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A MANUAL GUIDE FOR
BLENDED INTENSIVE PROGRAMME (BIP)

SKILLS@UNI

DEVELOPING SOFT SKILLS THROUGH EXPERIENTIAL LEARNING AT UNIVERSITY

AN INTERNATIONAL PEDAGOGICAL EXPERIENCE

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Skills@Uni: developing soft skills through experiential learning at university.
An international pedagogical experience

Coordinators

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Chapter 6

Gamification and Soft Skills: Contributions to Inclusive Physical Education

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The growing focus on transversal skills, such as communication, teamwork, problem solving, critical thinking, creativity, leadership, emotional management and adaptability, has coincided with the adoption of gamification as a pedagogical approach in higher education and vocational training. This involves transferring the principles and dynamics of games to formal teaching and training contexts, and it has emerged as a prominent strategy in this regard (Deterding et al., 2011; Kapp, 2012).

Deterding et al. (2011) popularized the term 'gamification', defining it as the application of game-like elements in non-game contexts. Accordingly Landers (2014) defined gamification as the use of game-like elements in contexts other than games with the intention of influencing behaviors and attitudes that are relevant to learning. But it is Deterding et al. (2011) that remains the most frequently cited definition in the current literature, distinguishing gamification from other playful approaches such as serious gaming or game-based learning. The latter focuses on using isolated components, such as points, badges, levels, leaderboards, narratives, and immediate feedback, to promote engagement, motivation and learning (Hamari et al., 2014; Kapp, 2012).

The growing popularity of gamification in education is supported by theories of motivation and learning. For example, Self-Determination Theory (Ryan & Deci, 2000; Sailer et al., 2017) suggests that intrinsic motivation increases when the environment fulfils three fundamental psychological requirements: autonomy, competence, and social connections. Through an experimental study, the authors discovered that various game elements (e.g. leaderboards and performance graphs) positively impact the fulfilment of these needs.

At the same time, the Gamified Learning Theory (Landers, 2014) frames gamification as a set of game attributes that present two effects: (i) a direct mediating effect, whereby game elements modify students behaviours and attitudes, thereby influencing learning; and (ii) a moderating effect, whereby gamification enhances the relationship between the quality of instruction and the results obtained.

Csikszentmihalyi's Flow Theory, which is characterized by high involvement and a balance between the proposed challenge and the performer's competence, is also frequently referenced in the literature on educational gamification as an explanatory mechanism for student engagement in gamified environments (Hamari et al., 2014; Kapp, 2012).

Gamification has established itself as a promising pedagogical approach for developing soft skills in educational contexts, particularly in higher education. Several studies have shown that the intentional integration of game dynamics increases student involvement, motivation and active participation, thereby creating an environment conducive to developing socio-emotional skills such as collaboration, communication, critical thinking and problem solving (Ducatti et al., 2025). A recent systematic review by Ducatti et al. (2025) analyzed empirical studies using gamification in higher education. Despite methodological heterogeneity, the review concluded that there is consistent evidence of a positive impact on soft skill acquisition and development. However, it also highlighted the need for more robust experimental

designs to consolidate the magnitude of these effects in different courses and training areas.

In terms of specific pedagogical strategies, the literature identifies a set of recurring elements used in gamification. For example, Hamari et al. (2014) found that scoring, distinctions, and leaderboards were the most implemented components, though not necessarily the most effective. Dichev and Dicheva (2017) also identified task levels, missions, narratives, immediate feedback, avatars, and challenges with progressively increasing difficulty.

Through the development of a meta-analysis, Bai et al. (2020) warn that the design of the pedagogical intervention has a significant influence on academic performance, rather than the gamification strategies adopted or the number of strategies. Gamification has been implemented at all levels of education, with a particular focus on higher education and vocational training (Dichev & Dicheva, 2017; Koivisto & Hamari, 2019). Literature has shown that gamification enhances engagement and learning attitudes, particularly in subjects traditionally perceived as difficult, such as mathematics and science (Manzano-León et al., 2021). It is also becoming increasingly relevant in virtual and hybrid contexts involving online platforms and/or mobile devices (Koivisto & Hamari, 2019).

Regarding the effects on motivational and cognitive variables, the empirical evidence consistently indicates positive impacts of gamification, albeit of small to moderate magnitude (Bai et al., 2020; Dichev & Dicheva, 2017; Koivisto & Hamari, 2019; Manzano-León et al., 2021). However, these impacts are context sensitive.

The main strengths of gamification are: (i) stimulating enthusiasm; (ii) providing feedback on performance; (iii) satisfying the need for recognition; and (iv) promoting the setting of clear objectives (Baie et al., 2020).

However, despite these results, the literature unanimously highlights several limitations, as summarised by Dichev and Dicheva (2017): (i) insufficient evidence of

long-term benefits, (ii) advancement of pedagogical practice beyond scientific understanding of the mechanisms involved and (iii) limited knowledge of how to adapt gamified design to specific educational contexts. These difficulties are accentuated by the heterogeneity of research designs, short intervention durations, and scarcity of longitudinal studies (Bai et al., 2020; Koivisto & Hamari, 2019). In this context, there is a need for more studies to investigate the effects of gamification.

Therefore, while overall, empirical evidence suggests positive effects of gamification, albeit with small to moderate magnitudes it is highly dependent on pedagogical design, intervention duration, and participant characteristics (Bai et al., 2020; Koivisto & Hamari, 2019; Manzano-León et al., 2021). Careful combination of elements such as narratives, immediate feedback, badges, and progressive challenges seems more decisive than the absolute number of components used.

From a pedagogical point of view, the integration of gamification should be guided by clear learning objectives based on robust theories of motivation and learning, and its effects should be continuously evaluated. Although often undervalued in research, teacher training emerges as a critical factor for the effective implementation of these strategies in real contexts.

Future research should involve longitudinal studies with large, diverse samples; experimental or quasi-experimental designs with a control group; and systematic exploration of moderating variables, such as level of education, subject area, student motivational profile and sociocultural context. Particular attention should be paid to inclusive education, adapted physical education, and other areas in which gamification could promote equity and participation. In short, gamification is a promising pedagogical tool whose effectiveness ultimately depends on the quality of the instructional design.

References

Bai, S., Hew, K. F., & Huang, B. (2020). Does gamification improve student learning outcome? Evidence from a meta-analysis and synthesis of qualitative data in educational contexts. *Educational Research Review, 30*, Article 100322. https://doi.org/10.1016/j.edurev.2020.100322

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). *From game design elements to gamefulness: Defining "gamification".* In Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments (pp. 9–15). Association for Computing Machinery. https://doi.org/10.1145/2181037.2181040

Dichev, C., & Dicheva, D. (2017). Gamifying education: What is known, what is believed and what remains uncertain: A critical review. *International Journal of Educational Technology in Higher Education, 14*(1), Article 9. https://doi.org/10.1186/s41239-017-0042-5

Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: A systematic mapping study. *Educational Technology & Society, 18*(3), 75–88. https://www.jstor.org/stable/jeductechsoci.18.3.75

Ducatti, A. P. S., Cazane, A. L., Doneda, L. R. Z. D. C., Pardo, P., & Jorge, C. F. B. (2025). Gamificação no Ensino Superior para o desenvolvimento de soft skills: Uma revisão sistemática da literatura. *Revista Ibero-Americana de Estudos em Educação, 20*(0). https://doi.org/10.21723/riaee.v20i00.1942901

Hamari, J., Koivisto, J., & Sarsa, H. (2014). *Does gamification work? A literature review of empirical studies on gamification.* In Proceedings of the 47th Hawaii International Conference on System Sciences (pp. 3025–3034). IEEE. https://doi.org/10.1109/HICSS.2014.377

Huang, R., Ritzhaupt, A. D., Sommer, M., Zhu, J., Stephen, A., Valle, N., Hampton, J., & Li, J. (2020). The impact of gamification in educational settings on student learning

outcomes: A meta-analysis. *Educational Technology Research and Development, 68*(4), 1875–1901. https://doi.org/10.1007/s11423-020-09807-z

Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for training and education*. Pfeiffer.

Koivisto, J., & Hamari, J. (2019). The rise of motivational information systems: A review of gamification research. *International Journal of Information Management, 45*, 191–210. https://doi.org/10.1016/j.ijinfomgt.2018.10.013

Landers, R. N. (2014). Developing a theory of gamified learning: Linking serious games and gamification of learning. *Simulation & Gaming, 45*(6), 752–768. https://doi.org/10.1177/1046878114563660

Manzano-León, A., Camacho-Lazarraga, P., Guerrero, M. A., Guerrero-Puerta, L., Aguilar-Parra, J. M., Trigueros, R., & Alias, A. (2021). Between level up and game over: A systematic literature review of gamification in education. *Sustainability, 13*(4), Article 2247. https://doi.org/10.3390/su13042247

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68–78. https://doi.org/10.1037/0003-066X.55.1.68

Sailer, M., Hense, J. U., Mayr, S. K., & Mandl, H. (2017). How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. *Computers in Human Behavior, 69*, 371–380. https://doi.org/10.1016/j.chb.2016.12.033