

Gamified Learning to Restore the Forest Landscape in Afghanistan: The Role of Immersive Playful Environments in Re-Inventing the Future of Work and Re-Imagining Organizations

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ABSTRACT

Implementing digital learning approaches in fragile contexts offers opportunities and challenges at the same time. The article describes an ongoing project by the German development cooperation organization GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH) with the target to reforest areas of Afghanistan and conduct corresponding capacity building activities in the country. The international and Afghan stakeholders are facing a variety of challenges such as threats on personal safety and security, connectivity, and electricity breakdowns as well as working with a partwise illiterate and digital illiterate target group. The three steps of the capacity building process of the project will be described and explained – the training of trainers, the training of the NGOs, as well as the training of the final target group. Elements of the digital training are gamified and adapted to the Afghan culture, specifically focusing on storytelling, roleplay, as well as social learning.

KEYWORDS

Afghanistan, Development Cooperation, Digital Learning, Gamification, International Cooperation

INTRODUCTION

The Project: Capacity Building for a Green Afghanistan

Imagine yourself as a 14 year old girl named Ayla living in the mountains of Afghanistan without intact vegetation, facing existential problems due to climate change, desertification and erosion. You are concerned about the supply for your village, but it is hard for you to talk in front of the local *dschirga*, the gathering of the village that is mainly driven by men. What are your perspectives? Was it always like that?

Afghanistan once was a country of beautiful landscapes, high mountains and diverse vegetation. People with very heterogeneous backgrounds of their ethnic groups were living in peaceful social coexistence. It can be considered as an example or even the prototype of a transit country. Since early historical times, the country has seen migrations, conquerors, traders and missionaries of the most diverse religions pass through in a way unlike most other countries on earth (GIZ, 2020). Due

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to its geographic location as a gateway between west Asia, central Asia and the Indian subcontinent, Afghanistan has a huge cultural diversity. In reality, the affiliation of a person to a certain ethnic group is not as clear as it seems from outside, boundaries are sometimes impossible to draw. Some Afghans don't know the name of the ethnic group they seem to belong to, some even change their identity during their life (Schetter, 2009). "Today's Afghanistan is a country with no intact forests. Decades of external and internal conflict and the overexploitation of natural resources by the impoverished population have destroyed original natural landscapes. The situation is getting more critical by climate change. Almost half of the population of Afghanistan is affected year after year by the increasing frequency of natural disasters" (Janz, 2019). Desertification and connected problems are the consequences, already years ago: "According to the 2006 National Report of the Afghan Ministry of Agriculture, Irrigation and Livestock, desertification affects over 75 percent of the land area of Afghanistan's northern, western and southern regions" (UNAMA, 2013). So far, there is a lack of initiatives that preserve natural resources at a national level with a strategy for the entire country. One reason for this is that Afghanistan is highly fragmented, since centuries there is a tension between the capital Kabul and its provinces, mainly because of taxes and military service combined with the feeling to not get anything for it in return (Glassner, 2009). A general strategy for reforestation needs to be implemented: "These activities now need to be intensified, concentrated, expanded and made more effective by means of an integrated landscape approach" (Janz, 2019).

In alignment with military interventions, the international cooperation and rebuilding of Afghanistan started mainly the year 2001. So far, several billions of US-Dollar were spend by the international donor community. A clear calculation does not seem to be possible (Mielke & Schetter, 2009). The German development cooperation initiated the project Forest Landscape Restoration (FLR) in Afghanistan operated by the German development cooperation organisation GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). The objective of the project is to restore ecological and productive functions of degraded forest landscapes in five provinces of Afghanistan, namely Badakhshan, Khost, Paktia, Samangan and Takhar. The project operates in four fields of activity (Janz, 2019):

- Restoring forest landscapes at village level.
- Enhancing resilience among people to natural disasters.
- Improving the institutional framework for the use of natural resources.
- Strengthening the capacity of important actors in the restoration of forest landscapes.

Embedded in the field of activity "Strengthening the capacity of important actors in the restoration of forest landscapes", the FLR project is implementing sector-specific training activities for the sustainable use of forest-related resources. Achieving sustainable results in reforestation can take decades, that is why awareness rising and capacity building activities need to take place in the local context. The activities of FLR focus on the establishment of long-term measures at vocational schools and universities and on practical training for forestry and agricultural advisors as well as Non-Governmental Organizations (NGOs) working in the context of reforestation and landscape restoration (Janz, 2019). Due to current security issues in the country, most of the international staff from GIZ is not allowed to work in Afghanistan. Only national staff and NGOs are working in the field for FLR at the moment.

A big variety of activities by GIZ follow a capacity building approach. Solutions should be developed in cooperation with local partners, training and other learning activities should improve the competencies of individuals, institutions and organizations as well as governments. The capacity building approach is rooted in the concept of sustainable development. "GIZ understands sustainable development as a holistic process that strikes a balance between social responsibility, ecological soundness, political participation, and economic performance. To achieve this, all stakeholders need to engage in a permanent process of searching, negotiating, and learning that produces workable

compromises.” (GIZ, 2013). This approach is also followed by the FLR project in Afghanistan by implementing training and capacity building activities for the local partners. At the moment of writing the article, the training utilizes a distance learning approach. Before the training took place, a needs assessment was done by FLR identifying the most urgent topics that need to be trained. International experts on the topics of land tenure, gender, disaster risk management and climate change were hired by GIZ to deliver these trainings. Before conducting the training in the shape of distance learning, the experts received training on “digital capacities” by Philipp Busch to transform their workshops from offline courses to online ones. This training of experts was enriched with game elements to increase the motivation and internalization of the learning outcomes of the experts. After this training activity, the international experts were able to conduct online training themselves to NGOs in Afghanistan called “FLR online workshops” to build their capacity on the experts’ topics. These skills in the field of land tenure, gender, disaster risk management and climate change are needed by the NGOs to fulfill the overall project goals of FLR. The training of the NGOs was gamified as well, mixing digital learning activities supported by “offline jumps” to apply the knowledge and skills in real life. In a third step, the capacity building activities will be scaled up by the NGOs to target Afghans living in villages in rural areas.

The three steps use Gamification to make the learning process more enjoyable as well as increasing the learning results. The way in which Gamification is used in the training is tailored to the Afghan culture to put the learner into the middle of the design. The distance learning approach was new for many participants of the training, which was why a gamified approach was implemented to support the learner in his or her learning journey. The Gamification design includes storytelling and role play, aspects of social interaction, furthermore the empowerment of creativity with a path to mastery.

The gamified approach goes hand in hand with a need to focus on usability. The aspect of usability is crucial in ensuring the success of this digital learning approach as it must match the interaction design of it with the level of digital literacy of the target group. Although the first rule of usability, as defined by Krug (2014), is “Don’t make me think!”, the specifics implied by this rule vary from culture to culture. What is clear and obvious for one culture might appear confusing and disruptive in another. Contextualized usability is influenced by local conventions, the usage of different types of media, the language and of course the culture itself. This can also lead to significant differences in preference for the 5 main usability attributes (satisfaction, learnability, efficiency, memorability, errors). A study identified that the importance of usability attributes varies between nationalities, especially the attributes efficiency and satisfaction. It encourages product designers and usability practitioners to consider the cultural differences when designing products and when evaluating, measuring and making recommendations on product usability (Wallace et al., 2013).

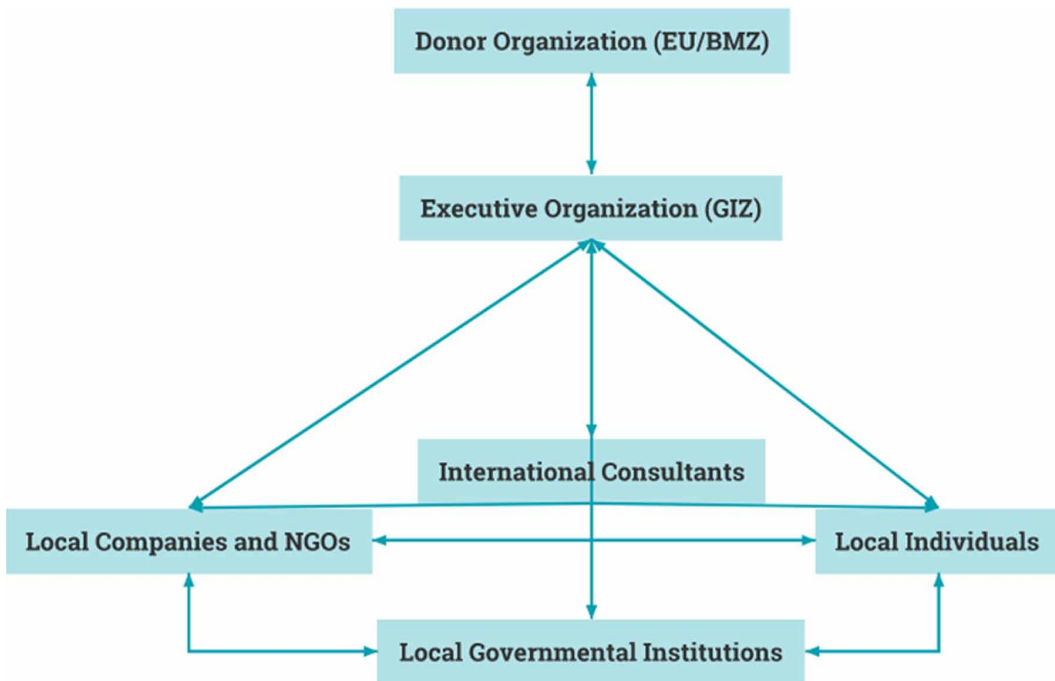
As usability is different for different cultures, the project is using an iterative design process by implementing frequent questionnaires, interviews, and feedback by the learners to identify pitfalls and integrate lessons learned into the current project design.

BACKGROUND

Project Stakeholders: International Expertise and Local Players

A project within international cooperation always has a complex stakeholder environment. In projects like the FLR, there are donor organizations or institutions such as the European Union (EU) or the German Federal Ministry for Economic Cooperation and Development (BMZ) that provide the budget and have specific targets or focus points required to meet. Normally there is also an executive company or institution such as GIZ which is responsible for implementing the project itself. The work of GIZ includes the analysis, conceptualization, implementation, steering and evaluation of the activities in agreement with the donor institutions. The executive organization is often supported by international and local experts and consultants that have knowledge on a specific topic. In the target country itself,

Figure 1. Actors within international cooperation (simplified)



there are governmental institutions, local companies and NGOs as well as other groups and individual persons that should be integrated into the project design.

Before starting any activities, it is of high importance to map the different actors and visualize their dependencies and interdependencies. Furthermore, pointing out their economic, political, religious, social or personal interests on the project will help project managers to gain a more realistic insight on chances and obstacles that might occur during the project. Will the stakeholders have a direct or indirect impact on the project? Will they support the project or undermine it? How likely is that a potential risk turns into reality? Especially in fragile contexts or countries in which you have a dangerous tension between the state and noteworthy parts of the population, these questions need to be answered beforehand as well as possible, since it affects the likelihood of success including the personal security situation of the staff working in the field.

The GIZ project FLR is cooperating directly with the Afghan Ministry of Agriculture, Irrigation & Livestock (MAIL) to get backup from the local government and coordinate the efforts of the project. FLR subcontracted different Afghan NGOs that are working in the field to support villagers with their reforestation and cultivation efforts. The NGOs are supported and trained by FLR to improve their own competencies in the topics of the project as well as delivering this knowledge to the villagers. There are activities with individuals and communities in the areas of Badakhshan, Khost, Paktia, Samangan and Takhar. Due to security threats in the country, international staff from GIZ are not allowed to work in the field in the Afghan areas. Only the local NGOs and local staff from GIZ can directly interact with the villagers to train them and raise their awareness on the topics of the project. The NGOs are supported by a set of international experts on the already mentioned topics. These international experts work under the umbrella of an international consulting firm called GFA Consulting Group. Additionally, the experts and FLR are supported by Philipp Busch Consulting (PBC) to work on digital learning approaches, Gamification and Serious Games.

Apart from the Afghan Ministry MAIL there is a complex, multi-ethnic and socio-economic conglomerate in the cities and villages in which the project intends to make a change. As mentioned above, Afghanistan is a fragmented country with some tensions between the capital and the decentralized areas. Religious orientations, tribal structures as well as local, regional and international conflicts are setting a demanding, sensible and highly fragile frame (Schetter, 2009) on the project that requires empathy and a careful consideration in all activities by all the stakeholders.

The Process: Different Phases of Capacity Building and Awareness Raising

The process of the project follows different training steps: Firstly, the training step “digital capacity building” trained the international experts hired by FLR in the topic of designing and implementing digital learning scenarios. This training took place in an online learning format. The reason to build the capacities of the international experts in digital learning scenarios is the following: Due to the current security situation, the international experts are not allowed to travel to Afghanistan and have to be able to deliver their training purely online. In the next step (FLR capacity building I), the NGOs representatives were trained by the international experts on topics of land tenure, gender, disaster risk management and climate change adaptation in an online learning format. While writing this paper, the project finalized the second step and is now preparing to implement the third step. The third training step (FLR capacity building II) will train the field staff and the ministry MAIL on a variety of topics (see Table 1). In the evaluation of the second training step (FLR capacity building I), the NGO representatives asked to also integrate the topic of conflict transformation to the curriculum, that is why it will be added in the third training step. This training needs to be conducted in a blended learning format, a mixture of online learning scenarios conducted by the international experts (and translated to local languages) combined with offline learning formats conducted by the NGO representatives. Once the field staff is trained, they can serve as multipliers and deliver the content to the communities. This will happen in the fourth training step (training local communities) conducted by the NGO field staff. The training will mainly count on offline learning, but will be supported by videos and other digital learning formats on the devices from the NGO field staff.

As mentioned above, each phase is evaluated through a set of questionnaires for the participants. A pre-questionnaire examines their expectations and knowledge or capacity before the training intervention is taking place. A post-questionnaire after each topic tries to draw conclusions about the success or failure around the learning activity, highlighting the knowledge increase (where

Table 1. Overview about the different training steps by FLR

Training steps	Conducted by...	Received by...	Topics
Digital capacity building (online)	Philipp Busch Consulting	International Experts	Design & Implement digital learning scenarios
FLR capacity building I (online)	International experts	NGO representatives	Land Tenure, Gender, Disaster Risk Management, Climate Change Adaptation
FLR capacity building II (blended)	International experts, NGO representatives	NGO field staff, Ministry MAIL	Land Tenure, Gender, Disaster Risk Management, Climate Change Adaptation, Conflict Transformation
Training local communities (blended)	NGO field staff	Local communities	Land Tenure, Gender, Disaster Risk Management, Climate Change Adaptation, Conflict Transformation

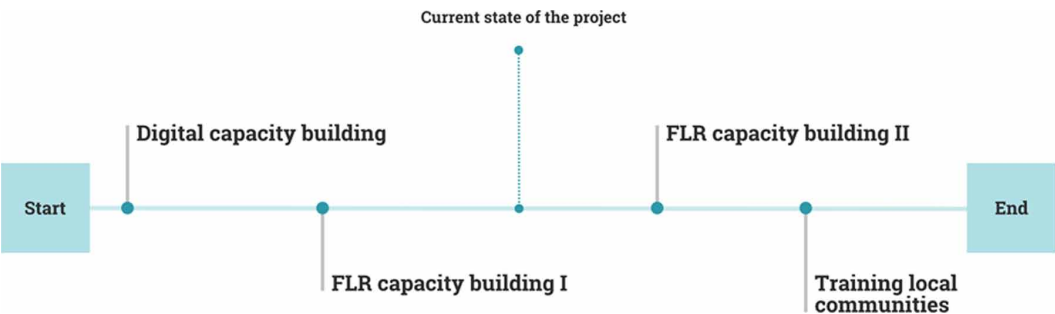
applicable) and encourages reflection on former opinions and excitement of the target group towards reforestation. Of course, questionnaires are limited in terms of calling up elaborated ideas by the user. Therefore, synchronous interviews serve as a tool that gives more space for open conversation and improvements. The interviews with the representatives of the NGOs gave valuable insights on the Afghan learning culture as well as ideas and recommendations to train the field staff and the communities in the project areas. Furthermore, due to a lack of usability of the used digital tools, the gamified learning approach that will be described below couldn't unfold its full potential. That's why the lessons learned will be integrated into the next training steps. Transparency and an open atmosphere for improvements are the basis to optimize the initial project design as well as the ability to react to the fast-changing parameters in the Afghan context. It is a constant learning process, and FLR is very flexible in adapting its initial design to best serve its targets and the target group.

Gamified Learning Approach: Afghan Storytelling in a Fictitious Learning Village

The learning approach of the trainings is combining digital synchronous meetings with asynchronous self-paced learning modules. Depending on the training step, the learning scenarios are online or blended (mixture of online and offline learning activities). PBC defines and implements Gamification in this project as a user-centered design of a learning scenario that tries to stimulate the right composition of extrinsic and intrinsic motivation. This composition is achieved when the target group is highly motivated to succeed in the different training steps by getting triggered by a story-based design of the learning scenario, including extrinsic rewards as well as giving space for own creativity. Therefore, the learning scenario is enriched by game elements known and understood by the target audience. The Afghan culture has a multi-ethnic background, full of traditions, history and religious influences. Pushing a western or euro-centric approach wouldn't lead to the desired outcomes. The design of a gamified system in international cooperation should be influenced by general project parameters, human core drives, the target group and its culture as well as the use case, meaning the actual situation in which the target audience interacts with the gamified system (Busch, 2018).

As mentioned above, the Afghan culture is very heterogeneous, so finding similarities that can be transformed into "design pillars" (general statements or principles that will be taken into consideration while designing the learning experience) to contextualize the learning scenarios to "the" culture is challenging. It is not possible to say how many ethnic groups are existent in Afghanistan. The estimations vary between 50 to 200 ethnic groups (Schetter, 2009). The oral tradition of learning content and history is a universal phenomenon, however in Afghanistan it plays a very important role. Due to a big part of the population being illiterate, the use of writing plays a less important role than in western countries. Eloquence, poetic talent, storytelling, the aesthetics of the sung word and other rhetorical skills possess a high persuasive power in Afghanistan (Rzehak, 2009). This is the reason why the training activities try to set a high focus on storytelling.

Figure 2. Timeline of the training steps by FLR (2020 and 2021)



Next to the training activities and specific learning content such as podcasts and learning videos, the Afghans were able to join a channel on the communication tool MS-Teams. The channel was called “Learning Village Abada Mond”. In this channel, the learning content is presented in an alternative way using a storytelling approach in a self-paced learning style. The participants could decide if they wanted to download the learning content and go through it in a traditional way, or if they want to take a role in the learning village and interact with the content in a gamified way. The fictitious village Abada Mond is presented as a traditional Afghan mountain village with realistic conflicts, opportunities and threats similar to other villages in real Afghanistan. In cooperation with the international experts, a set of characters was designed who represent the most important persons in the village. There is the old chief of the community *Malik Haji Shah*, his wife *Amira Shah* with her son *Haroon*, the local executive *Arbakee Abdullah Qadir* with his wife *Ayla Zaher* and their children. All of these fictional characters have their own personas including hobbies, backgrounds, wishes and fears. The village itself is also described and visualized with its surroundings and infrastructure to make the simulation more realistic. The user or player is new to the village and takes the role of an advisor to mediate conflicts as well as offer advice in topics of land tenure, gender, risk management and climate change. The international experts were free to use this setting as a background for their tasks and learning scenarios.

- Example Post: Land Tenure in Abada Mond (by Laurie Ashley)

It is a lovely day in Abadi Mond. As a forest land restoration association considers areas for reforestation, the gathering of the village realizes that finding land to plant trees is more complicated than they thought. Malik Haji Shah asks for your advice: We must consider...

... what land is available for planting,

... which rules will best protect the new trees,

... which rules we are actually able to implement,

... and what land conflicts might arise from this new land use and how to solve them.

This introduction is followed by a land tenure case study form that needs to be completed by the NGOs. The case study triggers the already mentioned “offline jump” by giving tasks that need to be fulfilled in the real world. For instance, the NGOs had to elaborate on the conflicts they are currently facing, and explain the different perspectives of the conflict parties. The NGOs had one week to interact with the conflict parties in the villages and report the given situation within the form of the case study. It was then discussed in the next webinar, receiving some advice by the international

Figure 3. Setting the scene of the learning village (© 2020, Laurie Ashley. Used with permission.)



experts as well as by the other NGOs. The theoretical inputs and the scenario of the learning village were combined with real experiences from the NGOs in the villages they are currently working in. Furthermore, the NGOs were encouraged to highlight general findings that might be relevant for a “standard-village” like Abada Mondi. Following this approach, lessons learned from different real villages can be reshaped as general recommendations in order to serve as best practices or tips for similar problems in future situations.

- Example Post: Gender in Abada Mondi (by Ellen Geerlings)

Last year, many months before you became the advisor to the village chief, an International Organization working on increasing food security in Afghanistan had contacted Haji Shah the village chief of Abada Mondi and asked him to organize a meeting with the village elders. The meeting was planned and the village elders had gathered. The project manager from the INGO explained that there was funding to build a new irrigation canal in Abada Mondi with the aim of improving food security in the village by increasing wheat production. The project coordinator wanted to discuss technical details with the village elders and to do a transect walk with the village elders to determine the most efficient location of the irrigation canal. After 7 months of planning and construction work the canal was finalized. The village elders tell you that they had their first harvest and are very happy; the yield of wheat has almost doubled! You decide to talk to Ayla Zaher and ask her about her experience with the new irrigation canal. It is a good thing you asked her because it turns out that Ayla Zaher and the women of the village are happy with the increase in wheat production which benefits some households in the village BUT they are unhappy about the location and the way the new irrigation canal was constructed. Can you think of the different reasons why the women in the village are unhappy with the newly constructed irrigation canal?

The participants could discuss the problems and solutions of the learning village and see what they can apply in their own context. Another post linked the topic of gender discrimination to a real interview with a female colonel. Based on the real interview by BBC (also available as a podcast) the participant needs to identify the different types of gender discrimination experienced by colonel Latifa (BBC, 2013), who is a real person from Afghanistan but in the Storytelling approach connected to the fictitious learning village Abada Mondi.

- Example Post: Disaster Risk Management and Climate Change Adaptation (by Gerhard Rappold and Stefan Michel)

Figure 4. Irrigation canals designed without (left) and with (right) consulting women (© 2020, Ellen Geerlings. Used with permission.)



The village Abada Mondi is located at the bottom of the mountain slopes. In summer the villagers send their livestock to the mountain pastures where it grazes for four months. Streams from the mountains supply the village's irrigation system. Lands suitable for irrigation are limited and so most families grow rain-fed wheat (la'lmi). People collect subshrubs from the range land as winter fodder for their livestock and heating material.

The summer pastures, irrigated fields and la'lmi fields can be seen, donkeys carry fuel and forage down to the village. There had never been a disastrous debris flow in the village. But last year, after a heavy rain huge amounts of water together with gravel, soil and big rocks came down the valley and destroyed several houses. Missing trees and vegetation was one of the problems, now also the children try to help out.

Participants had to discuss why this happened and how it could be avoided. Next to the stories, participants were able to use the communication tool MS-teams that allows standard social media functionalities to give each other feedback by liking and commenting on the solutions by others to foster Social Learning. Social Learning is a powerful yet hard to implement learning approach in this digital context, since the NGOs are not very experienced in digital learning approaches. "Virtual networking provides a flexible means for creating diffusion structures to serve given purposes, expanding their membership, extending them geographically, and disbanding them when they have outlived their usefulness" (Bandura, 2001). This means that these social learning networks can be initiated within the capacity building activities of the project and will end when they don't serve a purpose anymore. Social learning requires a lot of interaction between the participants and an atmosphere of trust to share own experiences and drafts. If applied correctly, it can increase the learning outcome of the user and give the teacher a higher flexibility to react to the needs of the learners (Raspopovic et al., 2017).

This atmosphere needs to be set up step by step, initial doubts and the feeling of monitoring by supervisors or GIZ are major obstacles to create a protected circle in which the user can share their opinions and own solutions. In the Afghan culture, this will be more likely in analog face to face meetings, which took place next to the digital learning approach. Some participants of the webinars were in the same physical room. After the webinar, the learning peers were discussing the content and its potential application in the real world. The qualitative interviews showed that these discussions consolidated the learning content and therefore improved the learning outcome. Connected to

Figure 5. Kids are irrigating trees (© 2020, Ellen Geerlings. Used with permission.)



social learning, the element of serendipity can also lead to unexpected insights and learning results. Serendipity means making happy and unexpected discoveries by accident. The concept of serendipity consists of three key aspects: discovery, accident and sagacity (Sawaizumi, 2007). It is also possible to apply serendipity in learning scenarios. In this project, it could lead to an experience exchange on topics that were not intended or foreseen by the designer of the learning scenario. Although the content of serendipity learning can't be planned, the designer can intentionally create an atmosphere and space in which this sort of learning can take place. Classical situations are chatting with colleagues at the watercooler or during a coffee, exchange at social events and so on. In digital learning scenarios these spaces can be created as well. Think of a regular digital coffee break without any agenda, a digital barcamp or a shared cooking event. These rituals and events need empathic moderation but successfully implemented can create an atmosphere of trust and collaboration within the team which has a positive impact on social learning and the serendipity within learning.

Next to the positive results there were also mistakes leading to lessons learned that need to be integrated to improve the next training steps. Corresponding to the interviews, the asynchronous storytelling was enjoyed by the participants, however the interaction with the learning content could be improved. Facing problems with the usability of the communication tool as well as being hesitant with the written word, the storytelling approach needs to be adapted to a more synchronous interaction, applying it in the training sessions itself rather than counting on self-paced learning.

CONCLUSION

A game is more than a physiological phenomenon, it goes beyond the limits of purely biological and purely physical activity. It is part of the culture and was already there before the existence of culture itself (Huizinga, 1956). Since games are a part of human nature, games exist everywhere in the world. Game thinking and gamified approaches are understood by all human beings, as long as they are contextualized to the targeted culture. That is why Serious Games and Gamification are a powerful tool within development cooperation, also or especially in the fragile environmental, social and political context of Afghanistan. The project FLR conducted two training steps so far: training on digital competencies for the international experts as well as capacity building activities to the representatives of the NGOs. Lessons learned were gained through observations, questionnaires and qualitative interviews and will lead to an iterated and improved learning scenario for the next steps: the training of the NGO field staff that will then deliver the learning content to the rural areas and local communities.

So far, the design of the process as well as the Gamification of selected learning content worked for the project. Experiences and mistakes were made (for instance in the self-paced learning modules), parts of the design and the process need to be adapted. The usability and the access to the learning material need to be improved, findings of positive impact by storytelling and social interaction through the questionnaires and interviews must be focused in the design of the next training phase. Due to the iterative approach of the project, the lessons learned can be integrated quickly to create a learning scenario that best fits the Afghan learning culture.

The positive results so far can be ascribed to the professional work of the stakeholders: GIZ, GFA, the international experts as well as the NGOs in Afghanistan. Furthermore, tailoring the approach of Gamification to the Afghan culture so far seems to be very promising but needs more elaboration. Another important next step will be the fostering of ownership among the Afghans for the project and their forests. Ownership can be achieved through participation and self-actualization by giving space for own ideas and solutions within the existing project frame. A good opportunity for this space for creativity will come up in the next steps, when the NGOs are serving as multipliers and delivering the trainings and the awareness rising to the villages and communities. The local communities need to have the feeling that it is their forest and by reforestation, their climate resilience and capacity to adapt to changes will improve which leads to a better supply of the villages and communities.

The combination of iterative activities on capacity building, awareness raising, behavior change, integration of culture and creation of ownership are important pillars to realize sustainable projects. This combination of aspects and perspectives helped FLR to achieve first promising results. It has the chance to set the ground for a transformation process that could affect big parts of Afghanistan in the near and hopefully far future - a necessary time frame in the context of reforestation.

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