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Finding the Fun: Gameful Design of Classroom Goal Structures for Motivating Student Performance

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This research aims to identify key elements of game design that can be applied to classroom activities in a way that is beneficial to the learner. This is done through an extensive literature review of philosophical texts and research in psychology, game studies, gamification, and education. Following that, two studies examine the outcomes of game-like learning activities and their relationship to both the design qualities of an activity and the traits of the individual learners. The findings illustrate how opportunities for playful actions and the satisfaction of individual psychological needs contribute to the experiences of an activity.

The trend of using game-like rewards and mechanics in non-game contexts in order to encourage motivation and engagement has grown rapidly in recent years. Especially in education where the problem of student engagement is a persistent one, there is a history of looking to games for ways to make activities more appealing. The term “gamification” is used often to describe the strategy of borrowing symbols and metaphors from games to make activities more enjoyable. While enthusiasts hail gamification as a revolution in motivational design, there are also skeptics among game designers and researchers. Critics claim that gamification simply applies a layer of game-like elements on top of an intrinsically unexciting activity in order to manipulate users into achieving goals that would otherwise not interest them. In addition, research findings in behavioral psychological show that external rewards

weaken the intrinsic motivation of an activity and harm personal well-being.

An alternate perspective to gamification is that typical approaches are simply misguided, and that game design has the potential to bring the joy of optimal experience to users. The term “gameful design” embodies the design philosophy of recreating experiential qualities of games in order to harness their psychological power of engagement in non-game settings. Existing literature suggests that full games are generally self-contained activities as they create their own social and psychological contexts through play. As a result, game-based learning activities must address problems of knowledge transfer when the learner is expected to use knowledge from the game in real-world contexts. Case studies of gamification approaches further reveal that adding game goals to important real-world activities might appear distracting and thus interfere with the user’s transgression into a playful mentality. Game-like experiences require this playful mindset; otherwise, the user will experience anxiety in response to elevated stimulation from the active environment. Based on this review, we propose “gameful learning” as a kind of gameful design of authentic learning experiences. The objective of gameful learning is to use playful elements of games in a way that enhances the endogenous value of goals, artifacts, and rewards in the real-world target domain.

The first study builds on existing taxonomies of play and pleasure to create a model for evaluating game-like activities. The Playful Affordances Model combines behaviors with experiential states that are hypothesized to arise when adopting a playful disposition. It borrows the idea of affordances from design to emphasize the way playful actions can be designed into an activity. A game-based learning activity was then assessed using the dimensions of the model to gauge its experiential qualities. The results show that student enjoyment was strongly connected to experiences of challenge and thrill, which were likely encouraged by the design elements of limited resources, timed phases, and dynamic competition/cooperation.

A second study examines motivation, confidence, affect and experiences of flow in Japanese students learning English in two separate courses at a college of technology. A skill bars feedback mechanic was added to the experiment as a gamification condition. The skill bars were used for the assessment of public speaking assignments in the English presentation course and private recordings of speaking practice in the English conversation course. In the presentation course, students using the skill bars had higher negative affect and reported lower dispositional flow than those in the control group. The conversation course showed better results for both high and low ability students who used the skill bars. Elements of flow such as clear goals and unambiguous feedback were significantly more frequent than for students of intermediate ability making up the control group. Furthermore, these scores corresponded

with changes in self-efficacy for all students. Implications of these findings as well as various extraneous factors that may have influenced the outcomes are discussed in terms of the theoretical framework and future design practice.

These findings show promise for the use of game-like activities in educational settings. Game mechanics and reward structures may aid the satisfaction of psychological needs, such as the need for feelings of competency, which might otherwise hinder student participation. The state of the research shows that the current best design practices promote experiences of autotelic play and reward participants with meaningful information that advances meaningful goals. In the first study, autotelic experiences were identified as challenge and thrill. The second study showed the development of personal skills to be a worthy motivation when augmented by the gameful symbolism of skill bars; although, the efficacy of the gamification element was likely dampened by fear of public speaking for students in the presentation course. Overall, these cases provide insight into the contextual and individual factors that may influence the effectiveness of gameful design.