore these questions, the study draws on qualitative data including student-written award descriptions, sketches, photographs of low-fidelity prototypes, and end-of-semester reflections. A thematic analysis examines how students' ideas evolved over time and how humor, metaphor, and material form were used to make sense of design experiences.

This work contributes a detailed account of a replicable pedagogical intervention that foregrounds process, empathy, and shared values. By treating recognition as a designed learning experience, the activity offers one way instructors can support human-centered teaching in engineering design courses without requiring major curricular restructuring.

Background and Theoretical Framing

The awards activity is grounded in established scholarship on design learning, motivation, and participation in engineering education. Rather than advancing a new theoretical model, this section draws selectively from well-established frameworks to interpret how and why a playful, recognition-centered activity can support learning in a project-based design course. Three strands of prior work are particularly relevant: human-centered engineering and learning, gamification and intrinsic motivation, and communities of practice.

Human-Centered Engineering and Learning

Human-centered engineering emphasizes that engineering practice is fundamentally shaped by human needs, values, and experiences, not solely by technical optimization. Within design education, this perspective has been used to foreground empathy, context awareness, and reflective judgment as core components of professional competence [3], [7]. From this standpoint, learning to design involves developing ways of thinking and acting that integrate technical reasoning with interpretation and meaning-making.

Research on design cognition has long emphasized that designers engage in cycles of framing, testing, and reframing rather than linear problem solving [1], [8]. These cycles require comfort with ambiguity and an ability to learn from partial or imperfect outcomes. In undergraduate engineering contexts, however, students often approach design tasks with a solution-first mindset shaped by prior coursework that rewards correctness and closure. Without explicit instructional attention, students may struggle to see iteration and failure as productive elements of learning.

Human-centered approaches to engineering education seek to address this gap by making values, assumptions, and experiences visible. Reflection plays a central role in this process. Schön's notion of reflection-in-action highlights how professionals learn while acting, interpreting situations as they unfold rather than after the fact [1]. Similarly, experiential learning models

emphasize cycles of anticipation, experience, and reflection as essential to deep learning [2]. Activities that invite students to articulate what matters—before outcomes are known—can help shift attention from performance to process.

The awards activity aligns with this framing by positioning classmates as the "users" of a designed experience. To create a meaningful award, students must consider what others might experience during the course, what challenges they might face, and what forms of recognition would feel authentic. In this way, empathy is not introduced as an abstract concept or external user exercise, but as a familiar, socially grounded design task embedded in the classroom itself.

Gamification and Intrinsic Motivation

Gamification has been widely explored as a strategy for increasing engagement in engineering education, though its effectiveness depends heavily on how it is implemented. Approaches that rely on points, leaderboards, or competition often reinforce extrinsic motivation and may undermine deeper learning [5]. In contrast, game-like structures that emphasize autonomy, exploration, and meaning-making can support intrinsic motivation and reflection.

Self-determination theory identifies autonomy, competence, and relatedness as key psychological needs that support intrinsic motivation [5]. Learning environments that allow students to make meaningful choices, demonstrate capability, and feel connected to others are more likely to foster sustained engagement. In design courses, these needs are often unevenly met. Students may experience competence through technical work, but autonomy and relatedness can be constrained by rigid project requirements or competitive evaluation structures.

The awards activity uses gamification in a deliberately minimal and non-competitive way. The "game" consists of simple constraints—limited time, low-fidelity materials, and the requirement to avoid superlatives such as "best" or "most." These rules create structure without prescribing outcomes. Students are free to define their own criteria for recognition and to interpret success in ways that reflect shared experience rather than rank.

Research on play and learning suggests that playful constraint can lower barriers to risk-taking and enable reflection by reducing fear of evaluation [9], [10]. Within this activity, humor and absurdity were not distractions but mechanisms that made it safer to acknowledge struggle, failure, and uncertainty. Students were able to engage emotionally and socially with the design process while still practicing core skills such as requirement definition, ideation, and prototyping.

Importantly, the gamified structure also introduced a temporal element. By designing awards early in the semester and assigning them later, students engaged in a reflective loop that connected expectation with experience. This structure mirrors experiential learning cycles and reinforces the idea that meaning in design emerges over time rather than at a single evaluative moment.

Communities of Practice

Learning in engineering design courses is inherently social. Students develop competence not only by acquiring skills but by participating in shared practices, negotiating norms, and

constructing identity within a group. Wenger's theory of communities of practice provides a useful lens for understanding these dynamics, emphasizing learning as participation in a community with shared goals, language, and artifacts [6].

In project-based courses, communities of practice often emerge informally through teamwork and shared challenges. However, the values that shape these communities—what is celebrated, what is ignored, what is considered legitimate—are rarely made explicit. Recognition plays a powerful role in this process. What a community chooses to celebrate signals what it values.

The awards activity made this process visible by asking students to collectively define recognition. The resulting award names, criteria, and physical artifacts became part of the class's shared repertoire. Terms like "Ctrl+Z moment" or "I Tried Award" functioned as shorthand for complex experiences, allowing students to talk about iteration, failure, and persistence using a shared language.

This form of peer-defined recognition also supported legitimate participation for a wide range of students. Because the activity valued humor, observation, and empathy alongside technical skill, students could contribute meaningfully regardless of fabrication expertise or confidence. This inclusivity aligns with Wenger's notion of legitimate peripheral participation, in which newcomers engage in community practices in low-risk ways as they build identity and competence [6].

Finally, the instructor's role in the activity, facilitating rather than defining recognition, helped distribute authority within the classroom. By stepping back from evaluative control, the instructor created space for students to co-construct the culture of the course. This shift supports a view of teaching as the design of learning environments rather than the delivery of content, a perspective increasingly emphasized in design and engineering education research.

Activity Design and Implementation

The awards activity was designed as a short, low-stakes classroom intervention that could be implemented within a single class period while reinforcing core design learning goals. Its structure reflects principles from human-centered design, experiential learning, and reflective practice, but it was intentionally framed for students as a playful design challenge rather than a formal assessment. This section describes the origins of the activity, its instructional goals, and how it was implemented in the course.

Origins and Goals

The activity originated in a faculty development workshop focused on integrating human-centered design practices and making into engineering and design courses [14]. In that setting, faculty participants were asked to prototype physical awards to recognize their workshop peers with their designed activities. The exercise prompted discussion about values, motivation, and classroom culture, and it revealed how recognition can surface implicit beliefs about learning.

The undergraduate version of the activity retained this core idea while adapting it to meet specific instructional goals in a sophomore mechanical engineering design course. Four goals guided the design:

First, the activity was intended to give students early practice with **human-centered thinking** in a familiar social context. By designing awards for peers, students treated classmates as users, considering lived experiences rather than hypothetical stakeholders. This framing positioned empathy and perspective-taking as design skills rather than abstract ideals [3].

Second, the activity provided a low-stakes opportunity for prototyping. Students practiced defining requirements, sketching concepts, and building three-dimensional artifacts without the pressure of technical performance or grading. Low-fidelity materials encouraged rapid iteration and experimentation, aligning with design education research that emphasizes prototyping as a tool for thinking rather than validation [8].

Third, the activity aimed to foreground process over product. By prohibiting superlative language such as "best" or "most," the exercise intentionally disrupted competitive framing. Students were encouraged to recognize effort, persistence, creativity, and collaboration—qualities central to design learning but often undervalued in formal assessment.

Finally, the activity was designed to support community formation early in the semester. By asking students to imagine what might be worth celebrating later, the exercise created shared expectations and a collective sense of purpose. This goal reflects prior work on communities of practice, which emphasizes the importance of shared values and artifacts in shaping learning environments [6].

Activity Overview

The awards activity was implemented during Week 5 of the semester as a 50-minute in-class design sprint. Students worked in their existing project teams and were given access to simple materials including cardboard, paper, tape, scissors, and glue. The exercise was structured around three phases that mirror a simplified design process: specification, concept development, and prototyping.

Phase 1: Award Specification (5-10 minutes)
Teams began by defining the purpose and criteria for their award. They selected a name and wrote a short description explaining what the award represented and what behaviors or experiences it was intended to recognize. The only constraints were that the award had to reflect an experience relevant to the course and could not use superlatives such as "best" or "most." This phase emphasized requirement development and interpretation rather than evaluation.

Phase 2: Award Design (10-15 minutes)
Teams then translated their ideas into visual form by creating a labeled sketch of the award. The sketch needed to communicate both physical structure and symbolic meaning. Students were encouraged to think in terms of metaphor and representation, using form to express abstract ideas such as persistence, iteration, or teamwork.

Phase 3: Award Prototyping (25-30 minutes)
In the final phase, teams built a three-dimensional prototype of their award using the available materials. Prototypes were required to be free-standing and large enough to be visible during presentation. Precision and finish were intentionally de-emphasized in favor of speed, clarity, and expression. This phase emphasized learning through making and collaborative problem-

solving under time constraints [8]. At the end of the session, each team briefly presented its award to the class, explaining its meaning and criteria. Prototypes were collected and stored for later use.

Integration into the Course

The awards activity was integrated into the course as a formative learning experience rather than a graded deliverable. Participation was required, but the quality of the award design was not formally assessed. This choice reinforced the low-stakes nature of the exercise and encouraged creative risk-taking.

The activity complemented existing course content on needs finding, requirement development, and prototyping. In subsequent weeks, instructors referenced the awards informally when discussing iteration, failure, and teamwork, using shared examples to reinforce design concepts. This helped the awards become part of the class's shared language and culture.

During the final week of the semester, teams revisited their original awards and assigned them to peers based on observed experiences during the course. This closing step transformed the prototypes into instruments of peer recognition and reflection. By connecting early projection with lived experience, the activity created a recursive learning loop aligned with experiential learning models [2].

Overall, the awards activity functioned as a compact but meaningful intervention that reinforced design skills, supported reflection, and contributed to a shared sense of community. Its simplicity and minimal resource requirements make it adaptable to a wide range of design courses and instructional contexts.

Data and Methods

This study uses qualitative methods to examine how students engaged with a playful, recognition-centered design activity over the course of a semester. The goal of the analysis was not to evaluate learning gains or compare outcomes across conditions, but to understand how students articulated values, interpreted design experiences, and made meaning through the act of designing and giving recognition. The methods described here are consistent with classroom-based inquiry and scholarship of teaching in engineering education.

Data Sources

Data were drawn from student artifacts generated as part of normal course activity. These materials captured students' thinking at multiple points in time and across different modes of expression. Three primary sources of data were used.

Teams submitted short written descriptions during the initial awards session that documented the name, purpose, and criteria for each award. These texts were typically brief but expressive, often blending humor with reflection. They provided insight into how students initially conceptualized recognition and success early in the semester. Teams produced sketches and low-fidelity physical prototypes of their awards. Photographs of these artifacts, along with short explanatory captions, were collected and archived. The prototypes served as material representations of abstract ideas

such as persistence, iteration, or collaboration, allowing analysis of how students translated values into form. At the end of the semester, teams submitted brief written reflections explaining how and why their award was assigned to a particular peer or team. These reflections provided a retrospective lens, revealing how students interpreted their earlier ideas considering lived experience.

Across the semester, data were collected from 21 project teams, representing approximately 85 students. All materials were de-identified prior to analysis. Team names were anonymized, and no individual student names appear in this paper. Instructor field notes and photographs were used to support contextual understanding but were not coded as primary data.

Analytical Approach

The analysis followed a qualitative thematic approach focused on identifying patterns of meaning across student artifacts. This approach is well suited to examining how learners interpret experiences and express values through language and design [11]. Rather than treating student work as evidence of correctness or performance, artifacts were analyzed as expressions of sense-making.

Analysis proceeded in three stages. First, all data were reviewed multiple times to develop familiarity with tone, language, and recurring motifs. Initial descriptive codes were applied to text and images, capturing ideas such as effort, humor, iteration, teamwork, and reflection.

Second, codes were grouped into broader thematic categories through constant comparison across data sources. This stage emphasized connections between early award concepts, physical representations, and final assignments. Themes were refined iteratively through memo writing, which documented analytic decisions and emerging interpretations [12].

Third, themes were examined longitudinally by comparing how ideas appeared during early ideation, prototyping, and final recognition. This cross-stage comparison made it possible to trace shifts in meaning over time, particularly how humor, initially used as commentary, often evolved into sincere recognition of persistence or growth.

Throughout the analysis, attention was given to both textual and visual data. Physical prototypes were treated as meaningful artifacts rather than illustrations, with form, balance, and material choices interpreted alongside written descriptions.

Researcher Role

The researcher served as the course instructor, a position that provided direct access to classroom context while also requiring careful reflexivity. This dual role is characteristic of practitioner research in engineering education and aligns with traditions of design-based and action-oriented inquiry [13]. To mitigate potential bias, several steps were taken. Analysis focused on student-produced artifacts rather than instructor interpretations of behavior. Analytic memos were used to distinguish observation from interpretation and to surface assumptions during coding. Claims were grounded explicitly in evidence from student work rather than anecdotal impressions.

Participation in the awards activity was required as part of the course, but inclusion of student work in research analysis followed institutional guidelines for minimal-risk educational research. All identifying information was removed prior to analysis.

Findings

Analysis of student artifacts revealed consistent patterns in how students conceptualized recognition, translated those ideas into physical form, and ultimately used the awards to reflect on their shared experiences. Across all stages of the activity, students emphasized design process, effort, and social dynamics rather than technical performance or outcomes. Humor and metaphor played a central role in this sense-making, allowing students to engage reflectively without slipping into evaluation or ranking.

Themes from Early Ideation

During the initial awards session in Week 5, teams generated award concepts that reflected anticipated challenges and experiences rather than project outcomes. Very few awards referenced technical achievement or performance metrics. Instead, students focused on behaviors and dispositions they expected would matter as the semester unfolded. Examples shown in Figure 1.

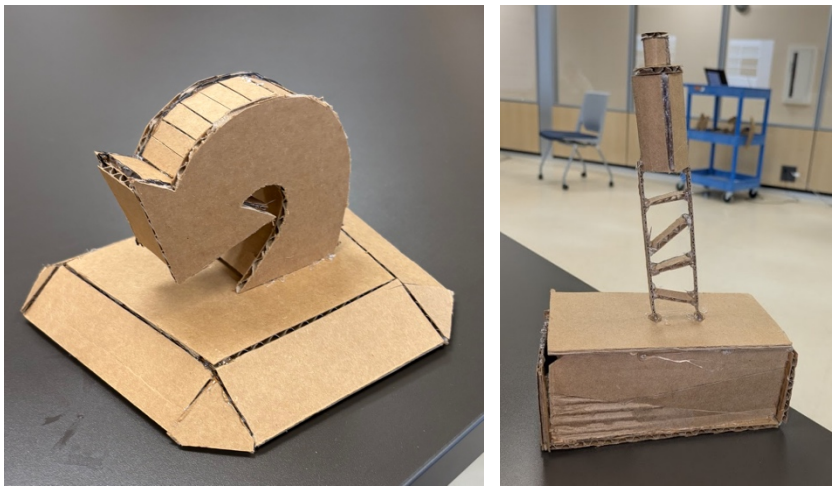

Figure 1. Example paper-prototyped awards:
Control-Z Champion (l) for changing project direction, 5-Hour Energy Award (r) for procrastination

Many teams anticipated moments of frustration, false starts, or stalled progress and designed awards to recognize effort in the face of those challenges. A dominant theme was *persistence through difficulty*. Award titles such as “The I Tried Award” or “The Still Showing Up Trophy” reflected an expectation that struggle would be part of the course experience. These early ideas framed persistence as worthy of recognition, even before students had encountered the full demands of the project.

Several awards referenced redesign, undoing work, or starting over. Another recurring theme was *iteration and revision*. Metaphors such as erasers, rewind buttons, or tangled loops appeared frequently in sketches and descriptions. These concepts suggest that students were already aware

that iteration would be central to the design process, even if they had not yet experienced it in depth. Importantly, iteration was framed as normal rather than as failure.

Some teams designed awards to recognize quiet contributions, patience in teamwork, or emotional support within teams. One more theme involved *collaboration and emotional labor*. These ideas point to an early awareness that design work involves relational effort, not just individual creativity or technical skill. By naming these contributions explicitly, students signaled that they expected teamwork to be both challenging and important.

Across all early ideation artifacts, humor was pervasive. Award names were playful, self-aware, and often exaggerated. This humor did not trivialize the activity; instead, it functioned as a low-risk way for students to acknowledge uncertainty and vulnerability. Humor allowed students to anticipate difficulty without framing it as deficiency, supporting a more generous and process-oriented view of learning [9].

Insights from Prototyping

The prototyping phase deepened and refined the themes identified during ideation. As students translated abstract ideas into physical form, they were forced to make interpretive decisions about symbolism, scale, and visibility. These choices revealed how students understood the experiences they were attempting to recognize.

Many prototypes used *instability or imbalance* as a design feature. Awards wobbled, leaned, or appeared deliberately precarious, often requiring careful placement to remain upright. These physical qualities mirrored students' descriptions of the design process as uncertain and dynamic. Rather than correcting instability, teams embraced it as meaningful, suggesting that difficulty and imperfection were seen as integral to learning.

Material choice also carried symbolic weight. Cardboard seams, visible tape, and rough edges were often left exposed. In presentations, students explicitly referenced these features as representations of iteration, repair, or "making do." The unfinished quality of the prototypes aligned with the low-fidelity constraints of the activity and reinforced the idea that learning was ongoing rather than complete.

Prototyping also surfaced *collective creativity*. Teams frequently divided tasks organically, with some members focusing on structure, others on decoration or storytelling. This division of labor mirrored team dynamics in larger design projects and provided an early rehearsal for collaborative problem-solving. The shared act of making became a site for negotiation, humor, and mutual support.

Notably, technical precision was rarely mentioned during presentations. Students did not apologize for crude construction or limited materials. Instead, they emphasized clarity of meaning and alignment with intent. This shift suggests that the prototyping context helped students temporarily decouple quality from polish, focusing instead on communication and purpose [8].

Patterns in Final Recognition

When awards were revisited and assigned during the final week of the semester, students consistently returned to the values articulated early in the course. Rather than redefining recognition based on project outcomes, students used their original awards to reflect on lived experiences, often with greater specificity and emotional depth. Awards originally framed humorously were frequently given with sincere explanation. For example, awards that initially referenced failure or confusion were assigned to peers who demonstrated resilience, leadership during setbacks, or willingness to restart after unsuccessful attempts. Students described specific moments when these behaviors mattered, grounding recognition in shared memory rather than abstraction.

A notable pattern was the *absence of competitive framing*. Students did not debate who "deserved" an award in comparative terms. Instead, they focused on matching awards to experiences that aligned with the original intent. This suggests that the early constraint against superlatives successfully shifted attention away from ranking and toward interpretation.

Final reflections also revealed that students had begun to see design learning as cumulative and relational. Recognition often acknowledged how individual actions affected team momentum or morale. Students used the awards to tell short stories about growth, adaptation, and collaboration, reinforcing a shared narrative of the course experience.

Across teams, the act of giving recognition appeared to strengthen a sense of community. Students reported feeling seen and appreciated for contributions that were not always visible in formal assessment. This aligns with research suggesting that peer acknowledgment can reinforce belonging and engagement in learning environments [6].

Discussion

The findings from this study suggest that designing recognition can function as a meaningful form of human-centered learning in an undergraduate engineering design course. By engaging students in the creation and later assignment of awards, the activity shifted attention from outcomes to experiences, from evaluation to interpretation, and from individual performance to shared meaning. This section interprets these patterns through three lenses: recognition as a design practice, play as reflective scaffolding, and peer acknowledgment as a mechanism for community formation.

Recognition as a Design Practice

One of the most significant insights from this work is that recognition itself can be treated as a design problem. When students were asked to define what should be celebrated, they engaged in the same kinds of activities central to human-centered design: understanding users, interpreting needs, making value judgments, and communicating intent through form. Unlike traditional assessment structures, which define success externally and retrospectively, the awards activity positioned students as authors of value. This authorship required them to articulate criteria that were meaningful in advance of knowing outcomes. In doing so, students practiced forward-looking reflection, a key element of professional judgment in design [1]. Rather than asking "Did we succeed?", students asked "What will matter, and why?"

This reframing aligns with scholarship that emphasizes design as an interpretive act rather than a purely technical one [3], [8]. Students were not optimizing for correctness or performance; they were negotiating meaning. The physical awards served as boundary objects that allowed abstract values—such as persistence or collaboration—to be discussed, debated, and shared in tangible form. Treating recognition as designed rather than given redistributed authority in the classroom and positioned students as co-creators of the learning environment.

Play as Reflective Scaffolding

The playful structure of the activity played a critical role in enabling reflection without defensiveness. Humor, exaggeration, and low-fidelity materials created psychological distance from evaluation, allowing students to acknowledge difficulty, failure, and uncertainty openly. Rather than trivializing learning, play functioned as a scaffold that made serious reflection more accessible. This finding is consistent with research on play in learning, which suggests that playful contexts can lower perceived risk and support exploration and meaning-making [9, 10]. In this case, play allowed students to engage emotionally with design experiences while avoiding the pressure to perform. The absence of grades and the use of simple materials reinforced the idea that the activity was about interpretation, not judgment.

Importantly, the playfulness of the awards did not disappear over time. What began as humor during ideation often evolved into sincere recognition by the end of the semester. This shift suggests that play can serve as an entry point into deeper reflection rather than as a superficial engagement strategy. The delayed assignment of awards created space for students to revisit earlier ideas with greater insight, mirroring experiential learning cycles that emphasize reflection over time [2].

Peer Recognition and Community Formation

The awards activity also functioned as a mechanism for shaping classroom culture. By making recognition peer-defined and non-competitive, the exercise helped establish norms that valued effort, care, and collaboration. These norms were reinforced not through instructor messaging but through shared practice. From a communities of practice perspective, recognition signals what a community values [6]. The awards made those values visible. Students used the activity to acknowledge forms of contribution that often go unnoticed in formal assessment, including emotional labor, persistence during setbacks, and quiet leadership. In doing so, they expanded the definition of legitimate participation in the design course.

The act of giving recognition also appeared to strengthen belonging. Students described feeling seen for their contributions and appreciated for their effort, not just their results. This aligns with prior work suggesting that peer acknowledgment can support engagement and identity formation in engineering education [6]. While this study does not claim long-term impact, the findings suggest that even brief interventions can influence how students relate to one another and to the learning environment.

Taken together, these interpretations point to the pedagogical value of designing for recognition, play, and reflection. The awards activity did not replace technical learning or assessment, nor was it intended to. Instead, it complemented existing course structures by addressing dimensions

of design learning that are often implicit or undervalued. By treating recognition as a designed experience, the activity offered students a way to practice human-centered design while simultaneously shaping the culture in which that design learning occurred.

Implications, Limitations, and Future Work

This study was intentionally scoped as a classroom-based inquiry into teaching practice rather than a controlled evaluation of learning outcomes. As such, its contributions lie in the pedagogical insights it offers, the boundaries it makes visible, and the directions it suggests for future exploration. The following subsections articulate implications for design instruction, acknowledge limitations of the work, and outline avenues for continued research and curricular experimentation.

Pedagogical Implications

The awards activity demonstrates how small, well-timed interventions can meaningfully influence how students experience design learning. By shifting recognition from an instructor-defined outcome to a student-designed artifact, the activity foregrounded values that are often stated but rarely enacted in engineering curricula: persistence, curiosity, collaboration, and care. One implication is that process-oriented values can be reinforced without adding formal assessment structures. The activity required no grading rubric and minimal class time, yet it prompted sustained reflection and shared language around design learning. This suggests that instructors do not need to overhaul assessment systems to emphasize process; instead, they can introduce complementary experiences that make those values tangible. Another implication concerns reflection through making. Rather than asking students to write about their experiences, the awards activity embedded reflection within a design task itself. Students articulated values by giving them form. This approach may be particularly effective in engineering contexts, where students are often more comfortable expressing ideas through artifacts than through abstract writing. Designing reflective prompts that align with students' strengths as makers can lower barriers to engagement while deepening insight.

The activity also highlights the instructional value of non-competitive recognition. By removing superlatives and rankings, the exercise shifted attention away from comparison and toward interpretation. This reframing can be especially important in team-based courses, where competitive dynamics may undermine collaboration. Peer-defined recognition offers a way to celebrate diverse contributions without reinforcing hierarchies. Finally, the activity models a shift in the instructor's role from evaluator to facilitator. By ceding authority over recognition, the instructor created space for students to co-construct classroom culture. This approach aligns with human-centered teaching practices that view learning environments as designed systems rather than fixed structures.

Limitations

Several limitations should be considered when interpreting these findings. First, the study was conducted in a single sophomore mechanical engineering design course at one institution. The course culture, instructor style, and student demographics likely shaped how the activity was received. The findings should therefore be understood as illustrative rather than generalizable.

The instructor served as the primary researcher, which introduces the possibility of interpretive bias. While analysis focused on student-produced artifacts rather than instructor impressions, the dual role of teacher and researcher necessarily shapes how data are collected and interpreted. This positionality is common in scholarship of teaching and learning, but it warrants transparency. The data are qualitative and artifact-based. While these sources provide rich insight into student sense-making, they do not capture long-term effects on motivation, identity, or retention. The study also does not include comparison groups or pre/post measures, limiting claims about impact. The playful tone of the activity may not translate seamlessly to all instructional contexts. Students' willingness to engage with humor, metaphor, and low-fidelity making likely reflects local norms and expectations. In more formal or high-stakes environments, additional framing may be necessary to establish legitimacy.

Future Work

The awards activity opens several avenues for future research and curricular development. One direction involves longitudinal study. Following students across multiple courses could help explore whether early experiences with recognition and reflection influence how students approach later design work, teamwork, or failure. There is adaptation across contexts. Variations of the activity could be implemented in first-year engineering courses, capstone design experiences, or interdisciplinary studios. Comparing how students define recognition at different stages of their education may reveal shifts in values and identity over time.

The activity also has potential as a faculty development tool. Because it originated in a teaching workshop, it could be used to help instructors reflect on their own assumptions about success, assessment, and motivation. Facilitating the activity with faculty participants may support professional learning communities centered on human-centered pedagogy.

Future work could explore ways to document and assess playful, reflective learning without undermining intrinsic motivation. Developing light-touch reflection prompts or artifact-based assessment strategies may help instructors connect activities like this one to broader curricular goals while preserving their low-stakes character.

Taken together, these directions point toward a broader agenda of designing learning environments that make values visible. The awards activity offers one example of how recognition, when treated as a design problem, can support reflection, motivation, and community in engineering education.

Conclusion

This paper has described a simple but purposeful classroom intervention in which students in a sophomore mechanical engineering product design and development course designed and later assigned awards to their peers. What began as a short, low-fidelity design sprint evolved into a shared reflective experience that shaped how students understood effort, persistence, collaboration, and learning in design. By treating recognition itself as a design problem, the activity invited students to practice human-centered thinking while also contributing to the culture of the course.

The findings suggest that when students are given agency to define what is worth celebrating, they attend more closely to process than product. Rather than focusing on technical achievement or final outcomes, students consistently emphasized iteration, resilience, and relational work. Humor and play were not distractions from learning but mechanisms that enabled honest reflection and lowered the risk associated with acknowledging struggle. Through designing and giving awards, students articulated values that are often implicit in design education but rarely made tangible.

From a pedagogical perspective, the activity demonstrates how reflective learning can be embedded directly into making rather than added as a separate, evaluative task. The awards required no grading, minimal materials, and a single class period, yet they supported sustained reflection across the semester. This suggests that instructors can reinforce human-centered values without significant curricular restructuring by designing moments that surface meaning, not just performance.

The work also highlights the role of recognition in shaping classroom communities. Peer-defined awards expanded what counted as legitimate contribution, allowing students to acknowledge emotional labor, quiet leadership, and persistence alongside technical effort. In doing so, the activity supported a more inclusive and participatory learning environment, aligning with broader goals in engineering education related to belonging and identity formation.

Importantly, this paper does not argue that playful recognition replaces rigorous technical instruction or formal assessment. Instead, it shows how small, intentional interventions can complement existing structures by addressing dimensions of learning that are otherwise left implicit. The awards activity functioned as a prototype—a designed experience that foregrounded empathy, curiosity, and shared values while reinforcing core design practices.

For educators in engineering design, the central takeaway is straightforward: recognition can be designed. When students are invited to co-create the symbols and criteria of success, they engage more deeply with the learning process and with one another. In an educational landscape increasingly concerned with human-centered engineering, motivation, and community, such moments matter. Sometimes, the most meaningful learning begins not with a deliverable or a grade, but with a cardboard prototype and a question about what is worth celebrating.

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