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A Guide for Game-Design-Based Gamification

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In recent years, Gamification is getting considered a magic solution for most educational problems. Many researchers and practitioners chase it, and many studies try to unveil its secrets and details. In one form or another, the term and the field are acknowledging the power of games to engage and induce states of flow in players. Gamification chases this power to apply it to environments that originally are not ludic. The aim is to get people engaged in serious or important work with the same intrinsic motivation than in games.

This enterprise is noble but extremely complicated. As more and more research is being carried out, results remain unclear. Hundreds of research experiences have been undertaken with mixed results. Many studies find benefits when applying Gamification, but many others do not and even some of them report damage. Overall tendency seems to report some small but measurable benefits. These results are quite unexpected compared to the exponential rise in game sales and gaming culture in general.

The problem with most Gamification research seems to be in its different focus from actual Game Design. Many studies pursue scientific isolation of statistical variables. This leads them to consider the isolated influence of individual game elements like points, badges and leaderboards in motivation and behaviour change. The problem with this approach is that a game is not an unrelated set of game elements. Metaphorically, a game is similar to a grand-cuisine dish: testing its isolated ingredients in other contexts does not convey useful information to learn to cook the dish.

This view is supported by relevant Gamification practitioners like Kevin Werbach, Yu-kai Chou or Sebastian Deterding and also Game Design experts like Raph Koster or Jesse Schell. In Werbach's words: "Clearly not everything that includes a game element constitutes gamification. Examinations in schools, for example, give out points and are non-game contexts." Deterding goes beyond that in Reference: "The main task of rethinking Gamification is to rescue it from the gamifiers." For Deterding, the majority of gamifiers are confused as they simple try to add points, badges and leaderboards to everything, with great disregard to the complexities of Game Design.

Games are complex environments that deliver experiences to players. They are made of game elements, similar to a dish is made of ingredients but the process, interactions, uses and objectives are key for the final result:

"Gamification should be understood as a process. Specifically, it is the process of making activities more game-like. Conceiving of Gamification as a process creates a better fit between academic and practitioner perspectives. Even more important, it focuses attention on the creation of game-like experiences, pushing

against shallow approaches that can easily become manipulative. A final benefit of this approach is that it connects Gamification to persuasive design.”

These reasons could explain why there is no scientific consensus on a formal approach to Gamification. There are analyses of the characteristics of good games which Gamification pursues. There also are methodological approaches, design frameworks and even descriptions of design patterns based on Game Design principles, good practices and experience. However, all approaches rely on subjective interpretation and creative design. In fact, many professional Game Designers and researchers express their view that games cannot be formally specified at all.

Even if games cannot be formally specified and individual game element research does not yield complete information, there are useful approaches. Assuming that Game and Gamification Design are artistic in essence, approaches the focus on acquiring design experience. There is no need to solve “what-is-a-game” philosophical debate. Game-like designs able to become engaging voluntary experiences for players could be successful. Willingness can make experiences fall in persuasive or seductive sides of Tromp, Hekkert and Verbeek’s matrix in which design can influence behaviour. Similar to References, this work focuses on this practical approach.

The main goal of this work is to help acquire Game Design experience for Gamification. Experienced practitioners may found methods, frameworks or models cited in the literature more suitable to their needs, particularly References. These works have great value but require previous Game-Design-Based Gamification experience to be fully comprehended and put into practice. To build such required previous experience a practical and simple approach is proposed: a measurement tool, a rubric, with great focus on Game Design aspects rather than on game elements.

Acquiring Design Experience

As previous design experience seems key, our proposal for new practitioners is creating and testing their own designs. In our experience, iterating over own designs leads to obtaining solid game-design-based Gamification design skills. However, analysing and improving designs results in an almost impossible task for inexperienced designers. On the absence of personal experience to rely on, the only valid source is testing. Testing with trainees is essential but doing so with no previous design guidance could result on a extremely slow and frustrating discovery process. This is an entry barrier that can produce two important problems: too many failures on initial attempts, and abandon due to frustration. Moreover, when initial failures are not identified as a consequence of lack of experience, they can result in research papers blaming the field itself.

During fifteen years teaching Game Development and Gamification, we have perceived a great difficulty to pass on design experience to new practitioners. The problem, as discussed, seems to be on the artistic nature of Game Design. Novice practitioners often underestimate the complexity of creating a design that can be put in practice, not to say a successful one. This is problematic, as their initial experiences will probably fail and be frustrating. There are design frameworks, methods and guidelines proposed for game and Gamification that could help in creating better first designs. However, these proposals are either general or specifically

for experts. They are not designed with novices in mind and can easily result overwhelming for them. For instance, Kreimeier's patterns condense many designers' experiences. This is highly valuable but almost impossible to properly understand without previous experience on pitfalls and failures. Tondello et al. explicitly state "Our set of heuristics is aimed at enabling experts to identify gaps in a gameful system's design" which clearly leaves novices out. Linehan et al. propose to use Applied Behaviour Analysis from the field of psychology with many interesting theoretical explanations. This is too much theoretical information for novices which probably will require several testing iterations to relate it to actual practice. Similarly, Self-Determination Theory (SDT) is the most widely cited theoretical framework. In essence, SDT is easy to understand but too generic. Novices need more specific and game related descriptions, as SDT is purely psychological. Hunicke et al. proposal splits Game Design into three blocks: Mechanics, Dynamics and Aesthetics (MDA). This simple classification helps organizing designs, which is very useful for novices but does not help in measuring their value, comparing with others or giving hints on how to improve them.

游戏化游戏设计指南

弗朗西斯科 J.加列戈杜兰，卡洛斯 J.维拉格拉阿内多，罗莎娜·萨托雷，帕特里夏·孔帕尼-罗西克，拉斐尔·莫利纳·卡莫纳，法老·洛伦斯-拉戈

近年来，游戏化被认为是解决大多数教育问题的一个神奇办法。许多研究人员和从业者追逐它，许多研究试图揭开它的秘密和细节。以这种或那种形式，术语和领域都承认游戏的力量，以参与和诱导球员的流动状态。游戏化追逐这种力量，将其应用于最初不是可笑的环境。目的是让人们从事严肃或重要的工作，具有与游戏相同的内在动机。

这个企业是高尚的，但极其复杂。随着越来越多的研究进行，结果仍然不明朗。数以百计的研究经验取得了喜忧参半的结果。许多研究在应用游戏化时会发现好处，但其他许多研究没有，甚至其中一些报告损害。总体趋势似乎报告了一些小而可衡量的好处。与游戏销售和游戏文化的指数级增长相比，这些结果相当出人意料。

大多数游戏化研究的问题似乎与实际的游戏设计不同。许多研究追求统计变量的科学隔离。这导致他们考虑个别游戏元素的孤立影响，如积分、徽章和排行榜在动机和行为变化方面的影响。这种方法的问题在于，游戏不是一组无关的游戏元素。隐喻地说，游戏类似于大菜：在其他环境中测试其孤立的成分并不能传递有用的信息来学习烹饪菜肴。

这一观点得到了相关的游戏从业者的支持，如凯文·韦尔巴赫、周玉凯或塞巴斯蒂安·德特丁，以及游戏设计专家，如拉斐尔·科斯特或杰西·谢尔。用韦尔巴赫的话说："显然，并不是所有包含游戏元素的东西都构成游戏化。例如，学校的考试给出分数，并且是非游戏环境。在《参考》中，退化不止于这一点："重新思考游戏化的主要任务是将其从加米菲耶人身上拯救出去。对于德特丁，大多数的加米菲器感到困惑，因为他们简单地尝试添加点，徽章和排行榜的一切，而忽略了游戏设计的复杂性。

游戏是复杂的环境，为玩家提供体验。它们由游戏元素制成，类似于由配料制成的菜肴，但过程、互动、用途和目标是最终结果的关键：

"游戏化应该被理解为一个过程。具体来说，它是使活动更像游戏的过程。将游戏化视为一个过程，在学术观点和实践者观点之间创造了更好的契合。更重要的是，它把注意力集中在创建类似游戏的体验上，反对容易变得操纵的肤浅方法。这种方法的最终好处是，它把游戏化与有说服力的设计联系起来。

这些原因可以解释为什么在正式的加梅化方法上没有科学共识。有分析的好游戏的特点游戏追求。也有基于游戏设计原则、良好实践和经验的方法方法、设计框架，甚至对设计模式的描述。然而，所有方法都依赖于主观解释和创造性设计。事实上，许多专业的游戏设计师和研究人员都表示，游戏根本无法正式指定，

即使游戏不能正式指定，个别游戏元素研究不能产生完整的信息，也有有用的方法。假设游戏和游戏设计本质上是艺术性的，那么专注于获得设计体验。没有必要解决"什么是游戏"的哲学辩论。游戏般的设计能够成为玩家参与的自愿体验，可能会成功。意愿可以使经验落在特隆普、赫克特和韦尔贝克矩阵的有说服力或诱人的一面，其中设计可以影响行为。与参考文献类似，本工作侧重于此实际方法。

这项工作的主要目标是帮助获得游戏设计经验的游戏化。有经验的从业者可能会发现文献中引用的方法、框架或模型更适合他们的需要，尤其是参考文献。这些作品具有巨大的价值，但需要充分理解和实践以往的游戏设计游戏化经验。为了建立这种需要的以前的经验，建议一个实用和简单的方法：一个测量工具，一个标准，非常注重游戏设计方面，而不是游戏元素。

获得设计体验

由于以前的设计经验似乎很关键，我们建议新的从业者创造和测试自己的设计。根据我们的经验，对自身设计的重新验证可获得基于游戏设计的扎实游戏化设计技能。然而，分析和改进设计对于缺乏经验的设计师来说却是一项几乎不可能完成的任务。由于缺乏个人经验可依赖，唯一有效的来源是测试。与受训人员一起测试至关重要，但在没有先前设计指导的测试中，可能会导致极其缓慢和令人沮丧的发现过程。这是一个入口障碍，可能会产生两个重要问题：在最初的尝试中失败太多，以及由于挫折而放弃。此外，当最初的失败没有被确定为缺乏经验的结果时，它们可能导致研究论文指责该领域本身。

在教授游戏开发和游戏化的十五年中，我们感到很难将设计经验传授给新的从业者。正如所讨论的，问题似乎在于游戏设计的艺术性。新手从业者往往低估了创建可以付诸实践的设计的复杂性，更不用说成功的设计了。这是有问题的，因为他们最初的经历可能会失败，并令人沮丧。有设计框架，方法和指导方针建议的游戏和游戏化可以帮助创造更好的第一个设计.然而，这些建议不是一般性建议，就是专门针对专家的建议。它们的设计没有考虑到新手，很容易导致压倒性的他们。例如，Kreimeier 的图案浓缩了许多设计师的经验。这是非常有价值的，但几乎不可能正确理解没有以前的经验，在陷阱和失败。Tondello 等人明确指出，"我们的启发式集旨在使专家能够识别游戏系统设计中的漏洞"，这显然将新手排除在外。Linehan 等人建议使用心理学领域的应用行为分析，并作出许多有趣的理论解释。对于新手来说，这是太多的理论信息，可能需要多次测试迭代才能将其与实际操作联系起来。同样，自决理论也是被广泛引用的理论框架。从本质上讲，SDT 易于理解，但过于通用。新手需要更具体和游戏相关的描述，因为 SDT 纯粹是心理上的。Hunicke 等人的建议将游戏设计分为三个块：力学、动力学和美学 （MDA）。这种简单的分类有助于组织设计，这对新手非常有用，但无助于衡量其价值、与他人进行比较或给出如何改进它们的提示。