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Bridging the Hybridity Gap

Connecting Online and Onsite Participants through
Peer Learning Circles at Hybrid Events

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ABSTRACT

The post-pandemic rise of hybrid event formats, seen for example in conferences, conventions and workshops, enhances flexibility and accessibility for attendees. Simultaneously, it presents a challenge in ensuring equal engagement and collaboration between online and onsite participants. Addressing this hybridity gap, the losconCircles method connects peer learning circles with a hybrid event set-up.

This thesis was commissioned by Cogneon Academy to investigate the debut of losconCircles at loscon23, a two-day convention for learning and knowledge management experts. The study analysed losconCircles' application and participants' perceptions, particularly from online attendees and newcomers, focusing on establishing contacts, social interaction, and collaborative learning. The objective of this study was to identify factors supporting collaborative learning within losconCircles, suggest improvements, and pave the way for losconCircles' implementation in other hybrid events. Utilising a mixed-methods approach, the analysis drew on a survey with 60 loscon attendees and qualitative interviews with seven losconCircles participants.

The findings indicated that losconCircles fostered new connections, social interaction and to some extent collaborative learning between online and onsite participants. As crucial factors the event's open atmosphere and participants' helpful attitudes were identified. Challenges included time constraints, technical issues, and communication gaps. In addition, the research suggested that key success factors within losconCircles involved a framework, openness, support, and commitment, requiring tailored adjustments in set-up, process and facilitation when applied in different settings. For this purpose, a set of recommendations for event organisers was developed.

The recommendation is to further develop losconCircles as a training ground for new tools, methods and learning forms in a hybrid environment, i.e. related to artificial intelligence. Additionally, further quantitative and longitudinal research is needed, for example to assess the learning impact of losconCircles.

CONTENTS

1 INTRODUCTION

1.1 Background

The COVID-19 pandemic has not only impacted the work environment but has also had a substantial effect on in-person learning events, including conferences, conventions, barcamps, and workshops (Moss et al., 2021). Lockdowns and social distancing requirements led to the cancellation, rescheduling, or rapid shift of many onsite events to virtual formats, often despite organisers having minimal experience and preparation time. Post-pandemic, the trend towards hybrid formats that attempt to combine the advantages of both online and onsite events has been marked. A 2021 Nature survey found that 74 percent of over 900 respondents believed that science conferences should continue to include virtual elements after the COVID-19 pandemic (Remmel, 2021). Similarly, in a survey of the International Marine Conservation Congress (IMCC6), the majority of respondents (65%) expressed a preference for a hybrid model (Niner & Wassermann, 2021).

The normalisation of hybrid events offers both benefits and drawbacks: On one hand, virtual participation is more flexible and less time-consuming than physical attendance making events more inclusive. The absence of travel costs and lower conference fees for online participants[1] enhances affordability (Niner & Wassermann, 2021; Remmel, 2021; Sarabipour, 2020). Virtual participation accommodates individuals with time constraints, vulnerabilities, disabilities, and caregiving responsibilities (Niner & Wassermann, 2021; Puccinelli et al., 2022; Sarabipour, 2020). Additionally, introverts and newcomers[2] may find it easier to engage and ask questions in a virtual environment (Moss et al., 2021; Niner & Wassermann, 2021; Remmel, 2021). Consequently, increased accessibility fosters greater diversity and ensures gender and ethnic parity (Sarabipour, 2020).

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[1] The terms "onsite", "in-person", and „local" are used interchangeably relating to the physical attendance of events. Conversely, "online", "remote", and "virtual" describe the participation facilitated by the internet.

[2] The terms "newbie" and "newcomer" are used interchangeably, denoting first-time participants of loscon. On the other hand, "loscon veterans", frequent participants", and "regular participants" are used interchangeably to describe individuals who have attended prior loscon events.

Moreover, virtual participation has a smaller carbon footprint compared to onsite events (Niner & Wassermann, 2021; Tao, Steckel and Klemeš, 2021).

On the other hand, hybrid learning events also pose challenges, including technical issues, the coordination of diverse time zones, Zoom fatigue, and restricted interaction opportunities (Moss et al., 2021; Puccinelli et al., 2022; Remmel, 2021). Furthermore, adopting hybrid events necessitates virtual and onsite infrastructure, imposing additional costs on event organisers (Niner & Wassermann, 2021).

Ensuring equal access, participation, and interaction for both in-person and online attendees stands out as a significant challenge associated with the technical infrastructure, design, and implementation of hybrid learning events. Initially, hybrid events were often organised as onsite events with additional virtual access via live streaming (Grotlüschen, 2023; Bajpai et al., 2022). However, this approach limited online participants to passive information consumption and excluded them from engaging with onsite participants (Oester et al., 2017). This division potentially transforms hybrid events into a two-tier experience (Moss et al., 2021). The Nature survey revealed that 69 percent of respondents considered poor networking opportunities as the primary drawback of virtual conference participation (Remmel, 2021). In a survey conducted at the International Marine Conservation Congress (IMCC6), most respondents indicated that forming professional (58%) and personal (67%) connections online was more challenging than during in-person events (Niner & Wassermann, 2021).

The absence of impromptu interactions, often referred to as hallway conversations, limits the ability of online participants to establish connections for networking, professional exchanges, cooperation development, and career discussions (Röthler, 2021). Moreover, such informal interactions are crucial in fostering collaborative learning within the context of these events. To address the so-called hybridity gap between remote and local attendees (Muuß-Merholz, 2022), event organisers have implemented various strategies to enhance the engagement of online participants. Examples include hybrid social formats, such as virtual lobbies (Röthler, 2021), virtual chatrooms (Roos et al., 2020), buddy

programmes (Bali, Caines, DeWaard and Hogue, 2016), and virtual lunches with keynote speakers (Remmel, 2021).

Due to the novelty of hybrid learning events, corresponding literature is scarce. The literature on hybrid learning focuses on schools and universities, with adult learning receiving limited coverage. While virtual events have received increased attention since the onset of the COVID-19 pandemic, studies on hybrid events are infrequent and predominantly centre around organisational and logistical aspects (Puccinelli et al., 2022). Only a few researchers (Aschemann, 2023; Grotlüschen, 2023; Hirsch, 2021; Muuß-Merholz, 2022; Röthler, 2021) have specifically delved into interaction within hybrid learning events.

1.2 Research context

This thesis focuses on a specific approach to facilitate collaborative learning between local and remote attendees during hybrid learning events: losconCircles adapt the concept of peer learning circles to the hybrid event setting of the lernOS Convention (loscon). Commissioned by Cogneon Academy, the loscon organiser, the study aims to explore the application and perception of losconCircles in fostering contacts, social interaction, and collaborative learning between online and offline participants.

losconCircles were first introduced during loscon23 in July 2023, an annual two-day gathering of the lernOS community. This community consists of users and supporters of the Learning Operating System (lernOS), a method designed for lifelong learning and learning organisations. Cogneon Academy hosts and organises the annual lernOS Convention with the support of a team of volunteers. Participants include stakeholders from HR, IT, communication, knowledge management and learning organisations in German-speaking countries. The session hosts are drawn from the convention's participants and supporters.

loscon debuted in 2019 as an onsite event with the live streaming of keynote speeches. Amid the COVID-19 pandemic, it transitioned to an online format. In 2022, the organisers aimed to orchestrate a "perfectly hybrid" convention, striving

for a "seamless interplay between online/offline interaction on an equal footing" (Gärtner & Dückert, 2022, p. 2). While the technical set-up and facilitation received positive feedback, concerns were raised regarding the limited engagement between local and remote learners as well as among online participants (Gärtner & Dückert, 2022).

To foster connections between online and onsite learners, losconCircles were set up as small learning groups during loscon23. These circles, comprising approximately six randomly mixed members, progressed through the event together, potentially evolving into collaborative mastermind groups after the event. At loscon23, they undertook the losconChallenge, addressing the following question related to the event's theme: Which feature of a learning environment is really, really important to you? Guided by the Lego Serious Play method, circle members built individual and then joint models in response to the losconChallenge using Lego bricks, paper, Minetest (open source engine for virtual games), or other materials of their choice. Participants received a Lego Serious Play construction set either in advance or onsite for this activity. Additionally, they had the opportunity to familiarise themselves with Minetest before and during loscon23. A virtual whiteboard and a voice and chat channel in Discord were provided for each circle for collaboration and communication.

The concept of losconCircles was introduced during an online pre-meeting, followed by online information and training sessions for Discord and Lego Serious Play. On the first day of the convention, a 60-minute time slot was allocated for losconCircles in the official programme. This slot included introductions to both the losconChallenge and the Lego Serious Play method as well as time for the circles to convene and collaborate. Subsequent meetings during and after loscon23 were voluntary and left to the participants to organise. Throughout and following the convention, individual participants and losconCircles had the opportunity to showcase their losconChallenge models on the virtual whiteboard (Picture 1). A week after loscon, a second presentation opportunity arose at the community event of DATEV DigiCamp. In a hybrid hackathon in August, the unique models were consolidated into a system model encompassing the nine most frequently mentioned features of a learning environment (Dückert, 2023). The system model was presented at two community events in October 2023.
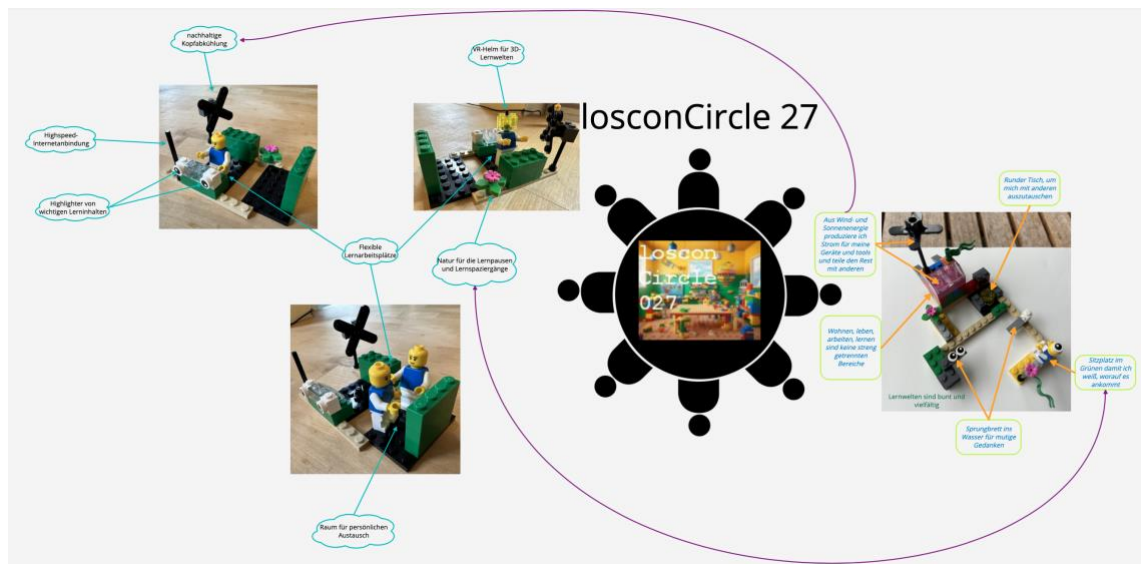
PICTURE 1. Joint Lego Serious Play model created at loscon23 (Hartmann, 2023)

To address the aforementioned hybridity gap, losconCircles were utilised as bridging elements across multiple dimensions. First, they endeavoured to foster social interaction between online and onsite participants to promote equitable engagement. Second, they intended to facilitate collaborative learning by connecting learners through individual and joint reflection before, during, and after the convention. Third, they aimed to reinforce the connection between individual and community-level learning by sharing insights gained during the convention at subsequent community events (i.e. DATEV DigiCamp). Due to the scope and timeframe of this thesis, only the first two points will be explored.

1.3 Research questions

This thesis aims to explore how the collaborative learning format of peer learning circles can effectively address the hybridity gap between online and onsite participants in hybrid learning events. It seeks to provide insights into how participants in losconCircles perceive the establishment of new contacts, social interaction, and collaborative learning. The study identifies promoting and inhibiting factors for collaborative learning in this context. A set of recommendations for organisers of learning events is developed based on these findings to facilitate the adaptation of losconCircles to other hybrid settings.

Considering the scarce research on hybrid learning events, this thesis intends to address this research gap, with a focus on the participants' perspectives.

The aim of this thesis is synthesised into the following research question:

How can losconCircles be used to promote collaborative learning between online and onsite learners in a hybrid event setting?

In addition, five associated sub-questions are formulated to support the central research question:

- How is the losconCircles method applied during loscon 2023?
- What are participants' perceptions regarding establishing contacts between online and onsite participants within losconCircles?
- How do participants perceive losconCircles in terms of social interaction between online and onsite participants being on an equal footing?
- What are participants' perceptions of collaborative learning within losconCircles?
- What factors can support collaborative learning in the framework of losconCircles?

In this case study, a mixed-methods research approach is employed. It encompasses a survey that incorporates both quantitative and qualitative data collection methods. The primary aim of this survey is to explore participants' utilisation and perception of losconCircles while identifying factors that facilitate establishing contacts, social interaction and, hence, collaborative learning within this context.

Qualitative, semi-structured interviews are conducted to gain deeper insights. These interviews include open-ended questions directly aligned with the research questions. Quantitative descriptive methods are employed to analyse the close-ended survey questions. For the open-ended questions, an inductive thematic analysis approach is utilised to draw meaningful insights.

1.4 Structure of the thesis

This thesis starts with a theoretical framework around the research topic. Concepts of hybrid learning, focusing on events, and collaborative learning, focusing on peer learning circles, are defined in detail. Furthermore, the facilitation method of Lego Serious Play is introduced. Parameters supporting establishing contacts, social exchange, and collaborative learning between online and onsite participants in hybrid events are identified based on the literature review.

The methodological part presents the research methods utilised in the thesis, with a detailed description of the samples. Subsequently, the results of the quantitative survey and qualitative interviews are outlined. In the next step, the main findings and their possible implications for collaborative learning in the framework of hybrid events are discussed. On this basis, recommendations are made for refining the concept of losconCircles and applying this method to other hybrid events. Finally, the study's limitations and suggestions for further research are depicted.

2 THEORETICAL FRAMEWORK

2.1 Definition of hybrid learning

The definition of hybrid learning has long been blurry, with terms like blended, digitally supported, flipped, hyflex, and integrated learning being frequently used interchangeably (Gundermann, 2023; Reinmann, 2021). Furthermore, variations in the definitions of hybrid learning extend across languages (Gundermann, 2023) and learning domains (Aschemann & Russ-Baumann, 2022). The COVID-19 pandemic has facilitated the rise of new virtual and hybrid formats, contributing to clearer and more sophisticated definitions of hybrid learning. In the context of the technical advancements in online learning, Eyal and Gil (2021) put forward three dimensions of hybrid related to learning spaces: hybrid as blended, hybrid as a space of merging interactions, and hybrid as fluid. In connection with other concepts and further research, these perspectives will serve as a foundation for defining hybrid learning in this thesis.

Hybrid learning was often equated with blended learning at the beginning of the 21st century, referring to the combination of face-to-face and online learning (Eyal & Gil, 2021; Gundermann, 2023). This approach involves shifting parts of traditional courses online to offer interactive, flexible, and individual learning, driven by technological advancements. Hence, this definition of hybrid learning emphasises the spatial and temporal aspects of learning, treating online and offline domains as distinct entities. Their combination is heterogeneous (Eyal & Gil, 2021) and often represents the smallest denominator between both formats (Nørgård, 2021). Educators largely determine content allocation, limiting students' agency in the process.

In contrast, the concept of hybrid as a space of merging interactions refers to a compound (Eyal & Gil, 2021): as learners are constantly connected via mobile technology devices, digital, social, and physical spaces are merging. In such hybrid learning environments, users learn across different tools, spaces, and contexts (Muuß-Merholz, 2021b). This aligns with connectivist views, in which learning involves making connections and building networks. From this

standpoint, knowledge resides not only in individuals but also within technology (Siemens, 2005; Goldie, 2016). Consequently, it is more essential for the learner to know how and where to find information than the information itself (Siemens, 2005).

Being connected through social networks, online games, or chatrooms introduces a social dimension to the learning process. According to the social constructivist paradigm of Vygotsky, individuals interact with others by sharing, comparing, and reformulating ideas, leading to the creation of new meanings and the acquisition of knowledge (Taylor & Hamdy, 2013). Similarly, situated learning theory emphasises the significance of peers in the learning process (Lave & Wenger, 1991). Students observe others and acquire knowledge through practical experience. This type of learning is often unintentional and not related to deliberate instruction.

Within this social and connectivist learning framework, a transition towards self-directed learning occurs, aligning with the concept of andragogy. Learners assume control and responsibility for their learning process. This type of learning is driven by intrinsic motivation, with personal experiences integrated into the learning process (Knowles, 1975; Merriam, 2018). Consequently, the instructor's role shifts towards that of a tutor and mentor (Blaschke, 2012).

The learner and his choices move to the centre stage in the concept of hybrid learning as fluid, which Eyal and Gil (2021) define as being "constantly able to change form and thus adjusting to space, over time" (p. 11). The boundaries of traditional learning frameworks, such as place, time, and structures, have to be surpassed (Eyal & Gil, 2021). Consequently, distinctions such as online versus offline, synchronous versus asynchronous, and informal versus formal are dissolving (Stommel, 2012; Nørgård, 2021). These merged spaces are dynamic and marked by continuous transformation, as Stommel (2012) describes: "Hybridity is about the moment of play, in which the two sides of the binaries begin to dance around (and through) one another before landing in some new configuration."

In this context, the learner's role shifts towards self-determination, a concept rooted in heutagogy (Blaschke, 2021). Learners become the primary agents of their learning (Hase & Blaschke, 2021). They decide what and how to learn and when and to what extent learning goals have been achieved. Similar to andragogy, if instructors are present, their role primarily involves providing resources, whereas learners take full ownership of the learning process (Blaschke, 2012).

In summary, the boundaries of the previously mentioned dimensions are, to some extent, also fluid. Stommel and Rorabaugh (2012) argue that in contemporary times, all learning is inherently hybrid: online learning always occurs within a physical space and learning in a physical environment is supported by digital tools (Hirsch, 2021; Gundermann, 2023; Muuß-Merholz, 2021a). While certain formats of hybrid learning distinctly involve merging interactions, some dichotomies may already be blurred by the convergence of physical, social, and virtual spaces. However, when examining learning in an organisational context, complete fluid hybridity may face limitations due to institutional structures. Given the prevalent emphasis on social interaction, the definition of hybrid as a space of merging interactions forms the basis of this thesis, constantly acknowledging the proximity of the definition of hybrid as fluid.

2.1.1 Hybrid learning events

While research on hybrid learning is available for K–12 and higher education, the scholarly exploration of the specifics of hybrid learning events has been limited. Specifically, hybrid events in adult education can be described as enabling in-person and online participation to occur synchronously (Aschemann, 2023). These events encompass, among others, hybrid scientific conferences, meetings, barcamps, workshops, conventions, lectures, and panel discussions.

The defining parameters of hybrid events are time (synchrony) and space (online/onsite). Reinmann (2021) emphasises the pivotal role of synchrony: it fosters social presence and, hence, a sense of togetherness within a learning group. Consequently, the dichotomy between physical and digital presence is

blurred. On the other hand, having to address the diverse needs of both target groups simultaneously presents a significant challenge in the context of hybrid events (Aschemann, 2023). In addition, the boundaries between synchrony and asynchrony are becoming less distinct. For instance, recorded sessions can be watched after the events, and communication via social media before, during and after events is a vital aspect.

Aschemann and Russ-Baumann (2022) introduce interaction among attendees as an additional dimension within this framework. This aspect is vital for distinguishing between hybrid events and mere replications of in-person events in a virtual setting. Whether an event is categorised as hybrid largely depends on how participants perceive it, particularly regarding their ability to engage in the event on equal footing (Gruber-Rotheneder, 2022).

Based on those parameters, Bajpai et al. (2022) propose a taxonomy of passive hybrid, semi-passive hybrid, distributed hybrid, and true hybrid event formats for scientific events (Table 1). This division corresponds with Grotlüschen's (2023) four models of hybrid synchronous formats for adult learning events: onsite conferences with live streaming, onsite conferences with a rescue link, hybrid conferences with satellite, and swarm-intelligent hybrid solutions. Within these formats, a progression from information-focused to interaction-centric and ultimately collaborative settings can be observed. Given the constant development of technical innovations related to hybrid events, a wide range of intermediate and mixed forms remain to be discovered.

In a passive hybrid setting, the focus is on onsite participants. While this format allows broader access than purely onsite events, remote participants are limited to consuming information, such as watching streamed videos of talks and panel discussions. Interactive and informal elements of the programme typically occur exclusively onsite, creating an imbalance between the two groups of attendees (Moss et al., 2021; Aschemann, 2023). Passive hybrid settings are often employed as backup solutions.

In semi-passive hybrid events, the focus remains on local participants. Remote participants have the option to interact by asking questions via chat or video

conferencing tools. They can actively engage through dual moderation, which involves online and onsite facilitation. Onsite participants can also connect with their online counterparts, for example, via chat. Participants are involved in facilitation, answering questions in the chat, or providing photos of flipcharts (Grotlüschen, 2023). Group activities are often separate for online and onsite participants. Distributed hybrid events involve participants gathering at local hubs to participate in an online conference. In some cases, a local shared programme and group work are offered. Interaction can take place either locally or online.

True hybrid formats, in contrast, prioritise equal participation for both online and onsite attendees. Presenters, panellists, and audience members can participate either locally or remotely. Interaction is actively supported by technology, facilitation, and interactive formats that engage remote and local participants. In true hybrid events, onsite attendees play an active role in facilitation by bringing their own devices (BYOD), allowing both online and onsite participants to collaborate in a hybrid manner. True hybrid learning event formats will be the focus of this thesis.

The level of interaction, indicating the level of hybridity, influences the overall event setting and implementation and the roles of online and onsite participants and speakers. Generally, with a higher level of hybridity, the complexity of organisation, logistical management, and associated costs tend to increase. For example, passive hybrid formats only require basic equipment such as a camera, microphone, and live streaming software. In contrast, true hybrid formats require a comprehensive audio-visual set-up (Bajpai et al., 2022; Grotlüschen, 2023).

Similarly, interaction and collaboration require more intensive, target-group-oriented communication as well as dual online and onsite facilitation. Grotlüschen (2023) suggests swarm-intelligent hybrid didactics for true hybrid formats: remote and local participants actively co-moderate, engage in chat discussions, participate in presentations, and contribute to event documentation. During collaborative activities like group work, facilitation responsibilities are fully delegated to the participants. The laptops and mobile devices of onsite participants often serve as technical bridges to connect with remote attendees, creating a virtual space within the physical environment (Grotlüschen, 2023). In

this context, participants' digital readiness to cooperate and their digital competencies are paramount (Grotlüschen, 2023).

TABLE 1. Four models of hybrid synchronous formats for adult learning events (adapted and edited from Grotlüschen (2023) and Bajpai et al. (2022))

	Passive hybrid	Semi-passive hybrid	Distributed hybrid	True hybrid
Setting	Onsite participants contribute interactively; passive remote participants	Local and remote participants take part; focus is on onsite partici-pants	Regional onsite hubs with shared programme and possibility for virtual attendance	Presenters and audience participate either locally or remote
Partici-pation Interac-tion	*Focus on information* Informal and interactive parts of the programme are purely local Remote participants are invisible to physical participants	*Information and limited interaction* Remote participants can ask questions, but cannot present Separate group work between online and onsite participants	*Interaction and limited collaboration* Interaction between online and onsite participants is possible Group work is often organised locally	*Interaction and Collaboration* Equality of online and onsite participants In group work online and onsite participants are mixed
Techno-logy	Use of camera, microphone, streaming channel, and non-interactive communica-tion channel	Use of camera, microphone, videoconferen cing tool with chat function or separate chat	Onsite audio-video-broadcasting and recording equipment	Significant onsite audio-video-broadcasting and recording equipment Collaboration and communi-cation tools BYOD
Facilita-tion	Facilitation concentrates on onsite event Facilitator for chat	Online/onsite facilitation Participants involved in facilitation (i.e. chat)	Facilitation onsite, online and in regional hubs needed	Dual facilitation and/or facilitation by participants

2.1.2 Hybridity gap

A fundamental feature of true hybrid settings is "equivalent agency regardless of location" (Moss et al., 2021, p. 214). Both online and onsite participants should be able to engage in a hybrid event without obstacles and on an equal footing (Grotlüschen, 2023; Gruber-Rotheneder, 2022; Dückert & Gärtner, 2022). Active participation, in turn, is crucial for social exchange and collaborative learning. Nevertheless, the very nature of a hybrid set-up presents a hybridity gap between online and in-person participants (Muuß-Merholz, 2021a): while onsite attendees can freely interact and collaborate, remote participants must rely on technical tools for this purpose. This difference between "roomies" and "zoomies" (Aschemann, 2023; p. 33) is evident not only within specific segments of an event but also at the event's overall level. This thesis primarily refers to the hybridity gap in a broad sense.

Informal gatherings and hallway conversations triggering informal communication outside the formal event programme (Oester et al., 2017) constitute a crucial but often underestimated element of knowledge-sharing during events. These spontaneous meetings include connections during coffee breaks or lunch, brief chats while searching for a meeting room, or conversations during evening events or after a lecture. In contrast to formal communication, informal communication is characterised by its spontaneity, unpredictability, and absence of hierarchical structures (Röthler, 2021). Through this dialogue, social and professional ties are strengthened. Establishing social relationships is also essential for peer learning and other educational processes (Röthler, 2021).

Even before the COVID-19 pandemic, there were concerns about how impromptu encounters could be replicated in a virtual or hybrid setting (Niner & Wassermann, 2021). Informal communication relies on face-to-face encounters, which allow for eye contact and the interpretation of body language (Kreijns, Kirschner & Jochems, 2003). However, in a virtual setting where these physical interactions are lacking, the sense of community among individuals differs significantly (Moss et al., 2021). The current challenge is to establish similar interactive modes of communication in virtual and hybrid environments (Röthler, 2021) to address the perceived "coldness of the virtual format" (Moss et al., 2021, p. 214).

2.1.3 Bridging the hybridity gap

Although social gatherings and informal hallway discussions are a crucial component in events, they are often not effectively facilitated in hybrid settings. According to Muuß-Merholz (2022), it is essential to have a well-thought-out bridge in place for every sequence and social format of an event. This bridge ensures that both groups can collaborate smoothly and equally. Because online participants rely on technical support for communication and collaboration, onsite attendees must accommodate them within a shared space. However, there are differing views on the extent of this provision. While Aschemann (2023) advocates for equal treatment between participant groups, Moss et al. (2021) propose designing hybrid meetings with a digital-first approach, which means to "prioritise the digital means of communication above all other ways of connecting even if there is an in-person component to the events" (p. 214).

Various models of social formats are being created to bridge the hybridity gap:

- Spatial platforms like gather.town and spatial.io facilitate organised activities and hallway conversations (Bajpai et al., 2022). Holographic set-ups make remote speakers appear as life-sized, 3D representations (Moss et al., 2021).
- Remotely controlled telepresence robots with video and audio capabilities represent online participants onsite, but high costs limit use (Röthler, 2021).
- Some events offer synchronous chat rooms, discussion sessions, and networking events like speed-dating (Roos, 2020; Niner & Wassermann, 2021). Moreover, apps and machine learning algorithms match attendees with similar research interests to virtual rooms (Srabipour, 2020; Roos, 2020).
- The Virtually Connecting community connects conference attendees with virtual participants via a buddy system (Bali et al., 2016). Similar projects are offered in the framework of the barcamps Edunautica and OERCamp.
- Virtually Connecting facilitates online sessions at academic conferences, connecting onsite presenters and attendees with virtual participants in small groups (Bali et al., 2016). Online-only events at the hybrid 16th Deep Sea Biology Symposium included early career/student mixers, Zoom lunches with keynote speakers, and online gala dinners (Pucinelli, 2022).

- BarCircles combine barcamp and peer learning circle formats (Hirsch, 2023). At the lernOS convention, locsconCircles mixed online and onsite participants to address a common challenge. Small group work can be organised online in breakout rooms with remote and local participants (Aschemann, 2023).

While the aforementioned bridging formats aim to ensure equal participation for both online and onsite attendees, achieving a seamlessly perfect hybrid experience is not necessarily straightforward. Several event organisers reported a lack of social presence (Aschemann, 2023) as well as a low interest of onsite participants in online social formats (Pucinelli, 2022) despite a fully hybrid technical implementation.

Notably, establishing and implementing standards for equal social interaction between online and in-person participants can be challenging, as the needs and circumstances of participants can vary. For instance, while local attendees often use breaks for socialising, remote participants might need the break to recover from Zoom fatigue (Puccinelli et al., 2022). Newcomers and junior participants, who may have fewer connections, may need more networking support than experienced participants. Extroverted individuals might prefer networking at physical events, whereas introverts could lean towards virtual programmes (Moss et al., 2021). In this regard, a high degree of choice is crucial to allow participants to freely shape their learning process in the sense of a fluid hybrid learning space.

In summary, no one-size-fits-all hybrid event format exists, and there likely never will be one. Organisers must customise the most suitable hybrid format to align with the event's context. Key factors include the event's size and purpose (i.e. level of interactivity) and the target audience (i.e. learning objectives, willingness for digital collaboration, and digital skills). For instance, participants tend to be more digitally cooperative at informal conventions compared to traditional formal conferences. Considering the novelty of hybrid formats, ongoing technological advancements, and new demands in an ever-changing external environment, hybrid learning events should be viewed as a continual field for experimentation and development (Moss et al, 2021).

2.2 Collaborative learning

While collaborative learning can be traced back to ancient times, the current concept was developed in the 1960s in higher education based on theories of (social) constructivism and critical pedagogy (Dillenbourg, Järvelä & Fischer, 2009; Yang, 2023). Computer-Supported Collaborative Learning (CSCL) emerged in the late 1980s, bringing a technological perspective to collaborative learning (Yang, 2023). Nowadays, collaborative learning technologies include virtual learning environments, social media, and mobile tools. Collaborative learning formats range from peer tutoring and collaborative writing to learning communities and Massive Open Online Courses (MOOCs).

Focusing on learning processes, Roschelle and Teasley (1995) define collaboration as "the mutual engagement of participants in a coordinated effort to solve the problem together" (p. 70). However, not all "learning together" is collaborative, as reflected by the distinction between collaborative learning and cooperative learning: collaborative learning is characterised by a looser structure with an open-ended task and a focus on non-foundational knowledge, whereas cooperative learning, being rooted in the school sector, is more structured with a close-ended goal and a focus on foundational knowledge (Yang, 2023). Significantly, in cooperative learning, the individual tasks are divided among the participants, whereas in collaborative learning, the focus is on the common goal (Dillenbourg, 1999; Yang, 2023). Accordingly, another prerequisite for collaborative learning is joint participation, which Isohätälä (2020) describes as the infrastructure for social interaction and collaboration: all group members must be engaged actively and mutually in the process towards the shared task.

However, while social interaction serves as the cornerstone of collaborative learning, it does not always result in collaboration (Murphy, 2004; Schaefer et al., 2019). Baker (1995) describes social interaction as the procedure by which members of a group jointly build a shared understanding of a situation. This commonly accepted interpretation is achieved through negotiating propositions. In contrast, collaboration is more than interaction and requires accomplishing a shared goal, which is to "produce something, to solve a problem, create, or discover something" (Schrage, 1995, p. 29).

In her collaboration model Murphy (2004) outlines the process from interaction to collaboration in six stages (Figure 1). This continuum from mere presence to co-constructed artefacts can also be found in Salmon's (2014) five-stage scaffolding model for e-learning as well as in Bloom's Taxonomy, which depicts progress from lower-order cognitive skills, such as remembering, to higher-order skills, such as applying, evaluating, and creating (Krathwohl, 2002).

The first level of Murphy's collaboration model, originally developed for analysing online asynchronous discussions, is social presence, which Garrison (2007) defines as the ability of learners to project their personality into the community and build meaningful and intentional relationships with others. In the second stage, participants express individual thoughts. The third level involves reflecting on others' perspectives, acknowledging that diverse opinions and disagreement are vital for restructuring thinking and meaning-making (Van den Bossche, Gijselaers, Segers & Kirschner, 2006; Murphy, 2004). At the fourth level, participants collaboratively construct shared perspectives and meanings, for example through explanation, negotiation, and argumentation of different opinions and understandings (Yang, 2023), leading to new insights and a deeper understanding of domain knowledge (Isohätälä, 2020). This process culminates in defining common goals, transitioning from individual to shared purpose (Murphy, 2004). In the final stage, participants create a tangible artefact, such as a joint product, or an intangible version, such as a shared problem solution.
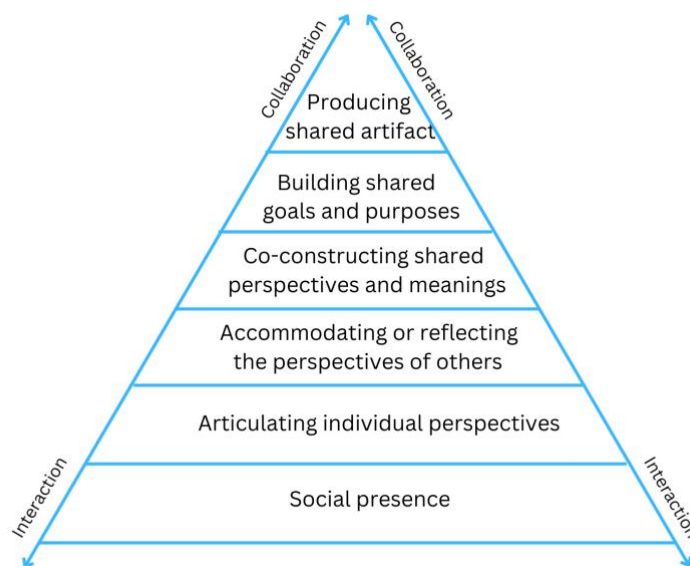

FIGURE 1. Collaborative learning as a continuum from interaction to collaboration (adapted from Murphy (2004))

Studies of virtual spaces suggest that collaboration often remains at the level of shared reflection due to a lack of social presence (Murphy, 2004; Schaefer et al., 2019). Emotional information, especially non-verbal signs, such as facial expressions and gestures (Kreijns et al., 2003), is transferred in an attenuated form or not at all in an online setting. However, social presence is a prerequisite for group cohesion, leading to more reflective discussion and the co-construction of knowledge (Murphy, 2004). While Reinmann (2021) sees the synchrony of participants in virtual and hybrid formats as generally promoting social presence, Moss et al. (2021) and Aschemann (2023) report a lack of social presence even when participants were connected through video conferencing software. According to Schaefer, Fabian and Kopp (2020) facilitation plays an important role in fostering social presence in collaborative online settings.

Accordingly, Isohätälä (2020) describes collaborative learning as "an inseparable interplay of cognitive and socio-emotional processes" (p.19), which also influences its effectiveness and enjoyability. Cognitive processes involve activities such as thinking, creating a common understanding, and building knowledge. On the other hand, socio-emotional processes pertain to the group's formation and the establishment of a group climate, which are vital for building a learning community (Kreijns et al., 2003). Consequently, Vuopala et al. (2016) argue that successful collaborative learning requires a balance of task-oriented and social-emotional activities. While task-related interactions refer to content discussion, group-related interactions relate to planning, monitoring, and evaluating joint activities.

Tuckman (2001) outlines the development of small groups in four steps, similar to the continuum from interaction to collaboration: orientation, conflict, cohesion, and functional-role relatedness. In the forming stage, the team members gather initial impressions and form their first connections. To promote social presence and socio-emotional balance, opportunities to share personal goals and backgrounds are essential. In the forming stage, disagreement between group members about roles, content, or goals can block task completion. However, if conflicts are resolved well, they can lead to positive group dynamics (Van den Bossche et al., 2006). In the norming phase, team members develop shared norms and values that govern both internal structure and procedures.

Consequently, group cohesion is promoted, which can be described as the social connection among group members facilitated by the exchange and collective commitment to shared tasks, all working together to achieve common goals (Miyake & Kirschner, 2014).

In summary, collaborative learning does not only include the cognitive development from interaction to collaboration as described in Murphy's (2004) model but also the aspect of group development. Hence, a balanced interplay between cognitive and socio-emotional processes is essential for reaching higher levels of collaborative learning. Considering the limiting effect of technology on group development in virtual and hybrid learning settings, a strong support for social presence and group cohesion is essential, for example by facilitation. Meanwhile, with learning formats becoming shorter and more agile, less time remains for cognitive and socio-emotional development. This challenge should be considered when developing collaborative learning formats.

2.2.1 Peer learning circles

The concept of learning collaboratively within peer groups has already been incorporated in various contexts, including literature circles (Muuß-Merholz, 2019), study groups, and quality circles (Greer, 2021). However, the dynamic challenges of the 21st century in learning have propelled the adoption of peer learning circles in public, educational, and corporate settings. In the contemporary brittle, anxious, nonlinear, and incomprehensible (BANI) world, the shelf life of knowledge and skills is diminishing. The importance of informal knowledge gained from daily life experiences, interactions, and observations is on the rise (Graf, Gramß & Edelkraut, 2019). Moreover, there is a growing demand for meta-skills, such as problem-solving, critical thinking, communication, creativity, and adaptability (Kelly, 2021). Consequently, new learning formats that are shorter in duration, more informal and flexible, and centred around social learning are needed.

As an agile learning format, peer learning circles are characterised by their clearly structured processes, offering both flexibility and individualisation of content (Graf

et al., 2019). These circles function as a framework for achieving shared objectives through the expression and exchange of skills, knowledge, and experience in open discussions and deep reflections (Riel, 2021). In the realm of peer learning, a distinct emphasis is placed on mutuality and symmetry among participants (Muuß-Merholz, 2019; Greer, 2021). Unlike in peer teaching or tutoring, all individuals contribute their expertise to a collective product or solution, resulting in mutual benefits. With a low hierarchy but a high level of interaction and participation, peer learning circles facilitate the sharing of informal knowledge. When an instructor is present, the role primarily involves supporting, rather than directing, the learning process (Muuß-Merholz, 2019). Digital platforms often serve as facilitators for peer learning circles, enabling broader networking and a more diverse range of participants (Riel, 2021; Greer, 2021).

Peer learning circles, found in diverse settings like public education and professional development, serve various purposes. For instance, Peer 2 Peer University (P2PU) democratises learning by guiding groups in public spaces, such as libraries, using open educational resources (OER). Implementing peer learning circles in Massive Open Online Courses aims to deepen learning and reduce dropout rates. While lernOS is a topic-based concept for peer learning circles, Working Out Loud (WOL) prioritises networking and visibility. Companies like Bosch, SAP, Continental, and DATEV have initiated learning circle projects to promote knowledge-sharing, drive cultural change, establish networks, and introduce innovative learning and working methods.

A novel and yet unexplored approach involves integrating peer learning circles with events such as conferences, barcamps, and conventions. BarCircles combine elements of barcamps and learning circles for peer-to-peer exchange (Hirsch, 2023). Participants at these events engage in small-group discussions on pre-submitted questions related to the event's theme, with organisers providing thematic input and reflective questions. Community for People, Transformation, Innovation (COPETRI) combines expert circles on future-focused topics with the annual Cocon24 and Digicon events. Similarly, DATEV integrates the initial and concluding phases of their company-wide Learning Circle Experience with their quarterly DATEVDigiCamp. Consequently, peer learning circles extend the process of collaborative learning beyond the company

event (Kortsch, Kaiser & Stüve, 2023). In contrast, losconCircles, the focus of this research, directly embed learning circles into an event.

Despite the emphasis on flexible learning, peer learning circles typically adhere to a structured framework involving a fixed number of participants, a specific timeframe, and a defined process. This framework is commonly provided by a guide, which outlines the process and roles, provides background information, and offers prompts for dialogue and critical reflection (Ondrusch, Premnavas & Schoenbrunn, 2021). For instance, in the twelve-week lernOS programme, applicable at individual, group, or organisational levels, a themed booklet delivers theoretical insights, exercises, and reflective questions for each week. Weekly sixty-minute meetings facilitate idea exchange and reflection on progress, with participants also working individually on learning materials between sessions (Dückert, 2021).

Peer learning circles aim to not only enhance knowledge and competencies in the professional domain but also foster meta-skills like self-organisation, networking, collaboration, and digital literacy (Muuß-Merholz, 2019). Principles of heutagogy are firmly embedded in these circles, encompassing learner agency, metacognition and reflection, self-efficacy and capabilities, and collaboration. Above all, peer learning circles embody the core heutagogical principle of learner agency, where students actively shape their learning process (Blaschke, 2021; Muuß-Merholz, 2019). In other words, learners set learning goals, monitor progress, allocate time, conduct research, use tools independently, reflect on and document their learning. Accordingly, in a survey conducted by SAP as part of their learning circle project, 72 percent of the respondents stated that their personal productivity and self-learning skills had improved (Jenewein, 2022).

Correspondingly, metacognition and reflection are integral to both peer learning and heutagogy. Gehlen-Baum and Illi (2019) define metacognitive skills as "knowledge and skills that relate to observation, regulation and knowledge about one's own thinking – that is, thinking about one's own thinking and knowledge about one's own knowledge" (p. 71). Accordingly, peer learning circle concepts incorporate methods such as reflective questions, retrospectives, and learning diaries. This deep reflective practice on newly acquired knowledge and one's role

in the learning process aligns with the heutagogical principle of double-loop learning (Hase & Blaschke, 2021). A study at the University of Heilbronn revealed that WOL supported learners' self-development, particularly in terms of self-organisation (Ondrusch et al., 2021). This positive impact on active learning and reflective abilities was especially prominent among more experienced students.

Deep reflective practice about what has been learned and one's learning process is also a prerequisite for the development of capabilities, which Hase and Blaschke (2021) describe as a progression from competencies: competent learners can reproduce skills and knowledge in known situations, whereas capabilities involve applying them in new and unknown contexts. The combination of both is essential for transformational learning (Hase & Blaschke, 2021). Another essential factor is self-efficacy (Blaschke, 2021), which prevails if the learner "has beliefs in one's capabilities to organise and execute the courses of action required to manage prospective situations" (Bandura, 1995, p.2).

Generally, peer learning circles require a significant level of self-direction, hinging on intrinsic motivation. According to Ryan and Deci (2000), three key factors, autonomy, competence, and relatedness, influence self-motivation and well-being. Encouraging autonomy involves providing learners with choices in learning arrangements and determining how, when, and where they learn. Building competence entails engaging learners in defining their learning goals and offering a highly relevant theme for the peer learning circle. Relatedness is established by fostering a sense of trust and social security, which can be achieved by providing valuable feedback, demonstrating empathy, offering support as needed, and creating standard norms for trust and group cohesion.

Peer learning circles, despite emphasising self-determination, also seek to foster a collaborative learning culture through features like joint reflection and feedback. In this context, learners develop from consumers to "prosumers" (Graf et al., 2019, p. 138). In other words, learners take on teaching roles and vice versa, exchanging knowledge and experiences, giving feedback, and offering joint reflection and support (Dückert, 2021). Consequently, participants engage in a trade of intellectual assets (Riel, 2021), supporting others in reaching their goals in exchange for group support. The balance of this "social contract between

peers" (Dillenbourg, 1999, p. 5) is crucial for circle success. The facilitator's role, if one is present, is limited to providing information and supporting collaboration. In a survey, 78 percent of SAP respondents found that the Learning Circles Experience fostered a culture of learning and knowledge sharing (Jenewein, 2022). Similarly, feedback and group work were identified as essential for knowledge exchange in a Master's thesis on peer learning circles at Continental (Kirchner & Höfner, 2021).

Following the connectivist idea of networked learning, most peer learning circles foster internal and external networks to gain permanent access to knowledge and influence. For instance, concepts like Working Out Loud encourage networking within the WOL circles and via social networks (Graf, Kemether, & Liebhart, 2023) through specific tasks during the learning circle. Accordingly, advanced students in the University of Heilbronn's WOL circles successfully built networks with peers and beyond (Ondrusch et al., 2021). Similarly, 84 percent of respondents saw the SAP peer learning circles as helpful for connecting within the SAP ecosystem (Jenewein, 2022). Broadly, Graf et al. (2023) highlighted the importance of WOL in fostering cross-hierarchical and cross-departmental collaboration in their study on the impacts of Working Out Loud on personal and organisational development.

Moreover, in digital peer learning circles, virtual tools, such as video conferencing software, chat channels, and collaborative whiteboards, are utilised to enhance communication, networking, and collaboration. Consequently, digital literacy is required and promoted (Muuß-Merholz, 2019), which is the ability to employ digital technology, communication tools, or networks for finding, assessing, utilising, and generating information, as well as engaging in collaborative activities.

Overall, peer learning circles impose high demands on the learner, both on an individual and collaborative level. The balance between own and shared goals must be repeatedly negotiated. Meanwhile, due to the strong emphasis on self-directed learning, a strong intrinsic motivation and a certain level of the above-mentioned competencies are already required when participating in a peer learning circle, for example digital and metacognitive skills and reflective practice.

2.2.2 Lego Serious Play

Lego Serious Play (LSP) is a facilitation methodology that employs Lego bricks to encourage creative thinking, problem-solving, collaborative learning, and improved communication in organisational and other settings (Warburton, Brown & Sandars, 2022; Wheeler, Passmore, Gold, 2020; Cavaliero, 2017). During LSP workshops, participants gather in a shared physical space to collectively construct Lego models under the guidance of a facilitator. Individual and joint reflection on the models aims to facilitate the sharing of tacit knowledge, the creation of meaning, and the co-creation of shared solutions. Initially developed in 1996 by Johan Roos and Bart Victor as a strategic planning tool, LSP has been offered under a Creative Commons licence by the Lego Company since 2020.

Originally focused on business development, Lego Serious Play has also found application in education, therapy, and community development. In education, it primarily serves as a method for reflection and instruction, providing a space for individual and group sense-making and a tool for enhancing reflective skills (2022). Particularly in higher education, Lego Serious Play is employed to explore complex issues and link theory and practice (Cavaliero, 2017).

The methodology of Lego Serious Play draws from several concepts and theories, including Serious Play, embodied learning, and (social) constructivism. Serious Play, as defined by Roos (2004), "draws on the imagination, integrates cognitive, social, and emotional aspects of experience, and intentionally brings the emergent benefits of play to bear on organisational challenges" (p. 15). As a Serious Play method, LSP is recognised for revealing information and emotions that are challenging to discover through traditional methods (McCusker, 2019).

Additionally, creating models with Lego bricks resonates with the principles of embodied cognition, considering the body as an essential tool for learning (Merriam, 2018). Therefore, physically building the model can reveal hidden experiences and enhance insights into complex concepts (Cavaliero, 2017). Additionally, assigning meaning to models through metaphors supports the mediation of complex concepts and emotions, highlighting connections between ideas (McCusker, 2020). Wheeler et al. (2020) argue that objectifying ideas into

three-dimensional models detaches them from the individual, making reflections easier to discuss.

In a multistep process, participants first create their physical model in response to a Socratic question posed by the facilitator (Picture 2. and 3.). Subsequently, they share their models with the group by articulating their thoughts and ideas without interruption. Externalising and sharing mental models through storytelling (Warburton et al., 2022) enable participants to access tacit knowledge, ultimately fostering depth of understanding. This approach aligns with constructivist learning theories, emphasising that individuals actively construct knowledge through their experiences and interactions with the environment (McCusker, 2014, 2020).

PICTURE 2. and 3. Individual Lego Serious Play models (Hartmann, 2023)

In the second step of the Lego Serious Play process, participants collaboratively construct a shared model that reflects the narratives of individual models through a joint process of dialogue and negotiation (Warburton et al., 2022). The goal is to represent as many details of the group's reflection as possible (McCusker, 2014). In this regard, Lego Serious Play aligns with social constructivism, underscoring the significance of cultural artefacts, particularly language, in developing cognitive potential (McCusker, 2020). Individuals make their ideas tangible and co-construct new knowledge through social interaction, a crucial aspect of collaborative learning.

Case studies validate the positive impact of Lego Serious Play on psychological safety, collaboration, and team cohesion in organisational settings. According to Wheeler and Passmore (2020), participants developed stronger team bonds, improved mutual understanding, and sustained positive changes in group norms for months after the researched Lego Serious Play event. Similarly, LSP is viewed as an effective tool for promoting equal participation by creating a safe and supportive environment for expressing ideas and perspectives (McCusker, 2020). It involves all participants, allocates equal time for presenting each model, and requires active listening (McCusker, 2014; Wheeler & Passmore, 2020; Warburton et al., 2022), fostering a broad spectrum of ideas, even among participants with diverse cultural backgrounds (McCusker, 2020).

To date, evidence of the potential advantages of Lego Serious Play is primarily anecdotal and discussed in case studies. The scientific literature on LSP in educational contexts still needs expansion in both scope and quantity. For instance, Warburton et al. (2022) emphasise the need for comparative studies on its effectiveness in various educational approaches.

2.3 Synthesis of theories and concepts

In a rapidly changing world with evolving learning demands and technological progress, hybrid learning is continually evolving. The mere blending of face-to-face and online elements has transformed into dynamic social formats, driven by constant connectivity through mobile technologies. This ongoing process also makes hybrid learning more fluid, breaking down dichotomies such as formal and informal, synchronous and asynchronous, and online and onsite learning.

Social interaction, facilitating the exchange of perspectives for knowledge generation, is vital in hybrid and collaborative learning. It is closely connected to concepts like social constructivism, situated learning, connectivism, and heutagogy. Social constructivism views learning as a social process where meaning is negotiated by sharing, comparing, and refining ideas. Situated learning emphasises the importance of observing experienced individuals and practical engagement for knowledge acquisition. In self-directed learning

theories, such as andragogy and heutagogy, constructing joint knowledge through reflective practice with others is essential. Additionally, interactivity is a key feature of connectivism, occurring among humans and between humans and machines.

Similarly, social interaction is a crucial element of collaborative learning, requiring mutual engagement for true collaboration. However, successful collaborative learning transcends mere social interaction. It involves not only presenting and reflecting on individual ideas but also fostering shared ideas, meanings, and artefacts. Studies reveal the interconnectedness of cognitive, social, and emotional factors, emphasising the importance of group development in collaborative learning. Consequently, task-related and group-related interactions become imperative.

Therefore, while social interaction is crucial in collaborative learning and hybrid events, it also presents challenges. Many online formats, such as discussion forums or MOOCs, often limit participants to basic levels of collaboration, a trend also seen in hybrid learning events. The lack of social interaction, a key factor for participant isolation, arises from unequal participation, termed the hybridity gap. Onsite participants engage seamlessly, whereas in many hybrid settings, online participants encounter technical and didactic barriers to interactive engagement. In passive hybrid formats, remote attendees are restricted to information consumption. True hybrid formats, however, strive to actively involve both online and onsite participants on an equal basis. This is frequently achieved by providing socialising formats for both groups of participants.

The losconCircles method aims to bridge the hybridity gap by integrating peer learning circles with hybrid events, a novel concept in both implementation and scientific exploration. As a heutagogical format peer learning circles encompass crucial components for successful hybrid and collaborative learning on equal footing. Participants assume responsibility for their learning and engage at eye level as both teachers and learners, fostering collaborative responsibility. Peer learning circles also encourage joint reflection. While demanding a high level of self-organisation, digital skills, and motivation, this method enhances metacognitive skills, collaboration, digital literacy, and self-directed learning.

Additionally, insights from studies on virtual peer learning circles like WOL and lernOS indicate positive impacts on networking, collaborative learning, and self-directed learning.

Similarly, Lego Serious Play is a highly participatory facilitation method, which is proven to be an effective tool for reflection and exploration in complex learning areas. It maps the process from social interaction to collaborative learning by sharing knowledge, constructing meaning, and co-creating physical solutions. Emphasising the extraction of tacit knowledge through dialogue and reflection, participants individually build models, share and reflect ideas, and collectively create a Lego model representing the shared thoughts and ideas of the group. This approach tangibly enhances collaborative learning.

Currently, a notable gap in research on hybrid learning events in conjunction with peer learning circles exists. This thesis endeavours to establish a foundation in this field through a case study of the losconCircles method. A synthesis model (Figure 2), incorporating various concepts and theories on hybrid and collaborative learning, serves as a framework for analysis. On one hand, the extent to which losconCircles facilitate collaborative learning is explored. Additionally, success factors for collaborative learning between online and onsite participants within losconCircles shall be identified.

The synthesis model incorporates Murphy's (2004) collaboration model, in connection with Tuckman's (2001) group development model and the three identified levels of hybridity in events: access and participation, networking and interaction, and learning and development. On the initial level, online participants are in a passive setting focused on information reception. On the second level, expression, reflection, and discussion of thoughts and ideas lay the foundation for social interaction, encompassing the forming and storming of groups. Finally, on the third level, genuine collaboration occurs, where participants collectively develop shared ideas and artefacts. This stage corresponds to the group norming and performing phases, marking the pinnacle of collaborative efforts and the realisation of shared goals.

Research on hybrid learning events, collaborative learning, and peer learning circles has identified crucial factors that could influence collaborative learning within peer learning circles in a hybrid setting. These factors are evident at the individual, group, and organisational level. At an individual level, intrinsic motivation and participants' prior skills and knowledge play a pivotal role. Additionally, fostering group cohesion through social-emotional activities can enhance collaborative learning. On the event level, adjustments to the setting and process are vital: in the early stages of hybrid learning events, establishing a supportive technical and instructional environment improves accessibility. Meanwhile, facilitation in later stages contributes to strengthening social presence, group cohesion, and overall learning outcomes.
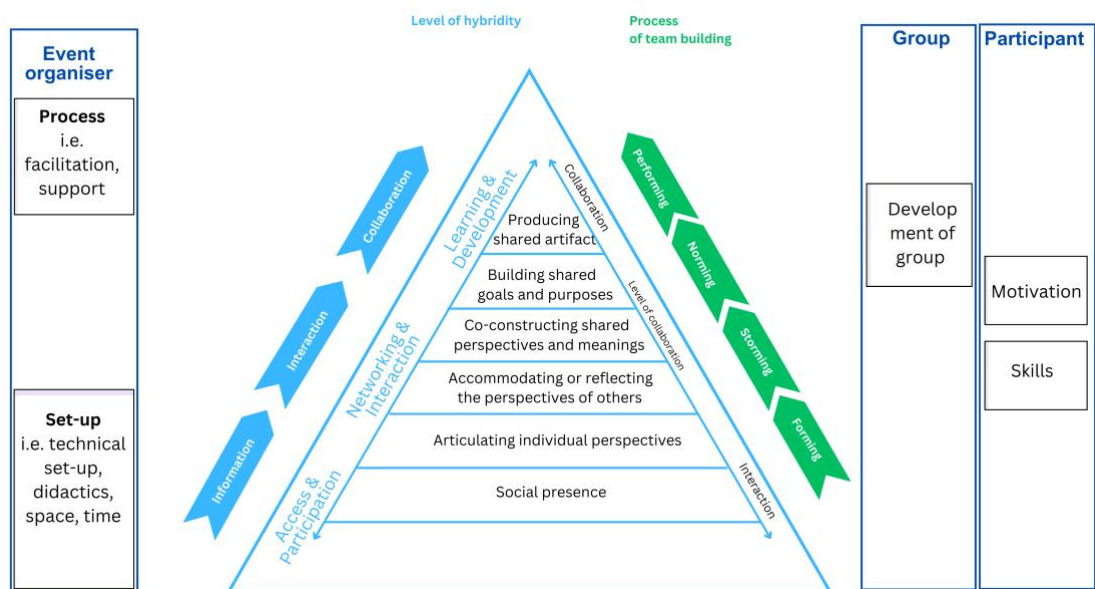
Figure 2. Synthesis of theoretical framework: Stages and parameters of collaborative learning in peer learning circles at hybrid events

In summary, the model depicted above integrates the identified stages and processes associated with hybrid collaborative learning, incorporating potential success parameters for peer learning circles within the context of hybrid events. Nevertheless, it is important to note that given the innovative nature of losconCircles, this model should be viewed as a starting point for analysis and is subject to adjustments.

3 METHODOLOGY

3.1 Methodological approach

This thesis aims to investigate the potential of losconCircles in facilitating connections, social interactions, and collaborative learning among onsite and online participants in a hybrid setting. Given the novelty of integrating peer learning circles with hybrid events and the lack of relevant research, a case study format was chosen. Case studies are valuable for "developing an in-depth understanding of a single case or explore an issue or problem using the case as a specific illustration" (Creswell & Creswell, 2018, p. 96). However, it is important to acknowledge the limitations of case studies, such as their potential lack of objectivity and generalisability (Polit & Beck, 2017). Despite these drawbacks, case studies can provide insights and recommendations for development (Ojasalo, Moilanen & Ritalahti, 2020), which is the aim of this thesis.

The research employed a convergent mixed methods design, as illustrated in Figure 3. Case studies traditionally utilise various data-gathering procedures to ensure a comprehensive perspective (Creswell & Creswell, 2018) and engage study participants (Polit & Beck, 2017; Ojasalo et al., 2020). This also aligns with pragmatism as the underlying worldview of this thesis: Here, the emphasis is on the research question rather than on rigid adherence to specific research methods. Accordingly, the aim is to employ a diverse range of methods that best address the research problem (Polit & Beck, 2017; Creswell & Creswell, 2018; Cohen, Manion & Morrison, 2018). In this study, a survey was combined with qualitative interviews to gather a richer understanding of the research topic.

In the selected convergent mixed methods design qualitative and quantitative data are concurrently collected and analysed. The comparison of the two databases for confirming or diverging results occurs only in the second step (Polit & Beck, 2017; Creswell & Creswell, 2018). Both the survey and interviews were also tailored to explore the perspectives of online and onsite participants, as well as first-time and regular attendees. The consistent use of the same variables and

concepts in both quantitative and qualitative research aims to facilitate a meaningful comparison (Creswell & Creswell, 2018).
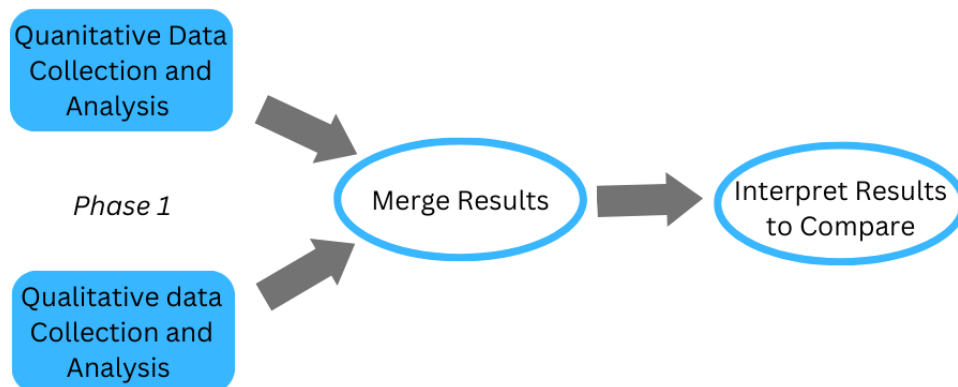
FIGURE 3. Convergent Mixed Methods Design (adapted from Creswell & Creswell, 2018)

Survey research is commonly employed to gather features of a larger group or obtain fundamental facts about the target population (Sheppard et al., 2021). Accordingly, an online self-administered survey featuring both open-ended and close-ended questions was conducted. The primary objective was to gain initial insight into the application and perception of losconCircles, as well as to identify supporting and hindering factors regarding its implementation at loscon23.

In contrast to a quantitative approach, qualitative research methods capture the participants' perspectives in a more detailed and elaborate mode (Creswell & Creswell, 2018). Therefore, through qualitative interviews conducted by the author using video conferencing tools, additional individual aspects of establishing contacts, social interaction and collaboration were explored. Moreover, this approach allowed for a more in-depth investigation of the hindering and supporting factors for collaborative learning during losconCircles.

3.2 Participants

The sampling method employed in this study was convenience sampling, specifically targeting readily accessible participants of loscon23, comprising learning and knowledge management professionals from German-speaking

countries. Convenience sampling, a form of non-probability sampling, is commonly utilised in small-scale or pilot research due to its straightforward and cost-effective set-up, but it is also associated with a risk of sampling bias (Polit & Beck, 2017). Given that convenience sampling includes all population members (Polit & Beck, 2017), the survey was also open to all loscon23 attendees, regardless of their participation. This inclusive approach allowed for the identification of factors that both facilitated and hindered participation in losconCircle. The total number of loscon participants amounted to 174, with 57 participating online.

The organiser of loscon23 facilitated access to the study population. The author of this case study participated in the weekly planning meetings of the organising team. This close involvement allowed for the establishment of a targeted survey and interview process, fostering trust among the participants. The research tools were collaboratively developed in coordination with the organiser. To reach the loscon community, announcements for the survey and qualitative interviews were disseminated through various channels, including the event's newsletter and Discord channel. Additionally, brief introductions to the survey and subsequent interviews were provided during the event. Moreover, the author remained accessible for questions before, during, and after the event to ensure continuous engagement with participants.

3.2.1 Survey participants

Out of the total 174 participants, 60 took part in the survey. Among these, 48 had engaged in losconCircles, with 12 participating online, 33 onsite, and three in a hybrid mode (Table 2). The remaining 12 questionnaire respondents did not participate in losconCircles, comprising four remote and eight local participants. Out of the surveyed 48 circle participants, 29 were attending loscon for the first time, while 19 had prior experience with the event.

TABLE 2. Overview of survey participants

	Online participants (16)	Onsite participants (41)	Hybrid participants (3)
First time participants (33)	**4**	**27**	**2**
Attended losconCircle (29)	3	24	2
Did not attend losconCircle (4)	1	3	0
Frequent participants (27)	**12**	**14**	**1**
Attended losconCircle (19)	9	9	1
Did not attend losconCircle (8)	3	5	0

3.2.2 Interview participants

Seven participants from loscon23 reported back for qualitative interviews, comprising three women and four men. All interviewees had actively participated in losconCircles. Three of the interviewees had attended loscon onsite, three online and one hybrid (Table 3). Among these participants, three had prior experience with loscon as either online or onsite attendees, while four were attending for the first time.

TABLE 3. Overview of interview participants

	Online	Onsite	Hybrid
First time participants	1	2	1
Frequent participants	2	1	0

3.3 Data collection

3.3.1 Survey

The survey included both quantitative and qualitative elements, featuring close-ended questions such as multiple-choice questions and Likert Scale items, as

well as open questions (Appendix 1). Questions and statements on social interaction and collaboration were based on Murphy's (2004) collaboration model. Specific attention was directed towards influencing parameters on collaborative learning previously identified in research, notably time, structure, technical set-up and participant engagement. Additionally, at the organiser's request, the survey on losconCircles included a section on the general hybrid experience. Only results related to losconCircles are discussed in this thesis.

To ensure participants were well-informed, the questionnaire began with introductory information outlining the survey's aims, data usage, confidentiality, and contact details. Following Cohen et al.'s (2018) recommendation, the questionnaire began with straightforward and positive introductory questions to ease participants into the questionnaire, gradually progressing to more challenging ones in the middle section. Questions of particular interest were positioned towards the end to enhance questionnaire completion.

The initial survey section commenced with factual questions regarding participants' demographics, the mode of conference participation, and their overall assessment of losconCircles. To analyse key participant subgroups in detail, participation mode and attendance at previous loscon events were inquired. Participants who had not joined losconCircles were directed, via a filter question, to a subsequent inquiry about their reasons for non-participation. In the second section, questions focused on the practical implementation of losconCircles. This included aspects such as the composition of the specific losconCircle, meeting frequency, forms of collaboration, and the utilisation of Lego Serious Play.

Subsequently, the third section addressed users' perceptions and the added value of the losconCircles. Respondents were provided with a Likert scale to assess the benefits and the overall set-up of losconCircles based on eleven anchor statements. Likert scale-based statements allow for capturing more nuanced opinions while still enabling quantitative analysis (Cohen et al., 2018). To prevent a neutral stance, a four-element scale (ranging from full disagreement to full agreement) was chosen (Cohen et al., 2018), with "cannot say" as a fifth

option. The response scales from the Centre for Surveys, Methods, and Analyses were employed for labelling scale points (Prüfer, Vazansky & Wystup, 2003).

In concluding the third section, open-ended questions were incorporated to explore both supportive and inhibiting factors related to losconCircles. Utilising open-ended questions allows participants to articulate their responses in greater details, providing a more comprehensive perspective on the topic (Cohen et al., 2018). Consequently, unforeseen aspects of this novel format can be captured. The number of open-ended questions was limited to three to ensure reasonable completion times, prevent data overload, and maintain comparability in responses (Polit & Beck, 2017).

The survey started on the last day of loscon23 on July 12 and extended until July 26, 2023. Provided online via Microsoft Forms, the self-administered questionnaire offered advantages such as anonymity, flexible completion, and a cost-effective implementation with broad outreach (Polit & Beck, 2017; Cohen, 2018). This digital approach also minimised interviewer bias and reduced the likelihood of missing responses. The downsides of this method include a higher dropout rate and a low response rate (Polit & Beck, 2017). However, the participants' digital proficiency and the loscon community's shared interest in collaboratively developing formats for loscon23 supported the viability of the online variant.

With 60 out of 174 participants taking part in the survey, the response rate stands at 34 percent. It is worth noting that a survey addressing the overall experience of loscon23 was concurrently launched at the event's conclusion. This dual survey approach may have influenced the response rate negatively. According to Cohen et al. (2018), the maintenance of a participant sample size of at least thirty is recommended to enhance reliability and facilitate more sophisticated data analysis. This criterion was met in this study.

Before implementation, it is crucial to pilot a survey for evaluation and refinement (Ojasalo et al., 2020; Polit & Beck, 2017; Cohen et al., 2018). Following the decision to merge the surveys on losconCircles and hybrid experience at loscon23, the questionnaire underwent testing with a small pilot group. Among

the reviewers were three members of the organisation team and four external testers specialised in learning and social research. They assessed the questionnaire for logic, structure, layout, user guidance and completion time (Cohen et al., 2018), while also evaluating questions for clarity, bias, sensitivity and information-providing ability (Polit & Beck, 2017). Simultaneously, the three organisational team members provided feedback on the questionnaire's suitability for the target audience. This feedback led to the removal and grouping of several questions on social interaction and collaboration. Consequently, the completion time was reduced to about ten minutes to prevent respondent fatigue.

3.3.2 Interviews

The interviews aimed to investigate further collaborative learning within peer learning circles connected to hybrid events. A semi-structured interview guide featuring open-ended questions was developed based on the five sub-research questions (Appendix 2). This approach ensures that "the researcher obtains all the information required and yet gives people the freedom to provide as many illustrations and explanations as they wish" (Polit & Beck, 2017, p. 514). Although the comparability of results is lower and more complex compared to structured interviews, participants' views become clearer and deeper through their own formulations (Cohen et al., 2018).

Leading interviews as open as possible and as structured as necessary is a general challenge (Helfferich, 2014). Given the novelty of the losconCircles format and the lack of basic research, a combination of general key questions and a checklist for prompting and probing was chosen. The key questions served as narrative prompts, allowing for adaption of the question order during the interview. The checklist ensured a certain comparability of the statements (Cohen et al., 2018) and supported the connection to the theoretical part. The interviews started with a general opening question about the utilisation of the losconCircles to build trust and engage interviewees in narration (Helfferich, 2014). Subsequently, more specific aspects of losconCircle experience were inquired, including the use of Lego Serious Play. In the final open question, respondents could elaborate on additional aspects they considered important.

The seven interviews took place between August 31 and September 20, 2023. Participants received brief information about the interviews in advance via email, along with documents for informed consent. The interviews, lasting about 45 minutes each, were recorded and transcribed via Microsoft Teams.

3.4 Data analysis

In accordance with the selected Convergent Mixed Methods Design, data from the survey and interviews underwent separate analyses. Subsequently, the findings were merged for an integrated analysis. Close-ended survey questions, specifically multiple-choice and Likert scale items, were quantitatively analysed and presented descriptively. Microsoft Excel was used for data analysis and chart production.

For the open-ended questions in the survey and the qualitative interviews, a thematic analysis approach was employed. Thematic analysis is beneficial for comprehending a phenomenon from the perspective of those experiencing it (Vaismoradi, 2013). Within the framework of the research sub-questions, an inductive approach was applied, particularly useful when prior research is scattered or does not exist (Kyngäs, 2020).

For the thematic analysis a six-step process outlined by Braun and Clark (2006) was applied: The researcher got acquainted with the material through repeated readings, noting initial observations. After several rounds of familiarising with the material, codes related to the study phenomenon were identified in open coding and grouped into initial themes. Graneheim et al. (2016) define a theme as a "unifying 'red thread' running through several categories that brings meaning to a recurrent topic or experiences and its various manifestations" (p. 32). In the subsequent step, the researcher returned to the raw data to carefully compare similarities and differences between themes. Following this final review, the themes were defined and named. The process concluded with a description and analysis of these final themes.

3.5 Reliability and validity of the study

The validity and reliability of the study were cautiously ensured. Triangulation by combining diverse methods as well as qualitative and quantitative elements within the survey (Polit & Beck, 2017; Creswell & Creswell, 2018) was employed to enhance the study's overall representation. To ensure transparency, a detailed description of the research process was provided. The theoretical framework around hybrid learning events and peer learning circles was thoroughly analysed and served as the basis for developing the research tools. The survey questionnaire was collaboratively designed with the Ioscon organisational team and underwent reviews by both the organisational team and experts in the educational and social research field. Feedback was also solicited for the qualitative interview questions. The quantitative survey results underwent meticulous scrutiny, and the qualitative research material was carefully examined to ensure that codes and themes accurately captured the breadth and depth of the interviews (Merriam & Tisdell, 2015).

In qualitative research, it is crucial to thoughtfully examine the researcher's role. The author of this thesis actively participated in IosconCircles, enhancing the survey and interview process while building trust among participants. Simultaneously, maintaining a necessary level of distance was crucial to prevent bias. Consequently, the researcher reflected on her role and research in a research diary and in collaboration with peers; they also checked the final report. Additionally, the preparation for the interview situation adhered to a guide on conducting qualitative interviews (McGrath et al., 2019).

3.6 Research ethics

The research presented in this thesis strictly adheres to the data protection guidelines prescribed by Tampere University of Applied Sciences and aligns with the requirements of the EU's General Data Protection Regulation (GDPR). Ethical considerations, including anonymity, informed consent as well as data protection were meticulously taken into account.

The survey was administered through Microsoft Forms and accessed via a general link distributed to loscon participants by the organiser. The data collection adhered to the principle of data minimisation, requesting only the necessary information for the study. All collected data was securely and confidentially stored on the Cogneon Academy's own server and released to the thesis author in an anonymous form. Interviews were digitally recorded and transcribed using Microsoft Teams, with files stored on the university server protected by a username and password. Direct identifiers were systematically removed from the data.

Informed consent ensuring that "participants have adequate information about the research, comprehend that information, and can consent to or decline participation voluntarily" (Polit & Beck, 2017, p. 137) was a crucial aspect. The survey and interview procedures were clearly and repeatedly communicated through various channels. Interviewees received informed consent forms (Appendix 3) before the interview, and additional information was provided at the interview's outset. Given the expertise of the participants in learning and knowledge management, they were considered competent to comprehend the information received. Participation in the survey was voluntary, and interview participants had the option to withdraw their consent at any point in the study.

4 RESULTS

This chapter unveils both quantitative and qualitative research results as part of this thesis. To begin with, the survey results are outlined, followed by the presentation of the outcomes derived from the thematic analysis of qualitative interviews. Parts of the survey results were already published in the evaluation report on loscon23 in November 2023 (Hartmann, Gärtner & Dückert, 2023).

The structure of the survey aligns with the research sub-questions, specifically delving into the application of losconCircles, perceptions of connecting with others, social interaction, and collaborative learning, and the factors contributing to the success of losconCircles. Consequently, the results are structured according to the categories application, perception and implementation parameters. Recognising the distinct needs of newcomers and online participants identified in the previous evaluation of loscon, particular attention is directed towards these two target groups. Due to the limited sample size, this analysis does not present the perspective of hybrid attendees separately.

4.1 Results of the survey

4.1.1 Composition of losconCircles

During loscon23, a total of 28 losconCircles were established, encompassing hybrid, exclusively online or entirely onsite set-ups. The survey findings reveal that the majority of these circles (85%) comprised four to six participants, with some consisting of three members (6%), two members (2%), or more than six members (6%). Sixty-seven percent of the survey participants joined a hybrid circle, 31 percent engaged in a purely onsite circle, and two percent participated in an exclusively online circle (Hartmann et al., 2023).

Notably, 20 percent of the respondents did not actively participate in losconCircles. The primary reasons cited included lack of time, technical difficulties, and unclear task definition. Additional feedback referred to

programme overload, and a perceived lack of added value in losconCircles. These sentiments are further echoed in the following statement:

> I would have liked to get involved with the Lego Serious Play project, but instead of just sitting down with people on site, the hurdle of networking with hybrid participants was too high. I didn't see the added value. It was too exhausting and annoying. Discord voice chat didn't work at times. Then having to "talk on the phone" in a noisy environment stressed me out. I was too comfortable to set up a separate chat for text exchange with the other members. Overall, it may have been due to an overall overload, that I simply didn't use the element that was easiest to leave out.

4.1.2 Meetings of losconCircles

The 28 losconCircles initially convened during the official programme slot titled "losconCircles Kick-off – find your learning buddies!" on the first day of loscon23. Subsequent meetings could be organised based on the members' initiative during and after loscon23. However, the majority of participants considered their involvement in losconCircles concluded after the scheduled time slot on the first day: Specifically, 79 percent met only once as part of the official agenda, and 19 percent participated in an additional meeting during loscon23 (Hartmann et al., 2023). Likewise, 83 percent of participants stated that no further meeting was planned after loscon23. Ten percent had either planned or considered another meeting, and two percent intended to present their model at DATEV DigiCamp (Hartmann et al., 2023).

4.1.3 Tools for communication and collaboration

The event organiser provided the tools Discord for communication and Conceptboard for collaboration and documentation. Notably, there was a significant difference in usage as can be seen from Figure 4: Eighty-three percent of participants utilised Discord, while only 44 percent opted for the digital whiteboard. Moreover, almost a quarter of the respondents reported using Teams. Only a small number of respondents mentioned using social media tools to share circle outcomes with a wider audience (Hartmann et al., 2023).
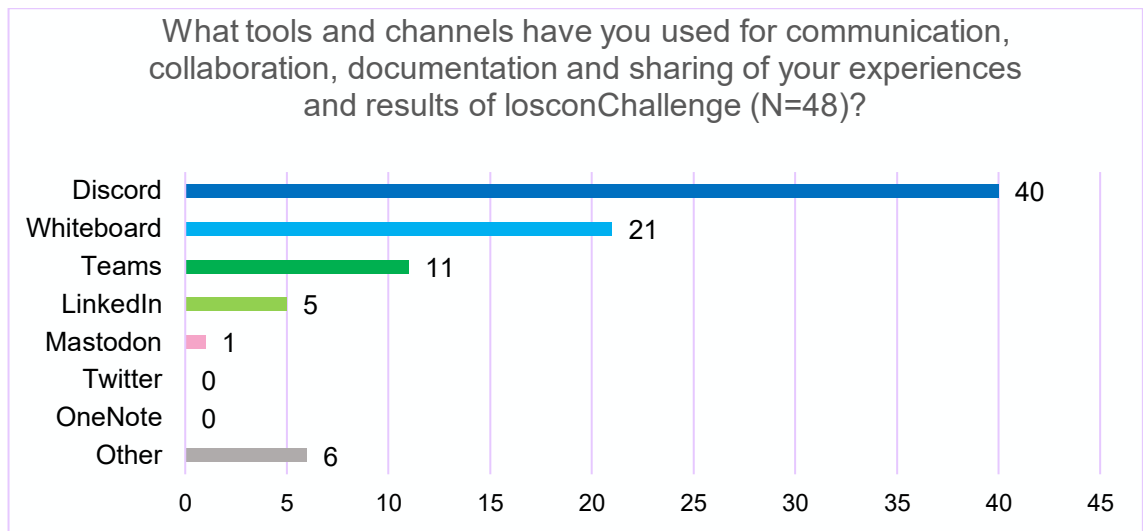
FIGURE 4. Communication and collaboration tools employed by losconCircles

The limited use of the digital whiteboard can partly be attributed to the less advanced technical equipment of the onsite participants, as suggested by the following comments:

> Hybrid participants only have their mobile phones to participate in Conceptboard or other tools.

> „Getting seated" on the table (on the virtual whiteboard) with dragging and dropping photos was very time-consuming for some due to a lack of media literacy, leaving no time to work on the challenge.

4.1.4 Perception of establishing new contacts

To evaluate participants' perception of losconCircles, inquiries were made about the added value they gained from participation. As Figure 5 shows the most substantial benefit reported was the establishment of new connections with fellow loscon23 participants, with 81 percent of respondents finding this aspect particularly helpful (Hartmann et al., 2023). Notably, a higher percentage of onsite participants (82%)[3] than online participants (75%) recognised the value of networking. Simultaneously, a slightly greater proportion of regular participants

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[3] For simplicity in reporting some results that present partial or complete agreement or disagreement are summarised in agreement or disagreement.

(83%) considered new contacts as an additional benefit compared to loscon newcomers (79%).
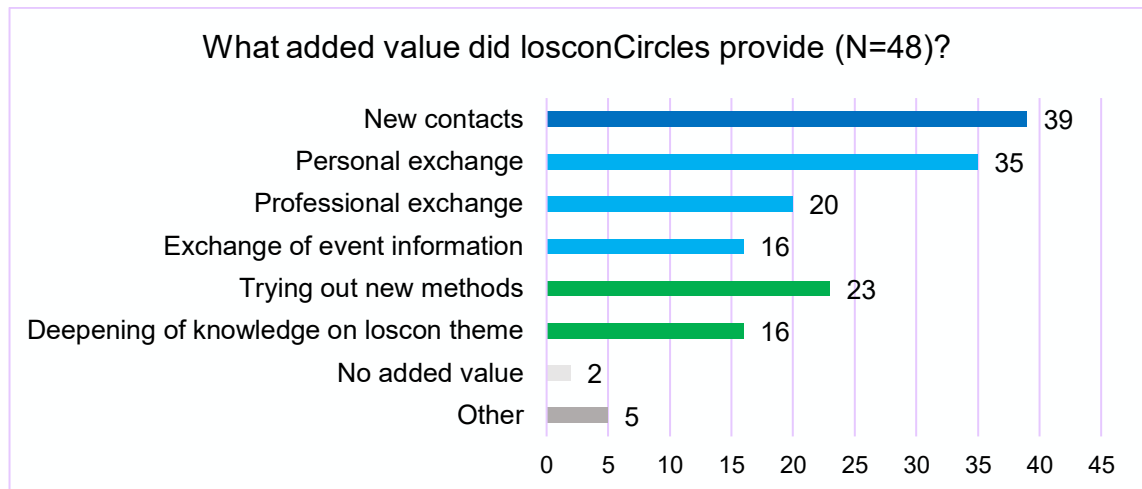
FIGURE 5. Perception of added value by losconCircles participants

Participants were specifically queried about the utility of losconCircles for connecting with online and onsite participants (Figure 6). Significantly, 71 percent of participants either partially or fully agreed with the notion that losconCircles facilitated reaching out to onsite participants. In contrast, only 48 percent of all respondents affirmed that losconCircles helped in connecting with online participants (Hartmann et al., 2023).
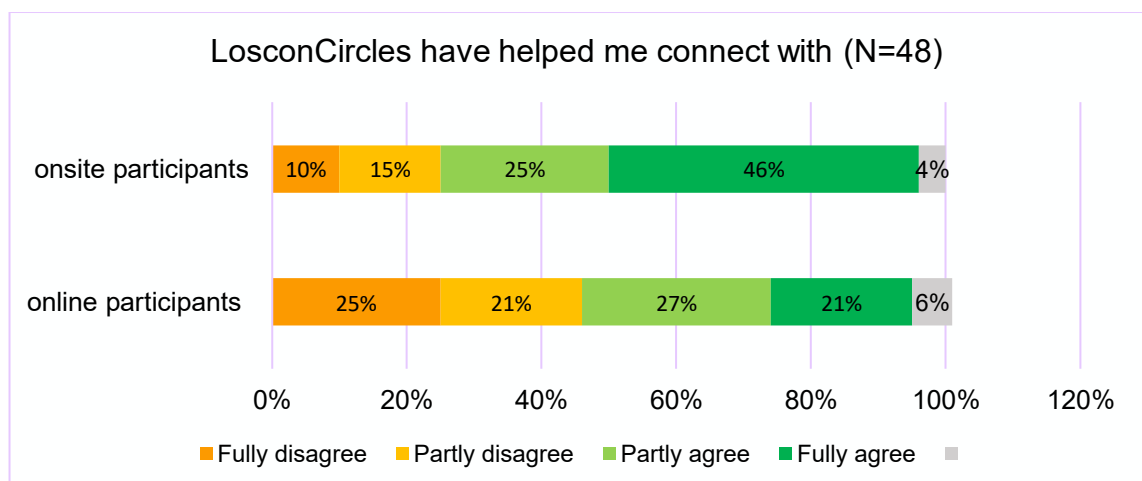
FIGURE 6: Statements on connecting to online and onsite participants within losconCircles

When breaking down the responses based on online and onsite participation, the divide becomes even more evident: 72 percent of onsite participants partly or fully

agreed with the statement that losconCircles helped establish contact with other onsite participants. Conversely, only 45 percent of onsite participants viewed losconCircles as partly or very supportive in connecting with online participants. This could be attributed, among other factors, to the easier communication without hybrid barriers. Simultaneously, 58 percent of online participants rated losconCircles as partly or very helpful for contacting onsite participants, while 50 percent perceived a positive benefit in connecting with other online participants.

A notable disparity in the engagement of online and onsite participants is also evident in the comments provided by individual participants. Those statements partly reflect the lower motivation of onsite participants to collaborate in a hybrid setting. Furthermore, survey participants stated conflicting preferences regarding group composition.

> The onsite participants had forgotten us a bit! We only discussed the model among the two online participants. (…) It's also possible that onsite participants couldn't find the chat function in Discord.

> It was time-consuming to communicate everything online and arrange meetings with participants at home.

> As an onsite participant, I would have also liked to have some online participants in my circle to get to know Discord for this purpose.

> Only online participants should have had a circle, and only onsite participants. This would have made us more efficient onsite (although it would result in less contact with online participants).

4.1.5 Perception of social interaction

LosconCircles and the Lego Serious Play method aim to foster social interaction, which is an important prerequisite for collaborative learning (Murphy, 2004; Schaefer, 2019). In general, 84 percent of respondents found losconCircles either helpful or very helpful for facilitating informal exchange between online and onsite participants, with only 15 percent reporting it as less helpful as can be seen from Figure 7 (Hartmann et al., 2023). Notably, a higher percentage of remote participants (88%) considered the format helpful or very helpful compared to local attendees (80%). At the same time, a larger proportion of regular loscon

participants (87%) agreed positively with the statement compared to first-time loscon attendees (78%).

How do you evaluate losconCircles as a method to facilitate exchange between online and onsite participants of loscon23? (N=48)
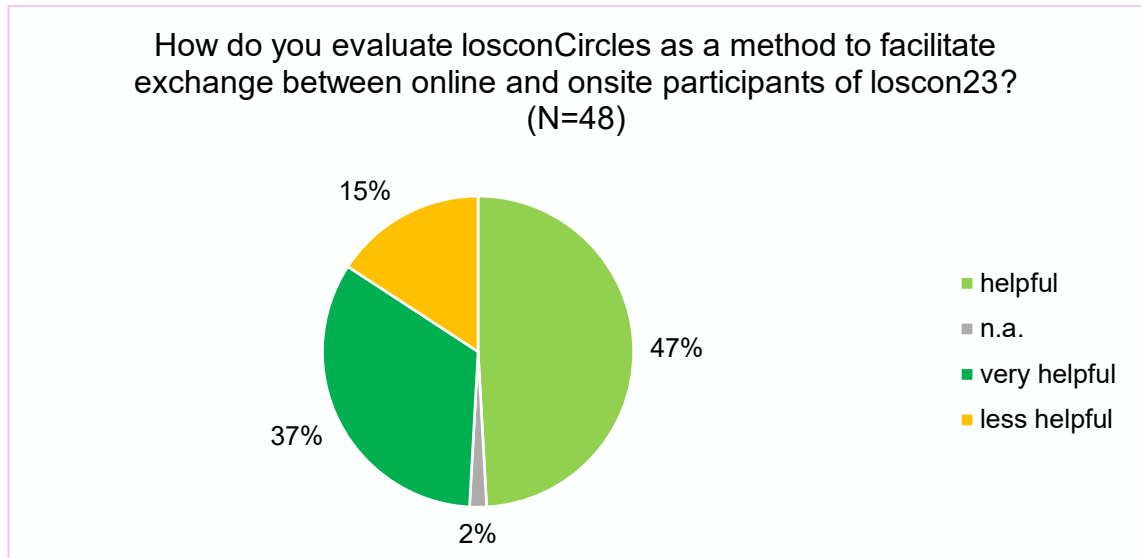
FIGURE 7. Perception of losconCircles as a method to promote interaction between online and onsite participants

Seventy-three percent of survey participants identified personal exchange with other participants as a notable benefit of losconCircles (refer to Figure 4 above). Additionally, 42 percent found the professional discussions on session topics beneficial, while 33 percent valued the information exchange specific to loscon23. Again, a noticeable distinction can be seen when analysing the responses according to participation mode: a higher percentage of online participants (42%) found value in exchanging information on the event compared to onsite participants (27%). Similarly, a slightly greater percentage of new attendees (37%) saw the information exchange as added value compared to regular loscon participants (31%).

4.1.6 Perception of collaborative learning

Murphy's (2004) collaboration model served as the framework for assessing the level of collaborative learning within losconCircles. Referring to losconChallenge participants were asked if they were able to present their own perspectives (reflecting social interaction) and jointly develop ideas (reflecting collaboration) on the future learning environment within losconCircles (Figure 8). Analysis

revealed that 71 percent of respondents agreed either partly or fully that they could express their own perspectives. In contrast, only 54 percent partly or fully agreed that they could jointly develop ideas.

Notably, a higher percentage of onsite participants stated that they could express their individual perspectives (78%) and develop shared ideas (60%) compared to online participants (50% and 34%, respectively). In addition, 58 percent of survey participants partly or fully agreed that adopting the losconCircles format in their professional setting is feasible. According to Schaefer et al. (2020) this is considered as a characteristic of collaborative learning.
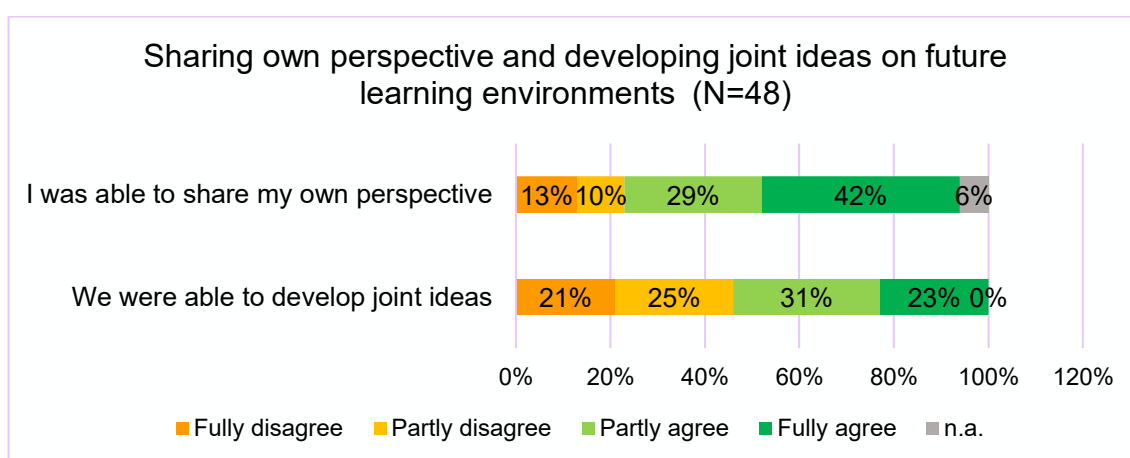
FIGURE 8. Statements on expressing own ideas and developing shared ideas within losconCircles

Learning within peer circles serves the dual purpose of deepening domain-specific knowledge and acquiring meta-skills through practical application (Blaschke, 2021). Accordingly, survey questions were designed to explore both the acquisition of domain knowledge and the experimentation with new methods, such as Lego Serious Play. Notably, a higher percentage of participants (48%) considered exploring novel methods as more valuable than deepening their professional knowledge (33%) as can be seen from Figure 4 above.

In their comments respondents also expressed the importance of exploring event organisation and technical capabilities, citing tools like Discord and Conceptboard. This aligns with the finding that 48 percent of participants either partly or fully agreed that losconCircles helped them cope better in a hybrid setting. Interestingly, onsite participants (45%) showed a slightly higher

agreement than online participants (42%). At the same time, 52 percent of newcomers believed that losconCircles helped them to navigate the challenges of a hybrid setting, while the figure was lower among frequent attendees (45 %).

4.1.7 Perception of Lego Serious Play

To enhance discussion and joint learning within the losconCircles, the Lego Serious Play method was employed: First, participants crafted an individual model and in a second step collaboratively assembled a joint model. The Lego building sets supplied by the organiser were primarily used as construction materials. Additionally, models were created in Minetest, as sketchnotes, collages, bullet points, text on the whiteboard, or summarised in verbal discussions. Notably, 58 percent of survey participants constructed their own models (Figure 9), while 77 percent did not contribute to the creation of a joint model as can be seen from Figure 10 (Hartmann et al., 2023).
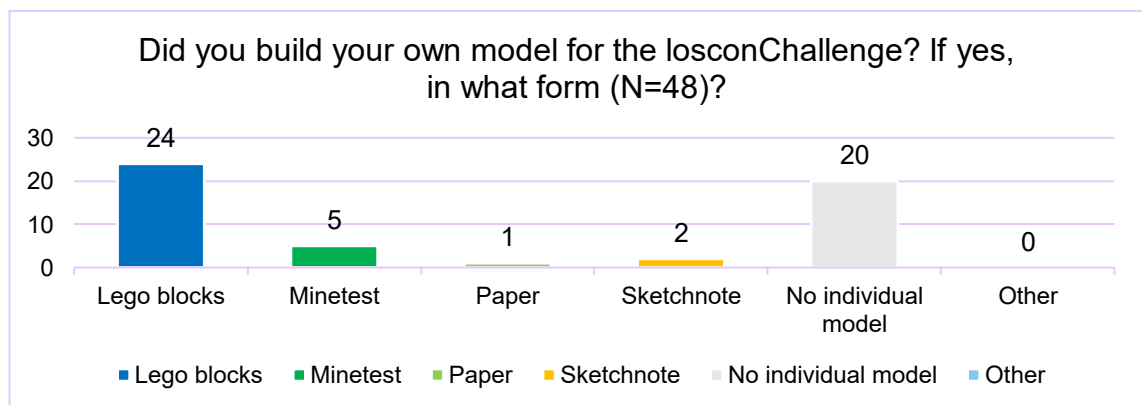

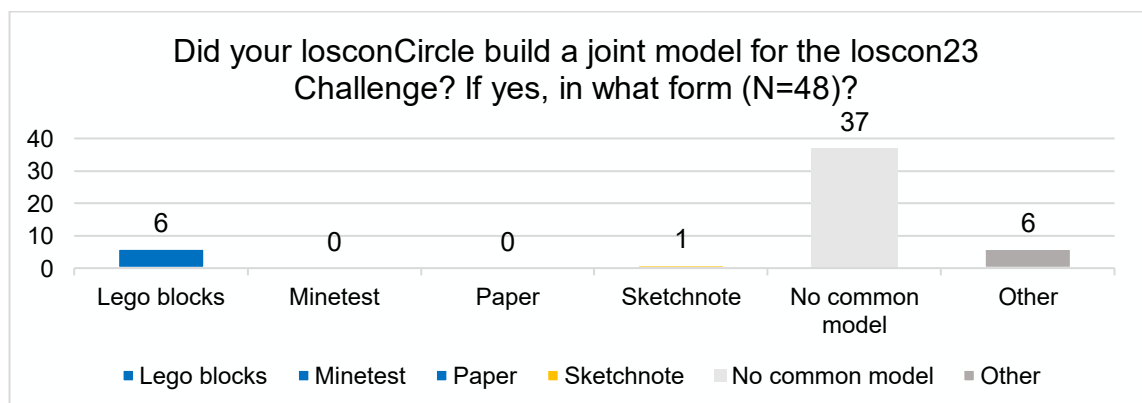FIGURE 9. Individual models built with Lego Serious Play

FIGURE 10. Joint models built with Lego Serious Play

As a result, opinions on the effectiveness of the Lego Serious Play method varied (Figure 11). Forty-four percent of survey participants considered it helpful or very helpful for developing their individual ideas on future learning environments. In contrast, only 28 percent found the method useful for generating collective ideas on future learning environments (Hartmann et al., 2023).

Lego Serious Play was helpful for developing (N=48)

	Fully disagree	Partly disagree	Partly agree	Fully agree	n.a.
individual ideas on future learning environments	25%	29%	23%	21%	2%
common ideas on future learning environments	29%	40%	15%	12%	4%
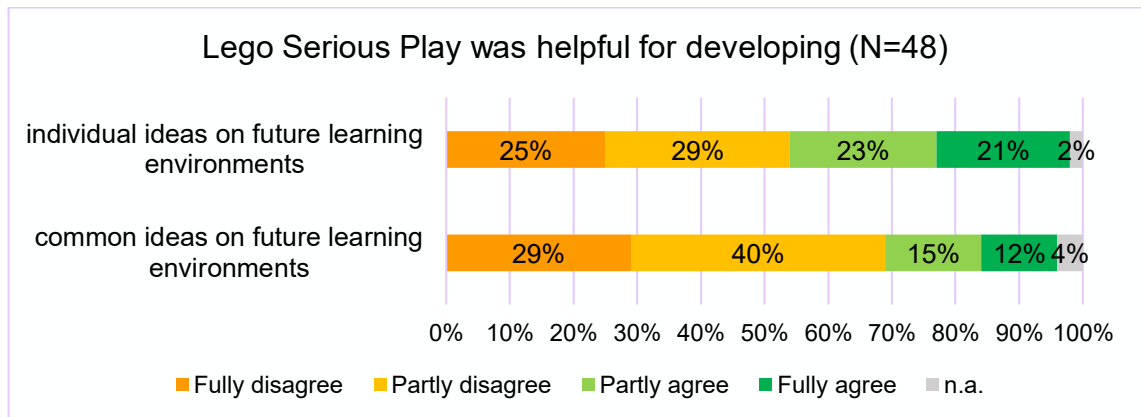
FIGURE 11. Statements on Lego Serious Play as a method to develop own and joint ideas of a future learning environment

It is noteworthy that experienced loscon participants viewed Lego Serious Play more favourably than newcomers. Specifically, 52 percent of loscon veterans found the method partly or very helpful for developing their own and joint (31%) ideas. In contrast, for newcomers, these figures were 33 percent and 22 percent, respectively. This could imply, that newbies might have been overwhelmed with the combination of different tools and methods. While online and participants rated the method similarly helpful (42%) for developing own ideas, more online than onsite participants found Lego Serious Play useful to develop common ideas (50% vs. 18%). The variation in perception might be attributed to the fact that online participants were less distracted and more preparation time, given that they received their Lego building set in advance as part of a pre-loscon package:

> Supporting the circles in a separate room with more space/prepared settings might be helpful. By forming the circles, participants were all scattered around the room, some online connections didn't work out, and/or the circle participants hadn't taken their Lego bricks from the table to the circle in the first place. We had time for a short introduction, then talked about our points and then the time was over again.

4.1.8 Parameter of time

Drawing from the insights derived from the theoretical analysis, the survey delved into parameters such as timeframe, structure and participants' commitment affecting the successful implementation of losconCircles (Figure 12). Insufficient time allocated for informal exchange and the losconChallenge emerged as a crucial point of criticism in the survey. A significant 89 percent of respondents either partially or fully disagreed with the statement that there was enough time for the task. This perception cut across all participants, with no discernible differences between experienced and new participants or between online and onsite participants.
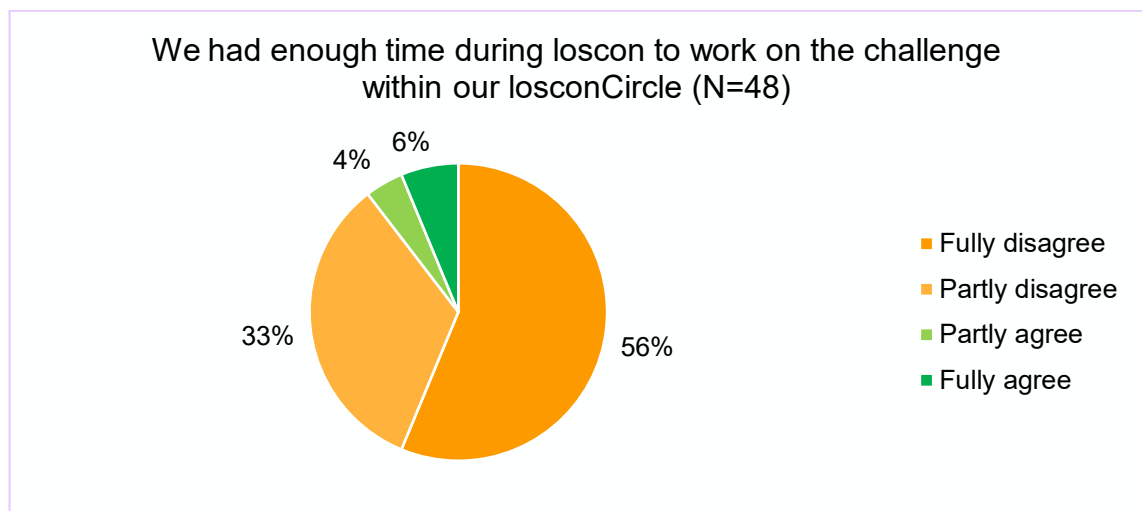
FIGURE 12. Perception of the timeframe of losconCircles

In the comments, two prominent problems surface: time constraint and overload. Numerous participants highlighted the short official time slot, noting that locating their group and technical set-up left minimal time for the actual task. Others pointed out that the combination of losconCircles with a full schedule contributed to a sense of overwhelm. Consequently, there was a widespread desire for multiple time slots within the loscon programme, connected with pre-and post-event meetings to enhance networking, group dynamics and collaborative learning.

> It was good to create a space for exchange. The challenge with Lego and Discord, the high noise level onsite, getting to know each other was too much new information at once for the short time. They

should be more prominent and could be tried out at the beginning with networking exercises.

Firmer structure, more time for thought development. If there are too many alternatives, circles drop in priority.

More clarity on the task.... practice beforehand and set one task as a group before the convention and one afterward. This will ensure a continuous exchange and there is more of a chance that it will become a permanent group. In any case, the group should meet online beforehand and get to know the technology, including the whiteboard.

4.1.9 Parameter of structure

Agile formats like peer learning circles thrive on a high degree of self-organisation, yet they still require a certain framework (Graf et al., 2019). In this context, a survey question focused on the structure provided by losconCircles. The answers were divided: Fifty-four percent of respondents either partially or fully agreed with the need for more structure as can be seen in Figure 13 (Hartmann et al., 2023). Notably, a larger proportion of online participants (75%) than onsite attendees (48%) expressed the need for additional structure. At the same time, a higher percentage of newcomers (58%) stated the desire for more structure compared to regular attendees (52%).
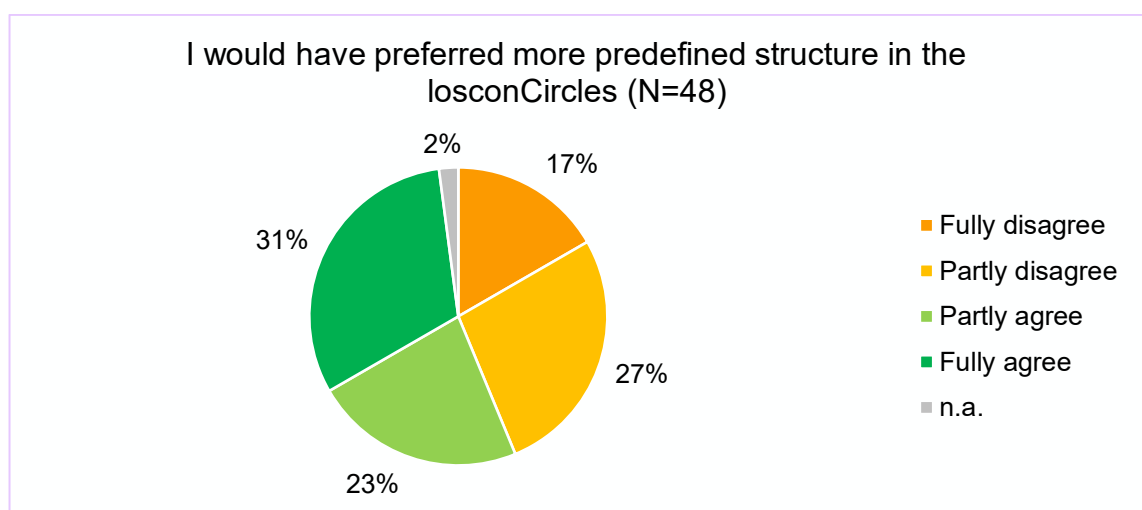

FIGURE 13. Perception of the provided structure of losconCircles

The feedback on structure mainly centred on the unclear task, purpose, and process of losconCircles. Additionally, survey comments highlighted the diverse

needs of participants in terms of structure and support. These differing expectations may be influenced by factors such as participants' prior experience and their level of self-organisation.

> Loscon Circles had a dedicated organisation that keeps the needs of various participant target groups in focus and brings them together inclusively and with low barriers.

> The instructions were not clear: I thought the circles were built into the programme somewhere, that's what I was waiting for, that it would say "so and now go to your circles and discuss XY". At the first meeting, we thought we should just briefly check the technology.

4.1.10 Parameter of technical set-up

In general, respondents provided positive feedback on the technical set-up of loscon23. However, the hybrid experience with losconCircles fell short compared to other loscon formats (Hartmann et al., 2023). This perception is also evident in the feedback regarding the technical set-up, encompassing equipment and media literacy. It is noteworthy that both were particularly emphasised by onsite participants. Respondents highlighted various technical obstacles, including poor Wi-Fi, challenges in using the whiteboard via mobile phones, forgetting to bring headphones, and issues with Discord (including privacy concerns on company devices). An additional challenge was the significant background noise due to the lack of quiet rooms. Furthermore, some participants were unfamiliar with communication channels such as Discord and the use of the digital whiteboard. Comments also suggest that onsite participants, unlike their online counterparts, had not familiarised themselves with the technical set-up and tools in advance:

> You need suitable devices; it doesn't work well with my phone. At least a tablet or a small laptop is recommended.

> Poor technical equipment for onsite participants in general (poor headsets, poor network - Wi-Fi not used, data volume was quickly used up) => poor audio and video quality.

> The technical hurdle of the hybrid format was overcome but took a lot of time.

4.1.11 Parameter of participant engagement

Self-organised forms of learning such as losconCircles demand a significant level of self-initiative and intrinsic motivation from participants (Blaschke, 2021). Consequently, survey participants were asked to assess the required commitment from circle members. Eighty-nine percent of participants either partially or fully agreed that losconCircles demand a high degree of engagement from participants (Figure 14). Interestingly, the percentage of onsite participants (91%) who partly or fully agreed with the statement was higher than that of online participants (84%).

For the success of losconCircles, a high level of engagement
from the circle participants is required (N=48)

9%   2%

31%

58%

■ Partly disagree
■ Partly agree
■ Fully agree
■ n.a.
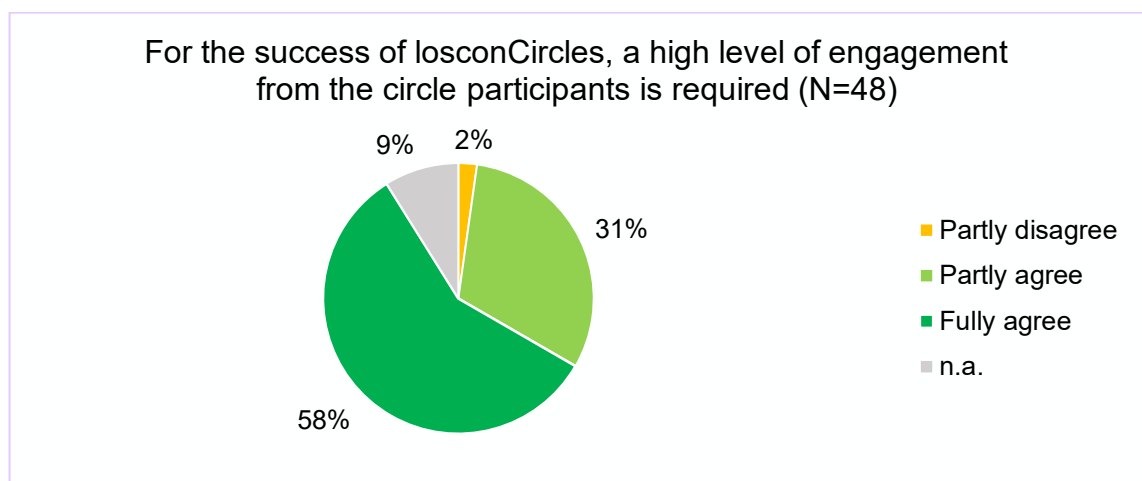
FIGURE 14. Perception of participant engagement within losconCircles

Similarly, survey comments underline the crucial role of motivation. Respondents especially highlighted the necessity of a clear and comprehensible purpose:

> For the participants, the set task is good to get into a conversation, and if the Lego bricks were right in front of the people, models would certainly be created. But bringing the models together "just for the sake of documentation" had no added value for us and was accordingly (subconsciously/unconsciously) ignored.

> There was somehow no interest in taking away some time from the remaining valuable loscon time to build a model that would then be "only" documented somewhere.

> Clarify purpose: circles as an anchor for conferences to benefit from the learning of others.

Participants generally viewed losconCircles positively for fostering new connections and social interaction. However, the hybrid approach, aimed at linking online and onsite participants, had varying degrees of success. While 71 percent of survey respondents agreed that losconCircles facilitated connections with onsite participants, only 48 percent felt it achieved the same success with online participants. Most circle participants met only once during the official time slot, with few planning further meetings. For social interaction, losconCircles received positive feedback, with over 80 percent finding it helpful for informal exchange between online and onsite participants.

Perceptions of collaborative learning within losconCircles were mixed. While three-quarters could present their perspectives regarding losconChallenge (indicative of social interaction), only about half actively worked on joint ideas (indicative of collaboration). Similarly, 58 percent created individual Lego Serious Play models, while 77 percent did not construct a joint model. Feedback on the Lego Serious Play method, designed to enhance collaboration, was mixed: 44 percent found it helpful for personal idea development, while only 28 percent deemed it useful for generating collective ideas. At the same time, slightly more respondents appreciated exploring new methods (48%), than deepening professional knowledge (33%).

Regarding hindering and supportive factors for losconCircles' success, participants highlighted dissatisfaction with the lack of time for informal exchange (89%) Additionally, technical issues, mainly affecting onsite participants, negatively impacted the hybrid experience. About half of the survey respondents advocated for more structure. A high level of participants (89%) considered personal engagement as crucial. Comments emphasised the need for a clear purpose of losconCircles.

The survey also revealed differing needs among participant groups: newcomers and online participants expressed a higher-than-average need for more structure. Moreover, the share of those considering the exchange of event-related information as helpful was above average. This indicates a higher need of support in comparison with onsite participants and regular loscon attendees.

4.2 Qualitative interviews

In addition to the survey, interviews with seven losconCircles participants were conducted, including three online, three onsite, and one hybrid participant. Two interviewees participated in an entirely onsite circle, while the others engaged in a hybrid format. The semi-structured interview guide addressed the research sub-questions, exploring the application of losconCircles, perceptions of establishing new contacts, social interaction and collaborative learning, and factors contributing to losconCircles' success. Given the exploratory nature of the research, an inductive thematic analysis approach was employed within the framework of the sub-research questions. Particular emphasis was placed on capturing the perspectives of newcomers and online participants.

4.2.1 Application of losconCircles

To identify common patterns in implementation, interviewees were prompted to describe how they utilised losconCircles during loscon23. Responses revealed notable variations in the set-up of individual losconCircles. As can be seen from Figure 15 four circles, of which three were hybrid and one onsite, convened only once during the official time slot. One of the onsite circles additionally gathered during the evening event. While one hybrid circle organised a Lego Serious Play session to address the losconChallenge on the second day, another hybrid circle met for three brief reflections on loscon sessions and an extended Lego Serious Play session spanning the two convention days.

Simultaneously, distinct patterns of hindering and supportive factors emerged, often interconnected. Interviewees consistently cited supportive elements throughout the process, depicted by the themes of appreciative environment and helping hands. This encompassed fostering a respectful attitude towards fellow participants and embracing a culture that accepts mistakes. Furthermore, several interviewees expressed their ability to seek assistance from more experienced loscon participants whenever needed. Various interviewees highlighted the positive impact of collaborative problem-solving, describing an enhanced sense of belonging.

One was not considered stupid or foolish or an analogue dinosaur...

The target audience at loscon is learning enthusiasts (...) intrinsically motivated communicators.

Many people had been there frequently, and you could always ask anyone, which was the nice thing about the whole event.

And thankfully, there was a participant who was technically proficient, and he guided us. Someone else also jumped in to help us, which was exciting. Because then we were all like: Cool, it works.
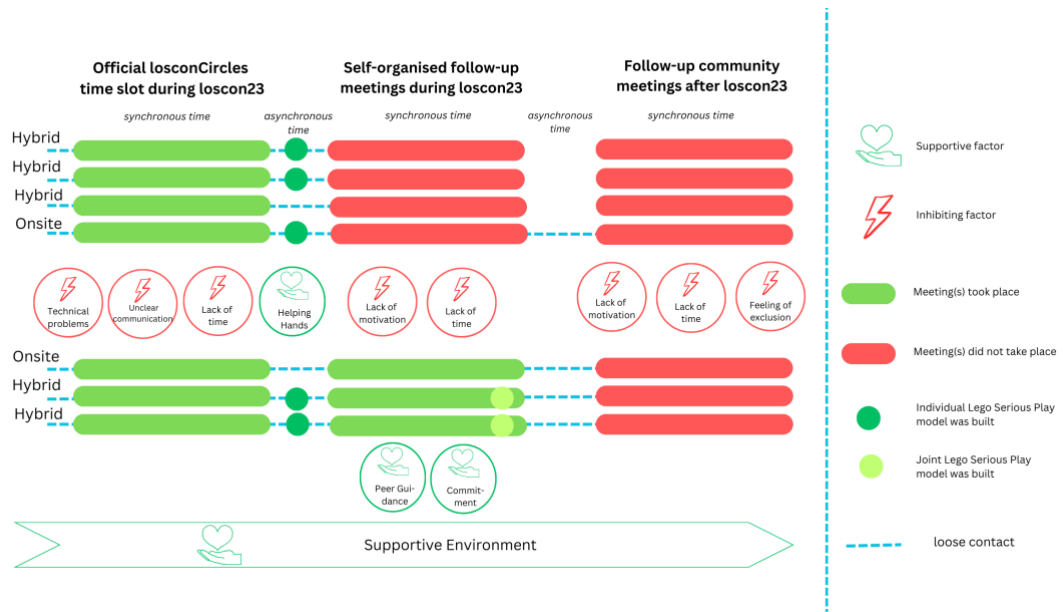
FIGURE 15. Implementation of losconCircles at loscon23

Interviewees identified technical challenges, time constraints, and unclear communication as key obstacles. Technical challenges were mainly reported by onsite participants and described in a threefold way: Firstly, technical problems related to an unstable Wi-Fi connection and insufficient equipment. Secondly, some participants showed a lack of media literacy with platforms like Discord and the virtual whiteboard. Thirdly, several participants stated feeling overwhelmed while managing multiple channels and tasks simultaneously.

I find Discord very user-friendly, but combined with additional video conferences, Lego Serious Play, the task, and taking notes (…), that was quite a package. Afterwards, I was quite exhausted.

What personally stressed me: We had to manage three channels with different devices and (…) an interface that I wasn't a hundred percent familiar with (…). I am relatively tech-savvy, but I really don't like it when the infrastructure doesn't run smoothly.

Several participants highlighted unclear communication as a significant obstacle. They pointed to instances where information about the losconCircles' objectives, process, and task assignments was insufficient. Additionally, several interviewees mentioned that they were unaware of their responsibility to initiate additional meetings:

> We talked about what we needed to do and whether we had to start building with Lego (…). But we just didn't know. We thought there would be another round, when we would have to build.

Furthermore, interviewees underscored the challenging official timeframe for the losconChallenge, which was further shortened due to coordination and technical issues. Numerous participants faced difficulties in connecting with other circle participants. Consequently, the majority reported using the designated losconCircle time slot mainly to address technical issues and provide brief personal introductions. While some discussions also centred around the losconChallenge and future collaboration, none of the participants created Lego Serious Play models individually or collaboratively within the official time slot.

> We had a problem getting everyone connected. We waited long for the last person to log into our circle. And then we weren't quite sure what we had to do. So, we thought this was just an initial exchange, so we didn't use the method (Lego Serious Play) at all. We only introduced ourselves a bit, sharing who we were. Then, the time was already up.

Interviewees mentioned similar barriers for organising additional meetings of the losconCircles. Besides the lack of time they also reported a lack of motivation, which were both connected to competing sessions in the loscon programme. Consequently, only three of the circles opted to continue meeting.

In contrast, supportive patterns of peer guidance and commitment were evident in the feedback from interviewees engaged in follow-up meetings. The circle members collectively planned their future meetings and also adhered to the agreements. Notably, in both circles, which met for a Lego Serious Play session, one participant took on the facilitation role.

> What worked well within the group was that we simply committed to each other and adhered to our agreements or arrangements.

> In the Lego Serious Play session our facilitator told us: "Hey, create something or prepare something." That was essentially our task, and then we exchanged ideas.

4.2.2 Perception of establishing new contacts

One objective of losconCircles is to facilitate lasting connections among participants. Consequently, interviewees were asked about the contacts they managed to establish during the event. The nature of post-event connections can be broadly characterised as a loose network: Most participants mentioned that they are currently connected through social media but stay not actively in touch. Within this context, there are varying degrees of connections among individual circles: Participants who maintained multiple points of contact reported a more trusting connection. Conversely, some circles that did not have additional meetings had no contact after loscon. In general, interviewees expressed a need for more time to foster personal connections.

> I didn't even write down the names (...), it was just too superficial. We didn't get to know each other beyond names, where we are from and whether we are online or however we are navigating.

> Through the openness in this protected space, trust has indeed been established. It makes me feel like I could consider reaching out if I find myself stuck again in the future.

None of the interviewees took part in subsequent events such as the DATEV DigiCamp session and the hackathon. Their feedback reflected similar challenges to those encountered during the main event: a perceived lack of relevance, unclear communication, and conflicting schedules. Some interviewees attributed their diminished motivation to the non-completion of the losconChallenge and the resulting absence of group cohesion. Newcomers and online participants, in particular, voiced a sense of exclusion.

> After the event, I wasn't really connected anymore, as I was immediately busy with work.

> Especially with DigiCamp, I actually had a bit of a feeling that you can participate if you want, but it's a bit of an internal event.

4.2.3 Perception of social interaction

Achieving parity between online and onsite participants is a significant challenge in hybrid events. To understand the participants' perspectives on this issue, they were asked about their experiences with the hybrid event. Many interviewees highlighted the overarching theme of disparity. Specifically, they mentioned differences in the technical set-up between online and onsite attendees, as well as variations in motivation levels to participate in the losconCircles.

Interviewee comments indicate that online participants did not encounter significant technical issues. One participant even noted the advantages of the more comfortable online learning environment. In contrast, onsite participants faced technical problems and found it challenging to handle multiple tools and channels simultaneously. These difficulties indirectly impacted online attendees. Additionally, several interviewees questioned how the technical set-up for onsite participants influenced parity with online attendees, proposing an "online first" solution. Similarly, Moss et al. (2021) recommend prioritising digital communication entirely in hybrid events.

> Online, one is typically in a quiet space, has a meaningful set-up, and isn't using a mobile phone, so that also makes a big difference.
>
> But what was really, really annoying in between was the audio quality. Not because Discord was bad but rather because the others were practically forced to communicate online because of me. So, they used their phones for Discord, and I found that disadvantageous because you get all the background noises.
>
> Because in this three-person set-up, it wasn't quite at eye level, as the two of us who were on site talked with one device and stood right next to each other. I would have preferred if all three had been online.

A similar distinction emerged concerning the motivation of participants. In the interviews, online participants expressed a strong interest in engaging with hybrid losconCircles. In contrast, onsite participants indicated that their commitment to hybrid collaboration was diminished due to the more straightforward face-to-face interaction and the presence of competing offers onsite. Considering the virtual fatigue stemming from the COVID-19 pandemic, some onsite participants expressed a preference for concentrating on being physically present.

> For me, everything revolved around the people who were sitting around me. If I had been a hybrid participant, I would have felt less at eye level.

> And I perceive a certain reluctance amongst people onsite: "Now that I'm here in person, I don't want to be stuck to the headset again."

Due to this imbalance, several online participants have highlighted the theme of dependency: Online participants had to rely on onsite participants to show interest in connecting and to overcome technical obstacles. However, it is noteworthy that the interviewed online participants mainly reported a sense of parity within their losconCircles despite technical problems. This is evident from the following comments:

> I had a top-notch learning experience. I didn't even feel like an online participant at all.

> In this small losconCircle, there is absolutely no difference whether I am online or onsite, but with other things, there is.

> It was new for everyone anyway, and I didn't feel that we were somehow disadvantaged by not being there in person (...). A structured or topic-based discussion in a small group works very well in a hybrid set-up, provided that the technical set-up is right.

It is noteworthy that the circles that convened after the official time slot intentionally carved out time and space for collaborative efforts on equal footing. The structure of these meetings was informal. Additionally, several interviewees highlighted the blending of asynchronous and synchronous collaboration. Joint discussion and reflection were organised synchronously, while various circle participants constructed their individual models asynchronously:

> That sounds now as if we had sat down there in a super-structured way following some protocol. It wasn't quite like that, it was more like: "And, how are you? What have you experienced?"

> That means we used the time asynchronously to prepare (...). The exchange took place in the meeting itself; we directly wrote things on the Conceptboard and afterwards, so it was a mix of asynchronous and synchronous, like one imagines it.

> The working phase on the Lego model was great because all participants involved were in a meeting-like situation.

4.2.4 Perception of collaborative learning

The educational impacts of peer learning circles, designed to enhance domain knowledge and cultivate meta-skills, remain relatively unexplored. To gain a more comprehensive understanding, interviewees were asked to describe their learning processes within losconCircles. Distinct themes and patterns related to modes of learning and perceived learning effects emerged. In terms of learning modes, themes such as joint reflection as well as creative, experiential, process-based, and problem-based learning were identified.

The exchange with other participants was integral to losconCircles and facilitated by the Lego Serious Play method. Consequently, most interviewees found individual and collective reflection on future learning environments triggered by the losconChallenge to be rewarding. Comments emphasised the diversity of the group as a crucial foundation for a change in perspective and, consequently, deeper reflection:

> I find real added value in this peer learning circle because live reflection is directly included. The reflection on my takeaways was more intense because others gave me feedback (...) and simply provided a completely different perspective on my insights.

In this regard, Lego Serious Play was mentioned as a supportive tool for reflection by several participants. One interviewee described it as a creative guide for unearthing tacit knowledge and experiences. While some participants criticised the Lego Serious Play method for being too abstract and complex for the losconCircle set-up, all interviewees unanimously acknowledged the activating role of creative and playful methods.

> I believe that when you just talk about something, you might be on the topic, but you don't have the task of leading it to a work result. I think that's a huge advantage in Lego Serious Play.
>
> I certainly "experienced" Lego Serious Play, and I realised how important it is to have someone who facilitates it meaningfully. It was amusing that I didn't put much preparatory thought into my model, but the methodology forces you to think more deeply about it during the exchange (...).

The direct experience of new methods and tools was frequently mentioned in relation to learning modes. Several attendees emphasised that they actively participated in losconCircles to test Lego Serious Play, Discord, and collaboration in self-organised groups.

> I consider loscon necessary precisely for trying things, engaging in them, and then realising whether it fits.

> I am very interested in methodology, so experiencing the methodology or seeing what it means has intrigued me because I am someone who learns more from doing rather than theory alone.

It is noteworthy that several participants indicated that the emphasis was not on the learning outcomes but on the experiential process. Consequently, the experience was deemed more important than solving the losconChallenge. In this regard, several participants explicitly mentioned the significance of experiencing challenges and problem-solving as integral to the learning process. Additionally, several interviewees described the positive impact of collaborative problem-solving on group cohesion.

> We had a goal. We deviated from it a bit because we got stuck with the technology, but that's okay. The journey was good, and we had that sense of unity (...). What did I learn? That you always find a solution, even if it's a small one.

> I stepped out of my comfort zone and engaged in Discord. I also allowed myself to be in a situation where help was needed, and I had to figure out how to handle the whole thing. It's unusual for me to seek help with technical matters.

> In my mind, there's often the thought that you shouldn't burden others with challenges, but when you do it yourself, you realise that you can ask people for a bit more. Somehow, it brings people closer together.

The learning modes mentioned above are also evident in the perceived learning effects. While one interviewee only recognised a benefit in expanding knowledge about learning environments, others highlighted a range of newly acquired skills and competencies. Several comments pointed to methodical skills, digital and hybrid skills, self-organisation, and collaboration in small groups.

> My learning experience was in the different formats and also in hybrid collaboration.

> Just exchanging ideas is interesting, but it still needs some guidance. That was my learning about modern learning environments.
>
> I learned an approach how to implement collaborative learning. And I learned how self-directed groups function.

As learning experts, several interviewees observed a shift of roles within IosconCircles, from a facilitator to a learner. Consequently, various comments highlighted the first-hand experience of being a self-directed learner. Subsequently, several interviewees reported engaging in self-reflection on this role, introducing a metacognitive aspect to their learning experience.

> That was also my set goal from the beginning (...), to observe myself self-reflectively: How do I deal with it, where are my obstacles (...), and to see myself benevolently and neutrally in the process.

4.2.5 Success factors for IosconCircles

Participants were queried about factors that could enhance collaborative learning between online and onsite participants within the framework of IosconCircles. The responses can be consolidated into overarching themes of framework, openness support, and commitment (Table 4). These factors are, in most cases, evident at the individual, group, and event levels and are closely interlinked.

Concerning the framework theme, participants highlighted the importance of a fixed time slot in the event programme, a transparent process and assignment, as well as a clearly communicated shared goal. Furthermore, the aforementioned hurdles also give rise to the supportive factors of a functional technical set-up, sufficient time allocation, and clear communication. The desire for a solid structure is also evident at the group level: a common goal and purpose, along with a collectively established process within the peer circles, were identified in several comments as supportive factors.

> I think it works well, but it needs more structure (…) clearly defined like this: now go in, build something, and now proceed clearly with the goal, the result should be this and that.

In contrast to a set framework, the theme of openness became apparent in the comments. Many interviewees emphasised the significance of fostering an environment conducive to experimentation and embracing a culture that sees mistakes as opportunities for learning. The element of enjoyment was highlighted in this context by several interviewees. On a group level, interviewees consistently highlighted the importance of team spirit, emphasising collaboration over competition. According to several interviewees openness was also reinforced by the diversity off circle members resulting from random group formation. Moreover, comments also pointed to the importance of the participants' open mindset, showing a willingness to learn and the courage to accept failure.

> Having the courage to do that was also due to the openness that many were willing to make mistakes, practice, and perhaps fail.

> With a bit of fun and a willingness to experiment, one can implement the losconCircles effectively.

The theme of support encompassed both a written guideline and personal assistance. Some interviewees expressed a desire for a checklist on facilitating losconCircles, particularly for participants with less experience in collaboration and self-organisation. Additionally, various interviewees proposed the idea of having tech buddies who could provide assistance during losconCircles, especially during the initial meeting. Similarly, several respondents suggested guidance from an experienced peer within the circle. At the same time, the right balance of support and self-organisation was discussed:

> I would include one person per circle who is well-informed. They don't necessarily have to take on the moderation but rather take on the organisation.

> I think it would work if the fixed structures were in place (...) where you are simply guided, and someone has to take on the moderation role based on a checklist or something. But if nothing is in place, I think it will be difficult, especially if you don't have extroverted people or people who want to contribute something specific. It probably depends a lot on the dynamics within a group.

> This balancing act between nudging and allowing the group to figure things out on their own to promote exchange – I found that fascinating in terms of learning

The theme of commitment was linked to both external and internal factors: Several comments referred to the social pressure to participate due to a fixed agenda item. Similarly, interviewees mentioned the adherence to common goals and processes within the losconCircles as supportive for strengthening commitment. In terms of group composition, a small size was also seen as beneficial. On the individual level, the intrinsic motivation of participants was considered as essential. In this respect the common challenge, the diversity of group and the experimental set-up were described as motivating factors.

> (The losconCircles) were scheduled in the conference programme (...). I would have had to actively withdraw to not participate. So, it was different from a Barcamp, where everything is voluntary, and I would have to organise it myself.

> And then there's also the question of group size. The larger the group, you naturally think, well, it doesn't really matter to me. That's also a question of commitment, if you know, there's someone online and they have an interest.

TABLE 4. Success factors for losconCircles

	Framework	Support	Openness	Commitment
Organisation	Adequate timeframe Smooth technical infrastructure Clear structure (goal, task, process) Clear communication	Checklist Facilitator Technical support	Supportive environment Culture of embracing mistakes Culture for experimenting Joyful atmosphere	Clear purpose/ added value for participants Commitment by official time slot
Group	Common goals Common process	Peer facilitation	Diversity of group Team spirit	Common purpose Adhering to common goals and process Small group size
Individual	Existing skills Individual goals		Collaborative mindset Curiosity Courage to fail Willingness to learn	Motivation (i.e. by challenging task, diversity of group, experimental set-up)

In summary, the interviewed participants generally viewed the Ioscon Circles positively, even though some challenges marked the process. The participants found the supportive environment, positive atmosphere, and a sense of unity through shared successes, particularly helpful. Challenges included technical issues, lack of time, and unclear communication. Consequently, some circles could only discuss technical problems and briefly introduce themselves. The lack of personal connection was also cited as a reason why four out of seven circles did not meet again, and none participated in follow-up events.

Despite general disparities between online and onsite participants, online participants reported feeling equal within their IosconCircle. Commitment and peer guidance played essential roles in organising further circle meetings. It is noteworthy that collaboration within those additional sessions was consciously designed as informal and both asynchronous and synchronous. The focus of learning lay in the collective reflection on the convention theme and experimenting with various methods and tools. Regarding self-experience, interviewees also mentioned the importance of the process as such as well overcoming challenges and a conscious role shift from instructor to learner. Overall, the interviews reveal a set framework, openness, support, and commitment as success factors for IosconCircles.

5   DISCUSSION

This thesis aimed to explore the potential of losconCircles in connecting onsite and online participants during hybrid learning events. The central question was, "How can losconCircles be used to promote collaborative learning between online and onsite learners in a hybrid event setting?" The research focused on losconCircle implementation at loscon23, participants' perceptions regarding establishing new contacts, social interaction, and collaborative learning, and factors supporting collaborative learning within losconCircles. The study utilised a mixed-methods approach, including a survey and qualitative interviews, with a focus on online participants and newcomers. The goal was to provide recommendations for implementing losconCircles in hybrid learning events.

"I find the idea excellent; it just needs some procedural fine-tuning" – this interviewee comment adequately summarises the feedback on losconCircles. In general, the losconCircles method was positively perceived in terms of establishing new contacts and social exchange between online and onsite participants and, to a certain extent, also for collaborative learning. Particularly, participants perceived the experimentation with new methods as positive, in addition to deepening their professional knowledge. The open and experimental attitude of the event, as well as the helpful attitude of participants, have been reported as the main supportive factors. Meanwhile, a lack of time, technical issues, and unclear structure and communication emerged as key hurdles to social interaction and collaborative learning. Generally, success factors can be summarised to the themes of framework, support, openness and commitment.

5.1 Establishing new contacts

Various studies and surveys highlight the positive impact of peer learning circles on networking in virtual and remote settings (Jenewein, 2022; Ondrusch et al., 2021; Graf et al., 2023). In this study, more than 80 percent of losconCircles participants highlighted the value of making new contacts. Nevertheless, the method proved particularly effective in connecting onsite participants. Survey

results showed that 71 percent found losconCircles helpful for onsite connections, contrasting with only 48 percent for online connections. This discrepancy could be explained by easier onsite interaction and loscon23's higher onsite participation, leading to exclusively onsite circles due to randomisation. A potential solution is to ensure a balanced distribution between online and onsite loscon participants as well as the establishment of exclusively hybrid circles.

Simultaneously, the survey and interview results revealed that most circles adhered to the official timeslot for their first meeting but refrained from organising additional sessions or participating in follow-up events. Consequently, participants described their post-loscon contacts as a loose network, with some having no contact with other circle participants. The findings suggest that the limited time slot, coupled with technical issues, left minimal room for personal exchange. Conversely, participants engaging in multiple circle meetings reported stronger connections, aligning with Voupala's (2016) findings that a balance of socio-emotional and task-oriented activities can foster collaborative learning. Incorporating a separate timeslot and prompts for sharing personal backgrounds, in line with Tuckman's (2001) group development model, could enhance social presence, especially in the forming phase.

5.2 Social interaction

Achieving equal participation between online and onsite participants poses a significant challenge in hybrid events. While 84 percent of survey participants found losconCircles suitable for fostering interaction, disparities emerged in technical set-up and motivation. Onsite participants were less motivated to switch to a hybrid setting due to alternative networking options onsite. Additionally, onsite participants faced technical issues, media competency gaps, and the challenge of managing multiple tools. In contrast, online participants experienced fewer technical problems but were indirectly affected by onsite issues. Similarly, studies on hybrid conferences refer to an imbalanced participation of local and remote attendees due to technical barriers (Moss et al., 2021; Puccinelli et al., 2022). This imbalance created a dependency, with online participants relying on onsite counterparts to connect and solve technical obstacles. Addressing

technical challenges and boosting motivation among onsite participants could potentially enhance social interaction, fostering a more equitable collaboration.

In this respect, interviews revealed that losconCircles, which conducted multiple meetings, established their own processes and norms, fostering a sense of equality within the group. Moreover, interviewees identified a strong commitment and a jointly determined circle set-up tailored to the participants' needs as essential elements for their collaboration. Common norms and values are also considered important for supporting group cohesion in the phase of norming in Tuckman's (2001) model of group development.

Additionally, interviews depicted that these circles deliberately utilised their shared time for reflection, exchanging thoughts, and co-constructing the joint Lego Serious Play model. Conversely, the creation of individual models and the planning of collaboration predominantly occurred asynchronously. This division is also typical for peer learning circles with a longer duration (Dückert, 2021). Concerning the constrained timeframe of hybrid events, the consideration which activities are most suitable for asynchronous or synchronous collaboration should be weighed in future planning.

The majority of survey respondents prioritised personal exchange within losconCircles over professional and event-related information exchange. Notably, more newcomers and online participants than average viewed the exchange of loscon information as an added value. Similarly, Ondrusch et al.'s (2021) study on peer learning circles, identified a higher need for information and support by new students. This implies the necessity for additional support for above-mentioned target groups, for example by tailored information, extra training sessions or a buddy system.

5.3 Collaborative learning

Survey results show a notable consensus on the usefulness of losconCircles for establishing contacts and facilitating social interaction. However, there is a distinct decrease in approval for the aspect of collaborative learning. While 71

percent of participants felt able to express individual perspectives related to losconChallenge (indicator for social interaction), only 54 percent felt capable of collectively generating ideas (indicator for collaboration). Similarly, nearly two-thirds of the survey respondents constructed individual Lego models, contrasting with less than one third engaged in creating joint models. These findings align with existing research on collaborative learning in virtual spaces, suggesting that collaboration often remains limited to shared reflection, also due to a lack of social presence (Murphy, 2004; Schaefer, 2019). However, synchrony was identified as a facilitator of social interaction in the interviews as well as in research (Reinmann, 2023). This suggests that the challenges of collaborative learning within losconCircles may not be inherent to the concept itself but rather have emerged from constraints related to a limited timeframe and technical issues.

Almost half of the respondents have highlighted collaborative learning as an added value of losconCircles. Notably, more survey participants considered testing new tools and methods (48%) more valuable than acquiring professional knowledge (33%). Specifically, the interviews identified a keen interest in the experimental nature of losconCircles, encompassing the exploration of platforms like Discord, engaging in Lego Serious Play, and participating in self-organised circles within a hybrid and collaborative framework. Learning often occurred randomly and through practical application, reflecting the principles of situated learning (Lave & Wenger, 1991). For instance, media competency was acquired through joint problem-solving related to technical tools. In this process the stages of stating own opinions, reflecting together and creating common ideas and solutions were blurred, challenging the notion of a linear collaborative process.

In addition, the importance of collaboratively overcoming challenges, combined with a fun approach, was underscored as a motivating factor by several participants. Enjoyment has also been found to be a supportive learning factor in Continental's study on peer learning circles (Kirchner & Höfner, 2021). In this context, incorporating challenging as well as playful and creative elements such as Lego Serious Play into losconCircles is recommended.

Additionally, interviews showed reflection in both content and metacognitive dimensions, aligning with the double-loop learning approach in heutagogy (Hase

& Blaschke, 2021). Participants reflected on the losconChallenge's theme of future learning environments, benefitting from the group's diversity and the use of Lego Serious Play for creative guidance. Concurrently, interviewees actively observed their transition from their usual role as instructors to learners in losconCircles. Similarly, in surveys conducted by SAP (Jenewein, 2022) and the University of Heilbronn (Ondrusch et al., 2021), respondents reported an improvement in their self-learning skills after participating in peer learning circles. Given that losconCircles necessitate a high level of self-direction, integrating metacognitive reflection more seamlessly into the event setting is essential. This integration could be achieved by incorporating designated moments and cues for reflection. Specifically, for newcomers, enhancing support through introductory prompts on self-organised learning would be beneficial.

In essence, interviewees conveyed that their involvement in losconCircles resulted in the acquisition of methodical skills, digital and hybrid competencies, and proficiency in self-organisation and collaboration within small groups. Simultaneously, interviewees described the creative, reflective, experiential, and process- and problem-based aspects of learning as particularly enriching. This insight suggests that losconCircles should evolve into a more robust training ground for new methods. In the future, losconCircles could serve as a practical field for exploring emerging developments, such as artificial intelligence.

5.4 Success factors for losconCircles

Several success factors on organisational, group, and individual levels emerged from the interviews and the survey, categorised under the themes of framework, support, openness, and commitment, as listed in Table 4. These largely correspond with the synthesis model (Figure 2). A robust framework with functional technology, as well as sufficient time and a clear process were deemed essential to ensure that participants can attend losconCircles without obstacles. Especially during the losconCircles, facilitation, through a moderator, experienced participants, or a buddy system, was seen as essential to allow all participant groups to network and interact. Due to the flexibility of the format, factors such as openness and commitment were identified as essential to achieve

the level of learning and development. Those included not only high intrinsic motivation and a growth mindset among participants but also team spirit and shared norms within individual circles.

Significantly, success factors extended beyond a solid infrastructure to encompass soft factors like openness and commitment. Interviewees stressed the importance of a strong sense of community and a supportive, experimental environment. Additionally, comments highlighted participants' need for an open mindset, the courage to embrace failure and the readiness to share knowledge and support others. This aligns with Grotlüschen's (2023) notion that participants' digital readiness to cooperate and their digital competencies are essential in true hybrid formats.

Regarding commitment, participants mentioned a certain social pressure for participation due to an official program slot. However, they also emphasised high intrinsic motivation, fostered by the challenging task, experimental elements, and group diversity. Those elements are consistent with Ryan and Deci's (2000) motivational factors of autonomy, competence, and belonging. While at loscon openness and commitment thrive in an informal, collaborative community, proactively supporting these factors becomes crucial in a more conservative setting, for example by input on growth mindset and the peer learning concept.

Many factors related to the themes of framework and support also represent the flip side of hindering factors, such as tight timeframes, technical barriers, and unclear communication at loscon23. Noticeably, these factors primarily lie at the first stage of the synthesis model. This suggests that establishing foundational elements, like the technical set-up and a suitable timeframe, during the initial stage is crucial to ensure the success of subsequent stages involving networking, interaction, learning and development. Presumably, openness and commitment decrease if the framework and support are inadequate. This, again, aligns with Isohätälä's (2020) notion that joint participation is the infrastructure of social interaction and collaborative learning.

In summary, the survey and interviews highlighted various dichotomies that need to be navigated. For instance, the combination of a tight timeframe with the need

for time to develop trust and group cohesion proves consistently challenging when adapting learning circles to hybrid events. This dilemma can be addressed by shifting group formation to the period before the event and allowing collaboration to occur asynchronously.

Similarly, the heterogeneity of participants introduces a possible tension between self-organisation and structure. Peer learning circles depend on the autonomy and free choice of learners. However, newcomers and online participants expressed a need for support and structure to participate. Experienced participants require a challenge for triggering intrinsic motivation, whereas newcomers may feel overwhelmed if the challenge is too great. The negotiation of these areas of tension must be considered as part of event organisation.

5.5 Recommendations for Cogneon Academy

The survey and interviews have pinpointed a set framework, an open atmosphere, commitment by the organiser and participants, and support as overarching success factors for losconCircles. Notably, these elements have already been embedded in losconCircles at loscon23. However, interviews and the survey have shown a need for clearer structures and stronger support. Simultaneously, the aspects of commitment and openness are already well-established and, as a result, require less enhancement.

Framework: The primary and most immediate recommendations for the commissioning organisation would be to allocate more time slots, reduce onsite technical barriers, and enhance tailored communication for different target groups. To strengthen social presence and group cohesion, increased time and attention for team-building activities is crucial. LosconCircles could already convene before the main event, such as during the pre-conference or in conjunction with other community events, following the practice of DATEV DigiCamp. To support double-looped learning, adequate time for both content-related and metacognitive reflections should be incorporated during the event. A concluding retrospective can deepen knowledge, facilitate discussions about future collaboration, and serve as a platform for event announcements. Given the

constrained timeframe for losconCircles, the time allocation for asynchronous and synchronous activities should be considered.

Regarding the technical set-up, onsite barriers were primarily due to inadequate equipment and a lack of preparation. It is crucial to optimise onsite Wi-Fi and designate a quiet space for losconCircles. Introducing a checklist for necessary equipment and conducting a brief onsite tech check can better prepare participants. Despite onsite participants expressing a lack of media literacy, the feedback on losconCircles as a learning environment for Discord and the digital whiteboard was positive. This suggests a need for increased support (e.g., technical assistance and pre-event practice opportunities) rather than a tool change. However, considering a shift to a collaborative tool that allows for smoother mobile phone usage could be explored.

While there were established goals, tasks, and procedures, these did not resonate with participants. Targeted communication, such as providing specific information for online participants, onsite attendees, and newcomers (e.g., an info sheet for newbies) can address this issue. Crucial information should be stored in a centrally accessible virtual location for all participants. To facilitate organisation within losconCircles, a simplified version of the learning canvas for structuring collaboration could be offered. However, it is important to avoid overwhelming participants with excessive information.

Openness: The success of losconCircles was significantly influenced by the open and supportive environment of loscon, as well as the participants' receptiveness to the new format. The shared challenge and playful, creative elements like Lego Serious Play were crucial for motivating participants. Interviews highlighted that the effective use of Lego Serious Play requires more time and guidance, a consideration for future use. Alternatively, slightly simpler facilitation methods, such as Liberating Structures, could be explored. The positive impact of a diverse group composition on motivation and learning was acknowledged and should be maintained.

Support: Both interviews and surveys emphasise the positive and robust supportive environment created by the organiser and more experienced

participants during losconCircles. However, the findings also highlight an increased need for event-related information among online participants and newcomers. Voluntary offerings such as small-scale practice sessions, manuals, and loscon buddies could support loscon newbies or less tech-savvy participants. Specifically, regarding Lego Serious Play and technical challenges, guidance from experienced individuals has proven effective. In future events, experienced participants could serve as facilitators within losconCircles.

Commitment: Onsite participants, particularly, reported a time conflict between losconCircles and other onsite activities, leading to weaker commitment. To tackle this issue, the loscon organiser should allocate additional time to losconCircles, as previously discussed. Furthermore, it is crucial to clearly communicate the event's objective of including online participants on an equal footing. While smaller groups boost commitment and trust, precautions are necessary to prevent them from becoming too small due to member dropouts. Grouping participants by experience and commitment level can support group formation. However, the voluntary and open nature of losconCircles, which was positively assessed, should be maintained. As participants stated, a high level of personal engagement is needed. Targeting intrinsic motivation is hence crucial, with engaging tasks, diverse group composition, and experimental elements identified as motivating factors in interviews. This supports the continuation of random group composition, creative methods, and an experimental setting.

5.6 Transfer to other hybrid event settings

When adapting losconCircles to various contexts, the outlined parameters and success factors can provide a framework but must be tailored to the specific circumstances. Notably, loscon23 had a flat hierarchy, considerable flexibility, and participants with a strong inclination towards digital literacy and collaborative learning. Consequently, there was a high level of openness and commitment, necessitating less reliance on a structured framework and extensive support. However, if losconCircles were implemented in a conference setting with participants less experienced in self-directed and collaborative learning, a more

comprehensive framework and special support in self-organisation would probably be required.

Given participant heterogeneity and a generally high level of self-organisation, maintaining a balance between guidance and self-direction will consistently be a challenge. Consequently, understanding participants' needs and aligning them with the event's goals and setting is crucial. Therefore, a checklist for losconCircles' implementation in hybrid settings was developed (Appendix 4). The checklist's key aspects, set-up, process, group and individual level, can act as levers and be adjusted according to the target group as well as to the event's format and purpose. Due to the experimental nature of losconCircles, regular evaluations and the establishment of best practises are essential. With various providers experimenting with social formats like BarCircles and buddy systems, exchanging experiences is valuable. Encouraging sharing may involve creating a voluntary project team focused on peer learning formats linked to hybrid learning for interested learning experts.

In summary, the research revealed that losconCircles encompass aspects of both the concepts of hybrid as a space of merging interactions and hybrid as fluid (Eyal & Gil, 2021). Although deeply rooted in situated and social constructivist learning, within individual losconCircles dichotomies between online and onsite, asynchrony and synchrony, openness and framework, support and commitment dissolved. This characteristic distinctly defines fluid hybrid learning. Simultaneously, learners play a significant role in both hybrid models and losconCircles. Consequently, learners should be motivated to actively contribute to the further development of the concept and tailor it to meet their individual needs.

6 CONCLUSION

This study explored the use of losconCircles to facilitate collaborative learning between online and onsite participants in a hybrid event setting. The findings suggest that losconCircles contribute to establishing contact, fostering social interaction, and, to some extent, promoting collaborative learning between local and remote attendees. The open and experimental atmosphere of the event, along with the supportive attitude of participants, emerged as crucial positive factors. The main obstacles identified included time constraints, technical issues, and a lack of clear structure and communication. In summary, losconCircles can be viewed as a collaborative learning format that bridges the hybridity gap between online and onsite participants.

The research identified key success factors for implementing losconCircles, categorised under the four themes of framework, support, openness, and commitment. The findings also underscored that losconCircles cannot be universally applied but require customisation to each context. Dichotomies between the needs of experienced and new learners, between online and onsite participants, between challenge and overwhelm, between self-organisation and structure must be negotiated each time. Consequently, parameters such as event setting, didactics, and facilitation need to be individually adjusted to the event goals and the target group. A matrix of key success factors and a set of recommendations on implementing losconCircles in hybrid settings were developed to support this process.

Participants perceived the experimental nature of losconCircles as particularly motivating. However, losconCircles could serve not only as a training field for participants but also for event organisers to experiment with and develop new methods and forms of collaboration within hybrid events. Or to quote one of the participants: "Overall, the system needs practice, in guidance, framework, and participation. This is something that is still somewhat unfamiliar in some cases."

6.1 Limitations of the study

Despite efforts to enhance the reliability and validity of research methods through triangulation and careful consideration, limitations exist in this study. A notable weakness is the relatively small sample size in both quantitative and qualitative research. While a sample size of 30 is generally deemed sufficient for quantitative research (Cohen et al., 2018), it only represents 34 percent of all loscon participants. Consequently, the generalisability of results is constrained. Moreover, sub-group research, specifically on hybrid participants, was impractical due to the too-small sample size. In coordination with the organiser, questions related to social interaction and collaborative learning in the losconCircles survey were minimised due to the multitude of simultaneous surveys. While a more extensive survey may have provided a more comprehensive picture, it risked diminishing responses due to survey fatigue.

Furthermore, the study focused on loscon participants, omitting the organiser's as well as experts' perspectives, which could have enriched the findings. Despite a thorough examination of related theories and concepts and reference to current studies, the novelty of the format meant that, in some cases, blogs and podcasts were the only available sources. This underscores the need for further research, particularly at a quantitative level. Moreover, the research's temporal scope restricted the possibility of deriving sustainable, long-term insights, for example, on learning effects of losconCircles and the connection between losconCircles and community-level learning.

6.2 Future research

Due to the novelty of the losconCircles format and its initial application, an exploratory case study format was employed. Simultaneously, this thesis highlights the potential for further investigations. Due to the constrained timeframe, the third objective of losconCircles, focusing on strengthening the community by sharing learning outcomes, remained unexplored. Here, a more in-depth examination through a long-term study could provide insights and recommendations, especially considering that none of the survey respondents

and interviewees participated in follow-up events, as revealed in the current investigation. Another aspect linked to sustainable learning, aligned with connectivism, could involve leveraging social media for knowledge-sharing and network-building. Moreover, the success factors of openness and commitment for losconCircles could be investigated further. While the present study identified perceived learning effects of losconCircles, the next crucial step involves a comprehensive and longitudinal examination, incorporating both quantitative and qualitative elements, for generalisation. Additionally, a promising area for future research is the metacognitive dimension of learning: exploring how losconCircles, as a training ground for new skills and competencies, impact self-directed learning.

REFERENCES

Aschemann, B. (2023). Hybride Veranstaltungen in der Erwachsenenbildung sinnvoll gestalten. *Weiterbilden – Die Zeitschrift Für Erwachsenenbildung*, *1*. https://doi.org/10.3278/WBDIE2301W

Aschemann, B., & Russ-Baumann, C. (2022). Glossar der Begriffe im Wandel. *CONEDU.* Retrieved November 27, 2023 https://doi.org/10.25656/01:25709

Bajpai, V., Hohlfeld, O., Crowcroft, J., Keshav, S., Schulzrinne, H., Ott, J., Ferlin, S., Carle, G., Hines, A., & Raake, A. (2022). Recommendations for designing hybrid conferences. *ACM SIGCOMM Computer Communication Review*, *52*(2), 63–69. https://doi.org/10.1145/3544912.3544920

Baker, M. J. (1995). Negotiation in collaborative problem-solving dialogues. In R.-J. Beun, M. J. Baker & M. Reiner (Eds.), *Dialogue and instruction: Modelling interaction in intelligent tutoring systems* (pp. 39–55). Berlin, Springer-Verlag.

Bali, M., Caines, A. L. A., DeWaard, H., & Hogue, R. (2016). Ethos and Practice of a Connected Learning Movement: Interpreting Virtually Connecting Through Alignment with Theory and Survey Results. *Online Learning*, *20*(4). https://doi.org/10.24059/olj.v20i4.965

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In A. Bandura (Ed.), *Self-Efficacy in Changing Societies* (1st ed., pp. 1–45). Cambridge University Press.

Blaschke, L. M. (2012). Heutagogy and lifelong learning: A review of heutagogical practice and self-determined learning. *The International Review of Research in Open and Distributed Learning*, *13*(1), 56. https://doi.org/10.19173/irrodl.v13i1.1076

Blaschke, L. M. (2021). The dynamic mix of heutagogy and technology: Preparing learners for lifelong learning. *British Journal of Educational Technology*, *52*(4), 1629–1645. https://doi.org/10.1111/bjet.13105

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Cavaliero, T. (2017). 'Creative blocs': Action research study on the implementation of Lego as a tool for reflective practice with social care practitioners. *Journal of Further and Higher Education*, *41*(2), 133–142. https://doi.org/10.1080/0309877X.2015.1070396

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* Eighth edition. London, New York: Routledge.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fifth edition). Thousand Oaks, CA: SAGE Publications.

Dillenbourg, P. (1999). What do you mean by collaborative learning? In P. Dillenbourg. *Collaborative learning: Cognitive and Computational Approaches*., Oxford: Elsevier, pp.1-19

Dillenbourg, P., Järvelä, S., & Fischer, F. (2009). The Evolution of Research on Computer-Supported Collaborative Learning. In N. Balacheff, S. Ludvigsen, T. De Jong, A. Lazonder, & S. Barnes (Eds.), *Technology-Enhanced Learning* (pp. 3–19). Springer Netherlands. https://doi.org/10.1007/978-1-4020-9827-7_1

Dückert, S. (2021). lernOS Leitfaden (CC BY). *Cogneon Academy*. Retrieved November 27, 2023 https://github.com/cogneon/lernos-for-you/blob/master/de/lernOS-fuer-Dich-Leitfaden.pdf

Dückert, S. (2023). Unsere perfekte Wissens- und Lernumgebung – sozial, fokussiert, vielfältig, schlank, ruhig und nachhaltig. *Cogneon Academy*. Retrieved November 27, 2023 from https://cogneon.de/2023/10/01/unsere-perfekte-wissens-und-lernumgebung-sozial-fokussiert-vielfaeltig-schlank-ruhig-und-nachhaltig/

Eyal, L., & Gil, E. (2021). Preprint of: Hybrid learning spaces – a three-fold evolving perspective. In E. Gil, Y. Mor, Y. Dimitriadis and C. Köppe (Eds). *Hybrid Learning Spaces*. Springer.

Garrison, D.R. (2007). Online Community of Inquiry Review: Social, Cognitive, and Teaching Presence Issues. *Journal of Asynchronous Learning Networks*, 11(1), 61-72. https://www.learntechlib.org/p/104064/.

Gärtner, H., & Dückert, S. (2022). Evaluationsbericht zur lernOS Convention 2022. *Cogneon Academy.* Retrieved November 27, 2023 https://cloud.cogneon.de/s/DFzDrmijMyc9FNC

Gehlen-Baum, V., & Illi, M. (2019). *Lern doch, was Du willst! Agiles Lernen für zukunftsorientierte Unternehmen.* BoD – Books on Demand.

Goldie, J. G. S. (2016). Connectivism: A knowledge learning theory for the digital age? *Medical Teacher*, 38(10), 1064–1069. https://doi.org/10.3109/0142159X.2016.1173661

Graf, N., Gramß, D., & Edelkraut, F. (2019). *Agiles Lernen: Neue Rollen, Kompetenzen und Methoden im Unternehmenskontext* (2. Auflage). Haufe Group.

Graf, N., Kemether, K. & Liebhart, U. (2022): #WOL - Effekte von organisationsinternen Einsätzen von Working Out Loud. Eine Expertstudie zu den Effekten durch den organisationsinternen Einsatz von Working out Loud-Zirkeln. Retrieved November 27, 2023 https://www.yumpu.com/de/document/view/67147695/studienbericht-wol

Greer, C. D. (2021). Creating a collaborative culture: Can online learning circles spark innovation and promote intrapreneurship. *Pepperdine University ProQuest Dissertations Publishing*, 2021. 28718280. https://digitalcommons.pepperdine.edu/etd/1213

Grotlüschen, A. (2023). Versuch einer begrifflichen Strukturierung hybrider Veranstaltungsformate. *Weiterbilden - Die Zeitschrift Für Erwachsenenbildung*, *1*. https://doi.org/10.3278/WBDIE2301W

Gruber-Rotheneder, B. (2022). Bildungswerk-Veranstaltungen im hybriden Format – ein Praxisbericht. Retrieved November 27, 2023 https://erwachsenenbildung.at/aktuell/nachrichten/17644-bildungswerk-veranstaltungen-im-hybriden-format-ein- praxisbericht.php

Gundermann, A. (2023). Stichwort Blended Learning. *Weiterbilden – Die Zeitschrift Für Erwachsenenbildung*, *1*. https://doi.org/10.3278/WBDIE2301W

Hartmann, I., Gärtner, H., & Dückert, S. (2023). Evaluationsbericht zur lernOS Convention 2023. *Cogneon Academy. (Preprint)*. https://wiki.cogneon.de/Loscon23

Hase, S. & Blaschke, L. M. (2021). So, You Want to Do Heutagogy: Principles and Practice. In S. Hase & L. M. Blaschke (Eds.), Unleashing the Power of Learner Agency. *EdTech Books.* https://edtechbooks.org/up/pp

Helfferich, C. (2014). Leitfaden- und Experteninterviews. In N. Baur & J. Blasius (Eds.), *Handbuch Methoden der empirischen Sozialforschung* (pp. 559–574). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-531-18939-0_39

Hirsch, N. (2021). Hybride Bildungssettings. *eBildungslabor*. Retrieved November 27, 2023 https://ebildungslabor.de/blog/hybrid/

Hirsch, N. (2021). Barcamp + Learning Circles = BarCircles. *eBildungslabor*. Retrieved November 27, 2023 https://ebildungslabor.de/blog/barcamp-learning-circles-barcircles/

Isohätälä, J. (2020). *The interplay of cognitive and socio-emotional processes in social interaction: Process-oriented analyses of collaborative learning*. University of Oulu Graduate School; Faculty of Education. Acta Univ. Oul. E 191, 2020

Jenewein, T. (2022). Retrospective of SAP's Learning Circle Experience. *SAP Community*. Retrieved November 27, 2023 https://blogs.sap.com/2022/02/17/retrospective-of-saps-learning-circle-experience/

Kelly, K. (2021). *From Fragile to Agile: The Future of Learning and Development*. Retrieved November 27, 2023 https://www.td.org/atd-blog/from-fragile-to-agile-the-future-of-learning-and-development

Kirchner, M., & Höfner, C. (2021). *Learnify your Daily Work @ Continental— Lernerfolgsmessung und Best Practices*. Retrieved November 27, 2023 https://www.youtube.com/watch?v=0YX9t_HVGEM

Knowles, M. (1975). *Self-Directed Learning: A Guide for Learners and Teachers. Chicago, IL: Follett Publishing Company.*

Kortsch, T., Kaiser, C., & Stüve, T. (2023). Transformation durch Lernen: Wie die Unternehmenstransformation der DATEV eG mit verschiedenen Dialog- und Lernformaten gestaltet wird. *Gruppe. Interaktion. Organisation. Zeitschrift für Angewandte Organisationspsychologie (GIO)*, *54*(3), 403–410. https://doi.org/10.1007/s11612-023-00698-1

Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory Into Practice*, *41*(4), 212–218. https://doi.org/10.1207/s15430421tip4104_2

Kreijns, K., Kirschner, P. A., & Jochems, W. (2003). Identifying the pitfalls for social interaction in computer-supported collaborative learning environments: A review of the research. *Computers in Human Behavior*, *19*(3), 335–353. https://doi.org/10.1016/S0747-5632(02)00057-2

Kyngäs, H. (2020). Qualitative Research and Content Analysis. In H. Kyngäs, K. Mikkonen, & M. Kääriäinen (Eds.), *The Application of Content Analysis in Nursing Science Research* (pp. 3–11). Springer International Publishing. https://doi.org/10.1007/978-3-030-30199-6_1

Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation* (1st ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511815355

McCusker, S. (2014). Lego®, Serious Play TM: Thinking About Teaching and Learning. *International Journal of Knowledge, Innovation and Entrepreneurship*, *2*(1), 27–37.

McCusker, S. (2020). Everybody's monkey is important: LEGO® Serious Play® as a methodology for enabling equality of voice within diverse groups. *International Journal of Research & Method in Education*, *43*(2), 146–162. https://doi.org/10.1080/1743727X.2019.1621831

McGrath, C., Palmgren, P. J., & Liljedahl, M. (2019). Twelve tips for conducting qualitative research interviews. *Medical Teacher*, *41*(9), 1002–1006. https://doi.org/10.1080/0142159X.2018.1497149

Merriam, S. (2018) Adult Learning Theory. In Illeris, K. (Ed.). (2018). *Contemporary Theories of Learning* (2nd ed.). Routledge.

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation* (Fourth edition). John Wiley & Sons.

Moss, V. A., Adcock, M., Hotan, A. W., Kobayashi, R., Rees, G. A., Siégel, C., Tremblay, C. D., & Trenham, C. E. (2021). Forging a path to a better normal for conferences and collaboration. *Nature Astronomy*, *5*(3), 213–216. https://doi.org/10.1038/s41550-021-01325-z

Murphy, E. (2004). Recognising and promoting collaboration in an online asynchronous discussion. *British Journal of Educational Technology*, *35*(4), 421–431. https://doi.org/10.1111/j.0007-1013.2004.00401.x

Muuß-Merholz, J. (2019). *Barcamps & Co: Peer-to-Peer-Methoden für*

Fortbildungen (1. Auflage). Beltz.

Muuß-Merholz, J. (2021a). *Die tatsächliche Hybridisierung der Bildung – warum sich Lernangebote im digitalen Wandel neu erfinden müssen*. Retrieved November 27, 2023 https://www.selbstlernen.net/hybridisierung-der-bildung/

Muuß-Merholz, J. (2021b). *Hybridisierung der Bildung*. Retrieved November 27, 2023 https://wb-web.de/aktuelles/hybridisierung-der-bildung.html

Muuß-Merholz, J. (2022). *Wie man Online-Teilnehmende bei einer Präsenzveranstaltung einbindet – die Moderation*. Retrieved November 27, 2023 https://www.bpb.de/lernen/digitale-bildung/506138/wie-man-online-teilnehmende-bei-einer-praesenzveranstaltung-einbindet-die-moderation/

Miyake, N., & Kirschner, P. A. (2014). The social and interactive dimensions of collaborative learning. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 418–438). Cambridge University

Niner, H. J., & Wassermann, S. N. (2021). Better for Whom? Leveling the Injustices of International Conferences by Moving Online. *Frontiers in Marine Science*, *8*, 638025. https://doi.org/10.3389/fmars.2021.638025

Nørgård, R. T. (2021). Theorising hybrid lifelong learning. *British Journal of Educational Technology*, *52*(4), 1709–1723. https://doi.org/10.1111/bjet.13121

Oester, S., Cigliano, J. A., Hind-Ozan, E. J., & Parsons, E. C. M. (2017). Why Conferences Matter—An Illustration from the International Marine Conservation Congress. *Frontiers in Marine Science*, *4*, 257. https://doi.org/10.3389/fmars.2017.00257

Ojasalo, K., Moilanen, T., & Ritalahti, J. (2020.). *Methods for Development Work*. Trans. Pulkkinen, R. Ed. Lamminsivu, R. Original work: *Kehittämistyön menetelmät,* 2014. Helsinki: Sanoma Pro. Unpublished. In thesis authors' possession.

Ondrusch, N., Premnavas, S., & Schoenbrunn, J. (2021). Networking and student collaboration in times of virtualized contacts: Working out loud as a method to promote group cohesion. *European Journal of University Lifelong Learning*, 59–69. https://doi.org/10.53807/0501g4u0

Polit, D. F., & Beck, C. T. (2021). *Nursing research: Generating and assessing evidence for nursing practice* (Eleventh edition, international edition). Wolters Kluwer.

Prüfer, P., Vazansky, L., & Wystup, D. (2003). *Antwortskalen im ALLBUS und ISSP: eine Sammlung. (ZUMA- Methodenbericht, 2003/11).* Mannheim: Zentrum für Umfragen, Methoden und Analysen -ZUMA-.

Puccinelli, E., Zeppilli, D., Stefanoudis, P. V., Wittische-Helou, A., Kermorgant, M., Fuchs, S., Menot, L., Easton, E. E., & Weber, A. A.-T. (2022). Hybrid conferences: Opportunities, challenges and ways forward. *Frontiers in Marine Science*, *9*, 902772. https://doi.org/10.3389/fmars.2022.902772

Reinmann, G. (2021). Präsenz-, Online- oder Hybrid-Lehre? Auf dem Weg zum postpandemischen Teaching as design. *Impact Free - Hochschuldidaktisches Magazin*, *37*.

Remmel, A. (2021). Scientists want virtual meetings to stay after the COVID pandemic. *Nature*, *591*(7849), 185–186. https://doi.org/10.1038/d41586-021-00513-1

Riel, M. (2021). *The Learning Circle Model: Collaborative Knowledge Building* [, Center for Collaborative Action Research]. Retrieved November 27, 2023 https://sites.google.com/site/onlinelearningcircles/learning-circles-defined

Roos, G., Oláh, J., Ingle, R., Kobayashi, R., & Feldt, M. (2020). Online conferences – Towards a new (virtual) reality. *Computational and Theoretical Chemistry*, *1189*, 112975. https://doi.org/10.1016/j.comptc.2020.112975

Roos, J., Victor, B., & Statler, M. (2004). Playing seriously with strategy. *Long Range Planning*, *37*(6), 549–568. https://doi.org/10.1016/j.lrp.2004.09.005

Roschelle, J., & Teasley, S. D. (1995). The Construction of Shared Knowledge in Collaborative Problem Solving. In C. O'Malley (Ed.), *Computer Supported Collaborative Learning* (pp. 69–97). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-85098-1_5

Röthler, D. (2021). *Informelle Begegnung in hybriden Bildungs-Settings*. https://david.roethler.at/informelle-begegnung-in-hybriden-bildungs-settings/

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *Vol 55(1)*, 68–78.

Salmon, Gilly. (2014). *Five Stage Model*. Retrieved November 27, 2023 https://www.gillysalmon.com/five-stage-model.html

Sarabipour, S. (2020). Virtual conferences raise standards for accessibility and interactions. *eLife*, *9*, e62668. https://doi.org/10.7554/eLife.62668

Schaefer, T., Fabian, C. M., & Kopp, T. (2020). The dynamics of online learning at the workplace: Peer-facilitated social learning and the application in practice. *British Journal of Educational Technology*, *51*(4), 1406–1419. https://doi.org/10.1111/bjet.12894

Schaefer, T., Rahn, J., Kopp, T., Fabian, C. M., & Brown, A. (2019). Fostering online learning at the workplace: A scheme to identify and analyse collaboration processes in asynchronous discussions. *British Journal of Educational Technology*, *50*(3), 1354–1367. https://doi.org/10.1111/bjet.12617

Schrage, M., & Schrage, M. (1995). *No more teams! Mastering the dynamics of creative collaboration* (1. currency paperback ed., repr). Currency Doubleday.

Sheppard, V. (2021). *Research-Methods-for-the-Social-Sciences-An-Introduction*. BC Campus.

Siemens, G. (2005). Connectivism: A learning theory for the digital age, International Journal of Instructional Technology and Distance Learning, 2. http://www.itdl.org/Journal/Jan_05/article01.htm

Stommel, J. (2012). What is Hybrid Pedagogy? *Hybrid Pedagogy*. Retrieved November 27, 2023 https://hybridpedagogy.org/hybridity-pt-2-what-is-hybrid-pedagogy/

Stommel, J., & Rorabaugh, P. (2012). What Does Hybrid Pedagogy Do? *Hybrid Pedagogy*. Retrieved November 27, 2023 https://hybridpedagogy.org/hybridity-pt-3-what-does-hybrid-pedagogy-do/

Tao, Y., Steckel, D., Klemeš, J. J., & You, F. (2021). Trend towards virtual and hybrid conferences may be an effective climate change mitigation strategy. *Nature Communications*, *12*(1), 7324. https://doi.org/10.1038/s41467-021-27251-2

Taylor, D. C. M., & Hamdy, H. (2013). Adult learning theories: Implications for learning and teaching in medical education: AMEE Guide No. 83. *Medical Teacher*, *35*(11), e1561–e1572. https://doi.org/10.3109/0142159X.2013.828153

Tuckman, B. (2001). Developmental sequence in small groups. *Group Facilitation; 66*(3).

Van Den Van, P., Gijselaers, W. H., Segers, M., & Kirschner, P. A. (2006). Social and Cognitive Factors Driving Teamwork in Collaborative Learning Environments: Team Learning Beliefs and Behaviors. *Small Group Research*, *37*(5), 490–521. https://doi.org/10.1177/1046496406292938

Vuopala, E., Hyvönen, P., & Järvelä, S. (2016). Interaction forms in successful collaborative learning in virtual learning environments. *Active Learning in Higher Education*, *17*(1), 25–38. https://doi.org/10.1177/1469787415616730

Warburton, T., Brown, J., & Sandars, J. (2022). The use of LEGO® SERIOUS PLAY® within nurse education: A scoping review. *Nurse Education Today*, *118*, 105528. https://doi.org/10.1016/j.nedt.2022.105528

Wheeler, S., Passmore, J., & Gold, R. (2020). All to play for: LEGO® SERIOUS PLAY® and its impact on team cohesion, collaboration and psychological safety in organisational settings using a coaching approach. *Journal of Work-Applied Management*, *12*(2), 141–157. https://doi.org/10.1108/JWAM-03-2020-0011

Yang, X. (2023). A Historical Review of Collaborative Learning and Cooperative Learning. *TechTrends*, *67*(4), 718–728. https://doi.org/10.1007/s11528-022-00823-9

APPENDICES

Appendix 1. Questionnaire on losconCircles

loscon23: Questionnaire on losconCircles 1 (3)

As part of a master's thesis, we would like to investigate in more detail how the losconCircles can promote social interaction and collaborative learning in hybrid events. We ask you to complete this questionnaire for that purpose. With this, we aim to gather data on how the losconCircles were used at loscon23.

The estimated completion time is approximately 10 minutes. All collected data will be treated anonymously and exclusively for research and evaluation purposes. The collected data will not be shared with third parties. The results of the master's thesis will be available online.

In addition to this questionnaire, we would like to conduct qualitative interviews in September 2023. If you are willing to participate, please, leave your contact details at the end of the questionnaire (after submitting).

Thank you for participating!

General questions
How old are you?
< 20   20-29   30-39   40-49   50-59   > 60   N/A

Please select your gender
Male   Female   Diverse   Other   N/A

How did you participate in loscon23 (please, select all applicable)?
Onsite in Nuremberg
Online (at home, in the office)
Other (please specify)

What best describes your experience with lernOS Convention (loscon) so far (please, select all applicable)?
I am attending loscon for the first time
I have already attended loscon online
I have already attended loscon onsite
Other, please specify

How do you evaluate the losconCircles as a method to facilitate informal exchange between online and onsite participants of loscon23?
not helpful   partly not helpful   partly helpful   very helpful   N/A

Application of losconCircles
In this part of the questionnaire, we would like to learn more about how you utilised the losconCircles at loscon23.

Have you actively participated in a losconCircle?
Yes   No

If you have not participated in any losconCircle, what were the reasons?

How many members did your losconCircle have?

Our losconCircle consisted of (please, select all applicable):
Onsite participants   Online participants

How often have you met so far in the framework of loscon23?
Never   Once   Twice   Three times   More often

How did you collaborate within your losconCircle?
Online   Onsite   Hybrid

What tools/channels have you used for communication, collaboration, documentation and sharing of your experiences and results of losconChallenge (please, select all applicable)?

Discord   Teams   Whiteboard   OneNote   Mastodon   Twitter   LinkedIn

Other

Did you build your own model for the losconChallenge? If yes, in what form (please, select all applicable)?
Lego blocks   Minetest   Paper   Sketchnote   Other   I did not build an individual model

Did your losconCircle build a joint model for the losconChallenge? If yes, in what form (please, select all applicable)?
Lego blocks   Minetest   Paper   Sketchnote   Other   I did not build an individual model

How do you plan to continue with your peer learning circle?
We do not plan to meet after loscon23
We plan to meet after loscon23
We plan to present our Lego Serious Play model at the DATEV DigiCamp (July 18/19)
Other, please specify:

User Perception of the losconCircle method

In this section, we would like to gather more information about your experiences with the losconCircle method, including aspects related to networking, social exchange, and collaborative learning.

What added value did losconCircles provide?

New contacts
Personal exchange
Exchange of information about loscon23 (how does it work?)
Professional exchange on individual topics of plenary, sessions, etc.
Deepening the knowledge about the theme of the lernOS Convention (Crafting Learning Environments)
Getting to know/trying out new learning methods (i.e. Lego Serious Play)
I did not get any added value from the losconCircles
Other

Assessments of losconCircle

LosconCircles have helped me connect with online participants
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

LosconCircles have helped me connect with onsite participants
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

LosconCircles helped to better navigate the hybrid setting
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

I was able to share my own perspective on future learning environments in our losconCircle
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

We were able to develop joint ideas on future learning environments in our losconCircle
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

Lego Serious Play was helpful for developing my own ideas on future learning environments
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

Lego Serious Play was helpful for developing common ideas on future learning environments
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

For the success of losconCircles, a high level of engagement from the circle participants is required
   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

I would have preferred more predefined structure in the losconCircles

   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

We had enough time during loscon to work on the challenge within our losconCircle

   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

I can imagine applying the losconCircles method in my professional environment

   Fully disagree   Partly disagree   Partly agree   Fully agree   N/A

Supporting and constraining factors for losconCircles

What factors do, in your opinion, contribute to the success of losconCircles?

What factors do, in your opinion, hinder the effectiveness of losconCircles?

Is there anything else you would like to note about the losconCircles (e.g. what we should do differently, better, or stop to do)?

Appendix 2. Guide for semi-structured interviews

Key questions	Check-list
Introductory question: Please, describe how you have been using the losconCircles during loscon23?	*Circle participants (online/onsite), tools, number of meetings, meetings/events after loscon*
How did you experience the losconCircles from your perspective as _____ in terms of connecting online and onsite participants in a hybrid setting?	*Perspective as online/onsite // newbie/regular participant* *Supporting and hindering factors*
To what extent do you believe as _____ *that* losconCircles have contributed to social interaction and collaborative learning on eye level during loscon23?	*Perspective as online/onsite // newbie/regular participant* *Own opinion/model, common reflection, common ideas, common artefact/common model (Murphy's model)*
From your perspective, how did the Lego Serious Play (LSP) method support collaborative learning?	*Own model, common model, form of model, losconChallenge, effect of LSP, added value*
In your view, which (external and internal) factors in losconCircles supported collaborative learning between online and onsite participants in loscon Circles?	*External: setting and process* *Group level: group development* *Individual level: motivation* *Way of learning* *Learning effects*
What do you think could have been done better to promote networking, interaction and collaborative learning between online and onsite participants?	*Aspect of sustainability, application of knowledge in own field, participation in DATEV DigiCamp, Hackathon, Community Call (sharing knowledge)*
Final question: Do you have any further remarks concerning losconCircles?	

Appendix 3. Privacy notice for losconCircles interviews

Title of the registry	Bridging the hybridity gap - Connecting online and onsite learners through peer learning circles (losconCircles)
Date	27.8.2023
Data controller(s)	
Supervisor or the contact person of the institution	
Purpose and lawful basis for processing personal data	Your personal data will be processed in the thesis regarding losconCircles. The data will be used to analyse the application and the perception of losconCircles by the participants of loscon23. Based on those insights, recommendations shall be made how the method of losconCircles can be improved and applied in other hybrid settings. The data might also be published in evaluation reports of loscon23, by the organiser of the events (Cogneon Academy). Participation is voluntary. The lawful basis for processing is consent. You can withdraw your consent any time by informing the data controller. The thesis supervisor may have access to the data in order to process and evaluate the thesis. In such case, the Tampere University of Applied Sciences acts as the data controller and the lawful basis is public interest.
Duration of processing personal data	Data will be stored to be used for the Master's thesis of the data controller. After the thesis has been accepted (estimated 12/2023) and above-mentioned reports have been published, the data will be destroyed. In so far as the supervisor has access to the data in order to supervise and evaluate the thesis, the supervisors and evaluators process personal data only as long as it is necessary to the thesis to be accepted.
Content of research records and sources of personal data	- Names - Contact information - Project data, i.e. professional background The data are being collected by interviews. Those will last about 45 minutes.
Data subject's rights	Under the EU's General Data Protection Regulation (GDPR) you have the right to access your data, right to rectify your data, right to have your personal data erased ('right to be forgotten'), right to restrict processing and right to object to the processing of your data. In case you would like to use any right, contact the data controller.
Right to lodge a complaint with a supervisory authority	Data subjects have the right to lodge a complaint with a supervisory authority in their permanent place of residence or place of work, if they consider the processing of their personal data to violate the provisions of the GDPR (EU 2016/679).
Recipients of the personal data	Your personal data will only be disclosed to parties mentioned in this privacy notice.
Data protection principles	Interviews will be recorded and transcribed digitally via Microsoft Teams/Microsoft Word. Digital data will be protected with username and password. Direct identifiers will be removed from the data.

Appendix 4. Recommendations for setting up losconCircles

Recommendations for setting up losconCircles in hybrid settings 1 (3)

Implementing losconCircles in various hybrid settings requires tailored adjustments in both the set-up (i.e. timeframe, technical aspects, didactics) and process (i.e. facilitation). Framework, openness, support and commitment have been identified as key success factors for collaborative learning within losconCircles. However, different contexts bring distinct requirements related to those parameters, necessitating a thorough analysis of challenges and opportunities for a successful implementation. This list of recommendations is based on the implementation of losconCircles at loscon23. It is important to note that the success of losconCircles relies on openness and experimentation. Therefore, these recommendations shall be viewed as an inspiration and as a flexible framework for own explorations.

Set-up: Time
- How much time can be allocated to losconCircles?
- How many time slots can be provided for losconCircles in the event programme?
- Which activities can/should be done asynchronously or synchronously?

Recommendations:
- Fixed agenda items for losconCircles strengthen participants' commitment:
  - LosconCircles should be set up before or at the beginning of the event to allow trust-building.
  - Multiple time slots for losconCircles during the event allow for shared reflection on content and learners' role and hence support deeper learning.
  - A retrospective at the end of the event can be conducted to share insights, discuss ongoing collaboration, and announce future community events.
- Creative methods like Lego Serious Play require time and facilitation; in case of limited time more straightforward methods are suitable (i.e. Liberating Structures).
- Preparatory activities can be organised asynchronously to leave more time within synchronous slots for introduction, discussion, and reflection.
- losconCircles can be linked to other community events in pre- and post-event phases to support group cohesion and community building (see DATEV-DigiCamp).

Set-up: Technology and facilities
- How is the technical infrastructure onsite (i.e. Wi-Fi)?
- What is the required – and existing – technical set-up of onsite and online participants: Which tools are in use for losconCircles? How familiar are participants with these tools? Are there any restrictions, i.e. data protection? How much support do onsite and online participants require?
- What are the onsite facilities like? Are there enough spaces for losconCircles to have privacy and conduct their activities?

Recommendations:
- A simple technical set-up for losconCircles is essential to avoid overwhelm. Compatibility with smartphones is crucial. Technical minimal requirements should be communicated to participants in advance.

- The recommended technical essentials for losconCircles at loscon23:   2 (3)
  - Equipment: laptop, mobile phone, and headset
  - Tools: Discord for communication and Conceptboard for collaboration and documentation
- Learnings from loscon23: A good Wi-Fi connection is essential. Audio quality is even more important than video quality.
- At loscon technical problems emerged especially onsite: Provide opportunities for participants to practice with new tools beforehand and conduct a brief technology introduction at the start of losconCircles. Technical support could be offered during the event by the organisers or tech buddies, along with providing tech manuals.
- To avoid background noise, ensure that quiet retreat spaces are available for onsite losconCircles. In summer, participants can also work outdoors.

Set-up: Task

- What is the goal of the event (information sharing, exchange, or collaboration)? What skills and competencies shall be developed? What topics interest the participants?
- What task is feasible within the available timeframe and technical set-up?
- How eager and experienced are participants in self-organisation and collaboration? What is their willingness for digital collaboration?
- Can the task be effectively solved both online and onsite?

Recommendations

- A shared task enhances participants' commitment. The task should provide added value for participants (i.e., new knowledge in relevant areas, trying out new methods, making new contacts). This purpose should also be communicated clearly.
- A theme-based version of losconCircles can be utilised. Themes can be queried beforehand; the circles can then be composed accordingly (similar to BarCircles).
- Playful, creative, experimental and challenging methods and content are particularly suitable for losconCircles. This may involve trying out new methods, learning formats, or developments in the field of Artificial Intelligence. However, the task should be designed based on the participants' level of experience. At loscon23, participants found Lego Serious Play activating and inspiring, especially with adequate time and guidance.
- Loscon participants have experienced losconChallenge as supportive for reflection: on the convention's theme and their role as a learner. Organisers can support reflection by providing reflective elements.

Process: Facilitation

- What level of knowledge and information do participants have, what information do they need? What communication tools do participants use?
- How experienced is the target audience? Which subgroups need specific information and support? How can these subgroups be reached?
- Who can assist? Are there more experienced participants who could serve as buddies?

Recommendations:

- It helps to consider losconCircles from the perspective of both onsite and online participants: What learning paths do they take? Where do hurdles arise?

- A central, digital repository accessible to everyone with all required losconCircles information is crucial. Additionally, physical information (e.g., a poster with quick tips and quick links) can be placed onsite.
- For less experienced participants, checklists for the necessary set-up, tasks, and losconCircles process can be provided
- The facilitator of the event should explain the process and task in detail with clear information where to find help during the process.
- Online and onsite buddies are helpful for support during losconCircles.

Group level

- Do the participants already know each other beforehand (community)? What is the level of trust among participants?
- How experienced and open are participants to methods like losconCircles? Are there more experienced participants who can support the circle?

Recommendations:

- Smaller groups (three to six participants) strengthen commitment for collaboration
- Diversity through random group composition provides participants with broader perspectives and can lead to deeper learning.
- losconCircles need sufficient time for group formation. Group cohesion can be strengthened through virtual socialising before and during the event, using icebreaker (i.e. check-in questions, impromptu networking), networking (i.e. trio of communalities), or reflective activities (i.e. 1-2-4-all). Methods for communicating on equal footing promote collaboration (e.g., Lego Serious Play, Liberating Structures).
- Experienced peers can assist in losconCircles. However, they should not take the lead but provide support in the organization.
- Circle participants should have ample space for experimentation and exploration and be able to shape the process themselves.

Individual level

- How motivated are the participants to take part in losconCircles? What is their motivation for participating? What topics are of interest?
- How experienced are participants in collaboration and self-directed learning? What support do they need?

Recommendations:

- LosconCircles require a high level of self-organisation and intrinsic motivation. Motivational factors at loscon23 included the challenging task, diversity of group, experimental setting and the fun factor. Possible topics and participants' preferences can be queried beforehand to strengthen interest and commitment.
- If participants are less experienced with self-organised and collaborative learning, input can be given (i.e. learning canvas, tips for self-organisation.
- Target-specific support is crucial to include all participants, especially newbies and online participants. A more experienced circle buddy can provide assistance.