Serious Games in Co-creative Facilitation

Experiences from Cross-sectoral Work with Deaf Communities

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Chapter 1
Introduction and context

1.1 Serious Games and co-creative facilitation

Serious Games have become popular in recent years and are being used in an increasing range of contexts, including education, business, design, corporate training, healthcare, the military, management, public services, and others. A Serious Game is defined as any game that is used for purposes other than entertainment, i.e. for a serious purpose (hence the terminology). Susi et al (2007:2) argue that the notion of Serious Games first became widespread in 2002, coinciding with the establishment of the 'Serious Games Initiative' in the US. The same authors discuss various early definitions of Serious Games. These definitions vary somewhat as to whether they emphasise the non-entertainment purpose or the game-like nature of Serious Games. However, there is a broad convergence around the core idea that "serious games are (digital) games used for purposes other than mere entertainment." (Susi et al (2007:1)).

It is interesting to note the expression "(digital) games" in the above, which implies that using digital technology is the default implementation of a Serious Game. In fact, other definitions uniquely refer to digital technology when discussing Serious Games, and do not consider alternative non-digital implementations at all. For instance, Zyda (2005: 26) defines a Serious Game as "a mental contest, played with a computer in accordance with specific rules, that uses entertainment to further government or corporate training, education, health, public policy, and strategic communication objectives."

In their review of Serious Games, Breuer & Bente (2010) refer to Sawyer (2003) as coining the term 'serious game' with respect to digital games for the first time. Of course, the idea that a game can be used for non-entertainment purposes is not at all new, but the emergence of a consolidated area of specialism on Serious Games design, enterprise, and research is recent. Secondly, the emergence of Serious Games as a field is particularly linked with the digital age and the first generations of "digital natives", that is, people who have grown up with a digital world around

them and have internalised digital ways of interacting and communicating.

In this book, digital technologies and devices do not play any role in the Serious Games that have been the focus of our work. Instead, as we shall see in Chapter 2, the games described in this book have been designed specifically for contexts where digital technology and skills may not be available.

From the 2000s onwards, Serious Games become more visible, as international networks and conferences of researchers, developers, and practitioners are established. At the same time, compared to the huge industry that has developed around digital gaming for entertainment over the past decades, Serious Games operate in a relatively small niche, especially if considered in terms of market value. Below are some examples of relevant networks, organisations and conferences, most of which have been established within the past 10 years:

Organisations/networks
- Games for Change (www.gamesforchange.org)
- Serious Games Society (https://seriousgamessociety.org/)

Journals
- International Journal of Serious Games
- JMIR Serious Games
- Simulation and Gaming

Conferences
- Games and Learning Alliance (GALA) conferences
- Serious Play Conference
- Joint Conference on Serious Games (a merger of earlier conference series 'Serious Games Development and Applications (SGDA)' and 'International Conference on Serious Games')

As mentioned above, right from the beginning of the field, the most active development line for Serious Games has been the implementation on various technology platforms, to the extent that non-digital games are sometimes not even mentioned. Development of these Serious Games has been in sync with the huge strides that the entertainment game industry has been making. These games use electronic media, including computers and smartphones, may be single-player or multi-player applications, and can often be played fully online, without any face-to-face contact. Over time, gamification has been applied to an increasingly wide range of contexts. For instance, the 2019 conference of the International

Simulation & Gaming Association (ISAGA) included themes on using simulation and gaming for urban planning, the contribution of games to the Sustainable Development Goals, and gaming uses for individual learning and development.

One of the most fruitful contexts for Serious Games has been in the area of education and learning (see, for instance, Kebritchi & Hirumi 2008, Squire & Jenkins 2003, Gee 2003). This is where the natural affinity of educational games with simulation can be fruitfully exploited.[2] That is, instead of merely talking about the subject matter, learners can immerse themselves in life-like and interactive simulations. Zhou et al. (2016) describe the impact of simulation games in terms of "the assumption that the individual learning and the social learning are induced by taking decisions and experiencing the effects through feedback mechanisms that are built into and around the simulation game." This is the mechanism by which people can transfer to the real world what is learned in the safety of the simulation environment.

As argued in Breuer & Bente (2010), Serious Games used in the area of education and leaning overlap with (digital) game-based learning (GBL), e-learning, and the more general notion of edutainment. Game-based learning can be considered a sub-type of Serious Games, as not all Serious Games are educational, and there are games for other purposes. E-learning shares with most educational Serious Games the use of digital media and human-computer interaction, but much of e-learning is not in the form of games.

In addition to using games in schools, informal adult education, and Higher Education (see Lameras et al 2007 on Serious Games in Higher Education), other contexts for Serious Games are related to corporate training, healthcare, and the public sector (with both military and civilian applications). Although gaining knowledge and learning may be part of such games, they also tend to have other aims of equal or greater importance. Serious Games related to healthcare may aim for behavioural changes, that is, for people to adopt healthier choices, or they may support patients with rehabilitation from illness or accidents, or support the diagnostic process. In corporate training, as well as games used within governmental sectors, higher-level cognitive and social skills may be targeted, for example strategic planning, organisational management, and

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[2] In a review of studies on both entertainment and non-entertainment games that included a total of 61 learning games and Serious Games, the large majority (40 games) were classified as simulations (Connolly et al. 2012: 667).

communication skills (Susi et al. 2007). Finally, Social Impact Games, such as those promoted by the 'Games for Change' initiative, aim to support socially beneficial goals such as awareness raising or social change processes.

The Serious Games that are the subject matter of this book differ in two important ways from the majority of similar research, development, and practice, and thus the work of our research team runs counter to some of the current trends mentioned above. Firstly, all games discussed here are entirely non-digital and take place in face-to-face contexts only. This is the result of designing games for low-resource contexts. What is meant by a low-resource context is explained in more detail in Chapter 2. However, one of the main defining factors is that the games do not rely on any technology, whether hardware, software, or connectivity. They are literally implementable with "pen and paper", and common items easily found in any household, workplace, or outdoor environment.

Although non-digital games are sometimes completely disregarded in the concerned literature, it is clear from the above that the pen-and-paper activities carried out in our research fully meet accepted definitions of Serious Games. In Connolly et al. (2012), the distinction between digital and non-digital games is one of the category distinctions applied to the data, although non-digital games are very much in the minority, with only two games out of 129 classified as non-digital.

The second major difference is that the purposes of the Serious Games described here do not easily fit in with the abovementioned main categories. Although some of the games have elements of knowledge acquisition, awareness, and learning, the main use of games is to facilitate certain kinds of group activities that we were faced with in our research process. These are set out in more detail in sections 1.2 and 1.3. In this context, the aim is to facilitate groups of various compositions, in particular groups with a high degree of internal diversity, to work together more effectively, understand each other, and build positive and equitable relationships. Perhaps the closest analogy would be with corporate training, where team building is an important part of the exercise. However, the majority of our Serious Games have quite specific purposes and are not merely deployed for social purposes such as team building.

The way in which games have been used in our context is best described as a combination of Serious Games with co-creative facilitation. The notion of co-creation has emerged from several directions. In the area

of business and management, co-creation is advocated as a way for enterprises to engage with a whole range of stakeholders in order to increase innovation, customer and employee satisfaction, new insights and revenue streams. The company's relationship with customers and consumers is particularly important in this framework, but many other actors are involved. Ramaswamy & Gouillart (2010:4) argue that "[s]uccessful co-creators […] explicitly focus on providing rewarding experiences for customers, employees, suppliers, and other stakeholders." Unlike other ways of involving multiple stakeholders in innovation, for example via online crowdsourcing tools, it is important to note that co-creation typically requires real face-to-face contact.

This aspect of direct, face-to-face group interactions, being present in the same physical and mental spaces, is an important feature shared with the notion of co-creation as used in other contexts, including those described in the present book. For instance, co-creation is a major feature of running 'collaboratories', a term derived from the words 'collaboration' and 'laboratory'. The collaboratory is "a method that is designed to support diverse stakeholder groups to address complex issues of joint concern in a deep, visionary and outcome-oriented way" (Fein 2018:13; see also Muff 2014, and Chapter 5 for examples).

Co-creation is a way of pooling and cross-fertilising the insights of groups of people who are from different backgrounds but come together for a common goal. Mandl et al. (2012:12) identify several core characteristics of a co-creative meeting: "participants are expressing their opinions openly; they are sharing their thinking to interpret information; they are acknowledging the wealth of divergent perceptions in the group; they are working through disagreements; they are challenging assumptions; and there is a deepening sense of connection, commitment, and participation within the team".

Given these group dynamics, this approach is attractive for addressing current complex social and environmental issues that cannot be resolved on the basis of a single academic discipline, or on the basis of actors from just one societal sector. Similarly, issues of education and literacy with deaf sign language users need the involvement of deaf community organisations, policymakers, and parents of deaf children, education professionals, and others expertise, and their fruitful involvement with each other is greatly improved by skilful facilitation.

Co-creative facilitation in this sense is related to social learning, and under the right conditions, can support the formation of Communities of

Practice. Social learning emphasises the way that social groups, including those with diverse actors from very different backgrounds, can often come together to engage in joint learning and actions for common goals (see Fam 2017 for an example involving sustainable sanitation at an Australian university). Along the way, a Community of Practice may form that embodies the sustained collaborative efforts of the group towards its common chosen goals, as well as its associated social practices (Wenger, McDermott & Snyder 2002). However, the examples discussed in this book are about relatively short-term group interactions, which did not allow enough time and space for sustained collaboration or for establishing a Community of Practice around the practice of using Serious Games for creative facilitation.

Given the nature of co-creation, it is unsurprising that facilitation must play an important role in co-creative processes. In Mandl et al. (2012), facilitation is one of the design features necessary for engendering co-creativity in meetings. I use the term 'co-creative facilitation' for the kind of facilitation that is needed in co-creative contexts. Rill (2016) goes into a lot of detail with respect to the responsibilities, skills, training, and complexities of being a facilitator in a deeply meaningful kind of co-creation termed 'resonant co-creation'. Here facilitation of a co-creative programme is likened to a theatre play in three acts: setting the stage with new information, exploration from different perspectives in order for the collaborative potential to emerge, and convergence towards collective outcomes of the co-creative process. Within these stages, a facilitator must take care of "maintaining group energy as participants move through the highs and lows of the creative process. It is his or her job to ensure collective participation and ownership, while managing time and process to deliver valuable outcomes." (Rill 2016:1146).

Consequently, co-creative facilitation is a very challenging field of work, where it is necessary to be responsive to dynamics happening in the moment, while also keeping in mind the overall event flow and objectives. Lessard et al. (2016) distinguish between external versus internal facilitation (that is, whether the facilitators are from within the group they work with or from outside), as well as the work of individual facilitators versus facilitation teams. Among the various roles that facilitation plays according to these authors, project management, meeting management, and management of interpersonal dynamics are

most relevant to our context, as we shall see in the examples in further chapters.

More recently, training in co-creative processes and co-creative facilitation has also become available. For instance, the Leadership for Transition project, a trans-national European initiative, has developed a training programme about co-creation within collaboratories, as well as collections of case studies and facilitation methods in this context.[3] As this book focuses more narrowly on the role of Serious Games in contexts of co-creation, facilitation tools and skills are only indirectly covered, inasmuch as many of the Serious Games require or allow a role for facilitators. The Appendix includes some guidance about facilitation, but this is not the main objective here.

Another perspective on co-creation can be seen in the distinctions proposed by Voorberg et al. (2014:15), highlighting the fact that in the literature, co-creation and co-production are often used interchangeably. With respect to social innovation, which is the focus of their review article, the authors argue that different types of co-creation can be distinguished depending on the nature of participant involvement (in this case, citizens):

> (a) citizens as coimplementer: involvement in services which refer to the transfer of implementing activities in favour of citizens that in the past have been carried out by government, (b) citizens as co-designer: involvement regarding the content and process of service delivery and (c) citizens as initiator: citizens that take up the initiative to formulate specific services.

According to Voorberg et al. (2014), the latter two types may better be termed co-creation while the co-implementation type should be called co-production. In this book, I do not distinguish between co-creation and co-production. However, it is worth noting that most of the contexts where I have used Serious Games have been instances of co-design. In some cases, the initiating aspect has also been relevant, whereas co-implementation does not feature prominently.

The development of Serious Games in the context of co-creative facilitation that this book reports on was initially kickstarted by multi-partner research projects on literacy and multiliteracies in deaf communities in the Global South, led by the International Institute for

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[3] See www.leadership-for-transition.eu [accessed 09 February 2020].

Sign Languages and Deaf Studies (iSLanDS) at the University of Central Lancashire in Preston, UK (see Section 1.3 for details). Subsequently, I also extended the use of Serious Games to other contexts because their potential for co-creative facilitation was evident and was fitting in well with facilitation in other group contexts that I became involved with. I have tested all games described in this book with various real-life groups, and many games have been through multiple cycles of prototyping (see Chapter 3).

1.2 Working with cross-sectoral groups

Serious Games can be used in meetings, workshops, in the classroom, for informal education, in co-creative events, or in private settings. Depending on the setting, the specific challenges and benefits of deploying games will vary, and one of the main factors of variation is the degree of diversity within a group of players. For instance, in contexts of Higher Education or professional training, where games have been used in order to make formal education and learning more engaging, the participants have many similarities with each other, and a lot of common ground can be assumed. In this section, by contrast, I discuss the nature of cross-sectoral groups with considerable internal diversity, and the implications of using Serious Games with such groups.

In addition to the three commonly identified sectors of government/public services, private for-profit business and enterprise, and non-governmental organisations in the non-profit 'third sector', I also consider academia as a separate sector in the context of this research.[4] More recently, some proponents of the so-called 'fourth sector' have also come to the fore. The fourth sector is defined as a hybrid between the private, the public, and the NGO sectors, using the organisational and management methods of business not to create profits, but to achieve societal and/or environmental benefits. Hence, they are also known as 'for-benefit' companies.[5] Hence we note that the identification of sectors is not fixed but is, to some extent, subject to changes from time to time.

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[4] This is also reflected in the design of the Cross-sectoral Collaboration board game (see Appendix).

[5] See www.fourthsector.org, where fourth sector organisations are defined as those that "use market-based approaches and private capital to solve the world's most urgent social and environmental problems – leveraging profit in pursuit of purpose." [accessed 09 February 2020]

Moreover, many individuals do not fit neatly into a single sector but work in several separate contexts or at the interface between different sectors.

The term 'cross-sectoral' points to the main issue that is relevant here, namely cross-cutting collaboration between people who are (fully or partly) aligned with different sectors. Bovill (2009) differentiates between the notions of cross-sectoral, inter-sectoral, and multi-sectoral, but these finer distinctions need not concern us here. What is important is the increasing call for "collaborative and cross-sectoral approaches on the basis of added benefits in terms of greater synergy and creativity" (Bovill 2009:179). Such synergy and creativity, however, does not arise automatically merely by people from different sectors sitting around the same table and talking. Instead, I will argue that Serious Games have great potential for facilitating meaningful and equitable dialogue among groups with a high level of diversity, including those with people coming from different sectors.

Some contexts where people have been experimenting with and advocating for cross-sectoral collaboration include international development, healthcare, and sustainability/environmental issues. For instance, the 'Climate Game', a simulation about water management and space planning described in Zhou et al. (2016), is designed to include the perspectives of a local government, a local water authority, a property developer, and a housing association. In Fam (2017), the real-life case of alternative sanitation includes the local council, the department of health, and an industry regulator on the governmental sector side, a utility company, a manufacturer and an industry association on the industry side, and six different academic departments. In other cases, collaboration is between practitioners who are immersed in their field experience and researchers who come from an external, reflective perspective (e.g. Kavadias et al. (2011), where social workers collaborated with researchers on evaluation of services).

Unlike more homogeneous groups, cross-sectoral groups face many challenges that make collaboration more difficult. First of all, there are always issues of language and communication, even if in theory, everyone speaks the same language (Chapter 4 discusses these challenges in detail). This is because different sectors have different communicative habits, and some sectors have strong tendencies to use in-group jargon that is not easily understood by others. This applies particularly to academia and to the public service. In many events facilitated by myself, there have been additional communicative challenges, including the use of sign language

interpreting between hearing and deaf participants, differently accented English where participants have been from different countries, or not everyone being equally fluent in the shared language of the group.

Another obstacle to collaboration across sectors is the typically large power differential and different level of social prestige and authority. This is prevalent even in societies with relatively equitable and democratic cultures, but the power differentials are much more marked in countries with strongly hierarchical and highly stratified societies, including some of the countries where the iSLanDS Institute has been implementing projects, such as in India. For people with large differences in power and authority, it is uncommon to sit in a circle and discuss an issue on an equal footing.

Finally, for people from different sectors there is generally less shared context than in more homogeneous groups. It cannot be assumed, for example, that everyone is aware to the same extent of issues around education in a particular part of an educational system, such as primary schooling or special educational provisions. Similarly, non-governmental organisations campaigning on environmental issues come from a very different place compared to planning officials in government. Part of these different contexts is also the fact that in different sectors, people are under very different internal pressures. NGOs and community organisations may face their most important struggles with regard to funding for their activities, while for the public sector, officials are under pressures from targets imposed by their superiors. Academics, on the other hand, may suffer from heavy workloads, trying to juggle teaching and research.

Like co-creation and its facilitation, cross-sector collaboration is challenging in multiple ways. In particular, cross-sectoral collaboration by no means automatically involves a co-creative ethos. If one of the sectors is much more dominant than others, as may happen when professionals or academics try to collaborate with non-specialists, co-creation will be impaired because "power imbalances between the actors will distort every communication" Kavadias et al (2011:101). Bovill (2009) mentions the dominance of health sector professionals in some of the reviewed Nepal-based work of the UK's Department for International Development (DFID), and discusses the gap between rhetoric and ground reality with respect to implementing cross-sectoral collaboration. In addition, the following general concerns expressed by interviewees are cited: "a lack of communication of cross-sector policy aims, a lack of

clarity over benefits of cross-sector policy implementation, and a lack of operational guidance about how to implement cross-sectoral approaches" (Bovill 2009:192).

Issues of facilitating and enabling multi-stakeholder groups, which is our main concern here, also feature explicitly in some of the literature related to cross-sectoral collaboration. For instance, Glaas & Johnson (2014) and Mohtar & Daher (2016) both focus on enabling multi-stakeholder dialogue in different sub-areas of work on environmental sustainability / sustainable development. The group of researchers working on the 'SIM4NEXUS Approach' use Serious Gaming to explore the 'water-energy-food-land-climate nexus', and multiple stakeholders are involved throughout the whole research and development cycle (Suşnik et al. 2018).

Finally, in the area of related settings known as 'real-world laboratories', 'living labs', 'transition labs' or 'social labs' (cf. Evans & Karvonen 2011, Wiek, Kay & Forrest 2017, Hassan 2014, Parodi et al. 2017), practitioners pay close attention to how group processes occur in cross-sectoral contexts and can be supported, including by facilitation. Parodi et al. (2018:54) characterise the enabling infrastructure for real-world labs as including "competencies for facilitating, mediating or supervising the often politically sensitive and sometimes conflictual RwL [real-world lab] activities", which take place among cross-sectoral actors including public officials, companies, citizens, and scientists. This area of work in various 'labs' is both cross-sectoral and particularly aligned with co-creation. Although the work described in this book does not qualify as a social/living lab, mainly because it does not have enough continuity over time and space, the ethos of such labs resonates very well with our research context.

Given these considerations about the challenges of cross-sectoral work, one core question is how we can achieve a reasonable level of effective communication and mutual understanding in a cross-sectoral group, not only intellectually but also in terms of mutual empathy. How can we ensure that people collaborate in a meaningful way on issues that cannot be resolved by a single sector? Moreover, how can we do so within the very limited timeframe that typically is available at many meetings and events?

Muff (2014) includes a telling example of a multi-stakeholder meeting with participants from different sectors taking place in an East African country. At the start of the meeting, the main facilitator

immediately faced the problem that participants did not share the same language. Secondly, initially no common ground was prepared for real dialogue and real collaboration. Instead, everyone was expecting to deliver statements of their own point of view, with little regard for what others were going to contribute. The facilitator overcame these obstacles by asking participants to engage in a co-creative activity instead of talking to (or rather at) each other. At first, this created some level of animosity and resentment, but as people got into the flow of the activity, the atmosphere changed and real collaboration could then be built into the workshop.

Like many of the above examples, the work with deaf communities in the Global South, during which most of the Serious Games described in this book were first invented and deployed, is characterised by the heterogeneity of the people involved in our projects. Just like in the example from East Africa, we similarly aimed to avoid mere exchanges of declarations, agendas and demands between participants in our events. For this purpose, deploying Serious Games has proven very useful because this can generate a mutual empathy and readiness for dialogue in a very short time.

In most of the settings where I have worked with Serious Games, people have been from the same region or different regions of the same country, but some events have been international in scope, which creates additional challenges. Moreover, in almost all contexts people who did not know each other before came together for a limited time to work together on an issue, be it to brainstorm and share experiences, or to accomplish a particular objective within a funded project. It is clear that the diversity within a group working together is all the more challenging where people have had little or no contact before coming together at an event.

The projects that constitute our research context are described in more detail in Section 1.3. The particular kind of heterogeneous group that constitutes our research context includes non-governmental organisations, various resource persons including sign language interpreters, educational practitioners, academics, people working in the public sector or government departments, and deaf community members. In addition to this cross-sectoral diversity, there can also be considerable diversity within people from the same sector, but in general, the main issue remains working across different sectors.

1.3 The research context of literacy/multiliteracies in deaf communities in the Global South

At the iSLanDS Institute, workshops, events, and training modules undertaken with deaf sign language users have always focused on highly visual and interactive techniques. As the Institute works almost exclusively in countries of the Global South, we often deal with very low levels of functional literacy among the deaf target populations. This makes it impossible to run any workshop or training that is heavily based on written material. Moreover, events often involve deaf people from different countries, who may use different written languages and have limited competence in written English.

A good example of this setting is the two-week training programme on deaf leadership that the iSLanDS Institute implemented on the campus of the National Rehabilitation University in Lucknow, India, in 2014. The group of 20 young deaf people included participants from India, Nepal, Indonesia, Jordan, and Burundi. The team of deaf trainers, themselves also from several different countries, used a large number of visual techniques. For example, to understand the project planning cycle, groups worked with labelled cards to arrange them in a logical project sequence. In another session, using the technique of Forum Theatre, a small group of people acted out a situation of conflict and stopped at the main turning point. Members of the audience, who were sitting around the group of performers in a circle, could then step in and act out various solutions to the issue at hand. Whenever PowerPoint presentations were used, most of the content was in the form of images, with limited English word labels for supporting the concept.

Consequently, such workshops are very lively events with high levels of engagement and co-creation by the participants. It is not difficult to see how this approach to learning, relationship building, and co-creation can also be useful for working with hearing groups of participants. Thus several of the design features reported in Chapter 2 are grounded in many years of experience working with deaf sign language users in the Global South, but the features can easily be adapted for working with diverse groups in general, as we will see in Chapter 3.

The experiences with Serious Games and co-creative facilitation in this book occurred in the context of projects focusing on the development of literacy and multiliteracies skills with deaf communities in several countries of the Global South. Most of this work has taken place in India. Table 1.1 gives an overview of the two successive, interlinked projects.

Table 1.1. *Projects on sign language literacy/multiliteracies in the Global South*

	Peer to Peer Deaf Literacy	*Peer to Peer Deaf Multiliteracies*
Project period	2015-2016	2017-2020
Partner countries	India Ghana, Uganda (short scoping workshops only)	India, Ghana, Uganda Nepal, Burundi (short scoping workshops only)
Partner organisations	Higher Education institution and deaf-led NGOs in India	Higher Education institutions in Ghana and Uganda NGOs in India and Uganda Schools in India, Ghana and Uganda
Learning groups	5 groups of young adults in India	4 groups of young adults and 4 groups of primary school children in India, Ghana, and Uganda

The initial project, "Peer to Peer Deaf Literacy" (P2PDL), took place in 2015-2016 as a pilot project. Its aim was to research new ways of literacy learning with young deaf adults by creating an innovative ecosystem of learning. This included three core factors: a) groups of deaf learners being facilitated by a deaf peer tutor for literacy development; b) a learner-generated curriculum, whereby the deaf learner groups decided on their own learning rather than following a predetermined programme; and c) an online learning platform called "Sign Language to English by the Deaf" (SLEND) for sharing co-created literacy materials among different groups.[6] The results of this project have been reported in Gillen et al. (2016), Ahereza et al. (2016), Fan (2018), Papen & Tusting (2019), Zeshan et al. (2016), and Bhattacharya et al. (2016).

This project adopted a particular approach to literacy, inspired by ethnography and a focus on the real-life relevance of literacy learning. We took an ethnographic approach drawn from Literacy Studies in order to explore with all participants their current practices with English literacy and develop materials based on their authentic needs in real life ('real literacies approach', Street, 2012). Thus the subject matter of our

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[6] SLEND uses Moodle as its virtual learning environment. All groups of learners have their own area in Moodle but are able to access each other's material.

program was called "Real Life English" – RLE. Peer tutors facilitated groups of young deaf adults to source written English material that they came across in their daily lives, such as forms to fill in, email and Whatsapp communication, or signage in the environment. The samples were brought to the classroom and discussed in the group. Each group then worked on their topic, identifying new vocabulary, pulling out points of grammar from the samples, creating visual material such as posters, and creating sign language videos around the topic. At the end of this process, a selection of these materials was uploaded onto the SLEND as a "session". Each session included multimedia materials, such as videos where peer tutors and learners discussed the topic, a glossary of all new words with the corresponding signs, explanations of the words' meanings, example sentences, and pictures to illustrate the meanings, as well as interactive quiz activities created by the peer tutors in relation to the topic. Finally, a documentary film about the project summarised this whole process and the research around it.[7]

Learner groups were hosted at five field sites across India, and a series of exploratory scoping workshops was conducted with stakeholders in Ghana and Uganda. The project employed three deaf research assistants (RAs) and five deaf peer tutors (PTs) in India, as well as one RA each in Ghana and Uganda. The purpose of the workshops in Ghana and Uganda was to explore whether a similar approach could be adopted in these countries. We also conducted research about the literacy practices of deaf people in all three countries.

Underpinning the work in the projects was a commitment towards social justice and the furtherance of human rights (Mertens 2010). Our aim was for all the deaf actors involved in the project to have maximum agency over the research processes that they were immediately engaged in. For example, the learners decided what they wanted to learn, the peer tutors managed the local workflows and communication with the groups independently, and research assistants supported the data collection in the fields, taking responsibility for the research related workflows. Academics in the UK did not directly conduct fieldwork or interfere with the day-to-day operation of the project. Instead, a senior deaf researcher from India was employed to oversee the entire research on the ground, and UK academics provided the necessary backup material such as data collection tools, as well as being responsible for academic writing and

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[7] The documentary film is available at https://vimeo.com/298727688 [accessed 06 May 2020].

reporting back to funders. With this working philosophy, we found that visually-based and group-focused ways of working came naturally. It is from this intellectual environment that the ideas for Serious Games arose that are described in this book.

The P2PDL project was followed by another, more extensive project which extended the work in several ways. Firstly, the focus was extended from English literacy to multiliteracies, and the new project, with a three-year duration from 2017 to 2020, was called "Peer to Peer Deaf Multiliteracies" (P2PDM). In the pilot project, we had found that learners' skills were not limited to English literacy, but that it is more appropriate to think about a wider range of skills, which are multilingual and multimodal. Accordingly, studies have shown that in today's world, 'literacy' is in fact a complex set of practices and competencies in various modes (Cope and Kalantiz 2015), and cannot be restricted to a narrow view of encoding and decoding written text (Barton 2007, Pahl and Rowsell 2012). Work within deaf education contexts such as by Bagga-Gupta (1999) has applied the idea of multiple literacies to deaf sign language users. More recently, the notion of 'translanguaging' has come to the fore, which describes the complex language practices of individuals using multilingual and multimodal repertoires flexibly (Holmström & Schönström 2018, De Meulder, Kusters, Moriarty & Murray 2019).

The P2PDM project has a strong family resemblance with these concepts, and is, moreover, grounded in the experiences of the P2PDL pilot project. Multimodal and multilingual literacies were clearly in evidence in our pilot project, as the learning process mediated between written English and sign language, and the outputs captured on the learning platform integrated several modalities of expression, including pictures, videos, and text.

Secondly, we extended the engagement with learner groups from working in India only to working in India, Ghana, and Uganda. At the same time, new stakeholder workshops took place in two new countries, namely Burundi and Nepal. In this way, our work successively cascaded onwards to additional countries. Moreover, in P2PDM, we also worked with young deaf children of primary school age (i.e. between the ages of four and ten) in India, Ghana and Uganda (Manavalamamuni et al. 2018). The extended geographical scope of the project provided for some of the international composition of various meetings where Serious Games were used during P2PDM (see Chapter 3). In this project, developing South-South collaboration was of particular importance. In particular, the

12 deaf staff in three countries, both peer tutors and research assistants, supported each other, for example by providing best practice models on data organisation to each other, or by sharing news and questions in a WhatsApp discussion group for the entire research team.

Finally, the P2PDM project also increased the multi-stakeholder work already undertaken in the pilot project. Our work has involved academics, deaf research assistants and deaf tutors from three countries, technical and administrative support staff, adult deaf communities including various NGOs, schools for deaf children, public sector officials, and members of advisory committees. We used a new format, the collaboratory (Muff 2014, Zeshan 2019) for hosting co-creative events in the project countries.

This qualitative and quantitative difference has motivated a more purposeful development of facilitation, which resulted in the creation of a number of new Serious Games. In this book, the focus is on Serious Games that I used with various stakeholder groups in India, as this has been the main fieldwork site where co-creative facilitation was needed. In addition, I describe extensions to other contexts, where the experiences with Serious Games in India have already been translated to and used in various other settings.

It is important to note that this work on Serious Games has proceeded on a trajectory that is in some ways opposite to common expectation. In many cases, work with deaf communities is driven either by a deficit model, whereby deaf people are in need of some help or service, or by a model of unidirectional transfer from the mainstream to deaf communities. In the latter case, this often appears in the form of accessibility, involving efforts to extend to deaf communities what is already available in mainstream communities. By contrast, the development of Serious Games has relied on resources and strengths that are particularly associated with deaf communities, such as a strong familiarity with visual environments and multimodal communication. In contrast with usual expectation, the development of Serious Games originated in work with deaf communities, based on these resources and strengths, and the extension to other contexts has been a secondary development.

1.4 Structure of this book

In this book, I first describe the motivation and design features underlying the development of the games (Chapter 2). In Chapter 3, I trace the development cycle that has enabled the stepwise development of the games. Each game is also summarised briefly, along with a summary of the different contexts where games have been used. Chapter 4 considers experiences from the field and asks the question how and why the games work in their respective contexts. This is followed by several case studies that demonstrate how games can be used in sequence with each other or in sequence with other types of activities (Chapter 5). Finally, Chapter 6 considers a more general framework to understand Serious Games in these contexts, as well as future directions that further development of Serious Games in low-resource contexts could take.

The six chapters constitute the narrative and analysis around the topic of Serious Games in co-creative facilitation processes. In addition, each of the games is explained – and, if applicable, illustrated – in the Appendix. The Appendix describes not only the game props and game mechanics involved in playing each game, but also the different ways in which the basic versions of games can be extended. In addition, there is guidance for the role of facilitators for those games that have facilitators as a necessary or optional component.

Throughout the book, the names of games that appear in the Appendix are set in bold italics to alert the reader to the supplementary information. Most of the games in the book are covered in the Appendix, but some are excluded from the Appendix, mainly on the basis that the development cycle is not advanced enough to properly describe the game, or the development line for a particular game was abandoned. Conversely, not all games that appear in the Appendix are discussed in detail in the body of the book. The names of the games that feature in this book in more detail are as follows:

- *Pronoun Prompt*
- *Wall of X*
- *Turntable*
- *Living Diagram*
- *Tabletop Kinetic Spectrum*
- *Timeline*
- *Cross-sectoral Collaboration*

Chapter 2
The design features of Serious Games

Following from the discussions in Chapter 1, a Serious Game is provisionally defined for the remainder of the book as follows:

- It is *interactive*. Usually, players interact both with the game environment and with each other, although solo games are also possible, in which case the single player only interacts with the game environment.
- It has *rules* for actions, turn-taking, communication, etc.
- It has elements of *chance*, which are both generated and constrained by the game, for example by the roll of a dice.
- It licenses responses that are *emotional* as well as cognitive, such as laughter or social bonding.
- It has a *purpose* other than mere entertainment, for example learning or group collaboration.

All games in this book conform to this definition, and many other Serious Games would fit within this definition to. In this chapter, we view the Serious Games from a somewhat different angle, describing their design features. The design features are specific to the context of work within the respective target groups where they have been developed and used. Unlike the above definition, these design features do not apply to Serious Games across the board. For instance, many games are competitive, whereas the games in this book are always collaborative. There is some overlap between the general definitional features above and the specific design features in this chapter, but they are not the same. A third perspective on the games is in terms of their effects, which are discussed in Chapter 4. Obviously, there is a relationship between the effects of the games and their design features, but it is important to differentiate between *definition, design features* and *effects* of Serious Games in this book.

   The games described here were developed for a particular purpose, namely to facilitate developmental, co-creative work and dialogue with diverse groups. Some of these design features arose from 20 years of

experience in the field, working with deaf communities as well as mixed deaf and non-deaf groups in India and elsewhere. Nevertheless, during the course of this developmental process, it has turned out that the majority of these design features can apply equally to other contexts.

I also used Serious Games in a few contexts where audiences were more homogeneous, such as meetings and workshops in university settings (see Chapter 3 for details). However, these contexts were an opportunistic by-product of the main work, that is, I broadened my experience with developing, prototyping, and facilitating games in these less diverse settings, and they were not the main driver behind the development of the Serious Games.

As mentioned in Chapter 1, our project work is embedded in a context of low literacy levels among deaf people in the target countries. Levels of functional literacy among deaf people are particularly low in India, as well as many other regions of the Global South (cf. Knoors, Brons & Marschark 2019 on the educational situation of deaf children and young people in several non-Western countries). Along with the notion of deaf people as 'visual people' with a 'visual culture' (see the contributions in Fjord 1999), this means that there is a strong existing preference among deaf people in our setting for using more visually based and interactive formats when engaged in any collaborative endeavour.

Thus, when we work with our research staff and participants in India, we avoid literacy-based resources such as written handouts, or PowerPoint presentations with a lot of text. Instead, it is more appropriate to sit in a circle or semicircle and use a combination of sign language, PowerPoint slides with a lot of visuals and minimal text, and any other available visual prompts. Sitting in a (semi)circle is the natural, default setting for groups of sign language users, as everyone needs to see each other in order for sign language communication in a group to work. Interestingly, this is also the preferred setting in co-creative facilitation. Facilitators often talk about "holding the space", both physically and metaphorically, and this is much easier in a circle. Blainey (2014), in a contribution to a volume on co-creative events, describes the way in which the circle setting plays out in a traditional Aboriginal culture in Australia. Rill (2016:1338) notes that "co-creation utilizes the circle, the only shape with the potential to make everyone an equal participant."

It is also important to point out that sign language users cannot easily see what someone is saying and look at a written document at the same time. While hearing people can listen to speech and read along a

written text simultaneously, this is quite difficult when the language is visual-gestural. Moreover, this difficulty is compounded by the fact that for deaf signers, their primary language of communication is different from the language of any written documents that might be used in meetings. Hearing people may listen to a speaker and look at the corresponding text at the same time, and this can often be helpful in comprehension, for example when the speaker has an unfamiliar accent. However, sign language users not only cannot look at both signing and text at the same time, but also the languages of these two media do not match.

Visually-based communication lies at the heart of what is variously described as 'deaf culture', 'the deaf way', or even 'deaf gain' (Johnson, Snider & Smith 1994, Kusters, O'Brien & De Meulder 2017, Bauman & Murray 2014).[8] Interestingly, it turns out that the highly visual and interactive nature of Serious Games works equally well with non-deaf people. The reasons why this is the case, and how Serious Games tap into general considerations of human psychology, are explored in more detail in Chapter 4. In this chapter, I now describe the general design features of the Serious Games that I used in work with cross-sectoral stakeholder groups in India. Figure 2.1 shows the process by which the design features emerged.
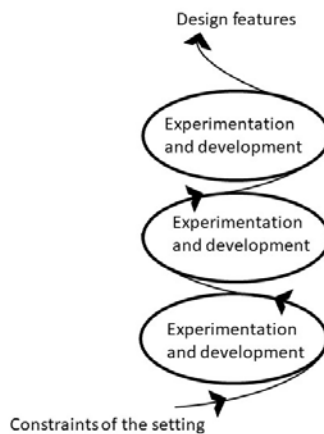
Figure 2.1. *Emergence of Serious Games design features*

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[8] "Deaf gain" is a concept that arose in Western industrialised countries, particularly in the US. It posits that instead of viewing deafness as a deficit, deafness should be valued, both as part of overall human diversity, and for some of the unique capabilities that deaf people have, most importantly visual culture and the use of sign language (Bauman & Murray 2014).

As Figure 2.1 illustrates, the design features themselves, as summarised in this chapter, were not a fixed set of conditions on the development of games from the beginning. Instead, they have resulted from the constraints of the given setting on the one hand, and the subsequent experimentation and development processes on the other hand. Nevertheless, it is useful to summarise the design features at this point, so that the subsequent chapters can be understood more easily with the design features in mind.

2.1 Low-resource design, portability and adaptability

Low-resource design is one of the most important features of the Serious Games described here. The kinds of resources to be considered here include several components, namely:

    A. Physical resources, including:
        - Required spaces/spatial layout
        - Game materials (e.g. props)
    B. Technical resources, including:
        - Technical devices, hardware and software
        - Connectivity (especially internet access and bandwidth)
    C. Human resources, including:
        - Expertise and technical skills of players
        - Expertise and technical skills of resource persons (especially facilitators)

Low-resource design is motivated by the consideration that the games should be usable irrespective of whether specific physical, technical and/or human resources can be mobilised. No special setup (beyond players congregating in a circle) or equipment is necessary, and the games can be played anywhere. When working in countries of the Global South, IT/ICT infrastructure that is taken for granted in industrialised countries often does not work, or works only erratically. In our project work, this has been all the more pertinent because various meetings, workshops and events have been held at different locations, and our research team frequently travels from place to place. Between the P2PDL and the P2PDM projects, we have done fieldwork, held meetings, or hosted dissemination events using Serious Games in many locations including not only well-connected larger cities or highly resourced campuses, but also peri-urban and rural areas, and less well-resourced institutions. Therefore, the

Serious Games can be used in contexts where Internet access, computers, smartphones, and other types of electronic media and online access are not available. However, hardware, software, and connectivity are not the only considerations.

Another benefit of low-resource design is that running the games does not rely on any technical knowledge of devices, familiarity with online activities, and the like. Sometimes, this human capacity factor is more important than the availability of technology as such. If one distributes tablets and laptops to all participants, but several of them are not skilled enough to interact with either the hardware or the software, this will take necessary time away from the subject matter and can have negative effects on the atmosphere of the event or meeting.

In educational contexts, becoming familiar with IT/ICT via a Serious Game can be a beneficial learning outcome in itself, so that overcoming technical hurdles is not an adverse issue as such.[9] However, in our context, the focus was always on the content of the subject matter at hand, and this was especially pertinent where particular objectives needed to be achieved within a short time period, such as at the international kick-off meeting for P2PDM in New Delhi.

Low-resource design also pertains to the role of resource persons needed for engaging in the games. Many of the games can be played without a facilitator, and even where a facilitator is needed, this does not presuppose technical skills. However, it is acknowledged that a certain level of interpersonal skill is necessary to facilitate the games, and the facilitator needs to be able to understand and follow the game instructions, as well as having enough fluency in the language(s) used in the session. Usually, a person with a naturally good level of interpersonal skills and with sufficient English literacy should be able to facilitate most of the games described in the Appendix, especially if some video recordings of actual games can be made available as additional resource

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[9] For example, the P2PDM groups working with young adult learners in Ghana and Uganda reported that use of our online learning platform SLEND (Sign Language to English by the Deaf) was very attractive for the learners, although accessing and using the platform was far from smooth. In Uganda, the majority of learners had never used a computer, so for them, being exposed to IT contributed to their learning in a multimedia context. In Ghana, access to sufficient Internet bandwidth has been problematic, but the young adult learners were nevertheless very interested in the online platform.

material to refer to.[10] However, the more experienced a facilitator is, the better the games will work, and this is the only aspect where a difference in the level of available resources (in this case, the human resource of the facilitator) makes a significant difference to the quality of the experience.

As can be seen from the detailed game instructions in the Appendix, the games generally only require pen and paper, widely available stationery, and/or items that can be sourced from most households, or even from the natural environment. Many of the props can be compiled flexibly from any materials at hand. For instance, the 2-D props needed for the *Living Diagram* game may consist of household items (e.g. pieces of string), office stationery (e.g. paper clips), or items found in nature (e.g. twigs). Therefore, the game is easy to assemble in any environment, and this is a general design principle across all games. In terms of preparation, the only difference is the time needed to prepare any necessary props for the game. For example, the *Cross-sectoral Collaboration* board game needs nearly 100 event cards, which take some time to produce, depending on whether they can be printed or have to be written out by hand. For the *Turntable* game, it will take some time and a little dexterity to construct the physical turntable, but the game can also be played without a physical turntable assembly.

The low-resource design implies that the games are easily portable and adaptable, as their components can be assembled ad hoc and on-site. Even if a facilitator carries a set of mixed props and materials, perhaps in order to save time on site and set up the games more quickly, such a kit of materials easily fits into a light bag or small backpack. For example, for the two-day facilitation of an international group of 18 participants at the P2PDM kick-off meeting where three different games were used, I carried the following props with me:

A collection of various 2D- and 3D-props for the *Living Diagram* game (see the Appendix about these props). These were all light-weight materials such as plastic and cork.

Marker pens and post-it notes (different sizes and colours), and several packs of blu-tack. In most situations, blu-tack is the only important item to carry because it is not available everywhere, and many venues have restrictions on taping materials to the walls (blu-tack does not leave marks on walls).

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[10] At present, we have not made available any actual recordings of participant groups playing Serious Games, but this would be a valuable resource in future.

Different types and sizes of wooden dice, including a special dice for the ***Pronoun Prompt*** game. Like blu-tack, dice were not readily available to source locally.

Another aspect of portability and adaptability is that participants may get involved in sourcing the game props and setting up the games, which can be a good warm-up activity in newly constituted groups. Assembling the game together, for example constructing the turntable that is needed for one of the games, also preconfigures the collaborative and co-creative nature of the games themselves.

2.2 Purpose-led design

Usually, group facilitation serves the general purpose of improving and enlivening group dynamics. With the right facilitation, it is easier to mobilise knowledge, commitment, and joint purpose in groups, particularly in heterogeneous groups (Rill 2016). Facilitation also helps draw out collective intelligence, that is, creating conditions where the emerging picture is more than the sum of its parts, more than the sum of contributions by each individual participant (see Woolley et al. (2010) about collective intelligence). These aspects are explored in more detail in Chapter 4. Similarly, Serious Games support this general purpose, but for the games described in this book, there is a more specific agenda. That is, each game is also designed for one or several specific purposes.

The purpose-led design ensures that games are effective when plugged into a specific context, for example a particular phase in the development of a project, or a particular unit in a training programme. The purposes of Serious Games fall into the following categories:

Interpersonal purposes, such as sensitising participants to each other's perspectives, or comparing points of view. For example, in the ***Pronoun Prompt*** game, the game process prompts people to share and compare each other's perspectives on a set of keywords. Because of the playful context, participants will experience the context as less threatening and are more likely to open up about their real opinions. Moreover, a dice acts as selector of participants in terms of turn taking - that is, who will speak next is decided to some extent by the roll of the dice. This makes it much less likely for more active and extrovert people to dominate the conversation, and provides a chance for all participants to take the floor and talk about their point of view. In the ***Pronoun Prompt*** game, sharing opinions is the main point of the game, while in other games, it is up to the

players how much they want to open up about their personal views and experiences. For example, participants discuss various mini-scenarios in the ***Cross-sectoral Collaboration*** board game that have to do with working together across diverse groups with stakeholders from different societal sectors. In this case, sharing personal views and experiences is optional when the scenarios are discussed.

Content learning is built into several of the games, and is prefigured to a greater or lesser extent by either the game materials or the work of the facilitator. Mini-scenario cards in **Cross-*sectoral Collaboration*** include a number of lesser-known key concepts, and learning about them is therefore specifically preconfigured within the setup of the game. When a scenario card comes up that includes an unknown terminology, such as 'fourth sector', 'collaboratory', or 'virtue ethics', the players are naturally prompted to ask each other and discuss these concepts. In other games, the facilitator might choose to pre-assemble a number of technical terms or relevant keywords that serve as the input to the game, for example in order to get them assembled or ranked by the players in a particular way. The ***Wall of X*** game and the ***Tabletop Kinetic Spectrum*** are of this type.

Visualisation as a purpose is strongly embedded in many of the games. Like the low-resource design, this is one of the design features that has arisen out of the context of working with deaf communities, who have a strong preference for visual representations. This does not mean that other modes, such as using written material, or simply having conversations without any props and prompts, are excluded from the games; it merely means that visual representations figure more prominently than other modes. One of the most prominent examples of visualisation among the games occurs in the ***Living Diagram*** game, which is used for talking about various aspects of project planning, such as logical relations between work packages, or actors and their relationships, or the resourcing and valuation of parts of a project. In this game, the main outcome is a visual product, namely the resulting diagram. The ***Timeline*** game is another example, where the temporal organisation of the project is mapped out visually. Depending on participants' preferences, both games can also include written notes but the visual mapping is the primary mode.

Co-creation is another important purpose that is complementary to interpersonal purposes and visualisation. The emphasis with the purpose of co-creation is on getting different perspectives to converge towards

collective outcomes. Within the co-creative process, games can support the mobilisation each participant's knowledge and expertise, useful social and professional networks, and motivation for working together. Brainstorming activities are a prime example of a collaborative process that can be part of a journey towards co-creation, and the **Turntable** game is an example of such a brainstorming game. As the game proceeds, the players not only generate ideas for brainstorming, but are also prompted explicitly to comment on each other's ideas. This is very useful for clarifying ideas and, if the group so decides, ruling out some ideas while prioritising others at an early stage. In this game, the collectively created portfolio of ideas is the main output. In other games, collaborative outputs are an additional, optional factor. For example, the **Tabletop Kinetic Spectrum** game is primarily used for visual polling and ranking of predetermined points. In the process, the concurrent and subsequent discussions may enhance the group's collective intelligence in terms of relative weightage and preference of the points in the discussion.

The detailed game instructions in the appendix include information about the intended purpose(s) of each game. Some of the games combine more than one purpose within the same game.

2.3 Kinetic and chance elements

Most of the games require people to be physically active in some way, and all of them have elements of chance, which this is a major factor in their appeal. For example, the chance factor could be due to throwing a dice, where the number indicates how to make the next move, or how to select the next player. In the **Pronoun Prompt** game, the regular numerical dice can optionally be replaced with a 'pronoun dice' (see the Appendix).

Another chance element used in several games is due to players picking cards or notes from a stack or other arrangement, where it is unpredictable what will be written on the cards/notes. In the **Turntable** game, the notes are written by the players themselves. By contrast, in **Cross-sectoral Collaboration**, scenario cards are part of the ready-made game preparation material, although players can add their own scenario cards once they are familiar with the game.

The psychological effect of chance in the games is very important. Having elements of chance and surprise facilitates an affective response, but in a safe environment. For example, it is safe to laugh without worrying whether this might be perceived as inappropriate. This is very helpful for group facilitation processes, particularly where the group

members did not know each other beforehand and/or where group members are very heterogeneous with respect to their countries of origin and cultures, their linguistic and educational background, social status, or other social variables (see Chapter 5 for some detailed case studies of such situations).

Affective and kinetic elements in the games are also good for stimulating learning because players are more actively involved and are enabled to go beyond a purely intellectual level. For example, the chance element of picking a scenario card makes it much more likely that the keyword content on the card will be remembered, compared to simply being shown the equivalent information. This is a well-known phenomenon. For instance, Tyng et al. (2018) discuss the influence of emotions on cognitive processes, including the potential for emotions to positively affect attention and memory. Unexpected factors such as the roll of a dice make it more likely that players will pay attention continuously. This helps a group to stay focused on the issue at hand, and may be particularly helpful in a hot and humid climate, or in a post-lunch time slot.

Similarly, the spatial arrangement of the games is helpful for both attention and learning. Physically moving the body has positive effects on feeling mentally more alert, and a mental micro-break while moving to a different space allows people to refresh their mental state and refocus attention. In games where all players are required to make moves that drive the game forward, individuals cannot 'hide' in the group and doze off.

As is common in board games, all games have a shared space that is co-used by all players. This is unlike many technology-mediated games, where players are connected in a virtual world and do not need to be present in the same physical space. Having all players physically present is a deliberate design feature, and there are no virtual versions of the games. This is because a major aim of the games is to facilitate group psychology, such as bonding and empathy, and being physically present supports such processes.

In addition, the spatial arrangement draws people into being actively involved rather than passive observers. As a minimum, all players must perform some actions within the shared game space, often a tabletop or other flat surface. However, several games have a higher level of physical activity. For the ***Wall of X*** game, players undertake a mapping exercise on a wall. If the items to be mapped are elsewhere, for example on a nearby

table, this means walking in between the table and the wall. The **Tabletop Kinetic Spectrum** can be played either sitting down, or walking around the table where each player places their token onto the spectrum, and the latter option is more appropriate for larger groups. In any case, moving around can be very helpful to maintain the attention of the group. Importantly, the choreography of all games is deliberately kept very simple. This way there is little room for confusion in terms of where to go and what to do, and facilitators can concentrate on the content and on keeping a positive vibe instead of directing people's movements.

2.4 Collaboration

As the games are intended to support group processes, collaboration is an important design feature. There are two different levels of collaboration involved in the games. On the one hand, all the games are collaborative rather than competitive, and therefore, none of the games has winners and losers. In fact, during the development of the **Cross-sectoral Collaboration** board game, I added another feature to the game which highlighted its collaborative nature, namely a progress bar to visualise progress of the game towards its conclusion. The game rules specify that all players' moves contribute equally to the forward and backward motion on the central progress bar.

The second level of collaboration applies when a group of players uses a game in order to achieve a specific intended outcome, such as coming to a collective decision, jointly establishing a project team configuration, or producing a timeline for a particular piece of work. This does not apply to games that are used for awareness raising and group psychology intentions such as icebreaker activities. Achieving a collaborative outcome is a strong feature of the **Turntable** game (brainstorming together for ideas), the **Living Diagram** and the **Timeline** games (joint project planning), and the **Wall of X** and the **Tabletop Kinetic Spectrum** games (evaluating and organising ideas).

Another aspect of collaboration is that the games are intended to be equitable, giving an equal chance to everyone to contribute. Most of the games explicitly engineer the comprehensive inclusion of all players by having rules about turn-taking, which ensure that everyone will get a turn to contribute at some point. It may be important for some players to know beforehand which of the games do not support a passive observer status because of their rules on turn-taking. Only the **Living Diagram**, the **Prop Improvisation** (if played without facilitator), and the **Wall of X** (if played

without turn-taking) allow for some players to be much more active than others, and also allow for group members to observe what goes on without actively participating. Being aware of these features, and how the games differ from each other in this regard, is also important for facilitators to consider in advance.

For each game, the size of the group is also an important consideration, and the approximate recommended group sizes are noted in the detailed game instructions in the Appendix. For most games, the maximum group size is no more than 10-12 players, so that everyone can visually attend to the shared game setup and prompts. In other words, groups should be able to fit comfortably around the space where the game is being played out. The only exceptions are those games that allow players to spread out in physical space, that is, the **Wall of X** and the **Tabletop Kinetic Spectrum** games, which can be played with either small or larger groups, as well as the ice-breaker 'getting-to-know' variation of the **Pronoun Prompt** game. In the latter case, there are no physical objects other than the dice to attend to, and the turn-taking is designed to be quick, so that the entire game will not take too long.

2.5 Facilitation

All games except the basic version of **Prop Improvisation** need a facilitator to be fully effective, although some of the games have variations, for example when using a game as an icebreaker, that work well without facilitation. As can be seen from the detailed game instructions in Appendix 2, the facilitator performs a range of functions. In some cases, the facilitator is merely responsible for looking after the mechanics and progress of the game. Facilitators explain the game rules to the players, make sure the game proceeds smoothly, sometimes also taking care of timekeeping where necessary. Since the game rules and processes have been kept simple, it should be possible for anyone to assume this role of facilitator after having played the game once (ideally), or even (less ideally) merely on the basis of instructions on what to do to facilitate the game without having seen it before. In some cases, facilitators have additional functions to construct the setup of the game before it starts, e.g. for the **Turntable** or the **Wall of X**, though it is possible – and sometimes desirable – to ask members of the group to help with these preparations. For example, constructing the turntable together with the group of players from materials provided can act as an initial

icebreaker activity and increase the motivation of the group to engage in the game.

A different level of facilitation is where the facilitator has to provide input for the content of the games. This requires a certain level of background knowledge and cannot be improvised ad hoc by someone without the appropriate background. This applies to all games where content learning is one of the major aims, such as the board game on **Cross-sectoral Collaboration**. In this game, facilitators must be competent to elaborate on the content of the scenario cards. If the content to be learned is preconfigured, for example in the form of keywords or scenario cards, facilitators need to familiarise themselves with the respective concepts. Within reasonable limits, it is possible to leave out some of the content that the facilitator may not feel sufficiently confident about. In cases where facilitators produce these materials themselves or along with the players, there is more flexibility to accommodate whatever background knowledge those involved are bringing to the table.

The most challenging element of facilitation is to take care of group dynamics and to keep a level of control over the game as a whole. This kind of role is often referred to as 'holding the space' (Miller 2005). Cuming (2010:187), in the context of artists as group mediators, refers to 'the role played by artists as cultural development specialists maintaining a creative presence whilst mediating real community issues face-to-face with real people in real time'. Perceiving one's role as being in service to the group process, judging whether a group as a whole is ready for the next step, and allowing emotions as well as conflicts to be expressed without derailing the group process as a whole are examples of what it means to 'hold the space'. This is not merely a technical skill but also relies on the facilitator's character, wisdom, and level of experience.

Moreover, in several of the games, facilitators need to be able to frame and calibrate the context of the issue appropriately, and the introduction before the game starts is vital in order to set the tone and avoid misunderstandings or frustrations on the part of participants from the beginning. For example, in games where the aim is to brainstorm, organise, or poll ideas, framing the questions or issues is very important. If the question is too large-scale, vague, or uninspiring, this will negatively affect the quality of the game. Once the game has begun, facilitators will, in the ideal case, continuously monitor everyone's engagement and well-being, and prevent unhelpful group dynamics, such as one or two players unduly dominating the session.

It can be very challenging to maintain the balance between healthy debate and unhelpful conflict, between following the individual interests of players and veering too far from the topic, or between being flexible with time and derailing essential schedules. In order to perform these functions effectively, facilitators would ideally be sufficiently immersed in the subject area and have substantial experience with such a role, but this is not always possible, and neither is it a guarantee that everything will go smoothly.

The cases of co-creative workshops (collaboratories) discussed in Kunze & Fein (2018) include many examples of such difficulties. Of particular relevance here is the case of one of the collaboratories, where the proposer of the workshop theme was also the main facilitator.[11] This created a heavy burden on the facilitator and, to some extent, a role conflict. In those Serious Games sessions that relate to the Deaf Literacy/Multi-literacies projects, I was likewise in the multiple roles of being the main facilitator and the academic head of these projects. In the other extended settings outside of these projects, the issue of having a double role was much less pronounced or absent.

For the Serious Games deployed within the work on P2PDL/P2PDM, it is undeniable that the intended processes of co-creation were somewhat constrained by the fact that as Principal Investigator, I had much more authority to direct participants what to do than an external facilitator would usually have. Therefore, the potential for truly surprising outcomes was perhaps reduced. On the other hand, when working with people who have never been in the context of a Serious Game and who come from quite different cultures, it can also be very helpful to know that everyone is likely to comply with directions for engaging in the games, even if this is a very unfamiliar situation for them. Moreover, since we often needed to cover quite specific ground and work towards particular outcomes within limited available time, it was certainly helpful that in my double role, I was fully familiar with the entire context of the research. The existence of the multiple roles issue is, however, explicitly acknowledged.

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[11] Case 8, Collaboratory in Šibenik, Croatia, 2017 (pp. 122-151).

Chapter 3
The development cycle

In this chapter, I go into some of the details of the design process that resulted in the design of the Serious Games. As background to these explanations, it is useful to understand the basic game idea and rules for each game that is covered in more detail in this book. Full descriptions of all games are provided in the Appendix. The brief descriptions given hereunder are intended to set the context for understanding the details of the design processes explained in the remainder of this chapter.

Pronoun prompt

Aims of the game
- to compare points of view in a group
- content learning in a group.

Number of players
3-12

How to play
Ahead of the game, the facilitator writes keywords or key phrases on index card-sized papers and sets them up face down on a stack on the table, or in the middle of the space where the game is being played. The keywords relate to the content to be learned and/or to the issues for which points of view are to be compared.

    The facilitator picks up each card in turn and shows the keyword to everyone in the group. The players then take turns to roll a dice and follow the actions according to the number that comes up:

1 and 2:	the player who has rolled the dice comments on the keyword
3 and 4:	the player nominates someone else in the group to comment on the keyword
5 and 6:	both the player who rolled the dice and the second nominated player comment on the keyword.

Turntable

Aim of the game
- to brainstorm ideas in a group.

Number of players
4-8

How to play
At the beginning of the game, the facilitator explains the issue for which the group will aim to generate ideas. All players then write their ideas in the form of short descriptions on their post-it notes. The descriptions are written on the "sticky" side of the post-it notes, so that the players can stick their notes face-down onto the turntable surface.

When all post-it notes have been placed on the turntable surface, the first player spins the turntable and picks up one of the notes. The player then briefly talks about how s/he interprets the idea written on the note: For example, what is it about? Is anything unclear? What is my initial reaction to the idea? Following this, the originator of the idea then goes on to clarify further. When all ideas have been discussed, players can now optionally rephrase some of their ideas if they like, and the facilitator collects the post-it notes from everyone for later use.

Wall of X

Aim of the game
- to organise ideas into categories.

Number of players
3-20

How to play
At the beginning of the game, the facilitator first makes a choice about sub-dividing (and, if appropriate, labelling) the wall's 2D space, and at the same time, the Wall of X receives a specific name. For example, if the wall is used to organise a number of ideas with respect to how feasible the group thinks they are to implement, the wall could have five columns labelled '1' to '5' representing feasibility levels, and the game would be named the "Wall of Feasibility" game.

The game will work better if the items to be placed on the Wall of X have been generated by the players themselves. In this case, everyone simply approaches the Wall and adds their own items to the segment that

they think is most appropriate. If the game is played with ready-made provided items that have to be organised, players first need to familiarise themselves with the items.

Tabletop Kinetic Spectrum

Aim of the game
- visual polling of (dis)agreement, ranking, or prioritisation.

Number of players
10-20

How to play
The Tabletop Kinetic Spectrum is played when there are existing items that are to be ranked or prioritised. Ahead of the game, the facilitator writes these items on index cards, to be called up one by one for polling.

During the game, each time an item is announced by the facilitator, participants place tokens on a 1-5 number scale to signal how strongly they agree or disagree. The numbers can be drawn on a poster, marked with labels, or written on the surface with chalk; tokens are placed next to the intended number by each player. The facilitator either keeps a photo of each array of tokens on the 1-5 number scale or maintains a list in which s/he notes now many votes were given for each number. Typically, a series of related questions will be asked and scored by the participants.

Participants then sit in a circle, and the facilitator reports back to the group with a summary of the scores. The group then discusses reasons for the scores, and the facilitator notes down any actions arising. For example, if the questions related to the preferred timing of events throughout the year, the discussion could result in a decision about the event dates.

Timeline

Aims of the game
- planning projects with respect to a previously known timeframe.
- arranging actions/events in temporal order along a timeline.

Number of players
3-10

How to play

A large sheet or roll of paper is placed in the middle of a table, and the players sit along the length of the paper on both sides of the table. The subdivisions marking the time segments, for example the months of a defined project period, are written in the middle of the paper along its length.

The first player starts with the month in the middle of the timeline (e.g. with month 6 if the project has 12 months). S/he makes a suggestion as to which actions should take place in this month, and accordingly writes a note next to the month. The next player then rolls the dice and moves either forward or backward in time. Suggestions for actions relating to the newly chosen month are again written on the paper, and the dice is passed to the next player.

With players taking turns making these moves, they will start to populate the timeline diagram. Players take turns to roll the dice until all months on the timeline have got actions assigned to them. At the end of the game, participants can take pictures of the timeline as a visual record of the session.

Living Diagram

Aims of the game
- for a group to construct a visual representation of logical relationships between actors, actions, locations, and resources.
- visually supported project planning without explicit reference to the timeline of the project.

Number of players
4-8

How to play

Before this game can be played, the group of players must have an agreed project or topic that they will be working on. At the beginning of the game, a sheet of paper is placed in the middle of the table, and props are distributed. There is no fixed sequence of moves for this game. Contributions to the game consist in either adding to the diagram or commenting on it. Players contribute whenever they are ready with an idea.

The game is similar to the technique of mind mapping, i.e. creating a visual representation of actors, actions, locations, resources, etc, and their relationships. However, in a Living Diagram the elements of the diagram

are not drawn on paper but lightly stick to the paper, so they can be taken off, replaced, or moved easily. Props are used to represent actors, relationships, actions, and valuations.

In the remainder of this chapter, I discuss the process of reiterative prototyping (Section 3.1), and the extension of Serious Games to additional contexts (Section 3.2).

Cross-sectoral Collaboration

Aims of the game
- sensitisation for perspectives of people from different sectors of society.
- content learning related to collaboration in multi-stakeholder groups.

Number of players
4-8

How to play
This is a board game organised into four sections that correspond to project phases, labelled "initiated", "planned", "implemented", and "celebrated" (the last phase corresponds to what is more commonly known as "dissemination"). During the game, the players roll a dice and walk their pawns through the course on the game board, picking up event cards corresponding to each section along the way.

Each player adopts one of four roles representing different societal sectors: academic (A), business (B), civil society (C), and public service (P). Each move consists of advancing a pawn on the game board, reading out an event card and discussing it with the group, and executing the directions on the card (lose a turn; play another turn; advance or go back a number of steps on a shared progress ladder). Players win the game together as a group by arriving at the top of the progress ladder. Along the way, they share their perspectives about the issues and scenarios from the event cards.

3.1 Reiterative prototyping

A common process used in various design contexts is known as reiterative prototyping.[12] This is a process whereby a preliminary design idea is tested repeatedly in a real-life context or a simulation, with the expectation that it will need a number of adjustments. Instead of investing

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[12] An alternative term is 'iterative prototyping'.

time into on-paper design or theory-driven research, the preliminary product is experimentally deployed and expected to 'sink or swim', and feedback is accounted for in each successive iteration.

Contexts where this process has been used include product design and software development. Dow, Heddleston & Klemmer (2009:165) summarise the process: "A canonical prototyping iteration comprises four steps: envisioning possibilities, creating a prototype to embody a possibility, getting feedback about the prototype, and reevaluating constraints." In addition to the design of innovations, which usually involves a limited amount of feedback in between iterations, reiterative prototyping has also been used in contexts of field testing innovations. Simonsen & Hertzum (2012), in their work on an Electronic Patient System, combine reiterative prototyping with participatory design and five days of real-use field testing of the system.

The idea of reiterative prototyping is to find a way to the best or at least a viable proof of concept that works across the multiple dimensions of the product or process being developed. At all stages, the prototype can be deployed in its entirety and evaluated immediately. In this way, design flaws can be eliminated much more quickly than in a scenario where different people work on different aspects of a prototype (for example, on an object's manual handling, durability, aesthetic design and safety of use) without testing whether it actually works in its entirety.

In real-world contexts, reiterative prototyping can often proceed quite quickly, and one important motivation for using this process is that compared to other approaches, it can be very time-efficient. For example, Stringer et al. (2005) describe how their research team produced 11 functional iterations of an IT interface within 18 months. Even at a slower pace, the idea of reiterative prototyping is to keep going through successive iterations continuously, for example, each time there is an opportunity to try out a new version.

In the case of designing Serious Games, rapid prototyping was not possible or appropriate because testing each new design of the game depended on the next real-life opportunity for deploying it. Therefore, the process proceeded more slowly but it was also fully authentic in that I did not organise any Serious Game sessions merely in order to test a new version of the game. Instead, all games were used in real contexts where they served a real purpose. This also meant that there could sometimes be a long gap in between two sessions with the same game because each game could only be used where it genuinely fit in with an appropriate

stage of a group process. Unlike in some of the business contexts where reiterative prototyping has been used, during the development cycles of the Serious Games, there was no time pressure, so the successive iterations of game designs could sometimes be weeks or months apart.

In the case of Serious Games, the design itself was not a participatory process, as all games were invented and designed by myself. However, documentation and feedback played a large role in generating successive iterations. After all, a game consists not only of its props and game rules but also of the players' engagement when playing the game. Therefore, each next iteration was based on having tried out the game as a whole. In the development process, there have been three different types of design responses to iterations:

- transferring a game design idea to a different context (Section 3.1.1)
- making modifications to prototypes (Section 3.1.2)
- gaining experience of the game process (Section 3.1.3)

3.1.1   Transferring a game design idea to a different context

One of the initial impulses for some of the Serious Games in this book originated at a one-week training programme for young deaf academics at the International Institute for Sign Languages and Deaf Studies (iSLanDS) in the UK. This training programme aimed at discussing issues relevant to academic life with a cohort of young deaf Master's and PhD candidates. Young deaf academics almost always work without a cohort of deaf peers in easy reach, and often they are the only deaf person in their department. Therefore, the training programme pursued the dual aim of providing knowledge and skills about what it means to be an academic and pursue academic work on the one hand, and engaging in cohort-building and peer support on the other hand.

One of the topics at the training programme was academic publishing, and I was in charge of this topic under the title of "The World of Publishing". Academic publishing is a complex process, and often obscure to newcomers. When young academics start to publish, they usually rely on more established colleagues for guidance and mentoring, but this is much more difficult to access for deaf sign language users. As I considered my pedagogy for this topic, it occurred to me that a presentation could not do justice to the training objectives. So many factors come into play, and so many different scenarios can unfold, that it wouldn't be possible for an audience to retain all the information if merely

presented to them, even in a visually enhanced way. Instead, I designed a board game where the trainees could literally "walk through" the different stages of academic publishing, from selecting where to submit right up to their work appearing in print or online. These phases were lined up as a pathway on the game board, and players were taking turns throwing a dice and moving along the path accordingly. The relevant roles selected for this game were author, editor, and publisher (A, E and P), and at each stage of the process, different scenarios could arise. The scenarios were written on cards that the players picked up at each turn and discussed. This scenario-based way of approaching the topic was very successful, and the session was the most highly rated in the feedback given by participants after the end of the training programme.

The board game on academic publishing provided the blueprint for the *Cross-sectoral Collaboration* board game. Important features are shared between the two games, including a number of roles that participants can adopt, the progression of the game through phases, and the scenarios arising from these combinations.

Another example is the *Tabletop Kinetic Spectrum*, which is an adaptation of an existing facilitation activity called "kinetic spectrum". In a kinetic spectrum activity, a number of physical spaces are set up as representing successive points on a spectrum, for example a scale ranging from lesser to stronger agreement with an issue at hand. A group of participants is then asked to physically move to the space that represents their view. This enables people to have an immediate physical experience of the collective views of their group. A related activity is to map the workshop space not onto a "weaker-stronger" scale but onto other alternative set-ups. For example, two halves of the room can be used for people to associate with a binary choice of options, perhaps with an "undecided" space in the middle; or people can be asked to create more complicated spatial arrays, such as mapping their home locations onto the room. For example, participants from one country would all stand together, close to their neighbouring country, and far away from participants coming from another continent. Such activities are also often used as icebreakers because they prompt people to communicate with each other and to move physically.

For the *Tabletop Kinetic Spectrum*, this game idea was transferred to a context where moving around physically would not be feasible. Instead of people physically moving to a target location, each player has a pawn that is placed on the tabletop game space. Moreover, the game's

purpose has been narrowed to focus on prioritisation, using a scale of preference set up on the table. The use of the game as an icebreaker activity, though not impossible in principle, is no longer very appealing because the social element of walking around and meeting other players while finding one's place is lost.

3.1.2   Making modifications to prototypes

The process of improving the design of the Serious Games over successive prototypes initially happened organically rather than being an explicitly planned undertaking. In retrospect, it would have been ideal to systematically collect feedback from players after each game. However, the cycles of reiterative prototyping only emerged over time. Initially, my only motivation was to facilitate various meetings and sessions in a lively way that participants would enjoy. It was only when the considerable potential of these games emerged that I decided to re-use games in different contexts. From using the same game several times with different groups, a more explicit cycle of making regular improvements to individual games emerged. I then began to document outputs from various games, such as taking photos of *Living Diagrams*. I also began asking players for their feedback explicitly at the end of some game sessions, when this was convenient for participants and they were happy to share their views. Using such input as well as my own observations, many of the games were continuously modified.

The ***Cross-sectoral Collaboration*** board game was initially invented for a conference hosted by a research programme that was jointly supported by the UK's Department for International Development (DfID) and the Economic and Social Research Council (ESRC). The conference entitled "10 Years of Poverty Alleviation Research" was held in Pretoria, South Africa, for people associated with the ESRC-DFID Poverty Alleviation research stream as well as the ESCR-DFID Raising Learning Outcomes in Education Systems Research Programme.[13] This conference was unusual because participants were requested to send in ideas for sessions and effectively co-design the conference. This opportunity prompted me to invent the collaboration game on the basis of the World of Publishing game template.

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[13] I participated as representative of the Peer to Peer Deaf Literacy project (P2PDL) under the Raising Learning Outcomes in Education Systems stream.

After the game was used a second time at another conference with participants from different sectors, feedback from participants indicated that it would be better not to have the different game roles (academic, business, public sector, and civil society) play against each other, but to have all of them play together as one group to achieve the game's objective together. This criticism was rather pertinent, given that the game is called "collaboration", and it does not make much sense to put the different roles into competition. Therefore, I redesigned the game to include a progress scale in the middle of the game board along which all players were progressing together as a group throughout the game. Figure 3.1 shows the later version of the game board. Although this change made the game somewhat more complicated to play, subsequent feedback from players at a university workshop on transdisciplinary research confirmed this approach.
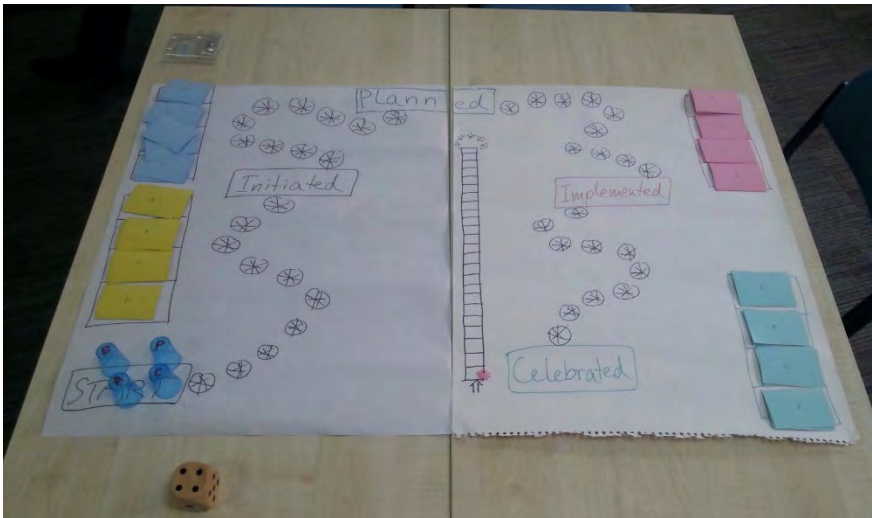
Figure 3.1 *The second version of the Cross-sectoral Collaboration game board (including the central progress bar in the middle of the game board).*

Another example of a design change is the **Wall of X** game. Initially, this was an on-the-spot invention during a meeting with the P2PDL project's advisory committee in India, and the game was deployed on its own in this meeting. I then used this game again as part of more complex sequencing, where the **Wall of X** game for sorting and prioritising ideas followed a **Turntable** game for brainstorming ideas. The rules of the game

remained unchanged, but I was able to gain some experience in useful labelling of dimensions of the Wall. In total, the **Wall of X** game has so far been played with the following specifications:

- using two axes, Urgency (i.e. how urgent the proposed action is) and Resources (i.e. how resource intensive the action would be)
- using a numerical scale on a Wall of Feasibility (on a single axis from 1 to 5) – this was used with two different groups
- using columns on the Wall of Research Questions (i.e. categorisation of key words under four research questions)

Initially, the scheme was intended for categorising ideas generated by a group of players, whether by discussion or as the output from another game. However, in the last iteration, I used a different approach and asked the group to play with pre-decided keywords provided by myself. The final written-up version of the game rules now includes both ways of playing the game.

In the case of the **Turntable** game, the first time this this was played – in India with a different advisory committee group – the game did not actually include a physical turntable, but worked by simply placing index cards with notes written on them face down onto a table. Players then simply took turns to pick up a card and discuss its content with the group. The physical turntable (see the Appendix for its construction) was invented at the next iteration to make the game more fun and visually engaging. It is still possible to play the game without an actual turntable, for example when there is no time for its construction.

3.1.3   Gaining experience with the game process

One of the most important benefits of using a game several times is that the facilitator builds up experience in how the game unfolds when played in different contexts. Such experience is vital when developing standard game rules and guidance for other people to replicate the games without the benefit of such experience. Often, the result of such experience is not a substantial modification of the game itself but a more precise understanding of factors associated with the process of the game, such as the length of time it takes to be played and the ideal number of players. For example, when I used the **Cross-sectoral Collaboration** board game, it was not clear how long it would take for groups to get to the end of the game. In fact, due to the chance cards sometimes sending players forward and sometimes backwards, some groups in the conference session in

Pretoria, where the game was played for the first time, finished much earlier than others. The same also happened at the subsequent workshop on transdisciplinarity where I re-used the game after implementing the joint progress scale, and two of the groups started over with a new round of the game because they finished earlier than the other two groups.

Just like with the reiterative prototyping that was discussed in the previous section, gaining process experience with the various games was also not a pre-planned and systematic work package. Rather, the experience accumulated naturally, and there was sometimes a long delay until the same game would be played again in a different context, with modifications implemented. The rules and instructions for each game as found in the Appendix were not written up until very late in the process of producing this documentation.

The detailed guidance for all games as given in the Appendix derives from the sum total of the experiences with several iterations of the games. This includes the following points:

a) the general aims that the games are expected to achieve
b) the suitable number of players
c) the approximate time it takes to play a game
d) the props to be prepared for the games, and where these materials can be sourced from
e) different variations on the basic version of the games
f) the role and responsibilities of game facilitators

The basic details in points a) to c) are important in the planning of events, as they help organisers and facilitators to decide whether a particular game is useful for the purpose, and whether deploying the particular game is feasible in terms of logistics and available time frame. This information is therefore given at the beginning of each game description in the Appendix. Even people without any experience of using Serious Games can have a degree of confidence that at least in terms of practicalities and objectives, a particular game might be helpful for their event process. Secondly, the experiences with the games over time have resulted in the listing of materials and props for each game – point d) – with an emphasis on making it as easy as possible to deploy the games. Only two of the games, **Turntable** and **Cross-sectoral Collaboration**, need more elaborate preparations, while materials for all the other games can be improvised with pen and paper and whatever is at hand in the environment.

Points e) and f) provide more detailed instructions to support people who would like to act as facilitators for their group. For some of the games, a facilitator is needed for the game to work well, but some games have variants to be played either with or without a facilitator, given that facilitators may not always be available. Moreover, experience with the games over time has resulted in designing possible variations on the game that are described for some of the games. These variations can be in relation to the game's main objective (for example, using a game as part of a project planning process or as an ice breaker), in terms of how to work with physical outputs from a game (for example, re-arranging an initial output), or in relation to the participants' actions (for example, whether to have additional discussion at certain points during a game). More experienced facilitators will be able to vary a game "on the fly", depending on the mood of the group, any time constraints, or emerging opportunities for in-depth discussion. The less experience a facilitator has, the more detailed the preparation will need to be, and the less flexibility there will be to deploy variations flexibly while the game is in process.

3.2 Extending the contexts of use

As the benefits of using Serious Games became more obvious over time, their use naturally extended to a wider range of contexts. Having started for the purpose of supporting the P2PDL and P2PDM projects, I gradually began using Serious Games with other groups. Table 3.1 lists the 11 contexts/events where games have been deployed so far, some of which have extended over several days (see "multiple sessions" in the "context" column).

In this section, the extension to new contexts is discussed in terms of the composition of participants and the type of setting. Considerations that have affected the development of the games are noted along the way. Table 3.1 is organised in chronological order, so that the earliest event is at the top and the most recent event is at the bottom of the table.

In terms of audiences participating in Serious Game sessions, the main development over time has been a broadening from the context of the deaf literacy/multiliteracies work to other events that were unrelated to these projects. Events 1-4 and 6-7 are all directly or indirectly associated with P2PDL/P2PDM. This is reflected in the audiences present, which have mostly been deaf or mixed deaf-hearing audiences for initial events, whereas later events have been with groups of hearing people.

Table 3.1. *Use of Serious Games at events.*

Event	Games	Audiences	Sectors	Scope	Context	Event size
1. P2PDL advisory committee meeting in New Delhi	Turntable	Mixed deaf-hearing	Cross-sectoral	National	Meeting	12 participants
2. P2PDL advisory committee meeting in Vadodara	Wall of X	Mixed deaf-hearing	Cross-sectoral	National	Meeting	25 participants
3. "10 years of Poverty Alleviation Research" conference in Pretoria	Cross-sectoral Collaboration	Hearing	Cross-sectoral	International	Conference	36 including 3 co-facilitators
4. P2PDM kick-off meeting in New Delhi	Pronoun Prompt, Living Diagram, Timeline and Wall of X	Mixed deaf-hearing	Cross-sectoral	International	Meeting (multiple sessions)	18 participants
5. "Indo-German Dialogue on Green Urban Practices" in Chennai	Turntable, Wall of X and Living Diagram	Hearing	Cross-sectoral	International	Workshop	32 including a co-facilitator
6. Preparation for P2PDM collaboratory	Living Diagram	Deaf	Single sector	Local	Working group (multiple sessions)	9 participants
7. P2PDM collaboratory in Bhubaneshwar	Living Diagram	Mixed deaf-hearing	Cross-sectoral	National	Workshop	38 including 5 co-facilitators
8. UCLan College of Professors and Readers in Preston	Turntable, Wall of X, Living Diagram and Table-top Kinetic Spectrum	Hearing	Single sector	Local	Meeting (multiple sessions)	variable between 6-20 participants
9. UCLan Institute of Citizenship, Society and Change in Preston	Pronoun Prompt and Living Diagram	Hearing	Single sector	Local	Meeting	25 including a co-facilitator
10. Workshop on transdisciplinarity	Cross-sectoral Collaboration	Hearing	Single sector	Local	Workshop	30 participants
11. "Knowledge Hub" workshops on food production and consumption in rural India	Living Diagram	Hearing	Cross-sectoral	Local	Workshop (two sessions)	12 (part 1) and 20 (part 2) including a co-facilitator

This development has had the curious effect that facilitation for later events outside these projects has actually been easier in terms of managing language and communication. That is, all contexts where only hearing people were present have been monolingual settings, using English only, while the mixed deaf-hearing contexts required interpreting between a sign language and speech. Interpreting changes the dynamics of games for several reasons. First of all, deaf participants need to switch their visual attention between the game setup and the sign language interpreter. This makes it more challenging to keep following what is going on visually in the game because visual attention is always interrupted by attending to the sign language interpreter. Secondly, turn-taking in conversation between players around the game setup is much slower because interpreting interrupts the direct flow of turn-taking between participants.

Some games are more adversely affected by these dynamics than others. Overall, the *Turntable* game can still proceed smoothly even with intervening sign language interpreting because the sequence of turn-taking is already quite slow. At the beginning of each new round, the player picks up a new card, reads out and comments on what is written on the card, followed by a response from the originator of the card's idea. This gives deaf participants enough time to attend to sign language interpreting. Moreover, other than the cards themselves, there is no other visual setup to attend to. The only difficulty arises if there are more extended or animated discussions in the group about some of the ideas presented on the cards.

By contrast, the *Living Diagram* game is much more challenging for mixed deaf-hearing groups because the task for the group of players is to co-create a complex diagram. A continuously evolving visual display is at the centre of this game, and there is no fixed sequencing of turn-taking. Therefore, sign language interpreting between deaf and hearing players in the same group is a more demanding setting for everyone involved. In fact, when the *Living Diagram* game was used at the international P2PDM kick-off meeting and at the P2PDM collaboratory, both of which had a mixed deaf-hearing audience, out of the individual groups of players (10 groups in total) only one group had both deaf and hearing players at the same table. These were all people who were very familiar with communication facilitated by sign language interpreting, so that there was no adverse effect. In all other cases, players were encouraged to form groups where everyone used the same language, in this case either Indian

Sign Language or spoken English. We did not actively prevent people from joining a group they wanted to be in merely because of their language choice, but in effect, no such conflict arose. It seems that people intrinsically preferred single-language groups for this game, although this was not explicitly discussed.

The most recent event with farmers in rural India also required some interpreting between Hindi and Sambalpuri Oriya, the local language. Again, interpreting was not used during the main part of the game itself, while the ***Living Diagram*** was being constructed. All players were first language speakers of Sambalpuri Oriya, and the two groups of six players each used this language during the game. The introduction to the game along with the explanation of the game's rules and set-up was provided by myself at the beginning in a mix of Hindi and Sambalpuri Oriya (all participants could also understand Hindi at least to some extent, though not everyone could speak it). During the game, two co-hosts of the workshop who were bilingual in Hindi and Sambalpuri Oriya assisted in occasional communication between myself and the groups, whenever there were any questions or comments.

As can be seen from Table 3.1, when working with larger participant groups of ca. 30 people or more, it is increasingly likely that co-facilitators need to be involved. The best way of working with co-facilitators is to create an opportunity for them to experience the game or games to be played first-hand before the actual sessions. In the case of the P2PDM collaboratory workshop in India, the ***Living Diagram*** was used in the preparation phase as well as in the actual workshop. Although the purpose of the game was different each time, this gave the co-facilitators a good grasp of the game, so that they could then lead their own groups through the game confidently. However, for reasons of time and logistics this is not always possible.

For the ***Cross-sectoral Collaboration*** game played at the conference in Pretoria, only half an hour was available before the game session to introduce co-facilitators to the game, each of whom then went on to lead a group of eight players. Ideally, I would have played a round of the game with the co-facilitators first, but there was no time to do this. At this stage of the game's development, the central progress axis on the game board had not yet been introduced, so the rules were slightly easier. However, not having sufficient experience with the game did lead to a few moments of confusion in some of the groups. The next time I used this game, I made

sure I did not have to lead a group myself, so that I could walk around the room and help out where necessary.

At the other events that involved co-facilitators, the division of labour was different because the co-facilitators were responsible for facilitating other parts of the event and were not directly involved in facilitation for the game sessions, which I managed on my own. In these cases, coordinating among facilitators was about the overall framing of the event, the sequence and aims of the individual sessions, and the allocation of time slots. This is part of the planning process ahead of events, and much of the preparation can be done by remote communication. However, there was always a face-to-face briefing between co-facilitators on site at the venue. This is essential because details of logistics need to be taken care of, especially the physical setting. Each facilitator will want to make sure that the right room arrangement is in place before the session starts. All of the games require a particular physical setup, often sitting in circles in groups, and unforeseen features of the setting can cause unexpected problems. For example, at the venue in Chennai the meeting room had large fans for cooling rather than air conditioning, and this caused small and light game props to be blown off nearby tables. Venues where the seating arrangement is fixed and cannot be modified are another common problem.

In terms of the sectoral composition of participant groups, almost all events associated with the P2PDL/P2PDM projects have been cross-sectoral, whereas the extended contexts outside these projects have also included settings with audiences from a single sector, for example academics conducting workshops or meetings in a university setting. As detailed in Chapter 1, part of the initial motivation for inventing these Serious Games has been the nature of cross-sectoral work in the literacy/multiliteracies projects, as it was expected that these games would be helpful in enriching the engagement of participants from very different backgrounds. Subsequently, as use of the games was extended to additional contexts, single-sector groups have also been included, and the benefits of Serious Games carry over into these contexts.

It may well be that the transfer to other contexts proceeded smoothly during the development period of the games because the subsequent participant groups were less complex than the initial ones in several respects, as discussed above. Therefore, no new difficulties arose in terms of implementing the games with groups of players. Another interesting observation is that feedback about the players' experiences

with the Serious Games does not differ between more complex and less complex participant groups. At this stage, the hypothesis is that these games have the potential to work equally well with all kinds of groups regardless of the composition because the positive effects are based on general human characteristics of interaction, cognition, and communication, as discussed further in Chapter 4. Different experiences with the games are more likely to be due to individual factors, such as the readiness and openness of individual participants to engage in the games, and the individual skills and experience of facilitators.

However, another hypothesis is that adverse effects of using more traditional formats, such as sitting around the table and discussing, or a presentation followed by a discussion, would be much more serious for complex cross-sectoral, multilingual, and socially diverse groups. In other words, the more challenging the group composition is, the greater the potential benefit of using Serious Games to achieve the purpose of the group session. Groups that are quite homogeneous in their composition could still achieve the purpose of their meeting quite easily using a traditional meeting format. In such groups, everyone is more or less on the same page in terms of the cultural and communicative practices that are the tacit basis of interactions. There may well be less of a "fun factor" in comparison with a Series Game session, but the purpose of the group can still be readily achieved. By contrast, highly heterogeneous groups where people come from very different social, cultural and linguistic backgrounds face an uphill battle, especially when the time available for a group session is limited. It is those groups that will experience the greatest difference between a traditional format and the Serious Games format, both in terms of experience and in terms of outcome.

This brings us back to the initial motivation for inventing Serious Games in the context of projects with such highly diverse groups. Although I have not conducted any comparative research between homogeneous and heterogeneous groups pursuing the same purposes under conditions of traditional meeting formats and Serious Game formats,[14] the expectation has been all along that Serious Games are needed more urgently for more diverse groups, such as the ones I worked with in the P2PDL and P2PDM projects. Carrying over the benefits of using these games to all kinds of groups has been a secondary development.

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[14] Chapter 6 includes some considerations about conducting such contrastive research.

Chapter 4
Effects of Serious Games: Why and how they work

Having discussed the design features of the games in Chapter 2 and the developmental path of game design in Chapter 3, we now look at the effects that Serious Games have on groups of participants as they work through game sessions. This includes my own observations as well as feedback and materials gathered at various game sessions or collected afterwards.

The observations presented here are not derived from any systematic research. In addition to my personal observations, there are two main types of sources that this chapter draws on. Firstly, I relate informal feedback provided by participants in the various game sessions. Although the sessions did not include any explicit feedback collection tool, such as a feedback questionnaire, participants frequently commented on their experience informally during or after the session.[15] Secondly, some of the events have included more or less detailed documentation of the event, including various notes, minutes, photos, video clips, and reports. This material includes comments and allows conclusions that are related to the various considerations discussed in this chapter. In Table 4.1, the sources of information are listed for each of the game sessions.

Three factors are discussed in the remainder of this chapter: effects around language and communication in game sessions (Section 4.1), social effects in terms of group interaction during games (Section 4.2), and effects on the outcomes of game sessions (Section 4.3). That is, by using Serious Games, players communicate differently, interact differently, and achieve different outcomes, compared to other formats. Some of these effects are equally relevant to all games and any participant group, whereas others are more relevant for some games or for some types of participant groups than for others. These differential effects are

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[15] One of the most frequent comments was that I should publish information about the games and the complete game instructions, so that other people can use them. This feedback has been a major motivation for completing this book.

also explained in the sub-sections. Section 4.4 summarises the general factors discussed in this chapter.

Table 4.1 *Sources of information about the effects of Serious Games.*

Event	Informal participant feedback	Notes and minutes	Reports	Multimedia documentation
P2PDL advisory committee meeting in New Delhi	No	Yes	No	No
P2PDL advisory committee meeting in Vadodara	No	Yes	No	No
"10 Years of Poverty Alleviation Research" conference in Pretoria	Yes	No	Yes	Yes
P2PDM kick-off meeting in New Delhi	No	Yes	No	Yes
"Indo-German Dialogue on Green Urban Practices" in Chennai	Yes	No	Yes	Yes
Preparation for P2PDM collaboratory	No	No	No	Yes
P2PDM collaboratory in Bhubaneshwar	Yes	Yes	Yes	Yes
UCLan College of Professors and Readers in Preston	Yes	Yes	No	Yes
UCLan Institute of Citizenship, Society and Change in Preston	No	Yes	No	No
Workshop on transdisciplinarity	Yes	No	No	No
"Knowledge Hub" workshops on food production and consumption in rural India	No	Yes	No	Yes
Number of sources	5	7	3	7

4.1 Effects on communication in Serious Games

In Section 3.1, some considerations of how communication is affected by a Serious Games set-up have already been mentioned, in particular with respect to the use of multiple languages within a group, including interpreting between languages. In this section, I discuss additional effects on communication, disregarding the role of several languages so as not to over-complicate the argument. The effects are related to turn-taking, clarity of communication, and staying focused on the topic.

4.1.1   Effects on turn-taking

Most of the games that are described in this book have a strong effect on turn-taking in the communication between the players in the group. Turn-taking is defined as the way in which people alternate in taking on the roles of speaker and addressee (Sacks et al 1974). When two individuals are in communication with each other, they will typically speak alternately, so that when one speaker has finished, the other person takes the next turn. Researchers have argued that turn-taking is governed by sophisticated mechanisms that are employed by the participants in a conversation, and that some aspects of turn-taking behaviour are universal across cultures (Kendrick 2015, Stivers et al. 2009, Levinson 2016).

In groups with more than two participants, turn-taking is obviously even more complex. According to Mondada (2013), research on turn-taking in larger groups is limited, mainly focusing on classrooms and professional meetings, where the setting imposes clear constraints. In settings where equitable debate is intended, managing turn-taking is a complex task involving "the identification, selection and establishment of the next speaker […], the selection of multiple candidate speakers and their queuing […], the defense of speakership against overlapping turns […] , and the organization of antagonistic turn-taking in debates" (Mondada 2013: 64). Mondada's examples show how participants as well as the chairman use finely coordinated eye contact, gestures, body orientation, and speech in order to manage turn-taking, and the role of the chairman is crucial. In addition, facilitators may also use techniques such as the "talking stick", a stick or other object to take hold of in order to gain the floor (see Fein (2018) for examples). The aim is that people talk without interruption as long as they are holding the talking stick, but

equitable participation is not necessarily achieved because it is largely up to each person's initiative to gain the floor.

From the point of view of participants in a group conversation, challenges associated with turn-taking thus include signalling a bid for the next turn, gaining the floor, and completing a turn without interruption. The risks of people interrupting others or claiming a disproportionate number of turns are multiplied in a larger group. Therefore, it is in such group settings that Serious Games have the greatest potential of impacting positively on turn-taking. Importantly, in many Serious Games turn-taking can be managed without much explicit intervention from a chairperson or facilitator because the game rules assist in the turn-taking process. Game sequences often have in-built turn-taking mechanisms that not only avoid interruption but also facilitate turn-taking among all members of the group.

Some games explicitly require that people take turns in a specific rule-governed way. For example, in the ***Pronoun Prompt*** game, the next speaker is nominated by a combination of the roll of the dice and the previous speaker's decision. In the ***Turntable*** game and the ***Timeline*** game, each new turn passes to the next person in the circle, until everyone has played a turn, after which a new round starts. Such rules on turn-taking, whatever the exact details may be, are a major advantage in ensuring that everyone gets a chance to speak. Although individual players may finish their turn more or less quickly, it is impossible for any player or players to monopolise the communication. Therefore, everyone in the circle is automatically included in the task at hand in an active way.

It is worth noting here that an equal chance for everyone to gain the floor and be heard by the entire group is very difficult, if not impossible, to achieve when people are just sitting together as a group and talking in an unstructured way. Some people will always be much more active than others, and this is particularly problematic when there are large differences between group participants in terms of status, gender, social power, and age. In a strongly hierarchical social set-up, such as I have often encountered in India, it can seem impossible to establish equitable communication between everyone in a diverse group, even with the most skilful facilitation. Yet during a game, it is much easier for people to comply with sharing their input into the conversation among all, as long as they are willing to accept the rules of the game.

Part of the reason for this is clearly that turn-taking is derived from the impersonal game rules rather than the personal interactions between

members of the group. That is, one player yielding a turn to another, or the next player gaining a turn, does not carry the same social meaning as in other interactions, even if one player holds a much higher social status than another in terms of whatever social hierarchies are present. Issues of respect, gender relationships, or social prioritisation are downplayed because the players' turn-taking behaviour is framed by the game rules rather than the various social considerations that would otherwise influence the communication. Section 4.2 explains such social effects in more detail.

In addition to social norms, there may be other reasons why some participants in the group may be more reluctant to voice their opinions or participate in the communication. In particular, extroverts clearly have an advantage over people who are more introverted. In addition, fluency in the language of communication may also play a role, in that people who are less fluent may find it more difficult to gain and hold the floor. In cases where some people in the group know each other, but others are new to the group, the newcomers may find it more difficult to speak up. In all these cases, the rule-governed sequencing of turn-taking in games likewise encourages and enables people to participate actively. This is not to say that everything will always go smoothly; a good facilitator will always keep a watchful eye on the dynamics of group communication, and gently intervene where necessary.

The effects on turn-taking in Serious Games also enhance the ease and clarity of communication in a group in several ways. First of all, turn-taking is often slower because players often need to interact with the game props. For example, in the *Timeline* game, the player throws the dice and moves the token to the right or the left along the timeline, before discussing elements that should be added to this particular time slot. In the *Cross-sectoral Collaboration* board game, there is an additional step after throwing the dice and moving the pawn, that is, reading out aloud the text on the scenario card. The *Turntable* game likewise delays the time in between turns by first spinning the turntable, then picking up an index card and reading it.

These delays give everyone more time to mentally catch up with where the game is at, and to direct their attention to how the upcoming contribution by the next speaker would fit into the whole. Delayed turns are also very helpful for participants for whom the language of the interaction is a second language. The issue of interaction in a second language was evident in the Indo-German event in Chennai, where almost

all participants mostly interacted in a language of which they were non-native speakers, namely English. Moreover, the Indian and the German participants had very different non-native accents when speaking English, adding another challenge to mutual comprehension. It was apparent from participant feedback as well as from the way discussions took place in the various sessions that these linguistic difficulties were greatest in plenary sessions where everyone was discussing together in a large circle. In the game sessions, where groups were smaller, turn-taking was more controlled and supported by the rules of the games. During the **Turntable** and **Wall of X** games, turn-taking was slowed down due to the physical moves that needed to be completed by each player before the next player could start a new move. The **Visual Diagram** game, which was played later in the event, does not necessarily have slower turn-taking, but the communication including turn-taking is supported by the game's visual props, which are successively added and arranged by the group of players. That is, whoever is adding or removing one of the props automatically gains the floor, although there is still come contestation because other players may not pay attention, may start parallel conversations, or may create overlapping turns.

4.1.2   Effects on clarity of communication

Human communication is famously fraught with difficulty, engendering much miscommunication and so-called conversational "repair" (Schegloff, Jefferson & Sacks 1977). Research on repair sequences, where speaker and addressee need to work at resolving communicative trouble, has shown that the mechanisms of repair, as well as those of turn-taking, are widely attested across cultures and probably constitute a universal of human communication (Levinson 2006, Levinson & Torreira 2015). Serious Games have a positive effect on clarity of communication because they typically involve visual diagramming and multimodal communication, that is, a combination of talking, drawing, interacting with visual props, etc.

The issue of visual props is important in its own right as a factor that enhances communication in the group. The main argument is that by using visual props, the games provide an enhanced shared context. The particular benefit of relying on visual displays as supporting material in meetings and workshops has been a long-standing experience at the iSLanDS Institute, where we often work with deaf communities that have relatively low levels of literacy. For example, if a session is introduced

with densely written PowerPoint slides and summarised in written meeting minutes, this is much less accessible for participants with lower literacy levels. The experience of developing the Serious Games supports the value of extending these benefits to all kinds of meeting contexts, regardless of the participants' level of literacy. Some games, such as the **Cross-sectoral Collaboration** board game and the **Turntable** game do include written elements, but even these are embedded in a larger visual arrangement, and the use of writing is absent or optional in most of the games.

More important than reducing the use of written language is the fact that the visual arrangements of the games provide a permanently and immediately visible context for the communication during a game. In an activity such as the **Living Diagram** or the **Timeline** game, the aims of the group are quite complex, such as modelling the work of a partnership with multiple actors, or creating a timed implementation strategy. The visual context is often crucial for clear and time-efficient communication.

In all game sessions where video footage was taken, as well as in my personal observations, it was abundantly clear that the players rely on visual diagramming in many ways. The most important effect is that interacting with the visual display forms a composite utterance together with what the speaker is saying. These interactions can take the following forms:

Pointing to (a part of) the visual display (Figure 4.1). This makes it possible to say things like "this organisation here will have an impact on the work to be done over there" while pointing to both locations in turn, or things like "the whole time from here to here needs to be taken up by preparation" while tracing a path along the timeline. This is far more efficient than verbalising again and again the entire conceptual setup that is under discussion. Pointing itself takes different forms, not only a single index finger point to a specific location, but also many other actions such as moving an entire open hand across a portion of the visual diagram, tracing lines on the diagram, or taking hold of a part of the visual array (see the example below).

Figure 4.1. *Pointing to a display.*

Adding to a visual display (Figure 4.2). In many of the games, groups of players co-create visual diagrams, and sometimes this is explicitly defined as an interim or final output from the game session. In the ***Tabletop Kinetic Spectrum***, each time pawns are placed on the spectrum against a particular issue to be prioritised, the resulting visual display is an intermediate output. The ***Wall of X***, the ***Living Diagram***, and the ***Timeline*** games all have the co-creation of visual outputs as the main aim of the game session. Crucially, whenever a player adds to the visual diagram, he or she must commit to a specific standpoint simply by virtue of the physical action. For instance, adding pawns to the ***Tabletop Kinetic Spectrum*** results in a clear, even measurable, expression of everyone's opinion, and it is not possible to talk vaguely and be non-committal. In this game, as well as in the ***Wall of X*** game, the physical action of placing something within the diagram is all that is needed for a player to make their contribution. This may or may not be accompanied by some spoken explanation, so that the expression is either non-verbal only, or a composite expression consisting of verbal explanation together with the action. To the extent that people may well talk less when their conversational turn is embedded within the moves of a game, adding to a display is another way to increase time efficiency within the overall conversation.

Figure 4.2. *Adding to a display.*

Re-arranging a visual display. Since the visual arrays created during games are meaningful, re-arranging the display is likewise a meaningful act that carries a message. This can be done by individuals or decided by the group as a whole. For example, during the Indo-German Dialogue event, a group of players constructed an initial *Wall of* Feasibility as a result of brainstorming with the *Turntable* game, which was what they were instructed to do (see Figure 4.3). However, they then abandoned this strategy and re-arranged the Wall so that the individual mapped ideas clustered into themes. This way of mapping was then adopted by all the other groups and was an important step in identifying a range of themes for later shortlisting. In the *Living Diagram* game, continuous re-arranging of the diagram is the core activity of the game, and the main feature that differentiates it from traditional mind mapping. As props are placed on the poster rather than drawn, anyone can re-arrange the diagram. In this case, the communicative turn is not complete without an explanation as to why the re-arrangement is considered better. That is, players will say things like "I will rather put the NGO here, so that it is next to the CSR funder, and we can also make a circle around them".
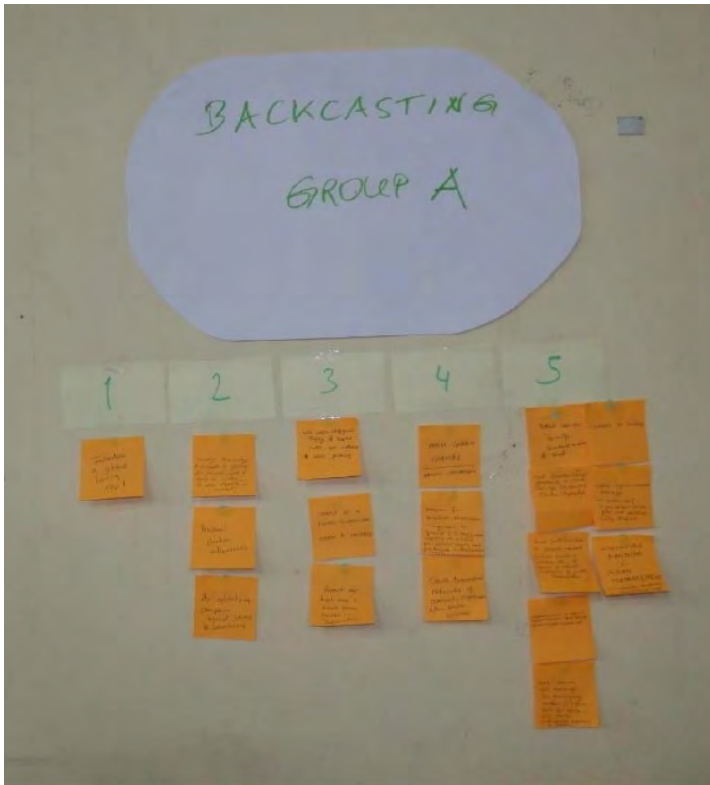
Figure 4.3. *Initial arrangement of ideas on a Wall of Feasibility.*

All these instances are examples of multimodal communication, that is, communication that involves a combination of more than one modality with each other to form a composite message, such as combining speech, gesture, signing, and drawing (Enfield & Levinson 2006; Streeck, Goodwin & LeBaron 2011; Zeshan 2015). When Serious Games are played, interacting with the game props in the ways illustrated above constitutes one communication channel alongside others. Multimodal communication is effective because the different meaning-making channels all support the same message.

In the following example text, taken from one of the **Living Diagram** games at the P2PDM kick-off meeting, one modality is sign language and the other modality is constituted by the meaningful interaction with the diagram. The group participants are deaf sign language users from India. In the case of speech, both of these channels would be clearly delineated, as interaction with the diagram is visual and tactile whereas speech is

oral. In this example, differentiating singing from diagram interaction is complicated by the fact that sign language also involves pointing. However, it is clear that there is another modality involved because the prop interaction is not limited to pointing – if it were, it may be possible to argue that only one modality is involved, namely sign language. Instead, interaction with the diagram also includes touching, holding and manipulating props. In the transcription below, the lower line represents the sign language channel in the multimodal interaction; the sign language communication has been translated into English. In the top line, the interactions with the diagram have been transcribed in capital letters (the dotted line indicates which part of the signed discourse the physical action coincides with). The two main signers are labelled S1 (in the middle of the group) and S2 (on the far left).

TOUCHING/MANIPULATING ---

<u>S1:</u> What are these?　　　-　　<u>All (simultaneously):</u> Signers. / NGOs. / Research.

POINTING　　　　　　　　　　　　　HOLDING and POINTING

<u>S2:</u> This is the NGO.　-　<u>S1:</u> Pick anything.　-　<u>S2:</u> This is the NGO.

HOLDING UP TO SHOW　　　　　　　POINTING　　POINTING

<u>S2:</u> This is it.　　　　　　　-　<u>S3:</u> Who is this? What's up with them?

POINTING   POINTING

S1: UCLan controls all the funding. Only it (UCLan) is connected with the funder.

REPEATED TO-AND-FRO POINTING--------------

S1: Only UCLan here and the funder there communicate with each other.

4.1.3   Effects on focused communication

In addition to people monopolising the floor and lacking clarity in what they are communicating, a third type of risk is that the conversation strays off-topic. Even when a group of people communicate equitably and are very clear in what they are saying, there is no guarantee that they will remain focused on the intended topic. This is less of a problem if the main aim of communication is social, such as achieving a sense of bonding and group spirit among the members of the group. However, the games discussed in this book are for situations where groups intend to achieve specific aims, such as project planning, systematic brainstorming, or content learning. Under these conditions, Serious Games support groups in staying with the topic.

A more traditional way of ensuring on-topic conversations in groups is to create an agenda. In theory, the agenda should ensure that everything is covered that is deemed necessary within the session, which is then documented in the minutes. However, it is a common experience that, unless there is a very effective chair of the meeting, individual agenda items consume far too much time so that other items have to be dropped, and/or the outcome of discussing them is not clear. More often than not, agenda-setting and minute-taking is controlled by a minority of

the actual participants. Moreover, using an agenda and minutes has none of the other benefits of interaction and engagement that Serious Games can offer.

What are the mechanisms that lead players in a game to stay on topic? Firstly, in many games the materials and props serve as a continuous visual reminder of what has been achieved so far. For example, in the ***Turntable*** game, the notes on the turntable represent a visual work package that players will go through and discuss. As more and more notes are being taken off, it is easy to track progress visually, and to either adjust the time of the session or increase the pace of the conversation as needed. In a ***Timeline*** game, the initial subdivision of the timeline also creates a visual subdivision of sub-topics. If the timeline has six segments, and the group has only talked about one or two of them up to a mid-session break, there is a concrete visual signal that the group needs to improve its focus in the second half of the session.

The second point has to do with the use of structured game moves and game spaces. Many of the games frame the contribution that players should make as part of the game rules, so that only certain moves are valid. For instance, when working on a ***Wall of X***, whatever participants are saying is supposed to fit within the structured space of the Wall. This helps all contributions to remain focused on the collective aim. In the ***Turntable*** game, players are kept on track by following the choreography of the initial idea being written down, then discussed by respondent, and commented on by the idea's initiator.

The efficiency of games in terms of focusing on the aims of a session in communication is evident in the numerous outputs that were created in relatively short time slots. At the Indo-German Dialogue event, game sessions resulted in a total of 84 brainstormed ideas, organised onto five Walls of Feasibility, and subsequently condensed into five themes to be further discussed by working groups.

Finally, it is part of the explicit responsibilities of facilitators to keep a group of players focused on progressing through the game, where this is appropriate. For example, in the ***Cross-sectoral Collaboration*** board game, it is quite easy for groups to have long and animated discussions about the individual scenarios on the scenario cards. In one group of players at the "10 years of poverty alleviation research" conference, one of the scenario cards reads: "You host a celebratory dinner for your participants, but attendance is poor. Go back 2 steps." This immediately struck a chord with one of the participants, who related in detail how this

had happened in a previous project. As the initial response was animated and based on an individual example, it would have been quite easy for the group to launch into a series of further examples, possibly having less to do with the initial scenario. To prevent excessive drift away from the focus, the game instructions specify that the facilitator's role is to steer the group away from lengthy side issues and back to playing the next move.

Keeping the communication on focus is easiest where the facilitator assumes a more prominent role. In the **Tabletop Kinetic Spectrum** and the **Wall of X** games, one version of the games is for the facilitator to pre-define keywords on which to base the game. This automatically allows facilitators more control over the focus of the game. The least managed game environment is the **Living Diagram**, where groups start out with an empty poster. It has been evident from the different game sessions that this is the most challenging environment in terms of creating and following a focused conversation, especially if there is no facilitator and if the technique is new to the participants. Therefore, in the **Living Diagram** session played at a workshop of the Institute of Citizenship, Society and Change, the pace and outcome of the four groups differed widely. While some of the groups got started with the visual diagram straight away, others spent considerable time talking before making a start on the diagram itself. Moreover, the output from one of the groups had the form of a traditional mind map, drawn with pen and paper, rather than the intended three-dimensional diagram with movable props. It is part of effective facilitation to account for such different dynamics among groups of players. Nevertheless, in this instance all four groups completed a diagram by the end of the session.

In any case, efficiency is not always the most important consideration, especially in settings where there are important aims other than a specific output. Learning and team building are just as important in many of the games, and the longer the allowable time is, the more one can make good use of other benefits of Serious Games. In the next section, we turn to various social and interactional effects of using Serious Games.

4.2 Games as non-threatening and egalitarian environments

Within any group of people, social differences are a given, and their effect on group processes is usually unavoidable. In the previous section, some of these effects, such as individuals unduly dominating a meeting, have already been discussed with respect to communication, as well as the

ways in which Serious Games can mitigate these effects, for example by influencing turn-taking behaviour. In this section, the effects of games on interpersonal dynamics within diverse groups are discussed more widely, outside the area of language and communication.

This discussion has two parts: how people relate to each other in a group (Section 4.2.1), and how individuals tend to feel in a group environment that uses a Serious Game (Section 4.2.2). Mäyrä (2008:6) points out that studying games is instructive for thinking "about the human nature and about our attraction to *interactivity*. Games are interactive by heart, to the degree that it is tautology to use the expression 'interactive games'." The following sections discuss the kinds of interactions that were facilitated by Serious Games in our contexts.

4.2.1   Games as egalitarian environments

In Section 4.1, we looked at how people tend to communicate in the game session compared to other formats. A second consideration is how players in a game session interact and relate to each other in general, not only in their communication. As mentioned before, the issues of unequal group dynamics are magnified, and the benefits of games are therefore greater, in groups where people have widely different backgrounds and/or do not know each other. In a group of friends where we are all well-known to each other and have roughly the same social status, we generally feel free to speak our mind, and we feel confident to be understood. This is not the case in very diverse groups where people are meeting for the first time or are just beginning to get to know each other.

There are several ways in which Serious Games can help to make group dynamics more egalitarian. Firstly, the physical arrangement of players in the games is in a circle, except for the **Wall of X**, where it is a semicircle. This is very different from meetings where one or several people are at the front, ready to present to the rest of the participants as their audience, albeit with provisions for the audience to contribute to discussions or ask questions from time to time. Such a setting immediately conveys a sense of hierarchy, with the expectation that those at the front are controlling the meeting. A circular setting cues a very different psychology. If facilitators are present in the game, they will usually join the circle, and skilled facilitators will find ways to make it clear that they are merely serving the group process, not controlling the outcome.

Secondly, the choreography in many of the games provides for a basic level of active participation for everyone, inasmuch as everyone is expected to take their turn during the game. This has already been discussed in the previous section about turn-taking behaviour in game sessions. In addition to turn-taking in communication, the rules of some games also automatically assign equal value to contributions by all players. For instance, in the **Tabletop Kinetic Spectrum**, all players have exactly one token to use per round, and all the "votes" count the same. In the **Turntable** game, everyone is expected to contribute at least one note with an idea (although individuals may contribute more than one), and all ideas have an equal chance of being picked up for discussion.

Another sense in which game sessions tend to be more egalitarian than other formats is more subtle. In many games, players are encouraged to take on a certain role or persona that is different from who they are in their usual life. In fact, this is part of the general appeal of playing games, and in recreational gaming, there is a whole genre of role-playing games, with different sub-types such as Massively Multiplayer Online Role-Playing Games (Fine 2002, Dickey 2007). In the **Cross-sectoral Collaboration** game, players explicitly take on one of four roles, namely academia (A), business (B), civil society (C), and the public sector (P). In the **Pronoun Prompt** game, the roles of "next speaker" and "selector of next speaker" are influenced by the chance element of rolling the dice. Even where games do not have specific roles, everyone nevertheless operates within a default role of "player in a game". Therefore, everyone can relax and be less worried about social dynamics, since what is happening is, at some level, "only a game". Within such a psychology, the risk of social sanctions is much reduced, as argued in more detail in Section 4.2.2.

There is also room in many games for specific functions to emerge spontaneously. For example, in a **Living Diagram** game, one of the players might annotate the diagram with written notes, while another becomes very active in adding props to the 3D diagram, perhaps simply because they are sitting close to the pens or the 3D props by chance.

Another effect of Serious Games is their novelty. In most contexts where I have used Serious Games, this was a new experience for the participants. It seems that entrenched ideas about who has social licence to do what are more likely to be deactivated if the activity is novel and unusual. In a traditional meeting format where a chairperson is physically at some remove from the audience, perhaps in control of a pile of notes or

a screen at the front, the setting comes with a set of well-known social rules on participation. By contrast, part of the egalitarian nature of Serious Games stems from their novelty and hence the fact that there is usually no entrenched hierarchical practice in terms of their social rules of operation. Experienced facilitators will take care that they do not in turn become a different kind of meeting chair and do not simply replace one position of power (chairperson) with another (facilitator).

The aim of creating a lively, equitable, or engaging social interaction by using co-creative facilitation is not always easy to achieve because one must override established social norms and practices. For example, a common technique for organising group discussions is the so-called "fishbowl". This is a group discussion technique with a smaller inner circle and a larger outer circle. Only people in the inner circle talk, and those in the outer circle observe. When someone from the outer circle wants to contribute to the discussion, they move into the inner circle and someone from the inner circle in turn vacates their place and moves to the outer circle. This way many participants can contribute without the discussion as a whole becoming unmanageable. Usually, the way to replace someone in the inner circle is to tap them gently on the shoulder in order to change places with them. This is usually unproblematic in western cultures, but in some Asian cultures the technique clashes with social norms. There are sensitive associations with singling someone out, sending someone "to the back of the class", or causing someone to be expelled from the inner circle, all of which can be uncomfortable notions in some non-Western cultures.

In practice, a number of design features work together to create environments that skew social dynamics in a more egalitarian direction when using Serious Games. Together these factors have the effect of redefining the social interaction. The new type of interaction is not merely a different way of having a discussion, as in the case of the fishbowl activity and other similar techniques, but is reframed as a game in its entirety. This reframing is also the main reason why Serious Games create non-threatening environments, which is the topic of the next section.

4.2.2   Games as non-threatening environments

A group situation where people interact and talk to each other in an immediate face-to-face manner always carries elements of risk, related to both *how* people interact and communicate, and *what* the content of the

interaction or communication is. In a group setting, participants may feel threatened and challenged in many ways, for example:

- I may express myself badly.
- I may be interrupted before I have finished.
- My intention or point may be misunderstood.
- Some weakness or ignorance on my part may be revealed.
- People may disagree with me.
- I may offend someone.

The extent to which individuals experience threatening environments on the basis of such factors varies individually and also across cultures, as the above example of the fishbowl discussion demonstrates. There are many ways in which participants and/or facilitators try to mitigate some of these risks and challenges. One common way is for facilitators to first model a particular interaction, so that everyone can see what it looks like and feel safe to imitate the same behaviour. This reduces the risks of misinterpreted intentions and fear of offending someone. Another way is to organise communication to make sure people can express themselves fully. For instance, a group of people may use a small hand-held object as a talking stick. This is placed in the middle of the group, and whoever wants to contribute to the discussion picks up the talking stick. The next person cannot speak until the talking stick has been replaced by the previous speaker. The risk of being interrupted or expressing oneself badly because of time pressure is mitigated against in this way. Another strategy that participants may adopt in a group is to mirror each other's behaviour and communication. This is similar to the facilitator first modelling the interaction and feels safer for the same reason, that is, because each subsequent participant has had a chance to see all the previous turns being completed successfully. The risk of being seen as ignorant or provoking disagreement is reduced because similar behaviour has already taken place and challenged.

The way in which Serious Games mitigate these risks and help create a non-threatening environment for participating individuals is different, although games may include some of the above individual remedies. The difference is that by setting up the game environment, the entire framing of the situation is changed. Rather than mitigating individual aspects that may go wrong, the effect of a game situation is that everything happening can be interpreted as playful. This means that all the above risks are much

less threatening because there is always an underlying sense that what we are doing is "just a game".

As the name implies, a Serious Game is a hybrid, located midway between entertainment and serious business. The setting and choreography cues players into a more relaxed state of mind because the activity is framed as a game. At the same time, the overarching goal of the game session remains serious.

This socio-psychological effects of Serious Games have been explicitly commented on in participant feedback. For instance, at the end of a ***Cross-sectoral Collaboration*** board game session, one of the participants talked about feeling able to say things you would not otherwise say, that is, if we had not been in a game. Notwithstanding the overall effect of framing the interaction as a game, the different Serious Games also provide for individual solution elements that contribute more specifically to making the interaction non-threatening.

The social frame of a game is perfect for sanctioning laughter, and laughter is one of the clearest indications that a game session creates a relaxed atmosphere among participants. A blog report of one of the game sessions begins as follows:

> The laughter and clapping erupting from our room can be heard all the way down the corridor outside. Inside, we are sitting in groups of six players around five tables with a game board set up on each table. Could the site of such hilarity really be a high-calibre academic conference, rather than a bingo hall or a casino? [16]

Without going into a psycho-social analysis of laughter, the bonding effect of a group laughing together is without question. Summarising some of the relevant literature, Mehu & Dunbar (2008:1753) report several related ideas, namely that laughter "acts to reinforce social bonds within a coalition", "evolved to foster cooperative relationships" and "has been shown to improve cohesiveness and cooperation in goal-oriented groups". The authors conclude that laughter, as well as smiling, can be used to establish what they term "cooperative alliances". When groups play a Serious Game, this is a cooperative undertaking, and improving cohesiveness and cooperation within the social group is exactly the aim

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[16] See the blogpost at www.theimpactinitiative.net/blog/blog-cross-sectoral-collaboration-are-you-game [accessed 18/12/2020], which describes the game session played with 30 participants.

of the Serious Game. The fact that laughter is licensed under these social conditions is apt to support the achievement of the group's aims via strengthening the cooperative alliance of the players.

When people have established some level of social bonding with others in their group, all risks of losing face or offending someone are naturally reduced. It is then much easier to admit to not knowing something, and the fear of disagreement and conflict reduces. In short, laughing is very much expected in a game, and this is not at all the case in a formal meeting.

The fear of expressing oneself badly or being misunderstood is mitigated by the fact that in many games, a move consists of both a physical action and a contribution to the conversation. For instance, in the **Timeline** game and the **Living Diagram** game, players add or change something in the visual display while explaining their point. This is much clearer and easier because the linguistic and the visual elements of what is expressed support each other. Therefore, even if players are not naturally eloquent, or if they interact in a second language in which they have limited competence, the game set-up helps them to express themselves. In some games, such as **Wall of X** and **Tabletop Kinetic Spectrum**, the visual contribution can stand on its own or needs only minimal language to complete a valid move in the game. Moreover, players cannot be interrupted until they have finished their expected move.

Another face-saving tool available in Serious Games is for players to "hide", to some extent, behind a game persona or behind the abstraction of the game. This was discussed in Section 4.1 with respect to the roles in the **Cross-sectoral Collaboration** game. When discussing a scenario from one of the scenario cards, there is a choice of talking as oneself or as the game persona. For instance, consider the following scenario card (see the Appendix for all scenario cards):

<div style="border:1px solid #e060b0; background:#f060c0; padding:1em; text-align:center;">

P

You have to prepare internal briefings at short notice and the academics are unavailable to contribute. Go back 2 steps to do the extra work.

</div>

In this case, the assigned role is for someone working in the public sector (P). For the person responding to the prompt on the card, there are

several ways to respond. The player could talk about the situation abstractly, for example saying that people working in the public sector are often faced with such demands from their superiors and therefore, the situation would be quite common. Another response may be to empathise more explicitly with the situation, for example: "I imagine that the public official may now become quite angry with the academics, and unless they can talk this through and sort it out, the collaboration as such may well be called into question. The official is trapped in between and will feel let down by the academics." Finally, it is also possible to relate one's own experiences of similar incidents, particularly if the game participant already feels quite safe and confident within the group. So the reaction may be something like "Oh, I remember something like this happened to me, and I was the one who wasn't available. I felt really guilty about it."

Whichever way people react during the game, the important point is that there is a choice between expressing personal experience or abstract analysis. Given that it is not mandatory to reveal anything personal, the game environment is less threatening because a face-saving general comment is always possible. To the extent that people also talk about their personal experiences, participants will feel that they have got to know the others in the group at a personal level, not only in their professional or formal roles.

Another example of talking in a less immediate or personal way is the ***Living Diagram***. In the game, organisations and people are often mapped onto the diagram, as one of the aims is to construct logical relationships between these. Obviously, the diagram is an abstraction. Since not all relationships are easy, players may represent a situation of conflict on the diagram, for example by placing props opposite each other, perhaps annotated with some key words. Compared to verbalising the nature of the perceived conflict, representing it more abstractly in the diagram is socially less threatening because the placement on paper is abstract and at one remove from the actual people or organisations, who do not need to be addressed directly. The conflict is represented visually in the diagram, and hence there is less need to talk about it or label it overtly.

The factors discussed in this section – laughing together in a group, choosing to talk as oneself or as an assumed persona/role, and using abstractions built into the games – work together with the general framing of the entire session as a game, and this cues non-threatening interactions for participants.

4.3 Effects on outcomes

Experiences with the Serious Games so far indicate that their outcomes differ from traditional meeting formats. Effects on outcomes may be cognitive outcomes, for example people retaining better memory of discussions, and tangible outcomes, such as co-created visual posters, notes or diagrams. In the light of what has been discussed in the previous sections, we can also expect inter-personal outcomes, in the sense that better communication in an egalitarian and non-threatening environment may lead to an enhanced sense of bonding and group spirit among groups of players (see Chapter 6 for further discussion on the inter-personal dimension of Serious Games). However, these outcomes are implied by the previous discussion and are therefore not pursued further in this section. It is also more difficult to discuss issues of group formation and group identity in the absence of specific information. This aspect is not covered in the various sources of feedback about game sessions, and therefore, this effect can only be evaluated in detail after further research.

4.3.1 Cognitive outcomes

Two important cognitive outcomes that are usually associated with events such as meetings or workshops are related to memory and learning. Clearly, an event would be considered more successful if participants retain a good memory after the event and have learned some new content. How can Serious Games support these aims?

Perhaps everyone who has ever been in a long meeting or has seen a series of presentations is familiar with the experience that afterwards we could barely remember anything that was said – or, more accurately, we could not remember anything except that one time when someone had made a joke and everyone laughed, or that one striking picture that had been on one of the PowerPoint slides. There are several ways in which Serious Games lead to a better memory of the game session.

Firstly, a game session involves not only the cognitive level but also the emotional level. Laughter is one example of an emotional response, which is explicitly sanctioned by a Serious Game context. Another emotional response is surprise, or more generally, unpredictability. In Chapter 2, I discussed the design feature of including elements of chance in all games, such as rolling the dice or picking up the next keyword. The

fact that the next move is not predictable leads to people paying more attention.[17]

The relationship between emotion and memory is a well-documented phenomenon. As Kensinger (2009:100) summarises: "It has long been known that experiences that elicit arousal are more likely to be remembered than experiences that do not evoke an emotional response. This *emotional memory enhancement* has been demonstrated across a range of paradigms and using a variety of stimuli." By the same logic, involving emotional responses is beneficial for learning. Tyng et al (2017:2) argue that "attentional and motivational components of emotion have been linked to heightened learning and memory" and hence, "emotional experiences/stimuli appear to be remembered vividly and accurately, with great resilience over time."

Emotional memory enhancement works at all levels of processing: during memory encoding, when the information is first taken in; during memory consolidation, when the memory is laid down more permanently; and during memory retrieval, when the information is recalled (Kensington 2009). It is easy to see how this is beneficial for learning – what is remembered better is learned more effectively. The design of Serious Games explicitly facilitates the emotional involvement of players and hence supports processes of learning.

Secondly, the game rules provide for active involvement by all participants. This is very different from merely listening to input from presenters, where it is much easier to tune out or get distracted.[18] Moreover, the active involvement is not restricted to talking – players must also complete all kinds of physical moves, such as placing props, writing or drawing, and moving around. Physical activity helps people maintain attention and regain mental alertness – hence the well-known "comfort break". Therefore, kinetic elements where players physically move around are also part of the design features of Serious Games, as explained in Chapter 2.

The third factor is the way in which the material under discussion is presented. All games aim to transform abstract information into something more concrete and tangible. Often this is achieved through the

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[17] A related experience is a series of "English through games" sessions that I conducted with a group of teenage children in India. In this experiment, it was striking how little effort was needed to keep a group of 12 children focused on the activity.

[18] Of course, there is also "active listening", though this is demanding on the listener and is often considered a specific interactional and communicative skill for which specific training is needed (see McNaughton 2008; Weger, Castle & Emmett 2010).

use of visual diagrams. The **Wall of X**, the **Living Diagram**, and the **Timeline** games use metaphorical mapping to visualise more abstract relationships. The basic mapping is from a more concrete domain, namely physical space, to a more abstract domain, such as time or a logical relationship. Such metaphorical mappings are a universal human experience (see the seminal work in Lakoff & Johnson 1980). This universality is reflected in the fact that similar metaphors recur in many unrelated languages. The conceptual correspondence between an abstract target domain (e.g. time) and a concrete source domain (e.g. space) is typical of metaphorical mapping and a well-documented phenomenon across languages and cultures, manifesting itself both in speech and in gesture, as well as in sign languages (e.g. Evans 2003, Núñez & Sweetser 2006, Taub 2001, Zeshan & Palfreyman 2019).

The design of Serious Games co-opts this cognitive mapping mechanism in many instances. The mapping between the domains of time and space, as used in the **Timeline** game, is one of the most commonly used metaphors in human language and cognition (cf. Haspelmath 1997). In addition to space, individual games facilitate the inclusion of further metaphors. In the **Wall of X** game, the 2D Wall display represents two abstract logical axes. In the **Living Diagram** game, further options include use of colours (e.g. linking parts of the diagram by using the same colour), the size of 3D props (e.g. larger props for more powerful organisations), or the amount of value props used (e.g. more coins for a larger budget).

Another way of making information easier to access is to prioritise narrative or conversational formats rather than a more abstract presentational style. The prime example of this is the **Cross-sectoral Collaboration** game, where short written scenarios cue players into narratives of the experiences. In the **Turntable** game, a two-way conversation between players about each brainstormed idea is a mandatory part of the game process.

As noted in Section 4.1, the pace of communication is also different in Serious Games. Regulated turn taking and longer gaps between turns often provide more space for participants to process the information. For instance, when using the **Pronoun Prompt** game for introductions, as we did in the P2PDM international kick-off meeting, participants have time to shift their attention, tune into a new accent, and absorb the information. The effect is quite different from a quick "round of introductions", where the pace is too fast to remember who is who.

Together, these mechanisms make games more memorable, and there is some evidence from our game sessions that learning effects are also enhanced.[19] For instance the following comment was made after a session of the ***Cross-sectoral Collaboration*** game: "I feel that I have learned new things in a different way through the game, much better than just being taught in a presentation." An example of how a point of learning was retained in the long term comes from the international kick-off meeting of the P2PDM project. Groups of participants were asked to create a ***Living Diagram*** featuring the various partners, learners, and staff in the project. In each case, the resulting diagram was a hierarchical tree diagram, with the funders at the top, then the different staff categories with different levels of responsibilities, and groups of learners at the bottom (see Figure 4.5). In the summary session, I suggested a different type of diagram with concentric circles, where learners are in the middle, with peer tutors, research assistants, and out-of-country researchers in the outer circles. Much later, when the Indian deaf research team prepared an exhibition for the first P2PDM collaboratory workshop, the diagram with concentric circles re-appeared as one of the posters (see Figure 4.6).
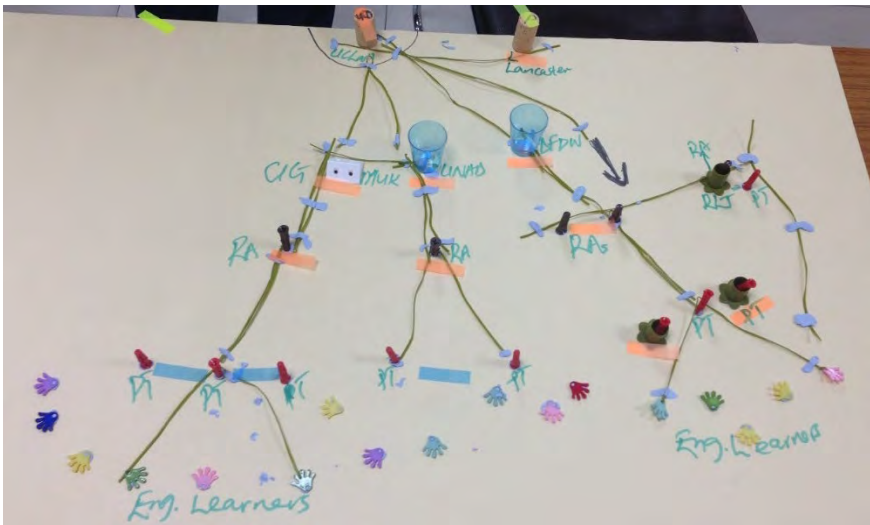
Figure 4.5. *One of the project structure posters created at the kick-off meeting.*

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[19] Content learning as an explicit aim is not part of all games, so feedback on this effect is more limited.
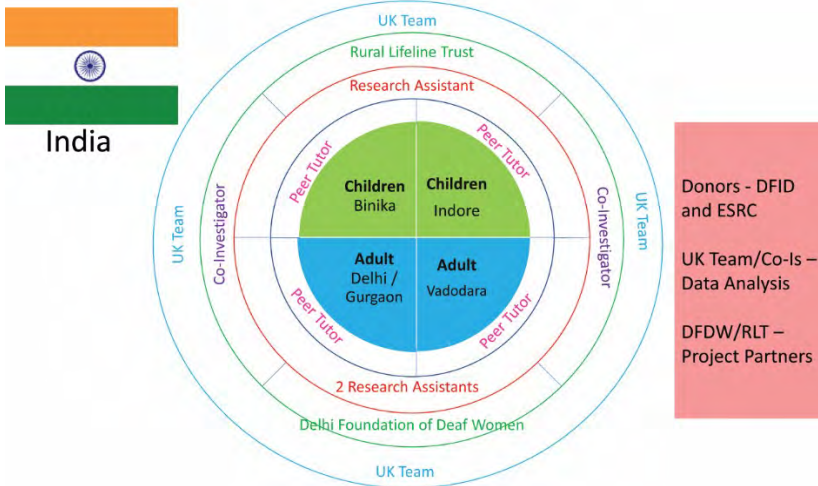
Figure 4.6. *Poster with modified project structure used at subsequent exhibition.*

4.3.2   Tangible outcomes

The tangible outcomes of Serious Games sessions are the various outputs that are created during games. With the exception of the ***Cross-sectoral Collaboration*** board game and the ***Pronoun Prompt*** game, all games have concrete outputs. The two games without concrete outputs are those that aim at comparing points of view and different perspectives among participants, and at learning preconfigured content. In all other cases, the co-created outputs are integral to the aims of the games. Table 4.2 summarises the outputs from the various games.

In Table 4.2, a distinction is made between "immediate outputs" and "secondary outputs". Immediate outputs are those that are created by the players *while* playing each game. They are an integral part of the game and cannot be left out. They are also immediate in the sense of being non-mediated; that is, other than the players themselves, nobody else has been involved in creating, structuring, or interpreting the output. It therefore represents the authentic voice of the group of players. This is important because in other formats, there is usually a designated person keeping notes and writing minutes. This may often be efficient, but it is also a less authentic record because the voice recounting what happened is mediated by the scribe, who may follow a certain set of conventions or frameworks within which to interpret the proceedings of the event.

In many cases, the immediate visual output from Serious Games can also serve as a visual record of the session. For example, the ***Timeline***

drawing summarises the planning of the group of players, and the ***Living Diagram*** is a summary of the relationships between its components as decided by the players. Unlike separate minute-writing, creating these visual notes is effortless and happens automatically during the game. However, the immediate outputs are usually not portable: a ***Wall of X*** display is dismantled after each game, and a poster-sized 3D diagram is not easy to transport. This is one reason why games also have secondary outputs, which are created *after* the game session is over.

Table 4.2. *Concrete outputs from games.*

Game	Inputs	Immediate outputs	Secondary outputs
Tabletop Kinetic Spectrum	Keywords / key concepts	Diagrams with pawns on the spectrum	- Photos of pawn arrangements on the spectrum - Notes from group discussion of the assigned scores
Living Diagram	Framing of the issue	3D diagram	- Photo of the diagram - Videos of someone explaining the diagram - Written commentary of the diagram
Turntable	Framing of the issue	Unordered set of post-it notes	Ordered written summary of notes
Timeline	Time segment subdivisions	Annotated Timeline drawing	- Photo of the timeline drawing - Video of someone explaining the Timeline drawing - Written commentary of the Timeline drawing
Wall of X	Keywords / key concepts	Display on the Wall	- Photo of the Wall display - Video of someone explaining the Wall display - Written commentary of the Wall display
Pronoun prompt	Keywords/ key concepts	None	None
Cross-sectoral Collaboration	Scenario cards	None	None

Secondary outputs are of two types. The first type consists of photographs of the immediate output. This mainly serves the purpose of portability: unlike the immediate outputs, photos can be digitally saved, sorted into folders, sent around by email, etc. Another associated benefit is that photos can be grouped and categorised easily. The photo can be labelled and categorised through the choice of file name. Some essential meta-information can also be preserved, for example by creating file names that include the place and date of the session and the type of game in the file name. Sorting photos into different folders helps categorise the outputs. For example, all photos from the same event, or all photos of the same type of game can be grouped together in a folder.

If several outputs are created in one game session, keeping a photograph of each output means that players can re-use the same game props for the next part and do not need new supplies and new space each time. This is most pertinent in the **Tabletop Kinetic Spectrum**. For each new keyword, a new arrangement of pawns is needed, so unless a photo is taken each time, players will need a lot of pawns and a lot of space to create all arrangements next to each other. This is cumbersome in most settings, though not impossible if prepared in advance.

The second type of secondary output is in the form of commentaries, where someone, either the facilitator of one of the players, comments on the immediate output. Commentaries recorded on video have the big advantage that the immediate output can be shown alongside the person talking about the output. Giving explanations while pointing to the **Wall of X** display or the **Timeline** or **Living Diagram** poster is much clearer than talking without the immediate outputs being visible. It is often a real added benefit if someone who was at the session explains what can be seen on the visual output, both for those who were there and for those who were not. It is easy to forget after a game what exactly the different visual elements meant to represent. Likewise, sharing only the immediate output with people who were not at the game session, without any explanation, is of limited use because people are unlikely to fully understand the visual output on its own. Although commentaries may have some gaps and inaccuracies depending on the memory of the person, they are essential if outputs are to be shared after a game session.

Commentaries can also be in the form of written notes, ideally in combination with a photo of the visual output. This is another valuable secondary output. On the one hand, writing up notes takes more time and involves more effort, but on the other hand, written notes may be more

considered and complete compared with a spontaneous commentary on video, and they can be co-written by several people. For the **Turntable** game, written commentaries would include the texts of the post-it notes produced by the players during the game. In the **Tabletop Kinetic Spectrum**, players are encouraged to take notes during the game itself to record their views on prioritisation of the various items that are being scored.

4.4 Serious Games and human psycho-social factors

In this chapter, we have seen that the design of Serious Games capitalises on universal human patterns of communication, interaction, and cognition. The game choreographies manipulate universal patterns of turn-taking in order to improve the pace of and access to conversations. Elements of role play and different levels of abstraction, such as the use of diagrams, reduce the threatening nature of speaking up in front of a group and allow players to avoid becoming overly involved at a personal level. Moreover, framing interactions as games sanctions emotional responses, including laughter, which is conducive to group bonding and a relaxed state of mind.

Laughter, surprise, and unpredictability all stimulate emotional involvement, which in turn benefits memory, attention, and learning through the universal process of emotional memory enhancement. Kinetic design features of games, where players need to execute specific actions or move around the game space, further enhance focus and attention.

Serious Games also provide strategies for groups of players to understand each other better. This includes all the visual props and displays that are created during games. The effect of this visual material is for communication to become multimodal, and multimodal communication is more accessible because the various channels of information support each other in delivering the message. A related factor is the way in which metaphorical mapping between abstract and concrete domains, such as mapping of time against space, makes complex subject matters easier to understand and remember.

Finally, the intrinsic motivation, drive and enjoyment that makes playing games so attractive is itself a human universal. Tyng et al. (2017:3) comment on an earlier proposal by Panksepp (1998), which identified "seven primary emotional systems/prototype emotional states, namely SEEKING, RAGE, FEAR, LUST, CARE, PANIC/GRIEF, and PLAY that

represent basic foundations for living and learning." The need to play is deeply ingrained in human psychology, and this goes a long way towards explaining why Serious Games have been so successful in co-creative facilitation in our context.

In the next chapter, I take a broader perspective on games in context. To explore the role of Serious Games within events such as meetings and workshops, I present three case studies of events where games were used in different contexts. All of the events took place in India, and two of them were hosted under the P2PDM project, while the third one was separate and did not involve work with deaf participants or on sign language and deaf education.

Chapter 5
Serialising Serious Games in complex choreographies: Case studies

Serious Games can often maximise their potential when they are integrated into a multi-stage choreography. The use of the term choreography here is borrowed from other authors who have worked on co-creative facilitation (e.g. Muff 2014, Fein 2018), and this is an apt metaphor. Just like in its literal sense, where a choreography refers to a dance or theatre play, co-creative events also have different phases of movement and action through which the event progresses, involving different actors/players advancing the event at a certain pace. The event is staged with a particular overall story or framing in mind, using various spatial settings, actors, and props. And just like a dance has a choreographer, a game or event has a facilitator who is in charge of planning ae well as the implementation of planned moves.

In this sense, each individual game has a choreography of its own. Secondly, a higher-level choreography also governs the way that entire events proceed through their different phases, including game elements and non-game elements. Several games can logically build upon each other, for example by using the output of one game as the starting point for the next game, or a one-off game can link to other non-game activities in a sequence. In this chapter, I describe three case studies where Serious Games have been used within a complex sequence of activities. This demonstrates how games interact with other parts of an integrated longer programme, and how they function in the context of various types of events with different groups of participants.

5.1 Project kick-off meeting

The first case study is dated November 2017, when the international kick-off meeting took place for the project on "Peer to Peer Deaf Multiliteracies" (P2PDM). This is a paradigm case of a diverse group whose members are meeting to achieve a specific purpose with limited time available, and co-creative facilitation can be essential for the success of such a meeting. The kick-off meeting took place over two-and-a-half days and was followed by a public project launch function.

In this case, some of the meeting participants knew each other, especially those who had been involved in the pilot project on "Peer to Peer Deaf Literacy" (P2PDL) in 2015-16. However, other participants were involved with this work for the first time, and many had never met in person (although there had been email communication in preparation for the meeting). Table 5.1 shows the people who were involved, their home location and affiliation, their professional role, and their language background.[20]

Table 5.1. *Participants in the P2PDM kick-off meeting.*

Role	Affiliation	Location	Language background
Professor	University of Ghana	Accra, Ghana	English
Research assistant and high school teacher	University of Ghana and Demonstration School for the Deaf	Mampong-Akuapem, Ghana	English, Ghanaian Sign Language
Professor	Makerere University	Kampala, Uganda	English
Research assistant	National Association of the Deaf	Kampala, Uganda	English, Ugandan Sign Language, Indian Sign Language
Consultant and school director	Rural Lifeline Trust and Happy Hands School for the Deaf	Binika, India	English, Indian Sign Language, International Sign (IS)
NGO management	Delhi Foundation of Deaf Women	New Delhi, India	English, Hindi, Indian Sign Language
Research assistants	Delhi Foundation of Deaf Women	New Delhi, India	English, Indian Sign Language
Peer tutors	Happy Hands School for the Deaf, Indore Bilingual Academy, and Delhi Foundation of Deaf Women	Binika, India	English, Indian Sign Language
Professor	University of Central Lancashire	Preston, UK	English, Hindi, Indian Sign Language, IS
Sign language interpreters	Haryana Welfare Society for Hearing & Speech Handicapped and freelance	New Delhi, India	English, Hindi, Indian Sign Language

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[20] The language background does not include all languages of the participants. Additional languages that were not relevant in this context and not used in the meeting have been omitted.

The aims of this meeting were to make sure that everyone was on the same page with respect to the overall project structure and objectives, and to work towards a first outline of project activities. Those who would be engaged in administering the project in its different locations also needed to make joint decisions on workflows and consistent project management standards, with respect to issues such as staff recruitment, accounting for project costs, and milestones.

However, a second set of aims was just as important, if not more, and this was about creating a collegiate atmosphere and group spirit. We wanted people to feel inspired by the innovations to pursue in the project, and to feel a sense of solidarity with each other. If the right tone can be set at the beginning of a project, this can prevent many future conflicts, or at least create a better atmosphere for resolving conflicting issues. Serious Games can help with creating open, equitable and non-threatening communication, and we could see evidence of this in our meeting.

At the beginning of the meeting, all participants were sitting at tables arranged in a large circle, with two sign language interpreters at the front, who interpreted between English and Indian Sign Language. Everyone in the meeting had enough fluency in English (in the case of the deaf participants, in its written form), and the deaf participants, including the deaf Ugandan, were fluent in Indian Sign Language. The majority of hearing participants were also signers, but a few were non-signers and communicated with the deaf participants via the sign language interpreters. The only exception to this linguistic environment was the deaf participant from Ghana, who did not know Indian Sign Language. He relied on the written information along with some relay interpreting by deaf Indians who knew some international or American signs (Ghanaian Sign Language has many similarities with American Sign Language). It is a common experience that communication in mixed deaf-hearing groups is slower, due to the interpreting, and can sometimes be experienced as somewhat cumbersome and tiring, especially if deaf participants watch interpreters for long stretches of time. Game-based activities are well suited to making the communicative flow more manageable, especially as we played several of the games in smaller groups rather than with the entire group. Figure 5.1 shows the subsequent phases of the meeting as it developed over the two-and-a-half days.

As convener of the meeting, I welcomed everyone and introduced the first activity, which served as a round of personal introductions and an icebreaker game at the same time. Instead of a standard round of intro-

DAY 1

Welcome and introductions – ***Pronoun Prompt*** game
The project team structure – ***Living Diagram*** game
Summary of project team structure – Presentation
Pilot project summary – Presentation
Skype meeting with partner in Preston, UK – Online meeting

DAY 2

Group of project heads:
Project management,
accounting and staffing

Discussion

Participant groups:
Timetable of workshops and
teaching for 2018

Timeline game

Group reporting on 2018 timetable - Discussion
Shared project resources - Presentation
Role of RAs and PTs - Presentation
Planning for the 3-month training programme – Discussion

DAY 3

Mapping research questions, methodologies, and data - ***Wall of X***
The "collaboratory" workshop format - Presentation
Skype meeting with partner in Lancaster, UK - Online meeting

Senior researchers:
Educational systems

Discussion

Participants: Preparations
for the launch function

Hands-on work

Figure 5.1. *Phases of the kick-off meeting and distribution of games.*

ductions, I used the ***Pronoun Prompt*** game to generate a random sequence of these introductions. The pronoun prompt dice had pronouns written in German, and this introduced the first element of surprise, with everyone trying to learn the German words *ich* ('I'), *du* ('you'), and *wir* ('we') in order to choose the next person to introduce themselves. This way we were able to lighten the mood and set a relaxed tone for the meeting from the beginning.

For the next stage of discussions, I then used the ***Living Diagram*** game. Participants were asked to form groups around four tables set up in other parts of the room, and to construct a mind map of the project structure out of the ***Living Diagram*** props that were provided at each table. With four different countries and a range of project partners involved, the project structure was quite complex, and it was important for people to reflect on the overall setup as well as their own role within this structure. After some lively discussion, each table had produced a ***Living Diagram*** poster (see Figure 4.5 in Chapter 4 for one example).

We took photos of all posters, and then asked volunteers from two of the groups to present their findings to the entire group (Figure 5.2). All posters turned out to be quite similar, with hierarchical structures depicting learners, peer tutors, research assistants, and more senior researchers working in the project. On the one hand, this was a desirable outcome because we could be reassured that everyone had more or less a common understanding of the different players involved in our project. On the other hand, it was striking that everyone had produced a hierarchy with higher and lower levels. After the presentations, I therefore introduced a different way of thinking about our project structure in terms of concentric circles rather than vertical levels. This was to make the point that the deaf learners, located in the middle of the poster, are central to our work, and the different professional roles we all hold are organised around this core group. This idea was later picked up by several of our groups in the field (see Figure 4.6 in Chapter 4).

Figure 5.2. Presentation of a Living Diagram.

After we had re-convened with the whole group to talk about the project structure at the end of Day 1, we broke up into smaller groups again on Day 2. This time, one group, led by myself, discussed project management issues. We did not use any specific game in this group, and instead produced a mind map with notes. The other participants formed groups around the other tables and played the **Timeline** game. The task for the **Timeline** game was to think about the programme of activities for 2018. Planning the entire three-year project would have been too difficult, not only because it was difficult for people to look ahead so far, but also because of the structure of the game itself. The **Timeline** game's layout was ideal for breaking down the next project phase into 12 one-month segments. If we had used a longer timeline, the only practical layout would have been to use longer three-month or four-month segments (30+ segments cannot be easily accommodated on a single poster), and longer segments were not detailed enough for a good understanding of upcoming work packages.

On Day 3, our first activity was to play a **Wall of X** game. In this case, it was the "Wall of Research Questions", and the aim was to map methodologies and data to the four research questions (RQ1, RQ2, RQ3, and RQ4) from our proposal. I had prepared small index cards with keywords about the various types of data and methodologies that would be involved in the project, and we formed a semicircle in front of the Wall. Participants then took turns picking up a card, explaining the keyword, and sticking it onto the wall under the relevant research question(s). In many cases, we discussed the keywords as a group, rather than leaving the explanation to the person "in charge" of the card. This continued until all keywords were mapped to the research questions on the Wall (Figure 5.3).

Figure 5.3. *The Wall of Research Questions.*

Wall of X was the last Serious Game played at this event. In the final two sessions, two of the deaf research staff gave a presentation on the role of research assistants and peer tutors in the project, based on the experiences from working in the pilot project (P2PDL), and I gave a presentation introducing the concept and implementation of collaboratories.

In this event, although participants came from quite diverse backgrounds, there was a common understanding of the overall purpose. The various activities and Serious Games all linked to this overall purpose, highlighting different components of the project that we were going to undertake together. The **Living Diagram** game was about the partnership structure, the **Timeline** game focused on planning the sequence of project activities, and the **Wall of X** game highlighted the relationships between different work packages and research activities in the project. In this case, the different phases of the meeting's choreography gradually built up a more complete understanding of the project plan, with the outputs from each activity contributing to the overall picture. In the next case study, there was a different choreography, as the output from one game served as the input to the next game.

5.2 Workshop on green urban practices

The workshop "Indo-German Dialogue on Green Urban Practices: Social innovation and change agents towards sustainable lifestyles and consumption" took place in Chennai, India, in March 2017, and I was acting as co-facilitator.[21] The aim of the Dialogue was "to provide a platform of exchange, sharing of experiences and knowledge transfer on globally relevant issues of sustainable urban lifestyles and consumption patterns between actors in Germany and India with a view to co-create ideas to initiate follow-up projects and activities of mutual interest" (Woiwode & Bienge 2017:6). As indicated in the title, participants attended from India and Germany, and were mainly from two sectors, namely academia and non-governmental organisations. Among the latter, some organisations were more focused on awareness-raising and activism, and some were social enterprises. In addition to the diversity across sectors, there was considerable cross-cultural diversity among participants. The event was held in English. While all participants were

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[21] The main facilitator was Dr Markus Molz, learning coordinator at ECOLISE, a European network of initiatives for sustainability.

quite fluent in English, at times some degree of communication difficulty arose due to the very different accents in the English speech of some Germans and Indians, especially in whole-group discussions. Ca. 35 participants were present throughout the three-day event, and the Serious Games described here took place on Day 1 in the afternoon and on Day 2 from the morning to the early afternoon.

Three games were embedded into the complex choreography of the event. The workshop as a whole followed the framework of a collaboratory (Muff 2014). Collaboratories aim at working with multi-stakeholder groups, often from different societal sectors, in a sequence of generalised stages that lead from raising an issue to constituting working groups with the potential to address the issue. At the end of the collaboratory, self-selected groups of participants would ideally be ready to take forward practical steps towards implementing a real-life project idea that has been developed during the collaboratory. This particular collaboratory closely followed the phases described in Muff (2014), and several of the phases were carried out using a Serious Game. In this section, I do not describe the entire process (see Table 5.2 for a list of all phases), but limit the focus to the two phases where I used Serious Games with the group of participants.

Table 5.2. *Phases of the collaboratory on "Green Urban Practices" (adapted from Woiwode & Bienge 2017).*

	Name of phase	Description of phase	Serious Game used?
1	Invitation	Attracting diverse stakeholders	No
2	Sharing	Exploring the issue from multiple perspectives	No
3	Visioning	Whole person sensing of desirable futures	No
4	Backcasting	Identifying feasible next steps	Yes
5	Teaming	Gathering around concrete endeavours	No
6	Prototyping	Developing actionable solutions	Yes
7	Planning	Committing to tasks and timelines	No
8	Follow-up	Executing next steps and reporting back	No

Unlike in the previous case study, the participants in this workshop were not coming together around a specified task, but were motivated to attend by the topic of the event in a broad sense. As part of the invitation process ahead of the event, participants were provided with some advance information about the aims and format, and the first part of the event itself consisted of some introductory activities in order to

circumscribe the topic. However, the fact remains that in comparison with the previous case study, the "Green Urban Practices" workshop was far less focused on specifics. In fact, this was deliberately so, as the aim of the event was itself exploratory.

With the exception of those involved in the organisation and planning for the event, participants from outside Chennai did not know each other. As half a dozen local organisations were represented at the event, some people from this local network were familiar with each other, but the large majority of people met for the first time. Moreover, it was not easy for participants to gain in-depth insight into all the organisations and activities that were represented at the event. A substantial time slot was reserved for a "marketplace", where organisations set up stalls with information material about themselves and people could informally meet and chat about their work. Nevertheless, getting to know the group and understanding everyone's work could only remain a partial attempt, given the number, spread, and diversity of initiatives. The social dynamics and the objective of the event in terms of broader or narrower scope are two important differences between this case study and the previous one.

The "Green Urban Practices" collaboratory began with several activities to introduce the event and highlight various issues and examples of more sustainable urban lifestyles in India and Germany. The organisers gave brief presentations, followed by a group discussion, and the "marketplace" getting-to-know activity. Having prepared the ground in this way, the first game deployed was the *Turntable* game because it is ideal for brainstorming in groups. This game was matched to the phase of the collaboratory called "backcasting", in which people try to imagine better futures and to trace backwards the steps that would be needed to achieve those alternative lived realities. Hence I deployed a brainstorming game to generate suitable ideas around the idea of sustainable urban living.

Groups of five to six participants used the *Turntable* game to generate actionable ideas. The choreography of the game aims to ensure that everyone's ideas are introduced on an equal footing; everyone is prompted to play a turn. The game worked well for creating this equitable dialogue, and in the report about the event, Woiwode & Bienge (2017:16) observe that "because of the co-creative format, both academics and non-academics had equal opportunities for active participation. This was crucial in meeting the goal of cross-sectoral dialogue." Secondly, as group members are prompted to read out and explain another person's idea, the

game also generates short paired dialogues between the person who has written down an idea and the person who has picked up the idea card. Since the pairing is randomly generated by the game, this creates opportunities for people to interact from person to person, regardless of whether they already know each other or would otherwise have been motivated to approach each other.

Alongside and concurrently with this game, each group constructed a *Wall of X* by sticking the post-it notes generated by the *Turntable* game onto a nearby wall. This was helpful in order to sort ideas into categories. In this case, I proposed to construct a "Wall of Feasibility" and to arrange the brainstormed ideas into five columns depending on how feasible the group thought they might be for implementation, on a scale from 1 (least feasible) to 5 (most feasible). Groups had two options for generating the Wall: they could either score each idea immediately as it came up, or they could generate all ideas first and then place them on the *Wall of X* at the end of the *Turntable* game. A combination was also possible, that is, scoring some ideas immediately and keeping some back for scoring at the end, perhaps if they were more difficult to decide on.

At the end of this exercise, the five groups had generated a total of 84 ideas. As the next stages of activities progressed, it turned out that feasibility was not in fact the most useful way of organising the ideas on the Wall. Participants explicitly rejected the idea of prioritising the most feasible ideas for proceeding with the next game, and it was pointed out that in fact, an idea that was not currently scored highly on the feasibility scale could nevertheless be highly valuable. Eventually, the outcome of the *Wall of* Feasibility game was an organised visual display of index cards that was easy to work with at the next stage, although the parameter of feasibility itself was discarded.

Instead, following the lead of one of the groups, all groups re-arranged the *Wall of* **Feasibility** into a *Wall of* **Themes**, where similar ideas were placed closely together in clusters. This fit in well with the next stage in the workshop choreography, which required project ideas to be reduced to a handful, so that participants could work in groups on specific proposals. The re-arranged walls provided input for an intensive and rather lengthy whole-group discussion, after which five groups were formed to work on one concrete project idea each. This group formation process was a difficult stage, and there was palpable tension in the room as people were impatient to move on to the next stage but unable to decide quickly on the chosen themes and groups. With support from the

main event facilitator, eventually people settled into five groups, which discussed the following themes:

> I. Sustaining the flow
> II. Local & Hardy
> III. Greening of Decision-making
> IV. Car-free Streets
> V. Urban Circular Systems

At this stage, I asked participants to play the **Living Diagram** game to assist the project groups with conceptualising the details of their project and with planning steps towards potential implementation in the real world. Each group constructed a diagram, and in the process, discussed important aspects of the project, such as people's roles, necessary resources for the project, logical relations, and workflows. Figure 5.4 shows examples of the diagrams created. The 3D elements that are typical of Living Diagrams are clearly in evidence in the first example, which includes a 3D model of a wind turbine, as well as in the second poster. The third example uses a lot of value props (see the **Living Diagram** description in the Appendix about these props). If more time had been available, participants could then have used the **Timeline** game to make their implementable projects even more concrete by planning a specific timeline. However, there was no time left for another game, and the Green Urban Practices collaboratory then ended with summary and feedback sessions (see Chapter 6 for some quotes from this feedback).

Figure 5.4a. *Examples of Living Diagrams.*

Figure 5.4b. *Examples of Living Diagrams.*

5.3 Collaboratory on deaf literacy and bilingual deaf education

This case study is different from the other two in that a Serious Game, the *Living Diagram*, was used in two related but separate phases, instead of being part of a serialisation of games at the same event. Unlike in the other case studies, a game approach was used not only at the main two-day event but also in a separate preparation phase, which itself took two days. For this collaboratory, I led a team effort of designing the event's overall

structure and detailed implementation plan, working with a group of nine young deaf people who then acted as facilitators during the event. Thus the amount of preparation for this event was quite different from the other two case studies, much more intensive and taking the form of a group facilitation process.

This event, held in December 2017 in Bhubaneshwar (the capital of Odisha state, India), was the first in a series of collaboratories that formed part of the P2PDM project. Therefore, this first event had the double objective of engaging with project-external audiences on the one hand and training our project staff in the methodologies of a co-creative event on the other hand. Because of the second aim, the preparation phase was particularly thorough. We began by discussing options for the theme of the event and settled on the topic of using sign language in bilingual education for deaf children and adults, with particular emphasis on identifying and networking with relevant initiatives across India. A major aim was for these initiatives to increase their capacity to work together in the future.

The first phase of the process was the preparation phase, which was carried out at our training location in a different part of Odisha. At the beginning of this phase, I deployed the first game, a ***Living Diagram*** for representing each phase of the collaboratory workshop. This was mapped out on a large poster, with our group sitting around the poster and creating the visual flowchart of our event together (see Figure 5.5). The next day, we returned to the same diagram to double-check the event choreography and make our planning process more concrete. To this effect, we developed the exact scenarios for each phase in terms of where the facilitators and the different groups of participants would be located, and what the outputs would be from each of the phases (Figure 5.6). In addition, we allocated roles to all facilitators, indicating who would do what and at what point during the process of the event. On the third day, we revisited these materials once more to make sure everyone understood their role and to clarify any remaining questions. We also planned how posters for the collaboratory's initial exhibition would be produced.
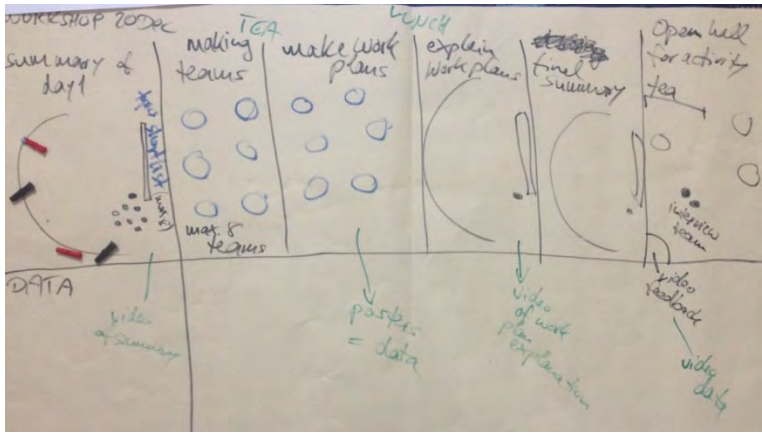
Figure 5.5. *Visual flowchart of the event produced during preparation.*
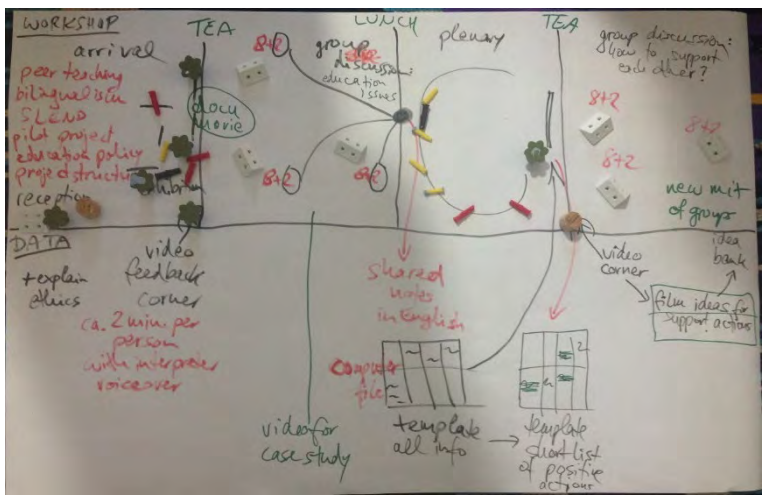
Figure 5.6. *Detailed event planning scenario produced during preparation.*

In summary, the collaboratory phases were going to be the following:

Day 1:
Exhibition with posters about the P2PDM project
explanations by project staff at each poster
capturing initial feedback from participants
Free discussion of the topic
discussion groups
capturing of discussion notes
Prioritisation and thematic organisation of notes
Selection of prioritised ideas in the form of project headings

Day 2:
Presentation of Day 1 summary
Group formation according to project headings
Project planning in groups - Living Diagram game
Plenary presentation of Living Diagrams
presentations
on-stage panel feedback
Final feedback from participants

This event choreography was fairly complex, so it was essential that all facilitators thoroughly understood their role at each stage of the event; during the collaboratory itself, there would be no time to re-train facilitators. Given that there were no major mishaps during the event, it would seem that use of the ***Living Diagram*** in the preparation phase was successful in two ways. Firstly, the young deaf co-facilitators were able to absorb and remember the complex information in relation to the success of event phases. This validates the notion that Serious Games, being tactile and visual rather than discursive, have a cognitive advantage over other ways of working through complex information, as argued in Chapter 4. Moreover, the game facilitated proper ownership of this group of their own event because everyone was constructing the ***Living Diagram*** together in a very hands-on sense. Of course, having co-created a complex procedure in turn helps those involved remember the details.

At the main event, the ***Living Diagram*** game was used again, this time embedded within the complex sequence of creative activities over the two days. The following groups of people (35 in total) were involved in the event:

- two lead researchers
- nine co-facilitators
- several members of the project's national advisory committee
- state-level members of deaf communities (from the state of Odisha)

The aim of this event was to create potentially actionable project ideas with a high level of buy-in from the participants. The collaboratory format is particularly suitable in such cases (see Kunze & Fein 2018). In order to achieve this objective, participants are taken through an initial phase where the intended topic is presented from a variety of angles, followed by work in self-selected groups of participants, where each group works on a particular aspect of the topic depending on which actionable project each individual is most interested in. The entire first

day was held with sign language users only (mostly deaf people and a few hearing signers), communicating in Indian Sign Language and written English. Sign language interpreters were only needed on the second day, to facilitate communication with a few hearing participants who did not know sign language.

For the initial phase, the young deaf co-facilitators had created posters that showed the basic concepts and ways of working in the P2PDM project. Participants could walk freely through the meeting hall and look at the posters in any sequence. One co-facilitator was stationed at each of the posters in order to explain the content of the poster to participants (see Figure 5.7).

Figure 5.7*. Exhibition during the P2PDM collaboratory.*

A particular space was reserved for the video camera, where participants could volunteer to talk about their views and their expectations from the event. At the same time, the exhibition served as an open space where participants could mingle and start getting to know each other. Everyone then settled around several separate tables for an open discussion of issues around literacy and education for deaf people. At each table, there was a volunteer taking notes.

The next step was a plenary discussion for organising these notes into themes, with the note-taking rapporteur from each table reporting back to the group. One facilitator entered relevant points onto a spreadsheet, which was projected onto the screen in front. This was the only time during the day when written English was important alongside Indian Sign Language. However, participants with low levels of literacy could still follow the signers presenting their reports from the discussion

groups. At this point, the event closed for the day, and the co-facilitators now had the considerable challenge to pull out from the spreadsheet those points that had the potential for being converted into concrete, potentially actionable project ideas. They did this in a discussion in the evening, supported by the two project researchers. Eventually, this resulted in a list of seven ideas. Accordingly, seven of the co-facilitators agreed to "own" one each of these ideas, that is, to lead a group of participants in working on the idea the next day. The ideas were the following:

- *Make sign language based multi-modal teaching and learning materials*
- *Create a deaf peer education centre in Odisha and interface with 30 districts*
- *Create awareness about bilingual deaf education through the media*
- *Encourage parents of deaf children to learn ISL*
- *Facilitate contact between deaf children and deaf adults /deaf associations*
- *Reduce class sizes in deaf education*
- *Create an academic Sign Bilingual Network with a register, conferences, journal, and international exchange*

In the morning of the second day, the first session was a presentation summarising Day 1, so that new participants joining only the second day could be brought up to speed. We then used a group formation technique where all "owners" of a topic presented their idea and then installed themselves at one of the round tables. Participants wanting to discuss the topic could then simply walk to the table and join the topic. For one of the topics, only two persons ended up at the table, so they decided to cancel the topic and join one of the other groups. The remaining six groups then worked on their topic for two hours using the ***Living Diagram*** game. The game resulted in six posters representing the project ideas. These were then presented to the plenary. A photo was taken of each poster, so that it could be projected onto the screen, and one or two volunteers from each group explained the idea on the poster. On the same stage, we had set up a panel of "benevolent critics", who asked questions and discussed each idea live on stage with the group leaders (see Figure 5.8). This session had simultaneous interpretation between Indian Sign Language and English.

Figure 5.8*. Presentation of Living Diagram with an on-stage panel.*

The event ended with collecting final feedback from participants on video, either in sign language or, for hearing people, in spoken English. One of the participants commented:

> Today we did that activity, I mean where we positioned things on a poster. I could understand as we moved around the tokens, that here is the school, here are the colleges, the government is there. I learned while we were moving things around on the poster, and that was really good.

The two lead researchers also had a debriefing session with the co-facilitators about a week after the event, to discuss any difficulties and ensure that they felt comfortable with organising collaboratories on their own in future. Within the P2PDM project, several other collaboratories have since taken place, often led by those who were co-facilitators at the first collaboratory (cf. Zeshan et al. 2019).

Chapter 6
Serious Games: A framework

Having looked at the features of Serious Games, their design process, benefits, and deployment in context, it is now time to draw some general conclusions from the work reported in this book. In Section 6.1, I highlight the perspective of facilitators and summarise the design features of facilitation with Serious Games in contrast with more conventional events. This draws on material discussed in Chapter 2 and Chapter 4.

In Section 6.2, three basic choreographies of games in context are presented, namely one-off use, linear design and radial design, followed by a discussion of mixed choreographies. This is important for planning the effect of games when designing the types of facilitation in an event, especially a co-creative event. Section 6.3 concludes by looking ahead and suggesting avenues for further research as well as applied work.

6.1 Intra-personal, inter-personal and material aspects of facilitation with Serious Games

The purpose of this section is to contrast the entire setting, design, and implementation of a Serious Game session with a more conventional event structure. Obviously, the label "conventional event" is to some extent an undue overgeneralisation, as events without any co-creative or facilitated aspects are themselves quite varied. Nevertheless, for the purpose of clarity it is helpful to not just list the features of Serious Games but to compare those features with a non-game format. Therefore, while it is explicitly recognised that settings without co-creative facilitation vary substantially, I nevertheless assume that they will have a family resemblance with each other and with the example case used here.

To undertake this comparison, we shall, for the sake of the argument, assume that the example case of a conventional event is represented by an internal meeting within a sizeable organisation, such as a company, public service, or school, where the participants know each other to some extent. The size of such a meeting would be similar to the Serious Game sessions discussed in this book, and we shall assume some explicit aim of the conventional meeting, reflected in an agenda and minutes. In fact, this

example case is typical, and many people will be familiar with it.

Keeping in mind these limitations, Table 6.1 presents characteristics of conventional events versus Serious Games. The table covers factors discussed in Chapter 2 and Chapter 4, but summarised in a different way.

Table 6.1. *Contrasting Serious Games with conventional events.*

Characteristics	Conventional event	Serious Game	Effect
Default relation-ship between participants	Hierarchical	Egalitarian	inter-p
Regulation of proceedings	Regulated by a group-internal chair or delegated authority	Self-regulated or regulated by a group-external facilitator	inter-p
Turn-taking	Regulated by a chair or unstructured	Regulated by the game's choreography	inter-p
Clarity and focus of communication	Dependent on face-to-face communication	Dependent on the combination of visual material and face-to-face communication	inter-p
Retained memory/learning from proceedings	Dependent on communication during the meeting and on written notes	Dependent on the combination of visual material and communication during the meeting	intra-p
Potential to maintain focus/ concentration	Dependent on chair and participants	Aided by game choreography and visual material	intra-p
Emotional response to proceedings	Depending on chance occurrence or discouraged	Expected part of the design	intra-p
Event framing	Formal (business of the agenda)	Casual (game)	intra-p inter-p
Participant involvement	Active or passive	Active	intra-p inter-p
Physical setting	Chairs/presenters/organ-isers at the front facing the rest of the audience	Everyone in a circle/ semi-circle	intra-p inter-p material
Participant movements during the event	Restricted	Allowed or mandatory	intra-p inter-p material
Props/ supporting material	Papers (agenda, tabled matters, etc.)	Variety of visual and haptic props	material
Outputs from the event	Minutes	Visual material	material

The factors listed in the table are categorised as to whether their effects are interpersonal (inter-p), intra-personal (intra-p), or material. Interpersonal effects are those that have to do with relationships between participants, whereas intra-personal factors concern the psychological and emotional response that participants experience within themselves. Material aspects are those that have to do with the physical environment. In some cases, more than one effect is relevant. Moreover, there are of course interactions between these different types of effects, and this is discussed below.

Those effects that are largely interpersonal (the four items at the top of Table 6.1) derive from two different types of characteristics. The first type is the way in which participants are cued to relate to each other by the setting, that is, in a more hierarchical or in a more egalitarian way.

In addition to what has already been discussed in Chapter 4 in terms of games as more egalitarian environments, it is also relevant here to consider the status of the person(s) in charge of regulating how the event proceeds, that is, with respect to aspects like timekeeping, moving on to the next stage, or assigning roles within the event. In conventional events, this person tends to be one of the participants, for example the chair of the meeting. In a game session, this is the work of facilitators, unless groups are able to organise themselves without a facilitator, which is possible for some of the simpler games.

In the 11 events discussed in earlier chapters, I have held different roles in addition to being a facilitator. In five events, I was also the project's lead researcher as these were directly associated with the P2PDL/P2PDM work. In four other events I was external to the group, and twice I was just one of the members of the group, without special responsibilities. Co-facilitators have been either other team members or external to the groups of participants. Being internal or external to a group of players has important implications (cf. external versus internal facilitation in Lessard et al. 2016).

When the facilitator in charge of game proceedings is an outsider to the group, the role is to support the aims of the group without having a personal stake in these aims. This entails an interpersonal relationship within the group where none of the participants are in a privileged leading position; all follow the same facilitated process. Therefore, the egalitarian aspiration of using Serious Games is supported by such a division of roles. Having an external facilitator also means that no

personal preferences or agendas intrude, and the facilitator is in a more neutral position than a group-internal facilitator.

On the other hand, being external to a group also comes with its own set of risks because external facilitators know so much less about the participants than someone from within an established group. If the group itself has essentially come together for the first time and most people do not already know each other, as was the case, for instance, at the poverty alleviation conference in Pretoria, no particular issues should arise. However, if people in a group already know each other and have some established or emerging group dynamics, an external facilitator who is new to the group may experience or even cause unexpected difficulties. Conversely, having an external facilitator may also break open some established interpersonal group dynamics exactly because the facilitator is unaware of such dynamics and comes to the group with a fresh perspective.

The second type of interpersonal effect has to do with communication. This includes turn-taking patterns as well as clarity and focus of communication, as already discussed in detail in Chapter 4. People relate differently to each other when their communication patterns are shaped by the choreography of a Serious Game.

Interpersonal factors related to communication overlap to some extent with several intra-personal factors, which are listed next in Table 6.1. Some of these factors have to do with cognition, namely the ability to remember what happened in the meeting or event and retain any learning from the proceedings, and the potential to maintain focus and concentration during the event itself.

In a conventional setting, how much can be remembered and learned mostly depends on face-to-face conversation alone, sometimes in combination with written notes of what was said. In a Serious Games context, memory and learning are aided by the various visual and haptic props used in the game's choreography. Similarly, continued concen-tration in a conventional setting is purely dependent on the participants' efforts, including the efforts of both the presenters and the audience. In Serious Games, it is easier for people to concentrate because the visual materials help them to focus, they are actively involved in progressing the game and following its moves, and they may even move around physically.

In terms of how participants react individually, games not only affect cognitive reactions but also have an effect on how people feel. As Breuer

& Bente 2010:12 point out, there is a "feeling of self-efficacy, and experience of flow when playing games.". Self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives." (Bandura 1994:1). When people believe in their capacity to be successful at an undertaking, their self-efficacy is high, and they approach a difficult task at hand differently, more like a potentially enjoyable challenge than like a threat full of risks. Although we do not have space here to argue for a self-efficacy effect in detail, the argument in Breuer & Bente (2010) is plausible because a game context allows more space for risk-free experimentation. Instead of being faced head-on with the social and cognitive demands of a meeting or collaboration, in games there is more leeway for approaching an issue tentatively in different ways, which is a good environment for building self-efficacy. The concept of "flow" has been developed by Csikszentmihalyi (1997, 2013, 2020, among others) and designates a particular mental state where one is fully absorbed in what is going on and is using skills at an optimal level, just challenging enough but not overwhelming. This probably applies to many digital games more than to our context, but the experience of being immersed deeply in a situation can also be found in the games I describe here, though perhaps not quite to the same extent.

Another intra-personal factor is the way in which players respond emotionally to the game context. In a conventional event, it is of course possible to engage emotionally, although depending on the degree of formality, showing emotions may be discouraged. However, even where emotional responses are not problematic, they are still purely dependent on chance occurrences. In Serious Games, on the other hand, eliciting emotional responses such as anticipation, surprise, laughter, etc., is an important design feature. Effects deriving from emotional responses to the game context are primarily intra-personal. However, there may be secondary interpersonal effects in addition, for example when the game context enhances the group spirit and bonding between participants due to these emotional reactions being expected and encouraged.

Some of the factors in Table 6.1 have both interpersonal and intra-personal effects. This is true of those characteristics that frame the experience of the event as a whole. Unlike in a conventional setting, a Serious Game session has a very different overall interpretation, and the effect of this framing has been discussed in Chapter 4. Another feature that applies to the event as a whole is the fact that in Serious Games, all

participants are in an active role, and are often required by game choreographies to contribute in specific ways to co-created outputs. Both of these aspects of framing the event work at the level of the individual (intra-personal), who is enabled to experience a non-threatening environment where it is easy to be active. At the same time, this overall framing also works at the interpersonal level because interactions between people who are expecting to be in a game together have the potential to be far more relaxed and equitable.

The remaining four factors in Table 6.1 all have at least one effect that has to do with the material setting of the activity. In the case of the positioning and movement of participants, there is a marked difference between a typical conventional event with presenters and audience facing each other and remaining static throughout the session, and the Serious Game session with everyone in a circle and physical movement built into the game's choreography. In addition to the physical effect on the environment, the Serious Game set-up also has interpersonal and intra-personal effects. Notably, the power of the circle as the basic physical unit of any co-creative event has already been discussed in previous chapters.

The last two characteristics have to do purely with considerations about the materials used in a session or event. Whereas conventional events rely on written papers for both preparation of a meeting and outcomes from a meeting, the inputs and outputs associated with Serious Games are much more varied. This in turn supports several other characteristics of games, for example better memory, as argued above.

Many of the characteristics discussed here are logically related and support each other to achieve the beneficial effects of games. In this book, the main focus has been on these benefits. However, it is explicitly recognised that some of these characteristics also come with risks.

For example, overall framing of the event as a game may cue people into a collaborative mode within a non-threatening context, causing people to be more relaxed. On the other hand, if Serious Games are unfamiliar, the opposite may happen and the game context may induce anxiety in some people, who may be uncertain how to behave in such a different context. Other participants may find it difficult to let go of their usual roles, especially if they usually enjoy a higher social prestige, a more active role in meetings, and a higher degree of control over what happens in a meeting. Another potential reaction may be not taking the entire event seriously enough, so that the "just a game" psychology results in a

situation where the aims of the session are undermined instead of supported.

Another set of criticisms could arise particularly where several games are arranged in a complex overall choreography, as in the case studies in Chapter 5, namely the criticism of too much focus on the game's process. Games should always serve the objectives that groups of participants are pursuing and should not be an imposition just for the sake of a prescribed process. After all, "just talking" also works well in many cases, and there is no need to over-complicate. Such issues were in fact raised in the final feedback session at the end of the workshop on Green Urban Practices, where the following points about the workshop process and methodology were noted:[22]

> Process too slow at times, and difficult to concentrate in the big circle.
> More discussion, less methodology!
> There is no 'right' or 'wrong' methodology but it is a learning process
> Method has both criticism and creativity; longer time would be important!

On the other hand, the feedback session also included the comment that the "most resonating moments were the ones where we had fun", and several people commented on the value of having concrete outputs from the workshop, many of which were facilitated by the game sessions.

Having summarised the characteristics of Serious Games, in the next section I look at different types of overall event choreographies that include game elements. This is another way of thinking about the purposeful deployment of Serious Games and the implications of choices made.

6.2 Types of choreographies with Serious Games

6.2.1   One-off use of games

This choreography is the simplest case, where a Serious Game is just used once within an event. This type is very common, and in fact, out of the 11 events in Table 3.1 in Chapter 3, six events have used a game only once.

One reason why this type is frequent is because it suits events with a short duration. For example, when a meeting only has a one-hour timeslot, it is difficult to use several games, except perhaps a short

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[22] These comments were about the workshop as a whole. The game sessions were a part of the workshop proceedings, along with a number of other sessions. The feedback did not differentiate between game and non-game parts of the workshop.

icebreaker game followed by one of the other games. When using Serious Games, it is very important to get the timing right, and not rush the participants. A planned process with several facilitated elements or stages risks getting in the way of a well-paced progression for participants. For instance, reflections about a relatively complex co-creative workshop (without any Serious Games) in Geiken, Kunze & Fein (2018) include over a dozen considerations about issues of timing, highlighting how important this is for an event. Similarly, a participant comment from the workshop on Green Urban Practices stated that "'sticker overload' can be avoided if there is more time", that is, people should not feel overloaded with too many props and processes to deal with in a timeframe that is too short and feels pressurised. A one-off game brings a different dimension and vibe to an event but avoids these problems.

The detailed descriptions of games in the Appendix include estimates of how much time is needed for each game, based on previous experience. Most games take noticeably longer with larger groups, perhaps with the exception of the *Tabletop Kinetic Spectrum*. Only one of the games, the *Cross-sectoral Collaboration* board game, is designed as a stand-alone game that does not naturally combine with other games in a sequence. For the remaining games, sequencing two or more phases, each with its own Serious Game, is often useful (see Sections 6.2.2 and 6.2.3).

In most cases, one-off use of a game occurred either in sessions where the entire session was dedicated to the game, or as part of a session held in a non-game format. In the latter case, the function of the game may be to set a different tone or style for the entire session, especially if the game occurs early in the session. If this works well, the communicative and inter-personal benefits of games may carry over into the rest of the session, even if no games are used any more. For example, in the first workshop on food production and consumption with a group of 12 local farmers in rural eastern India, the initial *Living Diagram* game set the tone for the day. Although no further game was used, participants remained actively engaged and willing to voice their opinions, which is not typical of workshops in the local culture. It may well be that atmosphere of open dialogue was carried over from the initial game sessions to other parts of the workshop, though there has not been any explicit comment to this effect because we did not collect feedback about this day's proceedings.

Alternatively, the function of the game may be to achieve a particular step or outcome within the overall event more efficiently. For example, if the majority of a meeting is held as a group discussion, it may be efficient to insert a prioritisation game (e.g. the **Tabletop Kinetic Spectrum**) at a particular point where priorities must be decided. Once this is resolved, the format can revert back to group discussion.

Unless the one-off game consists of a timeslot that is entirely taken up by the game, it is important to think about the integration of the game into the rest of the meeting or event. Groups of participants may well find it difficult to switch into "game mode" suddenly. For instance, if a meeting has been mostly led by a chair and a few people in active roles, while the rest of the participants have mostly been listening, it can be a challenge to move into a situation where everyone is supposed to be actively participating. Therefore, it is helpful to prepare participants for upcoming Series Game elements. For example, a facilitator could announce before a tea/coffee break that the meeting will move to a different phase after the break, and explain what this will be like. Participants then have some time for a mental shift into a different mode of interaction. It can also be helpful to change the physical layout of the meeting space before the game begins, for example by changing the seating from rows to a circle, to signal the beginning of a new phase. For games where props are involved, these can also help to establish the new tone of a game session.

6.2.2 Radial choreographies

The essence of a radial choreography of several games is that while each game is a completed unit in itself, all games are nevertheless linked to the same central idea. Each game adds a new perspective on this central focus. Therefore, this choreography is suitable for situations where a group of participants needs to understand a complex subject matter.

The P2PDM kick-off meeting, one of the case studies described in Chapter 5, is a good example of a radial choreography. In this case, the central focus was the new project, and each game contributed to a better understanding of P2PDM. Figure 6.1 illustrates the choreography. As detailed in Chapter 5, through different games the group members subsequently gained a fuller understanding of several aspects of the project, including who will work in this project, how the team is organised, and which work packages will be implemented at what time. The underlying logic of the project work was also addressed.
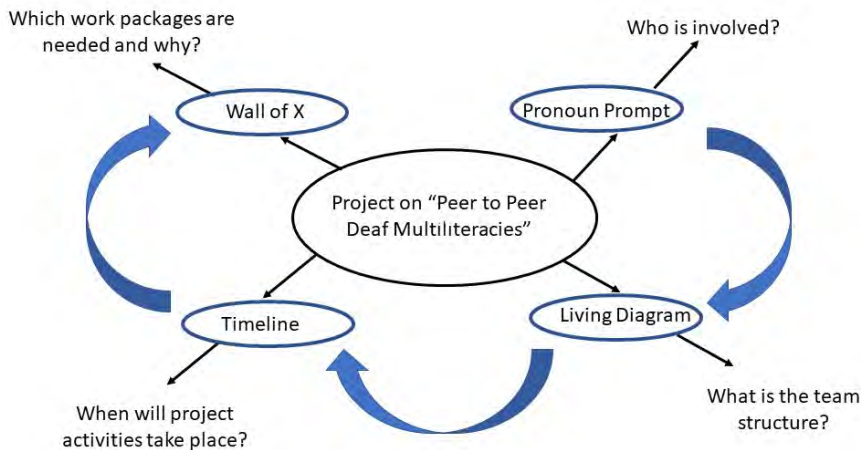
Figure 6.1. *Radial choreography in the P2PDM kick-off meeting.*

Although the radial choreography looks like a static mind map, of course the games are nevertheless played in a specific sequence. In Figure 6.1, this is indicated by the bold blue arrows, that is, the series of games begins with **Pronoun Prompt**, followed by **Living Diagram, Timeline**, and finally **Wall of X**. In addition, the sequence of game activities is incremental in that participants build up a more and more detailed understanding of the project that they are about to begin. In fact, in a more accurate depiction each game would be placed at a higher level compared to the previous one, as in a spiral staircase, indicating a gradually increasing level of understanding. To limit the complexity of the diagram, Figure 6.1 has been simplified and made two-dimensional, omitting the aspect of upwards progression.

In principle, the games could have been played in any order, as they all logically link back to the central idea (the new project) in the same way. However, in practice the sequencing of the games was motivated by two considerations.

Firstly, the games progress from conceptually easier to conceptually more difficult sub-topics. Establishing who everyone is (the **Pronoun Prompt** game) is very concrete and immediate and leads on easily to the next step of understanding the project partnership structure. In comparison, sorting various data collection tools and other methodologies under research questions on the **Wall of X** is much more technical and challenging, and therefore comes last.

Secondly, the games increasingly depend on literacy as they progress. In the **Pronoun Prompt** game, no reading or writing was involved at all. The **Living Diagram** worked with 2D- and 3D-props. Literacy was minimal in this game, restricted to labelling parts of the Diagram. The **Timeline** game was already more challenging, as it involved writing comments next to each time segment. In its use of literacy, the **Wall of** Research Questions also placed considerable demands on participants. People had to read prompts on index cards and describe their understanding of each prompt. Although no writing was involved, the language in which prompts were written was very technical, and it was necessary to understand the terminology of research methodologies in order to play the game. By contrast, the **Timeline** game could be completed using everyday language.

A radial choreography is attractive for facilitation where a group gradually builds up a better understanding of a complex subject matter or a more detailed vision of a scenario that involves several substantially different aspects. Since each part of the process links back to the same central idea, participants can feel a real difference in their understanding or involvement within a relatively short period of time, even if they do not have much previous experience with Serious Games. When using radial choreographies, it will be important for facilitators to touch base with the central subject matter repeatedly, for example when summarising the results of a previous session at the beginning of the following session.

This choreography also has the important advantage that individuals can benefit from the process even if they miss some of the sessions. For example, at the P2PDM kick-off meeting, the heads of partner institutions missed the **Timeline** game because they were discussing administrative and financial matters in the same session, in parallel with the other groups playing **Timeline**. Everyone then came together again for the **Wall of Research Questions**, and since the game did not directly depend on anything from the previous session, there was no problem with all participants being on the same page.

Finally, for facilitation this choreography has the advantage of being less risky. That is, even if individual games do not yield their full potential, or something goes wrong with an individual game in the sequence, the overall benefit is still viable because it is geared towards the central idea. The only risk arises if in the course of the event, there is a substantial shift with respect to the central idea. For example, a sequence of games may start with the understanding that the group will discuss how to improve

relationships and communication between different departments of an organisation. If during the course of the event the attention substantially shifts to something else, for example workloads, the physical work environment, or financial issues, this will no longer fit the initial radial choreography, and some intervention or re-negotiation will be needed.

6.2.3 Linear choreographies

The game sequence used in the workshop on Green Urban Practices (see the case study in Chapter 5) is an example of a linear choreography. This is a more challenging choreography because the benefits discussed in the previous section do not work in this case. That is, the overall intention of the event can be at risk from participants missing individual sessions, or one of the games not yielding results, and in-built coherence deriving from a continuously present central idea is not a given.

In a linear choreography, each game's output serves as input for the next game, and this causes potential difficulties and risks. Let us first look at the details of the choreography from the Green Urban Practices event, in terms of inputs and outputs. This is represented in Figure 6.2 (see also the pictures in Section 5.2, which shows some of the intermediate stages). Again, there is an incremental progression, with each stage building on the experience from previous stages, both notionally and in terms of the tangible output from each game.

Turntable: Brainstorming ideas
on Green Urban Practices

OUTPUT

Ideas written on index cards

INPUT

Wall of X (1): Categorising ideas by feasibility

OUTPUT

Wall with index cards in five columns

INPUT

Wall of X (2): Categorising ideas by theme

OUTPUT

Wall with index cards in clusters

INPUT

Living Diagram: Project planning around a theme

OUTPUT

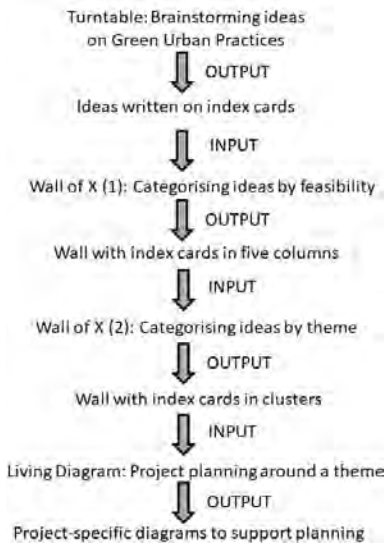Project-specific diagrams to support planning

Figure 6.2. *Linear choreography in the workshop on "Green Urban Practices"*

The main requirement when using this choreography is increased flexibility on the part of the facilitator and the group. This is because the output of each stage is to some extent unpredictable. For instance, it was not clear what kind of output would be generated from the *Turntable* brainstorming game. If each table had only generated a few ideas, the intermediate step of a second **Wall of X** would not have been necessary. Instead, the entire group could just have moved to selecting some of the ideas for the *Living Diagram* game. The fact that the *Turntable* game resulted in a very high total of 84 post-it notes organised on the initial **Walls of X** made it impossible to directly move on to forming groups around a chosen idea. Fortunately, some participants came up with the solution to re-organise the initial Walls differently by forming the theme-based clusters of the second *Wall of X*. During the next plenary session, it was then possible to create new teams for the *Living Diagram* game based on a shortlist of themes.

Moving on from the shortlist of themes to the formation of project planning teams for the *Living Diagram* game was also far from easy. The team formation plenary session took a long time, with some signs of frustration among some participants because of the delay. This plenary session occurred in between the second **Wall of X** and the *Living Diagram*, so that there was an intermediate stage, unlike for the other steps from output to input, which were following each other without lengthy negotiations in between. During the plenary session, identifying the themes that actual groups wanted to work on in the next session required several re-wordings of titles and re-groupings of people, until all groups were settled and started working on *Living Diagrams*.

This example shows that flexibility and improvisation is needed on the part of facilitators in order to respond ad hoc to the emerging dynamics in a linear choreography. This is challenging and may require more experienced facilitators for keeping the process on track.

Despite some risks with using a linear choreography, this event type can be very powerful because participants will have a real sense of moving forward as a group. In this case, the sense of coherence is achieved by each step building on the previous one, which is at least as viable as in the case of the radial choreography, if not stronger. Moreover, the linear choreography encourages facilitators and groups to pay particular attention to the outputs from each of the games because they are needed as inputs for the next step. Therefore, it is more likely that participants

will develop a high level of understanding of what has been achieved with each game.

6.2.4   Mixed choreographies

The three basic choreographies discussed here are of course idealised types. In reality, events will often have a mix of these types, or deviate from the typical instances to some extent. For example, a common option would be to use an individual game as an initial icebreaker, and then start along a sequence of the radial or linear type, or a mixed type.

Obviously, the option for mixed types increase with the length of the overall event. The more sessions are available, the more possibilities there will be for arranging the individual Serious Games amongst each other and together with non-game elements. Figure 6.3 shows a hypothetical choreography where the different types are mixed.

In this example, which could take place over a two-day workshop, there is an initial icebreaker game, where the one-off game stands on its own to manage the introductory part of the workshop. This is followed by a radial choreography covering three aspects of project planning for a cross-sectoral project. The first task in the workshop is to get to know people's different perspectives on collaborating and sensitise them to the various issues that may come up in such collaborations, so the ***Cross-sectoral Collaboration*** board game is played to frame the kind of intended collaboration in general terms. Then the workshop moves on to specific project planning, starting with prioritisation of different courses of action and solution elements, for which the ***Tabletop Kinetic Spectrum*** is a good option. The third arm of the radial choreography is a complex series of games. In this case, there would be an initial ***Wall of*** Actions and Actors, charting who would be able to do what along two dimensions. The resulting Wall display is the input for a ***Timeline*** game, in order to understand what the restrictions on the intended timeline may be. For example, a university partner will have preferences linked to the course of the academic year, and a public service may be restricted by its official financial year. The resulting timeline then again serves as input for a ***Wall of*** Feasibility, in order to get clarity on the chances of achieving outcomes over the given project period. As represented in Figure 6.3, the third arm of the radial choreography itself has the structure of a linear choreography.
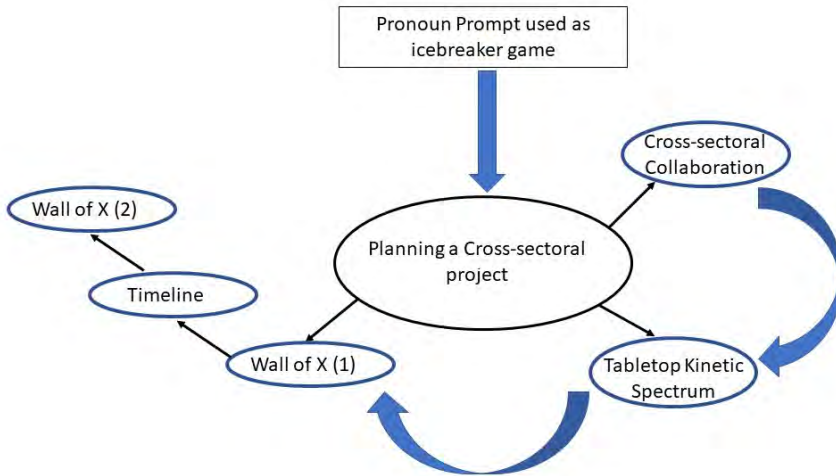
Figure 6.3. *A mixed choreography in a hypothetical workshop.*

For all types of choreographies, using them creatively, as well as using each Serious Game itself in a flexible and creative way largely depends on experience with game formats. Once one has been in a larger number of sessions with Serious Games, or has facilitated a larger number of sessions, it naturally becomes easier to deploy them with increasing confidence for improvisation and flexibility.

6.3 Perspectives on further research and development

The current journey with developing and using Serious Games is still well underway. Most recently, we have moved to a new phase in the P2PDM project where we are training young deaf professionals to take on roles in deaf education. In this capacity building programme, I have been using many specific games to facilitate learning of topics such as the links between learning, memory, and emotions, or the structure of a teacher training curriculum for bilingual deaf education. The experience is that as soon as a dice appears, the atmosphere in the group changes noticeably. People start smiling and get ready for making jokes or poking fun at each other, even if there is no particular reason. The difference that the framing of a session as a game makes is clearly in evidence.

In this final section, I explore some possible future lines of work, both for research and for practice. An obvious gap that needs to be filled in future work is to gather feedback from participants in Serious Game sessions in a more systematic way. As pointed out in earlier chapters,

reactions to the way in which Serious Games work have only be captured in an ad hoc way. This is because this type of co-creative facilitation emerged as a by-product of working on the P2PDL and P2PDM projects, and then extending the experiences to other non-deaf contexts. More systematic collection of feedback from groups of participants could throw much more light on how people experience this context.

Instead of merely collecting feedback from game participants systematically, another interesting approach would be to compare the behaviour of groups engaged in the same group tasks under the conditions of using Serious Games versus not using any such technique. This is quite feasible, as there are many contexts where it makes sense to split people into smaller working groups undertaking the same task. For example, if a larger number of people are asked to brainstorm in small groups on the basis of an initial presentation, one could have "game groups" and "non-game groups", and later compare the experiences and outcomes.

Such contrastive research would be methodologically challenging, not only due to the so-called Observer's Paradox (see below), but also because there are so many interacting factors and group dynamics that might be at work in these settings. Sometimes a small unexpected lapse can derail an entire session, and creating a very large number of contrasting sessions to average out such exceptions is probably not feasible.

Another related work strand for the future is to document game sessions more systematically, particularly by filming some of the proceedings. Much of the discussion in this book is based on partial documentation that again was assembled in an ad hoc way. Therefore, the explanations in Chapter 4 on how and why Serious Games work are, to a considerable extent, based on my personal observations and experience, along with the various listed types of evidence – informal participant feedback, notes, reports, and multimedia material (cf. Table 4.1).

Video recordings of larger segments of game sessions or even complete sessions could be particularly useful in strengthening the arguments around the communicative effects of Serious Games. While I believe the arguments made in this regard are valid, some research with systematically collected data could make these arguments more data-driven or even quantifiable.

If such work is undertaken in future, it will be important to think carefully about the Observer's Paradox. As originally noted by Labov

(1971), this is the paradox that while we would like to document naturally occurring behaviour, the very presence of an observer may well influence and modify the behaviour of people being observed. In this regard, the presence of a camera could be particularly intrusive. In fact, the very idea of observation for research and documentation is to an extent at odds with the intended effect of games to create a relaxed and non-threatening environment. However, everything depends on how such work is implemented and who participates, and the Observer's Paradox can be mitigated in various ways (cf. Tagliamonte 2006 on this point in the context of sociolinguistic research). Therefore, valid research including the use of video recordings is not a priori a doubtful or conflicted undertaking.

The fact that the observations and considerations in this book have not resulted from any explicitly planned research is itself somewhat paradoxical. It seems that this line of work has evolved naturally and organically from being merely a useful set of techniques to becoming a conceptual framework underpinned by evidence. This evidence has itself also accumulated organically rather than being the result of planned data collection. To the extent that this is a rather different intellectual path to gaining insights, the work presented in this book is also a case study in organically evolving research and development. The implications of such an approach have not been discussed here but may well merit detailed consideration in the future.

Another topic that has not received sufficient attention in this book yet is the relationship and interaction between game and non-game elements in a sequence. Many of the events discussed in Chapters 3, 4 and 5 have included both types of elements. However, interactions between game and non-game elements have not been discussed, and only the case studies in Chapter 5 allow a reconstruction of entire events with both types of elements.

One major question is whether non-game parts of an event are influenced by preceding Serious Game elements. Is there a different atmosphere in the group after a game session, even if the following part of the event is not in a game format? To what extent do the benefits of Serious Games carry over into other parts of events, how long-lasting are these effects, and how is this experienced by participants? And what are the factors influencing these experiences? Evidence on such questions can be important for planning event facilitation, in order to find an optimal balance and sequence between game and non-game sessions.

In the area of applied developmental work, there are obvious lines of work deriving from the subject matter of this book in terms of learning about facilitation and training facilitators. One of the projects mentioned earlier, the Leadership for Transition project (LiFT) has created a training programme for people to learn about the co-creative format of collaboratories, and in particular, the role of facilitation therein.[23] A training programme for Serious Games would be a definite option for future work. Until such a programme can be developed, even an intermediate step of documenting more examples of how and where Serious Games designed for low-resource contexts have been used would be valuable.

Another developmental angle is to think about Serious Games designed for particular themes or subject areas. With the exception of the **Cross-sectoral Collaboration** board game, all games covered in this book are non-specific with respect to the context to which they are applied. In fact, this is part of their appeal, since they can be applied to any subject matter that needs brainstorming, prioritising, or organising. However, this does not mean that all future games have to be of the same type, and as mentioned above, many games I currently use in the capacity building programme have specific content. Moreover, in the final phase of work for the P2PDM project, we are now beginning to test another line of work called "English through games". These games are intended for practising grammatical structures of English, and the idea has arisen because it is particularly the grammar of English that deaf learners in our programmes have been struggling with the most.

From the beginning, the design of our Serious Games has focused on the games being implementable in low-resource contexts, both in the sense of material resources such as Internet access and devices, and in the sense of human resources such as literacy skills. It has been particularly interesting to see how games designed for work with deaf participants in countries of the Global South can work equally well in contexts that are not low-resource. This is because the design features of the games link in with general human psychological, cognitive and social tendencies.

Nevertheless, it may be worthwhile to experiment with extending the contexts of these Serious Games further. A particularly interesting context would be an online-offline design, where aspects of the games or the entire games are implemented online as well as continuing offline. The

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[23] Information about the LiFT summer school programme is available at http://leadership-for-transition.eu/?page_id=459 [accessed 08 May 2020].

most straightforward option is to implement the entire game online, so that players can interact remotely, even at different times. However, this format will lose some of the benefits identified for Serious Games. Some of the interpersonal and communicative design features of games rely on face-to-face contact, and the intra-personal (emotional and cognitive) experience is very different, and possibly compromised, in a fully online environment.

A more interesting development line would therefore be to invent online-offline formats where the same game exists in both modes simultaneously. That is, the games would still rely on face-to-face groups to meet regularly, but in between sessions, people could continue to interact online. Moreover, intermediate and final outputs could be co-created digitally and stored online. This type of online-offline event is a completely different choreography, with potentially quite different effects and benefits.

A final concluding thought similarly has to do with extensions to other contexts. It may not be a coincidence that the developmental cycle summarised in Chapter 3 had its origins within a context of working with deaf sign language users. This raises the question whether deaf sign language users are in any way privileged for functioning in this kind of co-creative context. In other words, is there a "Deaf gain" involved? Deaf gain is a notion championed in work such as Bauman & Murray (2014). It means that deaf sign language users, by virtue of being oriented more visually and sharing specific linguistic and cultural experiences, may have certain advantages over hearing non-signers.

It can be argued that indeed, there is evidence of Deaf gain in our work with the P2PDL and P2PDM projects. The ease with which visual and game elements have been adopted by deaf participants, and even their reluctance towards written language, have played a role in motivating and driving forward the work on Serious Games. Part of our future task will be to increase the reach of this work to non-deaf communities, particularly with respect to similar low-resource contexts and similar multilingual complexity as in our work with deaf sign language users.

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Appendix: Game Instructions

Pronoun Prompt

Aims of the game:	- to compare points of view in a group; - content learning in a group. - ice-breaker (as a variation)
Materials needed:	- stack of index card-sized papers (ca. 12-20) - one dice
Number of players:	3-12 (basic version) 8-20 (ice-breaker version)
Duration:	30 mins to 1 hour, depending on the number of cards and players
Preparation:	Write keywords / phrases on the papers

How to play

This game can be used for two purposes: To get to know and compare points of view and perspectives on a number of issues or themes in the group, for content learning in a group, or a combination of both.

Ahead of the game, the facilitator writes keywords or key phrases on index card-sized papers and sets them up face down on a stack on the table, or in the middle of the space where the game is being played. All players assemble in a circle.

The facilitator picks up each card in turn and shows the keyword to everyone in the group. The players then take turns to roll the dice and follow the actions according to the number that comes up:

1 and 2: the player who has rolled the dice comments on the keyword

3 and 4: the player nominates someone else in the group to comment on the keyword

5 and 6: both the player who rolled the dice and the second nominated player comment on the keyword

The game is called "pronoun prompt" because the number that comes up on the dice prompts the selection of the respondent, that is, I reply to the topic myself, you reply, or we both reply. Sometimes special pronoun prompt dice may be available to use for this game.

(above) Pronoun prompt dice from Germany with *ich* 'I', *du* 'you', and *wir* 'we'

The facilitator's role is to a) keep track of the time, so that not too much time is spent on each keyword, yet each topic is discussed sufficiently, b) clarify the keyword if necessary, c) make sure people do not stray away too far from the intended topic, and d) ensure all voices are heard equally, especially if keywords relate to controversial topics. Moreover, if the game is used as a learning tool and the facilitator is also in the role of trainer, the facilitator may add to the comments, correct any inaccuracies, or offer additional learning resources connected to the keywords.

The game can be used for a one-off session or repeatedly.

Variations
Instead of the facilitator choosing key words or phrases, index cards can be handed out to each player, and everyone contributes to writing keywords of their own choice. This requires sufficient understanding by the players of the kinds of words and phrases that will be useful and appropriate in the context, or the facilitator needs to check the content of all cards before the game begins.

The pronoun prompt game can be combined with a diagramming activity. In this case, the cards are laid out face up after their content has been discussed, and can be arranged into a diagram. For example, the cards could be positioned on a large paper, with connecting lines, arrows, drawings, or comments added to the diagram. After the session, this can then also serve as a memory aid. Figure X shows an example of a diagram assembled during a pronoun prompt game.

Finally, the game can be used as an ice-breaker "get-to-know" activity. The pronoun dice is used in the same way to decide whose turn it is to speak, but instead of speaking to a keyword, players simply introduce themselves to the group. Optionally, the facilitator can tag on a question for players to answer along with their introduction, such as their motivation for being at the event, or their expectations.

Turntable

Aims of the game:	to brainstorm ideas.
Materials needed:	- post-it notes
	- ca. A2/A3-size round piece of cardboard for the turntable surface
	- small piece of cork or similar material to support the turntable
	- double-sided tape, blu-tack, or glue, and a pin, nail, or similar, to assemble the turntable.
Number of players:	4-8
Duration:	one hour
Preparations:	- assemble the turntable
	- distribute post-it notes to players

Assembling the turntable

To assemble the turntable, fix the round turntable surface to the small base using the pin or nail. Then stick the entire assembly onto the table or surface around which the players are sitting, using the double-sided tape, blu-tack, or a non-permanent glue that can be wiped off afterwards. The turntable should be placed in the middle of the group and be easily reachable by all players. It is important that the round turntable surface can spin freely around its axis, so the pin or nail should not be pushed in too tightly.
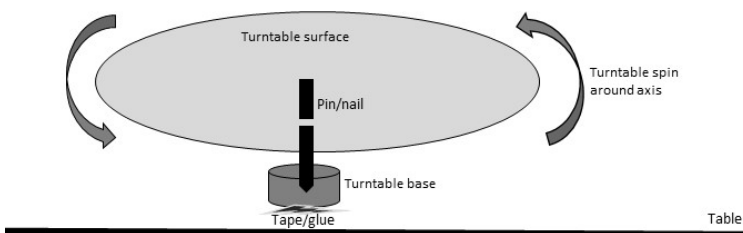
How to play

This game is used to brainstorm ideas in a group. It is useful both with respect to generating and with respect to clarifying ideas. At the beginning of the game, the facilitator explains the issue for which the group will aim to generate ideas. It is important to frame the issue in a way that is neither too broad nor too narrow. Moreover, participants need to be encouraged to come up with ideas that are not overly specific so that

they only fit into a narrow context, but also not too vague. Experienced facilitators will frame the issue appropriately and set the right tone for the kinds of ideas that will be most productive.

All players then write their ideas in the form of short descriptions on their post-it notes. Each player should generate at least one idea but not more than three. The descriptions are written on the "sticky" side of the post-it notes, so that the players can stick their notes face-down onto the turntable surface. This phase of the game usually takes around five minutes.

When all post-it notes have been placed on the turntable surface, the first player spins the turntable and picks up one of the notes. Nobody is allowed to use their own notes, so if anyone happens to pick up their own note, it is replaced onto the turntable and another one picked up instead.

The player then briefly talks about how s/he interprets the idea written on the note: For example, what is it about? Is anything unclear? What is my initial reaction to the idea? Following this, the originator of the idea then goes on to clarify further: For example, what was my intention and rationale behind this idea? Has it been understood as I intended, or could it be productive to understand it slightly differently?

Post-it notes that have been discussed are not replaced back onto the turntable, but are kept by the originator of the idea. It is possible to rewrite the idea at the end of the game, if the person who wrote it feels that it can be expressed better in the light of the discussion. Discussions should not take more than ca. five minutes per idea, so the facilitator needs to monitor the game and encourage the group to move on to the next idea if necessary.

When all ideas have been discussed, players can now optionally rephrase some of their ideas if they like, and the facilitator collects the post-it notes from everyone for later use. Alternatively, the players themselves can contribute their post-it notes to a poster, a pin-up wall, a photo of all ideas, or some other visual collective product. In this case, there will be another discussion about how to organise the notes, for example by grouping them into categories, or by prioritising them in various ways.

This game can be combined sequentially with other games, so that the ideas from the turntable game serve as input to the next game. Other games that are suitable to be played after the Turntable game include the "Wall of X" game, the "Tabletop Kinetic Spectrum", and the "Living Diagram".

Variations

If this game is played with people who are not literate, players can express their ideas in drawings instead of writing. In this case, it may be more difficult for other players to interpret the drawings, and the facilitator may have to manage the communication more actively to ensure that the discussions stay on track.

This game can be used to generate ideas of different types, in which case it is useful to have post-it notes of different colours. For example, one colour could be used for short-term actions and a different colour for longer-term plans.

If the materials for constructing the turntable are not available, the game can also be played by collecting the notes face-down in the middle of the table and shuffling them around each time before randomly picking up the next note.

Wall of X

Aims of the game:	to organise ideas into categories.
Materials needed:	- collection of items to be categorised (post-it notes, stickers, name tags, labels, etc) - sticky tape or blu-tack for items that are not self-adhesive - available wall space at least 3m long x 2m wide (larger if there are more than 6 players)
Number of players:	3-20
Duration:	15-30 minutes
Preparations:	none

How to play

This simple game is a quick activity that can either be a lead-in into a topic, or a way to organise the outcomes of other games. For example, the Wall of X is a good way to organise ideas generated by the Turntable game. Depending on these two options, the game is played in two slightly different ways.

At the beginning of the game, the facilitator needs to decide on the specific use of the Wall of X space and establish which meaning is assigned to each of the parts of the wall. In order to do so, the facilitator first makes a choice about sub-dividing (and, if appropriate, labelling) the wall's 2D

space, and at the same time, the Wall of X receives a specific name. For example, if the wall is used to organise a number of ideas with respect to how feasible the group thinks they are to implement, the wall could have five columns labelled '1' to '5' representing feasibility levels, and the game would be named the "Wall of Feasibility" game. Instead of a single dimension, the wall can also be sub-divided both horizontally and vertically, for instance with the vertical axis showing the urgency of an action, and the horizontal axis showing the level of resource intensity for the action. In this case, the game could be called the "Wall of Urgency and Resource Intensity", or perhaps the "Wall of Prioritisation", if urgency and resource intensity are used as criteria to decide on prioritisation of actions. The facilitator explains the structure and sub-divisions of the Wall of X to the players, so that they can then place items on the wall.

The next steps depend on whether the items to be placed on the Wall of X are generated internally by the group of players themselves, or are brought in externally. The game will work better if the items to be placed on the Wall of X have been generated by the players themselves, for example, by a preceding Turntable game. In this case, everyone simply approaches the Wall and adds their own items to the segment that they think is most appropriate. This can be done all at once, or successively. For example, if Wall of X is played in conjunction with Turntable, each post-it note that has just been discussed can immediately be placed on the Wall of X, so that the Wall is slowly built up with content. This also works well because of the dynamics of physical movement, as players will take turns getting up and working at the Wall. If there are more than ca. 6 players, it is advisable to build up the Wall of X successively in this way, so that there is no sudden rush to the Wall. In addition, for larger groups the Wall should be substantially larger than 3m x 2m to allow enough space for people to approach.

If the game is played with ready-made provided items that have to be organised, players first need to familiarise themselves with the items, and the facilitator needs to provide more guidance and monitoring as to how people work at the Wall, so that players are neither crowded together nor under-employed in the process. There may also need to be a discussion after completing the Wall of X.

Variations

The Wall of X game targets the organisation of items according to one or two straightforward parameters and is not suitable for creating more

complex diagrams. For more complex and multi-dimensional relationships, the "Living Diagram" game is a better activity.

If this game is part of a string of activities, there may be no need for further discussion after completion of the Wall of X. However, if it is a stand-alone activity, the facilitator may want to assemble players around the Wall in a half-circle and discuss the layout. However, this will not work well with larger groups. During a discussion, there is an option for players to re-arrange the Wall of X. A photo of the Wall can be retained as a record of the session.

If it is useful for further work with the group, the facilitator (perhaps together with a few volunteers from the group) could also re-arrange the Wall, for example by grouping similar items together in a cluster, and then present the new arrangement to the group again.

Tabletop Kinetic Spectrum

|	
Aims of the game:	- visual polling of (dis)agreement, ranking or priorisation.
Materials needed:	- small hand-held tokens, one for each player (e.g. pieces of chalk, dice, paper clips, wrapped sweets/chocolates, etc., but nothing that will easily roll away, and if there are fans nearby, nothing too light that may be blown away)
	- five numbered labels from '1' to '5', self-adhesive or with separate tape/glue.
Number of players:	10-20
Duration:	30 minutes
Preparations:	- stick the numbered labels '1' (for 'least agreement/support') to '5' (for 'highest level of agreement/support') onto a table or a flat surface, and distribute the props/tokens to players.
	- Prepare a list of points/statements for polling (these must have a logical response on the 1-5 scale, that is, in terms of "how strongly do you support the idea of…?").

How to play

A "kinetic spectrum" activity usually involves participants walking to determined positions on a   spatial layout that corresponds to a notional

scale. For example, several chairs or flags may be set up in a straight line and indicated as place holders ranging from "agreeing most strongly" to "disagreeing most strongly". When the point to be agreed or disagreed is being announced, participants physically walk to the chair/flag that corresponds to their level of agreement. The table top kinetic spectrum picks up on this idea, but rather than moving themselves, participants move their token and place it along a scale.

For the Tabletop Kinetic Spectrum, the points in question are announced one by one by the facilitator, and each time participants place their tokens on the 1-5 number scale. The facilitator either keeps a photo of each array, or maintains a list in which s/he notes now many votes were given for each number. Typically, a series of related questions will be asked and scored by the participants. For example, several proposed alternative actions in relation to the same issue could be prioritised in terms of their urgency, importance, or feasibility.

Participants then sit in a circle, and the facilitator reports back to the group with a summary of the scores. The group then discusses reasons for the scores, and the facilitator notes down any actions arising. For example, if the questions related to the preferred timing of events throughout the year, the discussion could result in a decision about the event dates, informed by the discussion as to the reason for preferences.

This game can work well in combination with other games, for example, if the suggestions to be prioritised are the result of a preceding *Turntable* game, or if the points that emerge with the highest level of agreement from the group are taken forward for more detailed planning with the *Timeline* game or the *Living Diagram* game.
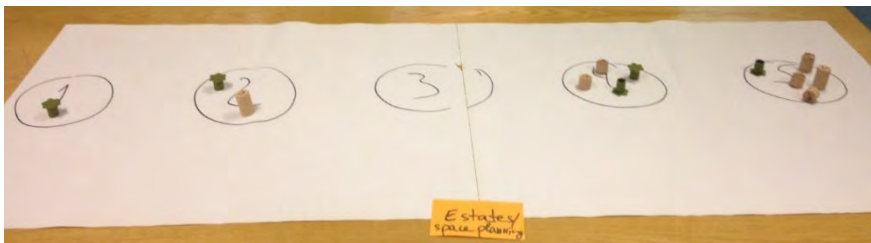
(above) A tabletop kinetic spectrum, used for prioritisation

Variations
If the questions being polled are of a personal, sensitive, or controversial nature, so that participants may want to give their opinions anonymously, the facilitator can hold on to all tokens and collect the responses from

participants in an anonymised way (for example, each participant could write their response number on a small piece of paper, and the facilitator collects these). The facilitator then goes through the responses and constructs the tabletop kinetic spectrum accordingly.

If there are no time restrictions on this game, polling and discussion segments can also be combined for each of the points in question. In this case, the facilitator presents the statement or suggestion and players place their tokens on the scale. The group then remains standing around the table and discusses the score directly. Sometimes discussing the implications may lead players to change their view and move their token to a higher and lower point on the scale. After everyone is satisfied with the rank they have given, the facilitator takes a note or photo and moves on to the next point, and so forth.

Timeline

Aims of the game:	- planning projects with respect to a previously known timeframe.
	- arranging actions/events in temporal order along a timeline.
Materials needed:	- a large sheet or roll of paper 40-50cm wide and 1-3m long depending on the number of players
	- pens/markers in different colours
Number of players:	3-10
Duration:	one hour
Preparations:	Mark subdivisions on the paper according to the required number of time segments.

How to play

The large sheet or roll of paper is placed in the middle of a table, and the players sit along the length of the paper on both sides of the table. The subdivisions marking the time segments, for example the months of a defined project period, are written in the middle of the paper along its length.

The first player starts with the month in the middle of the timeline (e.g. with month 6 if the project has 12 months). S/he makes a suggestion as to which actions should take place in this month, and accordingly writes a note next to the month. The next player then rolls the dice and

has two options for their move, either forward or backward in time. For example, if the player rolls a 4, s/he can either comment on month 10 (month 6 plus 4), or on month 2 (month 6 minus 4). Suggestions for actions relating to the newly chosen month are again written on the paper, and the dice is passed to the next player.

With players taking turns making these moves, they will start to populate the timeline diagram. Consequently, some subsequent throws of the dice will result in selecting a month that has already been dealt with, and which is now blocked because each month can only be selected once. In this case, the following rules apply:

- If the forward move is possible but the backward move is blocked, the forward move must be chosen, and vice versa.
- If both forward and backward moves are blocked, the player can choose the next available month along the timeline, going either forward or backward and skipping over any months that have already been dealt with.
- If a throw of the dice results in the next selection going backwards beyond month 1, the player must choose month 1 and disregard the remaining steps. Similarly, players must stop at the latest month in the timeline and disregard remaining points on the dice to avoid going beyond the end of the project.

Players take turns to roll the dice until all months on the timeline have got actions assigned to them. If the duration is over 18 months, it is advisable to use larger time segments, such as quarters. Likewise, if the duration is quite short, weeks can be used as time segments instead of months.

It is up to the facilitator whether other players comment on the suggested actions immediately after each turn is played, or only at the very end when each time segment has been assigned actions. In either case, the discussion will result in additional comments associated with each time segment (not only other actions, but also any other comments that come up in the discussion, for example associated risks, necessary budget provisions, involvement of external partners, etc).

Moreover, the facilitator will decide whether different colours are used for different meanings when constructing the timeline. For example, if the group of players contains members from different sub-teams, each sub-team could use a different colour. Alternatively, the timeline actions could be colour-coded, for example, one colour for project management

related actions, another colour for external-facing events, another colour for creating infrastructure or technical resources, and so on.

At the end of the game, participants can take pictures of the timeline as a visual record of the session, or the facilitator may produce a consolidated version of the timeline and redistribute it to the team.

Variations

Occasionally, this game may be played by just two people, for example a senior and a junior staff member, or a student and a tutor/supervisor, typically to support the junior person/student with a project planning task. In this case, a computer screen can be used instead of pen and paper, and the supervisor may only hint at options during their turns in the game rather than spelling out plans in detail, in order to maximise the learning effect.

It is possible to create more than one timeline plan on the same paper, for example if people in the group disagree about the best way forward. In this case, the paper in simply subdivided along its length, and alternative actions for time segments can be written underneath and above each other. Moreover, it is possible to play two rounds of the game, with the first round resulting in a broad plan for longer time segments (e.g. quarters), and the second round subdividing the timeline into shorter segments (e.g. months) with more detailed action planning. Again, this can be done on the same paper, with quarters and months mapped out underneath and above each other.

Living Diagram

Aims of the game:	- for a group to construct a visual representation of logical relationships between actors, actions, locations, and resources.
	- visually supported project planning without explicit reference to the timeline of the project.
Materials needed:	- one A2-size sheet of paper
	- array of 3D props, such as lego pieces, dice, stationary items, etc.
	- array of 2D props, such as pieces of string, drinking straws, etc.
	- blu-tack, or a mildly adhesive non-permanent glue

	- array of "value props", such as coins, glitter, stickers, etc.
	- pens in several different colours
	- post-it notes in different colours and sizes
Number of players:	4-8
Duration:	1-2 hours
Preparations:	Collect all props into a basket or bowl and place it on the table, along with the blu-tack or glue, pens, and post-it notes.

How to play

Before this game can be played, the group of players must have an agreed project or topic that they will be working on. At the beginning of the game, the sheet of paper is placed in the middle of the table, and the group of players sits around the table. All players should be able to have props within easy reach; for slightly larger groups, props can be distributed over several baskets. If there are ceiling fans or other large fans in the room, light-weight props that can be blown away should be avoided.

(above) Examples of materials for 2D- props and 3D-props

There is no fixed sequence of moves for this game, though ideally, all players will participate actively in the building of the Living Diagram. The facilitator could prompt or encourage inactive players to contribute, and make sure the game is not unduly dominated by one or two individuals. Contributions to the game consist in either adding to the diagram, or commenting on it, and both types of contributions are equally valuable. Players contribute whenever they are ready with an idea (without interrupting each other).

The game is similar to the technique of mind mapping, i.e. creating a visual representation of actors, actions, locations, resources, etc, and their

relationships. The difference between conventional mind mapping and the Living Diagram game is that in a Living Diagram the elements of the diagram are movable as the game session develops. A conventional mind map usually involves writing and drawing on paper, which means that it is difficult to change the array, except by restarting a new mind map from scratch. In the Living Diagram game, by contrast, the 3D- and 2D- props lightly stick to the paper, so they can be taken off, replaced with different props, or moved to a different part of the paper very easily. Once the general outline of the diagram is agreed, notes can also be added in writing. The props should be used in the following way:

- 3D-props represent actors, whether individuals, groups, or organisations. They can also represent locations, if this is relevant to the diagram. Otherwise, locations are simply mapped onto spaces on the sheet of paper itself.
- 2D-props represent relationships. These can be nondirectional, in which case the strings/straws/etc are simply placed between the 3D-props. Alternatively, if the 2D-props are meant to point from one actor to another, or to multiple directions, arrow tips can be drawn with a pen to indicate this
- Post-it notes represent actions, and the specific actions can be written on the note, which is then placed next to the actor(s).
- Value props have two functions: they can either indicate that resources are needed. For example, sticking a coin next to an action may indicate that this action requires funding. Secondly, value props can be used to highlight a particularly good idea, or a part of the way that is deemed particularly promising and appreciated.

(above) Examples of materials for value props

It is explicitly foreseen in this game that players may comment on each other's moves, and may relocate or exchange the props to show alternative arrangements. Facilitators can support these interactive elements of the game, which add value to the game if used appropriately. Depending on the local culture, it may be necessary for facilitators to sensitively mediate this process, as changing someone else's array may be construed negatively (for instance, as criticism, intrusion, or lack of respect). Moreover, it is desirable for players to be creative in constructing their diagrams, so the group does not need to stick rigidly to the meaning of props. Any prop can acquire a different or additional meaning if agreed between the players; iconically motivated meanings are preferable because they can be remembered more easily. For example, different types of 3D-props could be used to indicate different types of actors, with larger ones representing larger or more important actors.

The game can be played in parallel with several groups, as long as there is enough distance in between tables to avoid groups disturbing each other. The game either ends when the group as a whole is satisfied that their Living Diagram is complete, or when the time slot allocated for the game has ended.

(above) Part of a Living Diagram, including a 3D wind turbine

Variations

The game can be played with and without a facilitator. If the aim of the game is primarily to practice logical thinking and mind mapping as a general skill, the project or topic may be provided by the facilitator. However, if there is an intention to actually carry out the project, it is advisable for the group of players to decide the task at hand for themselves.

This game does not naturally lend itself to detailed project planning along a timeline, or for detailing allocation of actions and resources. However, it is possible for the group to add further steps to a completed **Living Diagram** to indicate additional information in an approximate fashion. For example, circles could be drawn around parts of the diagram in different colours to indicate different time periods for these actions, or stickers with different colours or numbers could be added. Alternatively, the group could add their own names to certain actions or resources on the diagram, in order to indicate that they will take responsibility for taking these actions forward or providing the resources.

For more detailed implementation planning, the Living Diagram game may be played in a sequence followed by the **Timeline** game.

If several groups have played the game in parallel, the Living Diagrams can be put up as posters on a large display wall where everyone can see all posters. This can then be followed by a poster presentation session where someone from each group explains the diagram to the other groups.

Prop Improvisation

Aims of the game:	- visual clarification of particular points in a discussion.
	- ice-breaker (as a variation)
Materials needed:	None. Ad hoc available materials only.
Number of players:	2-6
Duration:	5-20 minutes
Preparations:	None.

How to play

This simple activity can be introduced any time during a discussion, by one or several of the participants in the discussion, without a facilitator. It is particularly suitable for situations where discussions arise spontaneously, or where there is no time or material resource for any

preparations, or any situation where no supporting activity has been planned beforehand.

To start the activity, one of the discussants starts pulling in any ad hoc props found in the immediate environment. This may be things they are carrying with them at the time, e.g. keys, coins, pencils, earphones, etc., or things lying around nearby e.g. sugar packets, spoons, etc., or larger items e.g. saucers, vases, etc. Each item is assigned a meaning and placed on the table or surface around which the discussion is taking place. Other discussants can move these around as the discussion goes on, and can add their own props. The aim is to enrich and enliven the discussion, and to visualise logical relationships by using the props as an improvised diagram. Visualisation is often useful to clarify a point, e.g. when a misunderstanding arises during a discussion.

This activity is not intended to provide a permanent record of the discussion, so usually the props will simply be collected back after the discussion. In contrast with the ***Living Diagram*** game, the improvised props will tend to be much less iconic, i.e. the individual props may be assigned their meanings quite arbitrarily. Therefore, this activity is well-suited for short-lived contexts (the activity can take as little as a few minutes) but less useful for keeping a visual record of what has been discussed because people will tend to forget what the props mean.

Variations

This game may be used as a short ice-breaker activity for ca. 5 minutes. In this case, a facilitator is necessary to introduce the activity and keep track of the time. In this case, there are many possible variations, for example:

a) The facilitator first asks all participants in a group to combine any available props on the table, and then sets a topic to be visualised using the props.

b) Each person in the group uses the combined props to visually express something about themselves (without saying anything, only through the arrangement of props), and others in the group take a couple of minutes to guess what the array could mean, then the information is revealed.

c) One member of the group passes their own props to another group member, and then either option a) with a set topic, or option b) with personal information, is played out. Each group member takes a turn in using another person's improvised props.

Cross-sectoral Collaboration

|	
Aims of the game:	- sensitisation for perspectives of people from different sectors of society.
	- content learning related to collaboration in multi-stakeholder groups.
Materials needed:	- one large sheet of paper for the game board (A0-A1)
	- additional paper for event cards
	- 4-8 pawns (1 per player)
	- 25 small tokens to fit onto the fields of the progress ladder
	- one dice
Number of players:	4-8
Duration:	60-90 minutes
Preparations:	- draw the game layout onto the large sheet of paper (ideally in four different colours)
	- print/handwrite and cut to size 96 credit card-sized event cards
	- label the pawns with letters A, B, C and P, and place them on START
	- place the 25 small tokens next to the progress ladder

How to play

The game board is organised into four sections that correspond to project phases, labelled "initiated", "planned", "implemented", and "celebrated" (the last phase corresponds to what is more commonly known as "dissemination"). During the game, the players walk their pawns through the course on the game board, picking up event cards corresponding to each section along the way.
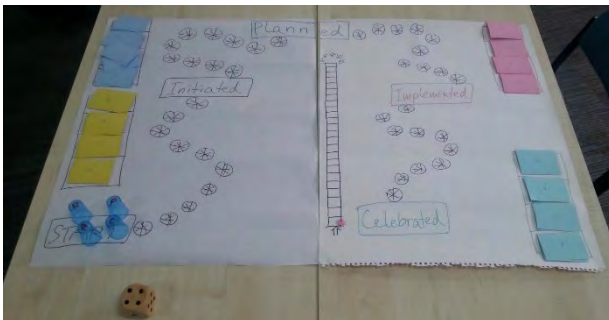
(above) The Cross-sectoral Collaboration game board.

Each player must adopt one of the roles in the game, which correspond to different sectors in society: academic (A), business (B), civil society (C), and public service (P). If there are more than four players, (some of) the roles can be doubled, up to a maximum of eight players. Players take turns to roll the dice and advance on the game board. Each move consists of the following components, to be done in sequence:

1. Roll the dice and advance the corresponding number of fields on the game board. If a field is already occupied by another player, advance to the next free field.
2. Pick up an event card from the pile that corresponds to both the section you are in, and to your role (e.g. a card from the event card pile for the role of "business" in the "implemented" section). All event cards are labelled with their role and their section.
3. Read the event card out to the group and comment on it. The event cards have short descriptions of scenarios that have to do with engaging in cross-sectoral collaboration. The group as a whole then has a short discussion (ca. 2-5 minutes) about the scenario and other players can contribute their thoughts and experiences.
4. The player whose turn it is then executes the directions at the end of each event card, which have four options: lose a turn; play another turn; advance a number of steps; or go back a number of steps. Advancing and going back is done by adding or removing tokens from the progress ladder in the centre of the game board. Then the next person starts a new turn.

Important:

Players advance on the game board according to the **number on the dice**. **Tokens** are added to and subtracted from the progress ladder according to the **instructions on the event cards**.

Players must stop at the checkpoints, and any remaining numbers on the dice are disregarded. When a player reaches one of the checkpoints, all other players are also moved forward to the checkpoint.

Players are not playing against each other but win the game together as a group by arriving at the top of the progress ladder. Irrespective of the progress of pawns on the game board, the game can be won at any time when all 25 tokens have been placed on the progress ladder. At this point, the game can either be ended, or, if not all project phases have been covered yet, players can remove all tokens from the progress ladder and start over with building it up once more. Conversely, if all project phases

have been covered but the progress ladder has not been completed yet, the game can either be ended without winning it, or the players move their pawns to START again and continue building the progress ladder in a new round. In the latter case, all event card instructions for moving backwards on the progress ladder are disregarded.

The facilitator's role in this game is twofold. Firstly, the facilitator makes sure discussions of event cards are not too short, too long, unduly dominated by individual players, or going off-track. Secondly, the facilitator must be familiar with all technical terms on the event cards, as the game is also used for content learning. When unfamiliar terms come up, the facilitator explains what they mean and answers any questions from the players.

Variations

If the focus of the game is more squarely on content learning, for example with a tutor facilitating the game for students, facilitators can enrich the game with various other learning activities. For example, web links can be provided with material that covers unfamiliar terms on event cards, such as "fourth sector", "collaboratory", etc, or students can be asked to research these terms. Further readings associated with cross-sectoral collaboration can also be assigned. Students could be asked to summarise the experiences of cross-sectoral collaboration from the point of view of one of the actors involved.

A particularly enriching variation of this game is for players to create additional event cards of their own. As there are four types of actors and four project phases, 16 types of scenarios can be explored further by inventing new event cards. Finally, it is possible to personalise the game according to a group's preferences, for example by changing the phases of the game, having additional actors, increasing or decreasing the steps on the progress ladder, etc.

The event cards are on the next page.

Event cards

Initiated

A	A
You meet board members of a like-minded NGO at a conference and decide on a follow-up meeting to discuss your project idea. Play another turn.	You are invited to attend a partnership brokerage workshop hosted by your national research council. Move ahead 2 steps.

A	A
A promising business contact is ready to join your project and wants to turn part of it into a for-profit venture. Take a step back to think about the implications.	Research funding regulations change and you now need to work with partners in three countries to qualify for funding. Go back 5 steps to find additional partners.

B	B
You are invited to join an advisory panel in your municipality. Move ahead 4 steps.	Your company's corporate volunteering programme is featured in an academic journal. Advance 2 steps.

B

Your local chamber of commerce co-organises a workshop series with civil society organisations. Play another turn to explore the contacts.

B

The management decides against your proposal to initiate a CSR department in your company. Go back 4 steps.

C

The project will enable your staff to gain a university qualification. Move ahead 4 steps.

C

A company that is one of your main sponsors would be adversely affected by the policy change that the project aims for. Take a step back to think about your conflict of interest.

C

You cannot agree with partners about the aims and philosophy of the project and decided to pull out. Go back to the start.

C

Your colleagues are against the proposed project, because they are not convinced by the benefit-sharing prospect. Go back 2 steps.

P

You are the main guest speaker at an interesting fundraising dinner. Play another turn to follow up on new contacts made.

P

Public-private partnerships are made a priority in your department. Advance 1 step.

P

You have developed some enthusiasm for proposed project, but are transferred to a different service shortly before it is due to begin. Go back to the start.

P

You attend a short course on Social Labs at university. Play another turn to apply your new knowledge.

Implemented

A

You discover that there was a gap in participant consent and an important point is not covered. Go back 2 steps to redesign the consent process.

A

You find an excellent doctoral student with a background in both research methods and social enterprise. Move ahead five steps.

A

The project will be represented at an important conference, but there aren't enough funds to send all partners. Go back 3 steps to resolve the conflict.

A

The postdoctoral researcher does not get along with the fieldwork coordinator in the NGO. Take a step back to mediate the conflict.

B

You recruit two of the fieldwork staff into your company and benefit from their skills. Move ahead 3 steps.

B

Your company finds a developmental evaluator for the project. Advance 5 steps.

B

A policy change effectively blocks you from working in the intended area in the future. Take a step back to decide whether to drop out of the project.

B

You are asked to run a social accounting trial in your work area to identify its potential benefits. Play another turn.

C

You discuss virtue ethics approaches with the academics in preparation for fieldwork. Play another turn.

C

Two of the interpreters have misused the project for the benefit of their personal of work. Take a step back for damage control.

C

You start a successful social media campaign for lobbying, using prompts derived from the project implementation. Advance 3 steps.

C

Your academic partners request you to host a student intern but nobody is available at your office to supervise the student. Lose a turn to think about a solution.

P

You co-use project funds towards data analysis assistance and internal report writing, saving you valuable time. Advance 2 steps.

P

You have to prepare internal briefings at short notice and the academics are unavailable to contribute. Go back 2 steps to do the extra work.

P

You discover duplication of work with another public service through the project and are able to streamline the provision. Move ahead 4 steps.

P

The project is unexpectedly under-funded and your partners want you to find public funds to contribute despite general budget cuts in your area. Take a step back to decide what to do.

Planned

A

You run a workshop on co-creative research with your partners. Move ahead 5 steps.

A

The partnership is slow to start, but you get an extension on your first quarterly report. Play another turn.

A

The non-academic partners challenge your proposed partnership agreement on the basis of the project management and monitoring structure. Go back 3 steps.

A

You find an external expert to train the project partnership on the "Collaboratory" methodology. Advance 3 steps.

B

You miss the kick-off event and are unable to find a replacement to attend. Go back 1 step.

B

You reach a mutually beneficial agreement on Intellectual Property Rights with your partners. Move ahead 4 steps.

B

Your company's PR people issue a misleading press release about the project which upsets your partner stop go back 3 steps.

B

You are given permission to spend 20% of your work time on the research as a personal project. Move ahead 5 steps.

C

You want to include Forum Theatre as a fieldwork method but your academic partners don't agree. Go back 3 steps.

C

The public service you have been working with for years is absorbed into another department, and the project planning has to start over with new contacts. Go back 4 steps.

C

The membership of your organisation objects to the fieldwork plans. Go back 3 steps to convince them to go ahead

C

You introduce an explicit section on institutional culture into the project group's MOU. Move forward 5 steps.

P

A series of training sessions for your department is initiated as part of the preparation phase and you have to spend extra time to organise it. Lose a turn.

P

The partnership agrees that you will act as the main coordinator for the project, with budget provision for project assistance. Move forward 3 steps.

P

You are put under pressure from your department to guarantee specific outcomes from the project but don't know if that will be viable. Go back 1 step.

P

The project funders require yearly reporting but your management wants quarterly reporting. Go back 2 steps to do the extra work.

Celebrated

A

You host a celebratory dinner for your participants, but attendance is poor. Go back 2 steps.

A

You set up a fourth sector company together with two of your non-academic partners. Move ahead 2 steps.

A

You have invested a lot of effort into translating a project report into a local language but your local participants do not read it. Go back 3 steps.

A

You win a "best research project" award for your cross-sectoral work. Advance 4 steps.

B

You are removed from working with the project team upon completion of the final report with no internal recognition or feedback. Go back 4 steps.

B

Your manager agrees to a year of unpaid leave for you to study for a Master's degree. Advance 3 steps.

B

Your corporate volunteering programme decides to involve a large number of volunteers in a follow-up action arising from the project. Advance 5 steps.

B

Your company starts a small internship program to continue work on one of the aspects of the project. Advance 3 steps.

C

Some of the project results are converted into a training package that becomes part of your standard induction for new staff. Advance 5 steps.

C

You organise a press conference to announce an award that you gained for work on the project. Advanced 2 steps.

C

An inexperienced research assistant gives a newspaper interview, resulting in bad press and misleading information. Go back 3 steps.

C

You gain follow-on funding to scale up the new models. Move ahead 5 steps.

P

You agree with a public television channel to make a documentary film about the project. Advance 4 steps.

P

Your department funds you to go on a three-month study leave abroad with your overseas university partner. Advance 4 steps.

P

A minister attends the entire final dissemination conference as chief guest. Advance 2 steps.

P

The final project report has listed the wrong information about your department including your superiors. Go back 3 steps.