



„VALAHIA”
University
OF TÂRGOVIȘTE



ADANA ALPARSLAN TÜRKES
BİLİM VE TEKNOLOJİ ÜNİVERSİTESİ



University
of Camerino



Jihočeská univerzita
v Českých Budějovicích
University of South Bohemia
in České Budějovice



**Marusya Smokova,
Célio Gonçalo Marques,
João Tomaz Simões,
Lígia Mateus,
Silviu Miloiu,
Sergiu Musteață,
Evelina Parashkevova**

A GUIDE TO IDENTIFYING BEST PRACTICES FOR GAMIFICATION IN CULTURAL HERITAGE



Co-funded by
the European Union

The guide is designed and published under the project No. 2023-1-PT01-KA220-HED-000154261 “A gamification model for community-based heritage work”, implemented with the financial support of the Erasmus+ programme.

This guide would not have been possible without the tremendous support of all partner universities and team members involved in the project. The authors express their special acknowledgements to Inês Serrano, Hélder Pestana, João Paulo Pedro, Ânia Chasqueira, Inês Araújo, Margarita Bogdanova and Asen Bozhikov.

All rights reserved. No part of this guide may be reproduced, stored in a retrieval system, or transmitted by any means, including photocopying, without the written permission of the publisher. This guide is not intended for sale, and any sale or resale is considered as copyright infringement by the publisher.

© Marusya Smokova, Célio Gonçalo Marques, João Tomaz Simões, Lígia Mateus, Silviu Miloïu, Sergiu Musteață, Evelina Parashkevova, authors, Svishtov, 2024
© Academic Publishing House “Tsenov”, 2024

ISBN: 978-954-23-2495-9

D. A. Tsenov Academy of Economics -
Svishtov

Marusya Smokova, Célio Gonçalo Marques,
João Tomaz Simões, Lígia Mateus, Silviu Miloiu,
Sergiu Musteață, Evelina Parashkevova

A GUIDE
TO IDENTIFYING
BEST PRACTICES
FOR GAMIFICATION IN
CULTURAL HERITAGE

Academic Publishing House “Tsenov” - Svishtov
2024

Marusya Smokova, Célio Gonçalo Marques,
João Tomaz Simões, Lúgia Mateus, Silviu Miloiu,
Sergiu Musteață, Evelina Parashkevova

A GUIDE TO
IDENTIFYING BEST PRACTICES
FOR GAMIFICATION IN
CULTURAL HERITAGE

ISBN: 978-954-23-2495-9

TABLE OF CONTENTS

Introduction	05
Definition of 'best practice'	07
Criteria identification and pretest	10
Description of impact criteria	13
Description of gamification criteria	25
Assessment procedure	40
Conclusion	49
References	50

INTRODUCTION

Cultural heritage is at risk. It suffers from destruction and deterioration over time due to damage, misuse and/or harmful effects of the nature, people, globalisation, social transformation (DaCosta & Kinsell, 2023). Current conflicts in Ukraine and the Middle East show how war tangibly impacts heritage and disrupts the intangible meanings tied to it, with post-conflict reconstruction affecting both (Sørensen & Viejo-Rose, 2015). These dramatic tendencies require finding a solution to preserve cultural heritage, to engage more people with safeguarding of cultural assets, and to promote acquisition and sharing of knowledge and higher respect to cultural resources among the communities.

Recently gamification techniques and strategies have gained significant attention in different fields – from education to marketing, even to cultural heritage (Marques, Pedro & Araújo, 2023). Gamification refers to the use of game design elements in a non-game context and the utilisation of playful strategies in creating more engaging experiences to reach a specific objective (Deterding, Dixon, Khaled, & Nacke, 2011). As there are examples for successful application of gamification in the field of cultural heritage, we believe that best practices approach

INTRODUCTION

will allow, by benchmarking and learning from experience, to engage more people with cultural heritage preservation and safeguarding.

This guide starts with a definition of 'best practice' in the context of the application of the gamification in cultural heritage. After that a 3-stage procedure for identifying criteria for selecting best practices is presented. In a specific section, we give a brief description of all identified criteria classified by us as gamification and impact criteria. Final part of the guide includes the assessment procedure for assigning raters, searching for projects, assessing and characterising identified projects, measuring inter-rater reliability of the raters' scores, ranking, and selecting best practices.

We have pretested the proposed methodology and applied it in seven countries – Bulgaria, Romania, Portugal, Czechia, Italy, Slovakia, and Turkiye – the countries of origin of the partner universities involved in the project No. 2023-1-PT01-KA220-HED-000154261 “A gamification model for community-based heritage work”.

DEFINITION OF 'BEST PRACTICE'

Best practice is a technique or method that, through experience and research, has proven reliably to lead to the desired result (WHO, 2008); standard or set of guidelines that is known to produce good outcomes if followed (WHO, 2017); practices that specific groups believe are more effective at delivering particular outcomes than other practices, and are subsequently used as benchmarks to strive for (Andrews, 2012).

Features of best practice:

- the word 'best' should not be considered in the superlative sense, it is not about a state of perfection;
- it can be used as a benchmark as it is usually evidence-based;
- documenting and applying lessons learned on what does not work and why it does not work are its integral parts, so that the same types of mistakes can be avoided by other projects;
- need to be shared and adopted to benefit more people.

DEFINITION OF 'BEST PRACTICE'

Our general definition is:

Best practice is ...

knowledge on what works in specific situations and contexts, achieves the desired results, and which can be used to develop and implement solutions adapted to similar problems in other situations and contexts.

DEFINITION OF 'BEST PRACTICE'

Our specific definition which considers the context of gamification in cultural heritage is:

Best practice is ...

knowledge on what gamification tools applied to cultural heritage work, achieve the desired results, create sustainable effects, and engage the target community.

CRITERIA IDENTIFICATION AND PRETEST

Identifying best practices requires a list of criteria and a methodology for assessment. To define the list of criteria, we have carried out a 3-stage procedure.

At **first stage**, we have conducted a literature search for evaluation frameworks, assessment criteria and methodologies. Our search was limited to English records but there were no restrictions on the scope, type of literature and sources. Our initial list of criteria was large and it included 25 specific criteria, which were related with gamification (a.k.a. gamification criteria), and 12 criteria which were general, could be applied to all fields, and concern the impact (a.k.a. impact criteria).

At **second stage**, the larger initial list of criteria has been pruned down by conducting interviews with experts and asking them to review the list and eliminate criteria which they perceive do not considerably support best practice approach to the application of gamification in cultural heritage and have overlaps in their meaning.

CRITERIA IDENTIFICATION AND PRETEST

After the interviews, the list of criteria has been shortened to 10 impact criteria and 12 gamification criteria. Both groups of criteria have been provided with a short description to guarantee consistency in assessment. Additionally, a template for initiative characterisation has been developed. Our initial framework has included 22 criteria with equal weight. We have proposed to use 5-point rating scale for evaluation of the initiatives, where 5 = very high, 4 = high, 3 = neither high, nor low, 2 = low, 1 = very low.

At **last stage**, we have conducted a pretest of the proposed methodology. Seven initiatives for gamification in cultural heritage applied in Bulgaria, Romania, Portugal, Czechia, Italy, Slovakia, and Turkiye (one initiative per country) have been assessed by raters from Bulgaria, Romania, Portugal, Czechia, Italy, Slovakia, and Turkiye. We have applied verbal protocol analysis by asking the raters to 'think loudly' during assessing a project.

CRITERIA IDENTIFICATION AND PRETEST

After the pretest, the final list of 21 criteria (9 impact and 12 gamification criteria) has been designed. All criteria have been more precisely described for better and unified understanding. A new 'zero' level has been attached to the rating scale to represent the situation of no existence, no value, no applicability of the criteria.

DESCRIPTION OF IMPACT CRITERIA

Impact criteria are universal and more general and they can be used for assessing any type of case study (initiative). They measure the degree in which the initiative generates or has a potential to create outcomes and effects.

We have identified 4 groups of impact criteria.

1 Performance

2 Accessibility and Inclusion

3 Innovation and Creativity

4 Social and Cultural Impact

DESCRIPTION OF IMPACT CRITERIA

1

Performance

1.1

Effectiveness

The initiative works well and achieves desirable results. The initiative meets the prespecified objectives. The criterion measures the degree to which the initiative was successful in producing the desired result (e.g., fulfilling the prespecified objectives).

The initiative leads to the following results:

- enhanced awareness on cultural heritage among the community,
- enhanced interest and knowledge on cultural heritage among the community,
- increased revenues in the territory and/or region and/or country,
- increased tourist flows in the territory and/or region and/or country,

DESCRIPTION OF IMPACT CRITERIA

- increased engagement of the target community,
- increased motivation of the target community to participate in cultural heritage preservation stems,
- reduced vandalism behaviours among the community,
- enhanced consciousness towards cultural heritage among the community.

The list of results is an example. The principle is if the objectives of the initiative were to enhance awareness on cultural heritage among the community and increase the revenues in the territory and if it has enhanced the awareness on cultural heritage among the community and increased the revenues of the territory, it should be considered as effective.

DESCRIPTION OF IMPACT CRITERIA

1.2

Sustainability

The initiative guarantees long-term viability of the project activities and its effects. The criterion measures the degree to which the initiative has the ability to be maintained in long run.

The initiative:

- demonstrates (potential of) continuation of the project activities (e.g., it is in alignment with national, regional, EU goals, political commitment, community participation, stakeholder partnership, etc.),
- demonstrates (potential of) continuation of benefits to the community and/or territory,
- demonstrates (potential of) continuation of capacity to deliver project activities (incl. source of funding in long run, at least 1 year after the external funding stops),
- states duration of the project activities since the start of their implementation,
- is applied for a long time (e.g., minimum 5 years after its start).

DESCRIPTION OF IMPACT CRITERIA

2

Accessibility and Inclusion

2.1

Accessibility

The initiative allows all audiences to benefit the initiative and its outcomes and experience the gamification mechanics. The criterion measures the degree to which the initiative provides equal access, and all interested people could benefit its outcomes.

The initiative:

- is not restricted to the application of a given operating system, software or hardware requirements or brand,
- does not require specific skills (programming, mathematical, language, etc.).

DESCRIPTION OF IMPACT CRITERIA

2.2

Inclusion

The initiative promotes social inclusion and equal opportunities. The criterion measures the degree to which the initiative is not socially discriminative.

The initiative:

- provides no discrimination on the grounds of gender or sexual orientation, age, colour, race, religion, place of origin, nationality, caste, political or religious ideas, disability, social origin or condition, marital status, ethnic origin, membership of a national minority, property, generic features, economic resources,
- is not restricted to the type of the gamified activity and is open to all audiences who are able to carry out either physical, or virtual gamified activities.

DESCRIPTION OF IMPACT CRITERIA

3

Innovation and Creativity

3.1

Originality

The initiative sets the gamified activity apart from other projects and provides a unique experience. The criterion measures the degree to which the initiative provides a new and different experience the target community never had before.

The initiative:

- delivers an exceptionally different experience for the users, things they have never experienced before,
- provides users with an experience they enjoy and remember.

DESCRIPTION OF IMPACT CRITERIA

3.2

Creativity

The initiative contributes to a richer and more immersive user experience.

The criterion measures the degree to which the initiative puts the target community in a 'real world' or/and 'real age' where they can engage with the settings and characters.

The initiative:

- employ game elements and game design which make the users feel more like an actual person who have lived at that age (thoroughly developed stories, clothes, surroundings, extreme realism).

DESCRIPTION OF IMPACT CRITERIA

4

Social and Cultural Impact

4.1

Social Development

The initiative promotes social cohesion and sense of belonging. The criterion measures the degree to which the initiative makes users feel like a part of a community and helps them reach their full potential.

The initiative:

- makes users feel part of a group or even several overlapping groups which can coexist and enrich individuals (such as local pride, national affinity, and a sense of Europeanness),
- makes users feel that other members of the group share similar preferences, attitudes, values, beliefs.

DESCRIPTION OF IMPACT CRITERIA

4.2

Enhancement of Social Culture

The initiative promotes knowledge and respect to local traditions and customs. The criterion measures the degree to which the initiative makes target community more aware of and more tolerant towards local customs, beliefs, religious practices, and cultural expressions.

The initiative:

- requires users to be appropriately dressed and demonstrate appropriate behaviour.

DESCRIPTION OF IMPACT CRITERIA

4.3

Multiplier effects

The initiative generates or guarantees generation of beneficial spin-off effects, spin-over effects, or both. Targeted community is empowered with skills, knowledge, values, resources to uplift other communities (as the affected individuals and communities work together and their collaboration creates new, unexpected results). The criterion measures the degree to which the initiative creates (has a potential) valuable results beyond the planned and expected ones.

The initiative generates or demonstrates a potential to create:

- additional result, not originally planned, unexpected but useful or valuable for the community/nation/region/country (e.g., the objective of the initiative is to enhance the awareness on cultural heritage among the community, but we observe reduced vandalism behaviours among the community as well (a secondary positive effect beyond the direct effect on the target audience),

DESCRIPTION OF IMPACT CRITERIA

- unintended effect that goes beyond its intended scope (e.g., the objective of the initiative is to enhance the awareness on cultural heritage among the target audience, but we also observe enhanced awareness on cultural heritage among other non-target audiences due to social interaction; target group is engaged in the gamified activity but they interact with other (non-targeted) people who have enhanced their awareness too).

DESCRIPTION OF GAMIFICATION CRITERIA

Gamification criteria are specific for the field of study. They provide representativeness of the criteria from gamification strategies, heritage significance, IT/technological perspectives, etc.

By utilising the gamification heuristics designed by Tondello et al. (Tondello, Nacke & Kappen, 2019), we have identified 3 groups of gamification criteria.

1 Intrinsic motivation heuristics

2 Extrinsic motivation heuristics

3 Context-dependent heuristics

DESCRIPTION OF GAMIFICATION CRITERIA

1

Intrinsic motivation heuristics

1.1

Purpose and Meaning

Affordances aimed at helping users to identify a meaningful goal that will be achieved through the system and can benefit the users themselves or other people. The criterion covers the dimensions:

Meaning: The system clearly helps users to identify a meaningful contribution to themselves or to others.

Information and Reflection: The system provides information and opportunities for reflection towards self-improvement (Tondello, Nacke & Kappen, 2019).

- There is a narrative that contextualises and gives meaning to the challenges/tasks that are requested.
- The player realises their role and the importance of their actions in the context of the activity/game.
- The player is invited to be the hero/protagonist in the story by finding the solution or saving the day.

DESCRIPTION OF GAMIFICATION CRITERIA

1.2

Challenge and Competence

Affordances aimed at helping users to satisfy their intrinsic need of competence through accomplishing difficult challenges or goals. The dimensions of the criterion are:

Increasing Challenge: The system offers challenges that grow with the user's skill.

Onboarding: The system offers initial challenges for newcomers that help them learn how it works.

Self-challenge: The system helps users to discover or create new challenges to test themselves (Tondello, Nacke & Kappen, 2019).

- The system offers levels of increasing difficulty.
- The early levels take place as a tutorial explaining the rules that players must follow or every time there is a new rule, a practice match is played with a tutorial.

DESCRIPTION OF GAMIFICATION CRITERIA

1.3

Completeness and Mastery

Affordances aimed at helping users to satisfy their intrinsic need of competence by completing series of tasks or collecting virtual achievements. The criterion is described by:

Progressive Goals: The system always presents the next actions users can take as tasks of immediately doable size.

Achievement: The system lets users to track their achievements or advancements (Tondello, Nacke & Kappen, 2019).

- Prizes are awarded, ranging from objects that can be used in the system itself (props or tools /weapons) or even trophies or medals. These should have the meaning of a prize, i.e. they are received after an excellent performance.
- The player's progress throughout their experience is known. In other words, you know where you are and what remains to be achieved.
- The system features a "trophy shelf", i.e. an area where the player can consult the awards they have received.

DESCRIPTION OF GAMIFICATION CRITERIA

1.4

Autonomy and Creativity

Affordances aimed at helping users to satisfy their intrinsic need of autonomy by offering meaningful choices and opportunities for self-expression. The criterion encompasses dimensions as:

Choice: The system provides users with choices on what or how to do something, which are interesting but also limited in scope according to each user's capacity.

Self-expression: The system lets users to express themselves or create new content.

Freedom: The system lets users to experiment with new or different paths without fear or serious consequences (Tondello, Nacke & Kappen, 2019).

- The system allows the player to make choices, such as choosing the route to take or tools to use.
- The system allows the player to create new content and make it available on the system for other players.
- Sandbox system, i.e. it has the pieces and tools, and the player can create whatever they can imagine.

DESCRIPTION OF GAMIFICATION CRITERIA

1.5

Relatedness

Affordances aimed at helping users to satisfy their intrinsic need for relatedness through social interaction, usually with other users. The criterion could be described by the following items:

Social Interaction: The system lets users to connect and interact socially.

Social Cooperation: The system offers the opportunity of users to work together towards achieving a common goal.

Social Competition: The system lets users to compare themselves with others or challenge other users.

Fairness: The system offers similar opportunities of success and progression for everyone and means for newcomers to feel motivated even when comparing themselves with veteran players (Tondello, Nacke & Kappen, 2019).

DESCRIPTION OF GAMIFICATION CRITERIA

- It involves everything that encourages interaction between players (collaboration, competition, sharing, dialogue, envy).
- The system allows cooperation or even encourages players to help each other to overcome challenges.
- The system has a way of publicising achievements (grab system), allowing other players to want to achieve the same result (envy).
- The system makes players feel that they can achieve the same results as veteran players (points return to zero with each match or with each level players can compare their performance with previous players at the same level).

DESCRIPTION OF GAMIFICATION CRITERIA

1.6

Immersion

Affordances aimed at immersing users in the system in order to improve their aesthetic experience, usually by means of a theme, narrative, or story, which can be real or fictional. The immersion could be described by 2 items:

Narrative: The system offers users a meaningful narrative or story with which they can relate to.

Perceived Fun: The system affords users the possibility of interacting with and being part of the story (easy fun) (Tondello, Nacke & Kappen, 2019).

- The system includes a narrative that includes the player in the dynamics that are taking place.
- The system offers an environment (sound, space, interactivity) that, together with the narrative, allows the player to feel immersed in the experience.
- The system allows the use of virtual reality, creating a true immersion where the player can interact with virtual objects and explore the environment with pleasure.

DESCRIPTION OF GAMIFICATION CRITERIA

2

Extrinsic motivation heuristics

2.1

Ownership and Rewards

Affordances aimed at motivating users through extrinsic rewards or possession of real or virtual goods. Ownership is different from Competence when acquiring goods is perceived by the user as the reason for interacting with the system, instead of feeling competent. The criterion includes the following 3 items:

Ownership: The system lets users own virtual goods or build an individual profile over time, which can be developed by continued use of the system and to which users can relate.

Rewards: The system offers incentive rewards for interaction and continued use, which are valuable to users and proportional to the amount of effort invested.

Virtual Economy: The system lets users exchange the result of their efforts within system or external rewards (Tondello, Nacke & Kappen, 2019).

DESCRIPTION OF GAMIFICATION CRITERIA

- The system allows you to collect objects/stamps that can remain as a memento of the experience. These can be awarded randomly or as a reward after completing an activity.
- Awarding prizes with meaning for the player.
- Exchange system, i.e. the player can exchange objects with other players or even receive something that they can use as money to exchange for objects in a shop.

DESCRIPTION OF GAMIFICATION CRITERIA

2.2

Scarcity

Affordances aimed at motivating users through feelings of status or exclusivity by means of acquisition of difficult or rare rewards, goods, or achievements. The criterion covers the item:

Scarcity: The system offers interesting features or rewards that are rare or difficult to obtain (Tondello, Nacke & Kappen, 2019).

- The System has prizes or collectibles that are rare or only available for very short periods of time.
- Timers are used to wait for something to become available or to limit the amount of time something can be used or awarded.

DESCRIPTION OF GAMIFICATION CRITERIA

2.3

Loss Avoidance

Affordances aimed at leading users to act with urgency, by creating situations in which they could lose acquired or potential rewards, goods, or achievements if they do not act immediately. The criterion is described by the item:

Loss Avoidance: The system creates urgency through possible losses unless users act immediately (Tondello, Nacke & Kappen, 2019).

- Nobody likes to lose, so players try harder when something they have already received is threatened. This can happen due to player inactivity or because of previous moves.

DESCRIPTION OF GAMIFICATION CRITERIA

3

Context-dependent heuristics

3.1

Feedback

Affordances aimed at informing users of their progress and the next available actions or challenges. The items covered by the criterion are:

Clear and Immediate Feedback: The systems always inform users immediately of any changes or accomplishments in an easy and graspable way.

Actionable Feedback: The system always informs users about the next available actions and improvements.

Graspable Progress: Feedback always tells users where they stand and what is the path ahead for progression (Tondello, Nacke & Kappen, 2019).

- Feedback can occur in a simple way via sound (hit vs miss) with each action performed by the player.
- The player receives precise information about their performance (score, quality of action) and instructions on what to do next.

DESCRIPTION OF GAMIFICATION CRITERIA

3.2

Unpredictability

Affordances aimed at surprising users with variable tasks, challenges, feedback, or rewards. The criterion encompasses the following two items:

Varied Challenges: The system offers unexpected variability in the challenges or tasks presented to the user.

Varied Rewards: The system offers unexpected variability in the rewards that are offered to the user (Tondello, Nacke & Kappen, 2019).

- The player doesn't know what will happen next, the system can hint at the continuation of the narrative or there are random situations that are difficult to predict.
- The objective and rules are known, but it's unknown what the next challenge will be and what prize will be awarded. Here, what drives the player to continue is the curiosity to know what comes next.

DESCRIPTION OF GAMIFICATION CRITERIA

3.3

Change and Disruption

Affordances aimed at engaging users with disruptive tendencies by allowing them to help improve the system, in a positive rather than destructive way. The items which describe the criterion are:

Innovation: The system lets users contribute ideas, content, plugins, or modifications aimed at improving, enhancing, or extending the system itself.

Disruption Control: The system is protected against cheating, hacking, or other forms of manipulation from users (Tondello, Nacke & Kappen, 2019).

- This is a rare mechanics; it presupposes the possibility for players to contribute new features or improvements to the system. It could be a simple suggestion box or even the development of new features.
- The possibility of seasons in which the whole structure is remodelled, with new features or even new rules.

ASSESSMENT PROCEDURE

The assessment procedure includes information about searching for projects, systemising, archiving all identified projects, assigning raters, assessment of the projects by raters, measurement of inter-rater reliability, calculating final scores of each project, ranking (sorting) the assessed projects in descending order according to their final scores and selecting the 'best' ones among them. The first two projects with highest score which are community-based are defined as 'best practice' for a given country. All projects identified as 'best practices' across the seven countries are used as a basis for a synthesis report, and a thematic brochure of best practices.

The statement that could be used for the search is (“GAMIFICATION” or “GAMIFIED APPLICATION” or “GAMIFIED TOOL”) and “(HERITAGE” or “CULTURAL HERITAGE”). It is not recommended to impose restrictions on the time frame but the statement could be extended by adding the country name,.

The search is not restricted to the type of databases that could be used.

ASSESSMENT PROCEDURE

All type of data (articles in journals or conference proceedings, publications on websites or in newsletters, interviews with managers, communication materials, personal observations, evaluations by installing an application, visiting the sites, and experiencing the project, etc.) are allowed. The search is not limited to the publications in English language and the native language of the countries of interest is recommended to be used for the search. In this way, higher completeness and comprehensiveness of the collected data is ensured,

All collected databases are archived and coded as follows: Country code-xxx, where xxx is the ID number of the project (e.g., BG-001, BG-002, BG-003, ..., etc. for Bulgaria; PT-001, PT-002, PT-003, ..., etc. for Portugal; RO-001, RO-002, RO-003, ..., etc. for Romania; CZ-001, CZ-002, CZ-003, ..., etc. for Czechia; SK-001, SK-002, SK-003, ..., etc. for Slovakia; IT-001, IT-002, IT-003, ..., etc. for Italy; TR-001, TR-002, TR-003, ..., etc. for Turkiye).

All coded projects are assigned to raters for assessment. Raters are aware of the criteria and their description and are advanced in gamification and cultural heritage.

ASSESSMENT PROCEDURE

To minimise the subjectivity and rater's bias, each project is assigned to two raters. Raters evaluate the assigned project independently. Raters use 6-point scale, where 5 = very high, 4 = high, 3 = neither high, nor low, 2 = low, 1 = very low, 0 = not applicable).

Raters' codes include Ryy, where yy is the ID number assigned to the rater.

The projects evaluated by the raters are coded as follows: Country code-xxx-Ryy, where xxx is the ID number of the project, yy is the ID number assigned to the rater.

Ratings of a given project awarded by both raters are used for measuring the level of agreement between the raters, confirming the consistency and dependability of the data they collect. We use inter-rater reliability measure as agreement coefficient and inter-class correlation coefficient for assessing the reliability and consistency of ratings given by both raters.

Raters' ratings are reliable if the agreement coefficient is above 80% or if the intra-class correlation coefficient (ICC) is above 0,60. In calculating inter-reliability coefficients we rely on Hallgren's tutorial (Hallgren, 2012). In case, there is a conflict between both coefficients, we recommend to prefer ICC. If the ratings of the pair of raters are not reliable (not consistent), a third rater is assigned. The third rater assesses the project and the new level of agreement and consistency of the ratings is calculated.

If inter-rater reliability is achieved for a given project, the final project score is calculated. First, the relative score per group of criteria is calculated by dividing the scores given by the rater to each of the criterion composing a specific group of criteria (3 gamification and 4 impact groups of criteria) to the sum of maximum scores for the group. Second, the average of the relative scores of the groups of criteria is calculated by dividing the sum of the relative scores for the seven groups of criteria to 7. This score is considered as rater's project score. Finally, the final project score is calculated by averaging raters' project scores for all raters involved in the assessment of a given project.

ASSESSMENT PROCEDURE

All evaluated projects are described in accordance with the characterisation criteria and sorted in descending order by their final project score. The first two projects with the highest final project score, which are community-based, are titled as 'Best practice' for a given country.

ASSESSMENT PROCEDURE

All assessed projects should be characterised using the following descriptions:

Typology

Tangible

UNESCO defines material heritage as the physical manifestations of human creativity and expression that are valued for their cultural, historical, aesthetic, scientific, or spiritual significance. Material heritage includes tangible objects, structures, sites, and landscapes that have been created, modified, or used by humans over time and hold cultural significance for communities, societies, or humanity as a whole.

Intangible

UNESCO defines intangible heritage as the practices, representations, expressions, knowledge, skills, and cultural spaces that communities, groups, and individuals recognize as part of their cultural heritage. Examples of intangible heritage: traditions, oral history, rituals, performing arts, social practices, traditional craftsmanship, and knowledge systems passed down from generation to generation.

ASSESSMENT PROCEDURE

Natural

Natural heritage refers to natural features, geological and physiographical formations and delineated areas that constitute the habitat of threatened species of animals and plants and natural sites of value from the point of view of science, conservation or natural beauty. It includes private and publically protected natural areas, zoos, aquaria and botanical gardens, natural habitat, marine ecosystems, sanctuaries, reservoirs etc.

Classification

Local

Assets whose protection and enhancement, in whole or in part, represent cultural value of predominant significance for a given local community.

National

When the respective protection and valorisation, in whole or in part, represents a cultural value of significance for the nation.

ASSESSMENT PROCEDURE

International

When the respective heritage is integrated in the UNESCO lists or has been awarded the European Heritage Label.

Technologies/Tools

Description of what the game/experience is based/designed on (e.g. Virtual Reality; Augmented Reality; Artificial Intelligence; Analog supports; Geolocation; Interactive tools; among others).

Equipment

Description of what equipments were used (e.g. mobile phone; computer; tablet; wearables; paper; among others).

Community involvement

By community involvement we mean more than just consultation. Community involvement requires local non-governmental stakeholders (associations, groups, entrepreneurs, individuals) to have an active role in decision making.

ASSESSMENT PROCEDURE

Description

Involves description of the practices, where and when it happens.

Gamification process description

Meaning, design, rules, elements, mechanics, dynamics.

CONCLUSION

This material is a step-by-step guide on how to select best practices for gamification in cultural heritage.

We have recognised that preserving and safeguarding of cultural heritage, as well as informing and inspiring current and future generations to value cultural assets. We have proposed and briefly described 21 criteria for selecting best practices, organised in two general groups - 12 gamification criteria and 9 impact criteria. The gamification criteria are directly related with the gamification and their identification has been inspired by the game design heuristics proposed by Tondello, Kappen, Ganaba, & Nacke who have developed a gamification inspection tool. The impact criteria could be used in any field (cultural heritage, business, education, medicine, law, etc.) and reveal the expectation for performance and impact of a given initiative. The guide explains the procedure for raters' assessment, rating scales used, measuring inter-rater reliability and rules for characterising initiatives and selecting the best ones. It is a useful tool for practitioners, scholars, and policy makers who value the learning from others and implement the knowledge, experience, and the lessons learnt from the best cases in their future initiatives for preserving and safeguarding of the cultural heritage.

REFERENCES

- Andrews, M. (2012). Document details - The logical limits of best practice administrative solutions in developing countries. *Public Administration and Development*, 32(2), pp. 137-153.
- Bramwell, B., & Lane, B. (1993). Sustainable Tourism: An Evolving Global Approach. *Journal of Sustainable Tourism*, 1(1), 1-5.
- Buhalis, D., & Law, R. (2008). Progress in Information Technology and Tourism Management: 20 years on and 10 years after the Internet—The state of eTourism research. *Tourism Management*, 29(4), 609-623.
- Darcy, S., & Dickson, T. J. (2009). A Whole-of-Life Approach to Tourism: The Case for Accessible Tourism Experiences. *Journal of Hospitality and Tourism Management*, 16(1), 32-44.
- Dwyer, L., Forsyth, P., & Dwyer, W. (2010). *Tourism Economics and Policy*. Channel View Publications.
- Garrod, B., & Fyall, A. (2000). Managing Heritage Tourism. *Annals of Tourism Research*, 27(3), 682-708.
- Murphy, P. E. (1985). *Tourism: A Community Approach*. Methuen.
- Pine, B. J., & Gilmore, J. H. (1999). *The Experience Economy*. Harvard Business School Press.
- Richards, G. (2002). Tourism Attraction Systems: Exploring Cultural Behavior. *Annals of Tourism Research*, 29(4), 1048-1064.
- Scott, D., Hall, C. M., & Gössling, S. (2012). *Tourism and Climate Change: Impacts, Adaptation and Mitigation*. Routledge.
- Timothy, D. J., & Boyd, S. W. (2003). *Heritage Tourism*. Prentice Hall.
- Tussyadiah, I. P. (2014). Toward a Theoretical Foundation for Experience Design in Tourism. *Journal of Travel Research*, 53(5), 543-564.

REFERENCES

- Kapp, K. M. (2012). *The gamification of learning and instruction: Game-based methods and strategies for improving education and training*. John Wiley & Sons.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). Gamification: toward a definition. *CHI 2011 Gamification Workshop Proceedings*, 1–12.
- Werbach, K. (2014). *Gamification*. New York: HarperCollins.
- ICOMOS (2017). *Guidelines for the management of cultural heritage*. Paris: International Council on Monuments and Sites.
- Miles, S., & Sullivan, Z. (2014). *Accessible gaming: A practical guide for developers and designers*. CRC Press.
- Robertson, T., & Keates, S. (2018). *Inclusive game design: A guide to creating games that everyone can enjoy*. CRC Press.
- Sawyer, B. (2006). *Innovate like a game designer: 100+ patterns for creating innovative games and experiences*. CreateSpace.
- Susi, T., & Vílchez, J. (2016). Gamification in education and training: A systematic review of the literature. *Educational Technology & Society*, 19(2), 105–118.
- Huizinga, J. (1950). *Homo ludens: A study of the play-element in culture*. Beacon Press.
- Küecklich, H. (2007). *Playing computer games: A situated activity*. Routledge.
- Huotari, K., & Hamari, J. (2017). Gamification in tourism: A systematic review. *Annals of Tourism Research*, 66, 164–176.
- Tussyadiah, I. P., & Fesenmaier, D. R. (2018). *Gamification in tourism: A multidisciplinary perspective*. Routledge.

REFERENCES

- Fesenmaier, D. R., & Bateman, M. (2014). Gamification and serious games in tourism: A systematic review. *International Journal of Tourism Research*, 16(4), 387–402.
- Sigala, M., & Michalis, N. (2015). Gamification in tourism: A literature review and future research directions. *Tourism Management Perspectives*, 15, 1–12.
- Tondello, G., Kappen, D., Ganaba, M., & Nacke, L (2019). A Gameful Design Heuristics: A Gamification Inspection Tool. *Proceedings of HCI International 2019, Human-Computer Interaction. Perspectives on Design*, Springer, 224–244.
- Ng, E., & de Colombani, P. (2015). Framework for Selecting Best Practices in Public Health: A Systematic Literature Review. *J Public Health Res.*, Nov 17; 4(3):577, 157–170.
- WHO Regional Office for Africa (2008). *Guide for Documenting and Sharing “Best Practices” in Health Programmes*. AFRO Library Cataloguing-in-Publication Data: Brazzaville.
- WHO Regional Office for Africa (2017). *A Guide to Identifying and Documenting Best Practices in Family Planning Programmes*. AFRO Library Cataloguing-in-Publication Data: Brazzaville.
- Peters, M., & Heron, T. (1993). When the best is not good enough: An examination of best practice. *The Journal of Special Education*, 26(4), 371–385.
- Bendixsen, S., & de Guchteneire, P. (2003). Best Practices in Immigration Services Planning. *Journal of Policy Analysis and Management*, 677–682.

REFERENCES

- DaCosta, B.; Kinsell, C. (2023) Serious Games in Cultural Heritage: A Review of Practices and Considerations in the Design of Location-Based Games. *Educ. Sci.* 13, 47.
- Marques, C.G.; Pedro, J.P.; Araújo, I. A (2023) Systematic Literature Review of Gamification in/for Cultural Heritage: Leveling up, Going Beyond. *Heritage*, 6, 5935–5951.
- Wu, J., Liu, Y., & Bretschneider, S. (2023). Best practice is not just “best”: An empirical study-based on judges’ perceptions. *Urban Governance*, 3(2), 130–137.
- Sørensen MLS, Viejo-Rose D. (2015) The Impact of Conflict on Cultural Heritage: A Biographical Lens. In: Sørensen MLS, Viejo-Rose D, eds. *War and Cultural Heritage: Biographies of Place*. Cambridge University Press, 1-17.
- Hallgren, K. (2012). Computing Inter-Rater Reliability for Observational Data: An Overview and Tutorial. *Tutor Quant Methods Psychol*, 8(1), 23–34.

The project No. 2023-1-PT01-KA220-HED-000154261 “A gamification model for community-based heritage work” is funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor EACEA can be held responsible for them.

Contact

www.heritagegame.com

heritage-game-team@googlegroups.com



**Co-funded by
the European Union**