

# LET'S HAVE A VIRTUAL COFFEE; HOW MS TEAMS ENCOURAGES INFORMAL INTERACTION BETWEEN PEERS

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*Spontaneous conversations happening around the coffee machine at the office belong to the past as, due to the COVID-19 pandemic, employees are ought to work from home and collaborate via groupware systems like Microsoft Teams (MS Teams). Nonetheless, these informal interactions between peers are crucial for the enhancement of collaboration and in turn positive organizational outcomes. It is widely acknowledged by literature that groupware systems cannot substitute the face-to-face casual chit-chats. However, it is not well explored how groupware systems like MS Teams encourage or discourage these interactions. This study aims to fill the literature gap by building upon the affordance perspective to informal interactions from Fayard and Weeks (2007) and the affordance perspective to information systems of Leonardi (2011). Gaining these new insights are relevant as chances are that the majority of the teams will keep using MS Teams as the main communication channel. A qualitative study has been done by conducting interviews in a team of the Heineken Company. Results indicate that the concepts of environmental setting, team culture, familiarity, and the features of MS Teams are important constructs in encouraging informal interactions via the groupware system. This research suggests a model which illustrates these findings. Furthermore, implications are given on how to enhance the affordances and decrease the constraints when making use of MS Teams, with the aim to encourage spontaneous conversations between colleagues. Finally, study limitations and suggestions for future research are mentioned.*

**Keywords:** Informal interaction; Theory of affordances; Virtual teams; Groupware systems; Microsoft Teams

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## HOW MS TEAMS ENCOURAGES INFORMAL INTERACTION

There has been increasing recognition of the added value of the spontaneous chit-chats between colleagues at the coffee corner or in the hallways. Namely, informal interactions are seen as a crucial part of management work (Mintzberg, as cited in Fayard & Weeks, 2007), a way innovative ideas are created within organizations (Kraut, Fish, Root & Chalfonte, 1990), and to improve collaboration within teams (Pinto, Pinto & Prescott, 1993). In addition, informal communication enables interpersonal exchange, which is relevant for intellectual teamwork (Röcker, 2012). Although, past studies were not positive about informal interactions within organizations and viewed those kind of interactions as a cause of inefficiency and a noisy distraction from the daily work (Roethlisberger & Dickson, 2003). Nowadays however, this perspective has shifted. Kraut, Fussel, Brennan, and Siegel (2002) even highlight that the lack of informal interactions in virtual teams has a harmful effect on the performance of those teams. As virtual team members are lacking opportunities for informal interaction, members are forced to rely on planned meetings to collaborate. This requires more time and effort and consequently lowers efficiency.

Nevertheless, the COVID-19 pandemic has accelerated the expansion of virtual teams as individuals are forced to work from home and companies have realized new ways of distributed working and collaborating virtually via technology. Chances are that the traditional co-located teams will be less common after the pandemic and individuals are going to prefer working remotely, either due to for example real estate costs or locational preferences (Malhotra, 2021). It has long been argued that virtuality in teams is a “double-edged sword”, with efficiency advantages but on the other side also disadvantages regarding personal contact. As mentioned above, not sharing a workplace challenges the possibility to maintain spontaneity and informal interactions between employees in this virtual space (Zenun, Loureiro & Araujo, 2007). With the tendency to bridge this gap, a commonly used technology nowadays in virtual teams are groupware systems such as Microsoft Teams (MS Teams), Jira, Trello, etc. Collazos and colleagues (2019) explain that groupware makes the user aware that the individual is part of a group, while other software conceal and guard the users against each other. Team members use groupware systems to interact with each other through direct communication channels (Tee, Greenberg & Gutwin, 2006). It is widely acknowledged by research that virtual team members interact less in an informal way through groupware systems compared to co-located peers (Gibson & Gibbs, 2006; Röcker, 2012; Zenun, Loureiro & Araujo, 2007). This can be explained as evidence illustrates that some settings vary in the extent to which they afford informal interaction (Fayard & Weeks 2007). However, we lack a theoretical understanding of *how* groupware systems encourage or discourage informal interaction. This is beneficial to

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investigate as informal interaction is crucial and on top of that, groupware systems are widely used by teams due to the pandemic. Therefore, the purpose of this qualitative research is to discover the affordance of informal interaction of groupware systems in virtual teams.

The affordance perspective to informal interactions from Fayard and Weeks (2007) and the affordance perspective to information systems of Leonardi (2011) offer a useful starting point. This research builds further upon these perspectives, which creates a theoretical lens for examining how setting, technology, and social agency lead to employees perceiving groupware systems as either affording or constraining informal interaction. Fayard and Weeks (2007) stated that it is important to understand the environmental requirements to afford informal interaction and noted three environmental requirements in the office; People must come into unplanned contact with others (propinquity), people must be able to control the boundaries of their conversation (privacy), and people must feel that it is socially acceptable to stop and talk to each other in this setting (social designation). The question is if these requirements are also applicable to groupware systems used by virtually distributed teams. In turn, Leonardi (2011) suggests that people actively compose perceptual affordances and constraints, as individuals attempt to accommodate their own goals with technology. Thus, the question is whether team members perceive that groupware systems afford or constrain informal interactions. This research focusses on the groupware system MS Teams since this is a popular groupware system used by virtual teams to communicate with each other, as a result of the COVID-19 pandemic. This leads to the research question: *How does MS Teams encourage or discourage informal interaction between team members in an organization?*

By answering this question, the study aims at extending scientific knowledge and the practical implication of encouraging informal interaction through the groupware system MS Teams. In the end, a model is suggested which illustrates the process of how team members are either encouraged or discouraged to initiate informal interaction via MS Teams. The suggested model can be used by managers as a guideline to stimulate informal interactions in virtual teams when making use of MS Teams.

## THEORETICAL BACKGROUND

The contact with peers design the daily work life structure in organizations. Human connections in organizations are vital for the accomplishment of work (Dutton & Heapy, 2003). Berscheid and Lopes (1997) suggest that a connection is the dynamic, living tissue existing between two individuals when there is an interaction between them. Different kind of interactions connecting colleagues can be defined. Crawford and LePine (2013) came up with a configural theory of

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team processes where taskwork and teamwork are the network relations that connect team members. This theory goes beyond the general level of shared perception of team interaction and describes in detail key patterns of team member interactions. Whereas the taskwork network depicts what kind of tasks a team member is performing and with whom, the teamwork network depicts how they are interacting to accomplish those tasks. Teamwork interaction involves (1) transition processes, which are the interactions reflecting on and interpreting previous accomplishments as well as prepare for future actions, (2) action processes, which are the interactions and actions when primary work is accomplished, (3) inter-personal processes, which are the interactions focussing on the personal relationships between peers (Marks, Mathieu & Zaccaro, 2001). This research focusses on the teamwork interactions between virtual team members.

Many organizational academics have considered communication and interactions largely along the formal or informal dichotomy (e.g., Allen, 1977; Hartman & Johnson, 1990; Johnson, Donohue, Atkin, & Johnson, 1994; Kraut, et al., 1990). Established on the level of improvisation and pre-planning, Kraut and colleagues (1990) classify workplace interactions into four types: (1) scheduled or arranged conversations on the forehand; (2) intended conversations sought by one individual (intended); (3) opportunistic interactions that were foreseen by one person but occur by chance; and (4) spontaneous conversations that were unanticipated by either team member. Kraut et al. (1990) mark opportunistic and spontaneous conversations as informal communication and suggest that low formality conversations are defined by a low pre-specification, conventionality, and rule-boundedness. However, researchers from different fields have defined and categorized formal and informal communication in different ways. For example, Whittaker, Frohlich, and Daly-Jones (1994) believe that if one individual foresaw the interaction it has to be scaled as formal interaction.

Though, it is relevant to keep in mind that informal interaction works differently in practice in virtually distributed teams compared to co-located teams. Whereas co-located team members physically bump into each other at the coffee corner, virtual team members have to actively (video-)call one another to interact. Meaning that in the majority of the virtual interactions, one of the individuals anticipated the communication. That is why in this study the view of Kraut and colleagues (1990) is adopted. Meaning that when virtual peers (video-) call one another spontaneously and unplanned, this is seen as informal interaction. According to multiple studies, communication technology supports spontaneous and informal interactions less well compared to formal communication (Gibson & Gibbs, 2006; Röcker, 2012; Zenun, Loureiro & Araujo, 2007). Nevertheless, little research has investigated *how* the virtual setting

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and groupware systems afford informal interaction. In this study, the distinction is made between transition, action and inter-personal interactions as mentioned earlier.

### **Informal interaction and virtual setting**

The first question to be addressed is what the environmental requirements are to afford informal interactions in virtually distributed teams. Fayard and Weeks (2007) state that privacy, propinquity, and social designation determine informal interactions. This suggests that a setting needs to bring people into unplanned contact with each other (propinquity), allow people to control the boundaries of their conversation (privacy), and provide legitimate rationalizations that are socially acceptable for individuals to stay and talk to each other in the setting (social designation). However, these environmental requirements are focused on the physical setting and informal interaction is more easily gained when people are in close physical proximity (Neustaedter & Greenberg, 2003). That is why the traditional work environment lends itself perfectly to bring people into contact. In a shared office, an individual's availability is easily assessed, consequently lowering the threshold to interact and making it easier to estimate if the environment allows for interrupting someone. Research suggests, physical proximity to be the predominant factor influencing the frequency, quality, and cost of informal communication in the workplace (Tang, 1991; Whittaker, et al., 1994). Granted that physical proximity cannot be realized in virtual teams, most of the natural channels of social communication are eliminated raising the threshold for informal communication (Farshcian, 2001). Based on this, it can be concluded that the environmental requirements become less relevant for this research and the focus lays on the requirements of the groupware system used by the virtual team to interact.

Prior research drew implications for features that artificial proximity must provide to encourage informal interaction. One important implication that is mentioned is awareness, which is a complicated cognitive process that enables individuals to adapt to the environment or immediate context by recognizing and understanding it (Saner, Bolstad, Gonzalez, Cuevas, 2010). For individuals to have human interaction and communication, it is a basic requirement to perceive, recognize, and understand other people's activities (Collazos et al., 2019). In turn, communication enables team members to engage in informal interaction (Gutwin et al. 2008; Willaert, Lou, Van Broeck, Van den Broeck & Jacobs, 2012), making awareness a crucial requirement for the artificial proximity to stimulate informal interaction. Kraut and colleagues (1990) highlight that awareness of others is the essence of informal collaboration. This makes that it is crucial for technology to support awareness. In the physical office, employees are constantly moving around and seeing their co-workers, which makes them aware of who is at

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the office and with whom it is possible to interact, lowering the threshold for interaction. However, using technology to interact reduces the likelihood that co-workers unplanned occupy a common space and have an overview of who is present in the virtual space. That is why Kraut and colleagues (1990) state that for informal interaction to occur in artificial proximity, individuals need an environmental mechanism that brings employees together and gives them a feeling of co-presence. Gutwin and colleagues (2008) add to this that next to the awareness of other people in the group, it is also important to be aware of their work environments and a general sense of what kind of tasks people carry out as this enhances the understanding of the context. Collazos and colleagues (2019) in turn, build on this view by stating that awareness is a mechanism that provides contextual information about the past activities, present condition, and future opportunity of the virtual space in groupware systems. Widening the concept from solely focussing on awareness of others, Endsley (2000) suggests that humans are able to plan their own actions and obtain new information by being aware of the context. Thus, it can be stated that awareness plays an important role in the fluidity and naturalness of informal collaboration in remote collaboration. Collazos and colleagues (2019) make a distinction of awareness of people (structure, state, location, actions, activity), task or project (structure, state), and resources (structure, state, availability). A variety of tools have been implemented in groupware systems that support these types of awareness between team members. Examples are an organizational chart alongside people's avatars to make others aware of the people's structure and position; emoticons, auditory icons, avatars, and text to make others aware of the people's state, actions, and activities; and Gantt charts which dynamically show the structure and state of a task or project; a conceptual map of the structure of the resource, and tables, diagrams, and icons may be used for the resources state. Awareness delivery could be "passive" or "active", in which in a passive mode the awareness information is delivered to group members without requiring any specific actions on their part and active mode requires specific actions to request awareness information (Rittenbruch, 2011).

Secondly, low personal cost, or in other words lightweight initiation, is suggested as important to ensure that groupware systems afford informal communication. Kraut and colleagues (1990) state that if the costs to interact via the groupware systems are too high "the user is either unable or unwilling to use that system for the brief, frequent, spontaneous conversations that are characteristic of informal communication" (p. 34). Gutwin and colleagues (2008) agree on this and state that informal interactions only take place if the costs for individuals participating in collaboration are low since informal interactions are unrestricted. This means that people must decide whether the potential benefits are worth the

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costs of the interaction. By costs of interaction is meant the amount of effort needed to start and conduct a conversation. It can be concluded that it is necessary to make it as easy as bumping into each other in the hallway, to provide low-cost interaction to virtually dispersed teams as people's willingness to expend effort on the collaboration is fairly low. Gutwin and colleagues (2008) suggest instant messaging as a feature to encourage quick informal expressions and providing an effortless transition between awareness and communication. People tend to be less careful about their spelling and grammar when using instant messaging as it is normally not printed, forwarded, or cited, which in turn encourages informal expressions and lightweight communication (Törlind & Larsson, 2002).

Lastly, people need to have the ability to negotiate the possibility of engaging in informal interaction and control the boundaries of the conversation (Gutwin et al., 2008). This ties into the physical environmental requirement; privacy, which can be defined as selective control of access to the self or one's group (Altman, 1975). Fayard and Weeks (2007) state that having the ability to control the boundaries of interactions has two dimensions; the spatial dimension and the temporal dimension. The spatial dimension suggests that people must have confidence that the communication is received by the intended recipient and cannot be read or overheard by others. The possible sensitive nature of many informal interactions makes this essential, as the absence of such privacy makes individuals hesitant to initiate interaction. Second, there is a temporal dimension that considers the privacy of control over access to oneself. A place is private if it gives control over whether individuals decide to interact with others or not. Gutwin and colleagues (2008) mention kind of mechanisms in groupware systems for protecting both dimensions of privacy; A warning can be sent to the target before an individual initiates or interrupts an interaction. In the same way, controls can be included in people's abilities to interrupt one another. It would be best if the system gave individuals enough information to deal with privacy issues in the same way as people are able to manage to do so in the real world (Gutwin et al., 2008).

In short, awareness, low personal costs and privacy are important requirements for MS Teams to support to afford informal interactions. Yet, if MS Teams possesses these requirements, this does not automatically result in individuals initiating informal interaction. This can be explained through the lens of the structuration theory from Giddens (1984), which suggests that people are relatively free to withstand as they are in control of their agency. Researchers define human agency as the power to shape and bring about one's goals (Emirbayer & Mische, 1998; Giddens 1984). Giddens (1984) suggests that people can explain the majority of their actions and know about the way society works. This assumption should be explicitly

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taken into account during this research. Nevertheless, if MS Teams affords the initiation of informal interaction, how does an individual decide whether to act like it? This research uses the theory of affordances as scope to answer the question how team members perceive that MS Teams afford or constrain informal interactions, which in turn addresses the research question: *How does MS Teams encourage or discourage informal interaction between team members in an organization?*

### **The theory of affordances**

The ecological psychologist Gibson (1986) proposed the theory of affordances, wherein it is stated that actions by individuals are called forth by the affordances of an object or environment. More precisely, this entails both the possibilities of action a product offers to an actor and constraints which can block an individual from achieving a particular goal. To illustrate, the handle of a cup affords us to be able to hold a warm cup and automatically triggers the action in our mind (Fayard & Weeks, 2007; Tucker & Ellis, 2004). Building on this, Leonardi (2011) suggests that as individuals attempt to adjust their own goals with technology, people actively conceive perceptual affordances and constraints. People make decisions on how to use the technology contingent upon whether it is perceived that technology affords or constrains their goals. This recognizes that depending on the goals and scopes in a given context of an individual, team members can perceive the same technology in another way. That is, a phone affords playing games for small kids, while this may not be perceived in the same way to an adult. Affordances and constraints thus present a valuable analytical lens for studying how team members perceive MS Teams in different contexts. The technology has features that encourage informal interactions, though those features afford a variety of possibilities for action depending on the contexts in which it is used (Leonardi, 2011). Fayard and Weeks (2007) highlight the importance of the social designation of a setting in its affordance of informal interaction, next to the physical proxies mentioned by the theory of Gibson (1986). According to them, the affordance of an environment also arises from the shared understanding about the actions designated as appropriate in the setting. Meaning that, in order for team members to informally interact with other people, they must feel that it is socially acceptable to do so in the virtual space.

Thus, the theory of affordances helps to demonstrate how physical and social elements interact to shape human behavior in different contexts. It is expected that social designations also plays a role in the encouragement of informal interaction, next to the physical features of MS Teams preferably supporting awareness, low personal cost, and privacy



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### Present study

The participants of this study all used the groupware system MS Teams to interact with each other. MS Teams offers workspace chat and videoconferencing, file storage, and application integration. With these features, the requirements awareness, personal low cost, and privacy, mentioned in the theoretical background are supported as followed. First, to create awareness of people's state, MS Teams constantly shows the availability of virtual team members. Possible statuses are; "available", "away", "busy", "do not disturb", "in a meeting", "presenting", "out of office", or "offline". Individuals have the possibility to include an explanation for their status. Next to that, all individuals have their own avatar, with the possibility to include a personal picture, function title, and their position in the organizational structure. This to create awareness of tasks and people's structure. Figure 1, shows how MS Teams provides an overview of peers.

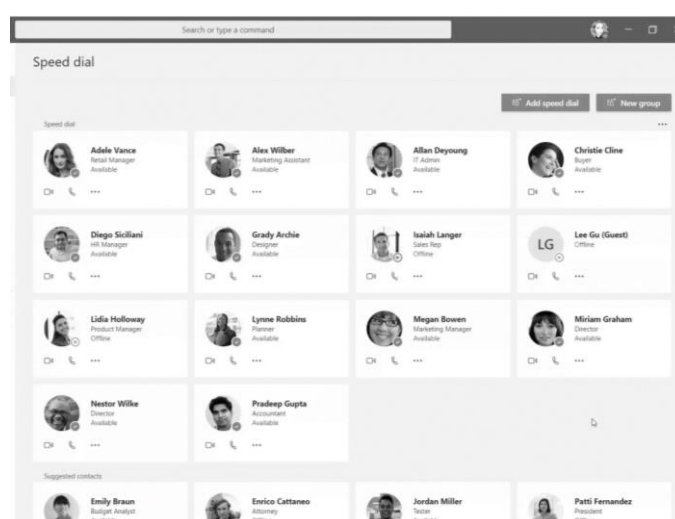


Figure 1. Overview of people in MS Teams

In addition, it is possible to manage your own calendar and it for others to view your agenda if permission is given. This allows for others to be aware of your schedule. To ensure awareness of the state of tasks or projects, MS Teams provides a planner which can be used to upload and update the status of tasks and to do's of colleagues. Secondly, to ensure that there is a low amount of effort needed to start and conduct a conversation, MS Teams has an easy chat function, to share opinions, GIFs, stickers, and emojis in a group chat or one-to-one messages. On top of that, it is possible to go to a group chat, video conference, or one-to-one call with the touch of one button. Moreover, it is easy to find, share, and edit files. This is illustrated in the screenshot below (Figure 2).

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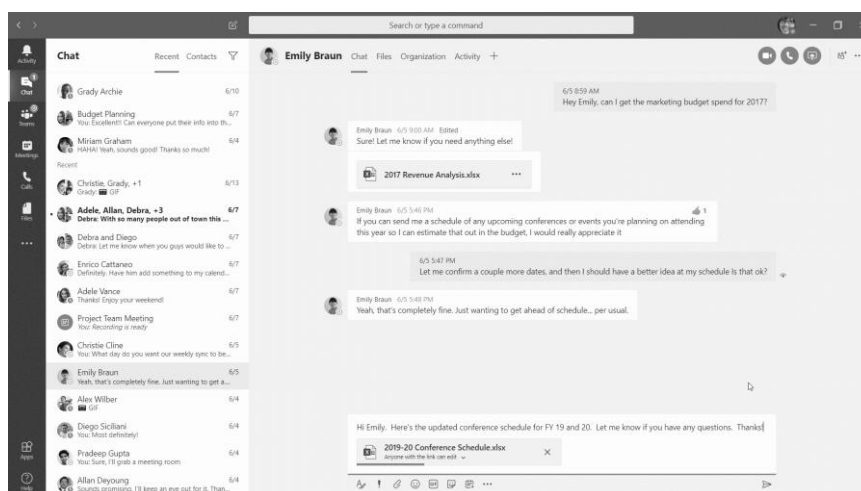


Figure 2. Personal conversation, document sharing and call-function

Lastly, MS Teams ensures privacy by meeting regulatory, legal, and organizational needs. On top of that, without an invitation others are not able to join a meeting. This means that there is a certainty that conversations are not be disturbed unannounced. Thus, MS Teams possesses all the required features to encourage informal interaction in theory. However as mentioned earlier, this does not mean that the individuals, in reality, automatically perform informal interaction via MS Teams.

**Interviews.** To be able to answer the first question; how MS Teams encourages or discourages informal interaction between team members, it is necessary to conduct interviews since people can perceive the same technology differently as discussed above. Interviews are conducted among 30 virtual team members to get a better understanding of the perceptual affordances or constraints of MS Teams with regard to informal interactions. In this research two different interview methods were used. All interviews were done over the phone, as live interviews were not possible due to the restrictions of the COVID-19 pandemic, however, the setting differed. One-half of the participants sat behind the desk of their home office during the interview (online interview method), while the other half was walking outside during the interview (online walk & talk method). As two different interview methods were used in this study, it is relevant to investigate whether the method has a particular influence on the attitude formation of the participants. An attitude is defined as a personal view or orientation and the formation of an attitude can be affected by social and cultural experiences (Kandler, Bell, Shikishima, Yamagata & Riemann, 2015; Watts & Dodds, 2007;). In line with the affordance theory, a different context or environment has the ability to evoke a different affordance among individuals and thus different attitudes. For this reason, next to the first research question a

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second research question is conducted: *To what extent does the interview method influence the attitude formation of the team members towards informal interaction through MS Teams?*

Research suggests that physical activity in nature is linked with immediate mood benefits and enhanced psychological influences (Biddle, 2003; Scully, Kremer, Meade, Graham & Dudgeon, 1998; Yeung, 1996). Moreover, Abraham, Sommerhalder, and Abel (2010) link physical realms to attention restoration, stress recovery, and evocation of positive emotions. Based on these studies, it is suggested that walking has a positive impact on emotions and that in turn individuals form their attitude more positively. Based on this assumption the following hypotheses are proposed:

*H1: Online walk & talk method participants have a more positive attitude towards the informal interaction compared to participants from the online interview method.*

*H2: Online interview method participants have a more negative attitude towards the informal interaction compared to participants from the online walk & talk method*

### **Theoretical background summary**

Two research questions are answered in this study. Firstly, it is investigated how MS Teams encourages or discourages informal interactions between peers. Gaining these new insights are relevant as informal interactions are vital for positive outcomes of organizations. On top of that, chances are that the majority of the teams keep using MS Teams as the main communication channel. This research uses the definition of informal interaction by Kraut et al. (1990), who mark conversations low in pre-specification, conventionality, and rule-boundedness as low formality interactions. Interactions are distinguished by the different teamwork processes suggested by Marks et al. (2001), which includes transition, action, and inter-personal processes. This to get a detailed view of what kind of collaboration interactions are perceived as informal. Based on the findings in the literature research, features of MS Teams that support awareness, low personal cost, and privacy are expected to play an important role in affording the initiation of informal interaction. Nevertheless, this cannot be assumed as Leonardi (2011) suggests that individuals actively conceive perceptual affordances and constraints based on their own goals with technology. Meaning that the affordances and constraints can differ per participant and do not solely depend on the features of MS Teams. For this reason, the perceptual affordances and constraints are analyzed during the interviews. Additionally, Fayard and Weeks (2007) found that social designation also impacts the encouragement of informal interaction.

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Secondly, it is investigated whether the interview methods have an influence on the attitude formation of participants regarding informal interaction over MS Teams. It is expected to have influence as the affordance theory by Gibson (1986) suggests that a different environment has the ability to evoke different affordances among individuals. For this reason, it is determined whether the participants of this study are referring to informal interactions in a positive or negative way. This is to gain insight in the attitude of the team members towards the informal interactions through MS Teams.

### METHOD

In this research, a qualitative approach was used to collect data on how MS Teams encourages or discourages informal interaction between team members. The function of qualitative research is to explain and comprehend social phenomena through rich and descriptive data, in terms of the meaning perceived by people (Boeijs, 2009). As informal interactions in the online setting have not yet been extensively examined, a method with explorative power is required. The researcher of this study preferred participant observation as a method to collect the data, since this approach allows to study every element of human existence belonging to human meaning and interactions, such as organizational life (Boeijs, 2009). In other words, participant observations would have fit as method to collect data about the everyday informal interactions via MS Teams between team members. Nevertheless, it was not achievable to take part in the participant's everyday life due to the social distancing restrictions of COVID-19. It would have been possible to join the online meetings as a 'fly on the wall' to investigate informal interaction, however, this would not cover the encouragement of initiation of informal interactions through a work day. That is why it was chosen to conduct semi-structured interviews in such a way that participants were asked to tell about their perception of everyday collaboration while working from home through MS Teams. The team members were not aware that informal interaction via MS Teams was the scope of this research, so during the interview they talked freely about their experiences without being biased and steered to the specific topic. This came the closest to the favored observation technique. All 30 participants were interviewed for approximately one hour, meaning that in total around 30 hours of interviews were conducted. As two different interview methods were used during this study, a Mann-Whitney U test was conducted to investigate whether the method influenced the attitude of the participants.

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### **Participant sample**

The participants of this study were selected from the Heineken Global company. Employees of the multinational were chosen as the virtual setting is well-known to them, minimizing the perceived constraints due to inexperience of the participants who are not familiar with the technical features of MS Teams. Participants were picked on a voluntary basis. Invites were sent to 40 individuals and 30 responded to be willing to take part in the interviews. A busy work schedule was the main reason mentioned by the remaining 10 individuals to not participate. Most of them had a management position and this might be a reason that the older age groups were less represented. However, it is expected that this bias does not heavily impact the outcomes of this study since there were participants with management functions and older generations taking part in the interviews. Another reason might be the average low age in the team. On average, the participants were part of two different cross-functional teams and divided their time over the teams. In total 47% of the participants were female (N=14) and 53% of the participants were male (N=16). The roles and backgrounds of the participants were diverse as can be seen in table 1. This makes it an excellent sample for this research as it reflects perceptions from a wide scale of team members.

### **Data collection procedure**

To guarantee that the ethical rules of behavior were followed during this study, the data collection procedure has been approved by the Ethics Committee of the Faculty of Behavioural, Management, and Social (BMS) sciences of the University of Twente.

**Timeline.** Prior to the interviews, participants were asked by mail to fill in a timeline template to indicate how working from home and virtual collaboration positively or negatively influenced interactions in general with their colleagues. The critical incident technique (CIT) of Flanagan (1954) was used by asking the participants to fill in the most important incidents or memories about interactions with colleagues in the timeline. The object of CIT is to gain comprehension of the incidents from the perspective of the individual and to explore the consequences of such circumstances on a specific topic (Flanagan, 1954; Gremler, 2004). The use of the CIT in this research is useful since the technique asks for data collected from the participants' perspective on the interactions with team members. The template of the timeline can be found in Appendix A. The timeline starts in March 2020, the start of the pandemic, and ends in November 2020 which is the month that the interviews took place. According to Adriansen (2012), the use of a timeline provides an opportunity for linking the story with the wider, social, political, and environmental context during interviews. In the template, some

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critical incidents relating to the COVID-19 pandemic are indicated in the timeline (i.e., first press conference, lock-down, bars opening again, etc.) to help the participants with memorizing. The data of the timelines were not used for answering the research question. Rather, the timeline solely functioned as a tool for the participants to force them to actively reflect on the impact on interactions with colleagues while collaborating via MS Teams. In this way, the participants came prepared for the interview and already took some time to actively memorize what they experienced regarding the interaction during COVID-19, and more in-depth questions could be asked during the interview itself. With this method, the emphasis is automatically shifted to important issues from the participant's perspective, rather than the less-important issues.

**Interviews.** To minimize the disturbance of the interviews on the daily work tasks, the interviews were planned in coordination with the team members. When conducting the interviews the researcher asked the participants how they had experienced the interactions with their colleagues over MS Teams in general. The structure of the timeline template was used to order the semi-structured interview. However, follow-up questions differed per participant. See Appendix B for the topic structure of the interviews based on the template.

### Interview methods

As mentioned earlier, two different interview methods were used. All interviews were done virtually, as live interviews were not possible due to the restrictions of the COVID-19 pandemic. However, the setting differed. One-half of the participants ( $N = 15$ ) sat behind the desk of their home office during the interview (online interview method), while the other half ( $N = 15$ ) was walking outside during the interview (online walk & talk method).

**Online interview method.** With the online interview method, 15 participants sat behind their desk at home while answering the interview questions. During the interview, MS Teams was used as communication channel and the participant could choose whether to put their camera on or not, to make them feel comfortable.

**Online walk & talk method.** With the walk & talk methods, participants were asked to walk outside during the interview. The individuals had the freedom to choose the location of their walk where they felt most comfortable. The majority of the 15 participants choose a walk route close to their home to not get too much distracted by the environment. Due to this the majority walked in an urban setting. During the interview, the interviewer and the participants had a call via MS Teams and it was asked to turn off their camera. This was so that the participants could watch their steps. The interviews took place in the months November and December, so in general it was cold outside for the participants while walking.

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As two different interview methods were used during this study, correct distribution of the demographics of the participants over the methods has been taken into account to ensure that this was not a moderating factor on the outcomes. The division of the participants over the two interview methods can be found in table 1.

Table 1  
Divison of participants' demographics

	Online walk & talk method (N = 15)	Online interview method (N = 15)
<i>Age</i>		
25 -30	5	3
31 – 35	6	7
36 - 40	2	1
41 - 45	1	1
46 – 50	1	2
51- 55	0	1
<i>Gender</i>		
Female	8	6
Male	7	9
<i>Nationality</i>		
Dutch	11	8
South-African	0	1
Nigerian	0	2
Scottish	1	2
German	1	0
Brazillian	0	2
French	1	0
Polish	1	0

### Analysis of semi-structured interviews

The interviews were transcribed to analyze the data of the semi-structured interviews. This process involved two levels of analysis. The first level of analysis was done deductively with a codebook consisting of categories decided upon beforehand derived from literature. This codebook can be found in Appendix C. The software Atlas.ti was used to assign the quotations to the transcriptions. During the second level of analysis, the codebook was fine-tuned and definitions were inductively adjusted and new (sub-)categories were developed based on the interview data. An overview of the new categories and (sub-)categories can be found in table 3 on page 18 including descriptions, example quotes, and the number of participants who mentioned the specific subcategory. The new categories were constraints of MS Teams,

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affordances of MS Teams and team context. The subcategories of constraints (high costs, awareness of others, privacy) and affordances (visibility, one-to-one privacy) of MS Teams were based on what the team members mentioned during the interviews. The subcategories (team culture, familiarity) of team context were retrieved from the interviews and also partly based on observations and understanding of the situation as the researcher was immersed in the team during the research.

### **Analysis of interview methods**

To answer the second research question regarding the influence of the interview method on the attitude formation of the participant, the data of the number of quotations of positive or negative attitudes towards informal interactions were compared between the two methods and analyzed. Since there is a small sample size of only two times  $N = 15$ , a Mann-Whitney U test was used. Nachar (2008) advocates that the Mann-Whitney U test can be used to answer questions concerning differences between groups, with the great advantage of being applicable used to small samples of five to 20 participants. The null hypothesis of the non-parametric Mann-Whitney U test implies that the two independent groups are homogeneous. In order to answer the hypotheses, an one-sided or one-tailed test is used as the hypothesis alternative to the null hypothesis suggests that the variable of one interview method is significantly larger than the other interview method. If the P-value is less than 0.05,  $H_0$  can be rejected and the hypotheses are validated.

### **Research quality**

The validity and reliability of this research were analyzed as this is connected with the quality of the research (Kirk & Miller, as cited in Boeije, 2009). The methods used for this study are vulnerable to reliability and validity threats, such as all scientific research methods. In general, qualitative research is more sensitive to reliability threats, but on the other hand scores higher on validity (Boeije, 2009). The reliability of this research was enhanced by partly standardizing the data collection method. The semi-structured interviews were standardized as a interview guide was used (Appendix B). Beforehand, participants had to fill in the same timeline to prepare for the interview, which dealt with the same themes per participant. To ensure that all participants filled in the timeline in the same depth, an example timeline was provided. Furthermore, as it was asked from the participant to reflect on a period of approximately eight months, the data may be flawed by recall bias or memory lapses (Gremier, 2004). Recall bias may come from the fact that the method of this study relies on the memory of participants, and



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their accurate and honest descriptions. However, Schluter, Seaton, and Chaboyer (2008) argue that the memory of events by participants is a form of reflectivity. Since the focus of this study is on the perceptual affordances of the participants instead of factual data, the participants' recall bias has not a major impact on the data collection. On top of that, participants were informed beforehand about the general outline of the interviews and the timeline allowed them to reflect prior to the interview on the interactions with peers during the pandemic. In this way, the recall bias was reduced.

Moreover, a second encoder has been used to check the reliability of the codebook which is used to analyze the interview data. Namely, this contributes to a well-developed coding system as conferring with others about interpretations ensures that the quotations are systematically allocated to the correct code. This is known as 'inter-rater reliability' (Boeije, 2009). A possible bias that comes from a single person is decreased when multiple researchers analyze the data. As explained by Boeije (2009): "Asserting inter-rater reliability does not tell us anything about the adequacy of coding, but does cover the systematic approach to coding." (p.106), or in other words the reliability. To measure the agreement between the two raters, Cohen's kappa of the codes were measured over 10% of the transcripts (transcriptions of 3 participants). After calculations it was found that the Cohen's kappa of every code is higher than 0.61, meaning that the codebook is reliable. The descriptions of several codes were enhanced based on the feedback of the second coder.

Finally, measures have been taken to enhance the validity of this research. The researcher was part of the team for a period during the study. Within qualitative research, the researcher can have an influence on the change in behavior of the participant. This phenomenon, called 'reactivity', has the potential to have a negative influence on the validity of the results (Boeije, 2009). However, that participants were familiar with the interviewer is suggested as not having a great negative impact on the validity of this particular research. Namely, Boeije (2009) states that rich information is obtained in a conversation in which the participant feels comfortable, and it is suggested that familiarity with the individual creates this relaxed feeling. Lastly, verbal consent was asked beforehand to ensure that participant felt comfortable to share their thoughts. This informed consent (Appendix D) stated that all data would be handled anonymously, answers are only used for research purposes and not for managerial activities, and the participant can end the participation at any time without reason.

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## RESULTS

In this section, the findings from the semi-structured interviews are presented. The research questions were answered using the data of the interviews. In order to answer the first research question: *How does MS Teams encourage or discourage informal interaction between team members?*, the perceptual technical constraints and affordances of MS Teams together with other relevant concepts relating to the encouragement of informal interaction were grouped. An overview of the defined categories can be viewed in table 3.

Table 3

## Overview themes

Category	Subcategory	Description	Example quote	# participants
<i>Affordances MS Teams</i>	Visibility	Participants mention that MS Teams gives them a clear overview of the availability and presence of others.	“It is super easy to quickly check who is available in the online setting. This makes it way easier to quickly drop someone a question.”	8
	One-to-one privacy	Participants mention that MS Teams enables an informal private one-to-one conversation with colleagues	“Teams lends itself perfectly to have these scoped conversations with another person, without the possibility of others interrupting.”	8
<i>Constraints MS Teams</i>	High-cost	Participants mention that they perceive high costs to initiate informal interaction via MS Teams	“Via Teams you have to set up a meeting to be able to ask a short question. [...] It feels a bit more complicated and there is a bigger threshold.”	15
	Awareness of others	Participants mention that MS Teams does not enable awareness of others	“Collaborating via Teams makes it much more difficult for me to find the right spots, and to really understand what other people are doing also.”	15
	Privacy in groups	Participants mention that MS Teams does not grant the possibility to have private conversations in group meetings	“The technology does not allow the same as when you are all drinking a beer in a bar together. You cannot have a private side conversation with someone standing next to you.”	8
<i>Team context</i>	Team culture	Participants mention that the team culture affords/ constraints them to initiate informal interaction	“In my team it was encouraged by management to call at least three colleagues at random every week. [...] Consequently, people had some nice spontaneous conversations.”	26
	Familiarity with people	Participants mention that the level of familiarity with another colleague does (not) stimulate them to initiate informal interaction	“It is easier to keep a good connection online if you know the people already/ You can ask personal questions and questions about the family etc.”	20

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After analyzing the interview data the perceptual constraints (high-costs, awareness of others, privacy in groups) and affordances (visibility, one-to-one privacy) of MS Teams were found. However, these technical constraints and affordances did not cover all the aspects that participants mentioned encouraging or discouraging informal conversations. As included in the theoretical background, it was expected that social designation would play a role in the encouragement of informal interactions next to the features of MS Teams. Though, after further analysis of the data, it was concluded that the concept of social designation does not cover all the remaining reasons mentioned by participants regarding the encouragement of informal interaction via MS Teams. More specifically, participants mentioned that the team culture influenced the encouragement of informal interaction instead of the general social designation. To properly cover this perception, the concept of team culture is used. Moreover, next to team culture it appeared that familiarity also had a particular influence on the encouragement of informal interaction. Notably, team culture and familiarity are more frequently mentioned by the participants compared to the features of MS Teams. The concepts of table 3 are further analyzed in the following sections.

### The affordances of MS Teams

Participants mentioned that mS Teams encouraged initiating informal interactions due to the perceptual technical affordances of visibility and the ability to have one-to-one privacy.

**Visibility.** 8 out of the 30 participants particularly mentioned the affordance of MS Teams with regard to the visibility of availability and presence of others. The team members observed that the feature of MS Teams showing the status of others gives them a clear overview of who is present and who is accessible for an unplanned conversation. Participant 5 (female, 25 - 30) said *“It is super easy to quickly check who is available in the online setting. This makes it way easier to quickly drop someone a question.”*. Important to mention is that the participants find this affordance of the software system relative compared to the affordances of the office space: *“It is easier to check everyone’s availability compared to the office. When people were sometimes in meetings which were not indicated in their schedule or they were somewhere in the building but you did not know where.”* (participant 20, female, 25 - 30). In other words, it was felt that MS Teams afforded informal interaction by providing more visibility into the availability of others compared to office.

**One-to-one privacy.** 8 out of the 30 participants mentioned that the features of MS Teams affords them to have one-to-one private conversations. To illustrate, participant 23 (male, 45 - 50) said: *“I have to say that you can still have the one-to-one quality conversations*

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via Teams. *It is not that bad, I have to say.*”. Participant 14 (male, 45 - 50) agrees by saying *“Teams lends itself perfectly to have these scoped conversations with another person, without the possibility of others interrupting.”*. As MS Teams provide the option to have these private one-to-one conversations, team members feel comfortable enough to initiate informal conversations with a sensitive subject.

### The constraints of MS Teams

Participants mentioned that MS Teams discouraged initiating informal interactions due to the perceptual technical constraints of high costs, awareness of others, and privacy in groups.

**High personal costs.** 15 out of the 30 team members mentioned the constraint of MS Teams of not enabling lightweight initiation of interaction and in turn discouraging informal interaction. The participants mentioned that it is perceived as a high effort to set up a meeting in MS Teams. As participant 17 (female, 35 - 40) said: *“Via Teams, you have to set up a meeting to be able to ask a short question. I really don't feel like planning an entire meeting for one question. It feels a bit more complicated and there is a bigger threshold.”*. The majority of the participants who mentioned the high-cost constraints specifically pointed out that these high costs of initiating informal interactions via MS Teams were relative in comparison to the office. For instance, participant 4 (female, 25 - 30) made this comparison by saying: *“At the office, you walk towards someone for a moment, you talk for two seconds and then you have your answer. But in Teams you have to set up a whole meeting for that same interaction and that makes me hesitate to do it.”*. Participant 26 (male, 30 - 35) agrees *“Everything takes more effort in the collaboration via Teams. If you want to have contact with someone, you have to schedule a meeting. Normally someone sits next to you, you tap him and ask “This is what we're going to do right?”, Then the person nods and you're done.”*. In other words, the participants mentioned that due to the fact that it was more effort to initiate informal conversations via MS Teams compared to what they were used to in the office, they were discouraged to do so.

**Awareness of others.** 15 out of the 30 participants particularly mentioned awareness of others as a constraint of MS Teams which in turn discourages the initiation of informal interaction. More specifically, team members observed that MS Teams does show the availability of other team members during the day, however, the groupware system is unsuccessful in displaying the actions and activities of others. As a consequence, the team members are not up to date with whom to contact for questions about specific topics. To illustrate, participant 19 (female, 30 - 35) referred to awareness of people's actions and activities by saying *“Collaborating via Team makes it much more difficult for me to find the right spots,*

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*and to really understand what other people are doing also.*”. Also, participant 14 (man, 45 - 50) said *“As a manager in the team, I started to struggle with the virtual interaction as I could not necessarily see all of the things that people were working on. I could not keep track of all the different strands that everybody was working on as Teams does not has a feature for this.”*. This lack of awareness regarding actions and activities of people caused misalignment and multiple participants attributed this to the lack of informal interaction in the groupware system. Again, it is remarkable that the team members compare this constraint of MS Teams with the office setting they are used to. Participant 2 (male, 30-35) mentioned *“You no longer have the physical conditions, which means that you receive fewer updates. [...] If you want to know what is going on and what projects are in progress, it is necessary to have that informal contact at the coffee machine and hear some updates verbally. I am missing that very much in the virtual situation.”*. Also participant 5 (female, 25-30) said *“I have no idea what everyone is doing with role X, for example. That is never clearly communicated. Previously, you received updates like that in the corridors, but that is no longer possible when working from home.”*. Thus, team members suggest that MS Teams is missing the coffee machine or hallway feature, where individuals can bump into each other unannounced and exchange their ideas and projects they are working on.

**Privacy in groups.** 8 out of the 30 participants particularly mentioned that MS Teams does not afford the concealment to start unplanned interactions in group meetings. Namely, informal interactions can also be initiated during planned and structured meetings. The team members observed that MS Teams does not provide the opportunity to start a private interaction during a group meeting as everyone is able to overhear the conversation. As participant 21 (male, 30 - 35) said: *“When you are in a virtual happy hour, you are almost in a meeting with everybody. You don’t have the interaction that you could have with someone. If you say something, everybody will listen.”*. This discourages team members from initiating informal interactions during group meetings. Once again, this constraint of MS Teams is relative as it is compared with the face-to-face meetings by the participants. Participant 7 (male, 25 - 30) said: *“The technology does not allow the same as when you are all drinking a beer in a cafe together. You cannot have a private side conversation with someone standing next to you. If you all talk at the same time, the meeting becomes completely incomprehensible.”*.

### The team context

The role of the team culture and familiarity are further analyzed in this section.

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**Team culture.** Team culture was identified by 26 from the 30 participants as a relevant contextual factor influencing the initiation of informal interaction via MS Teams. The majority of the team members and the researcher observed that the norms and values in a team has a significant influence on the encouragement of the initiation of informal interaction via MS Teams. As participant 1 (female, 25 - 30) illustrates: *“In my team, it was encouraged to call at least three colleagues at random every week. To have a non-work-related conversation for a moment, but just a social phone call to check how someone is feeling. [...] Consequently, people had some nice spontaneous conversations.”*. This anecdote shows that the team of participant 1 is actively working on a team culture wherein it is encouraged to call people for a spontaneous conversation. As a consequence, it is more common to call one another and people are encouraged to do so. On the contrary, the team culture can also discourage unannounced interactions as participant 24 (female, 30 - 35) mentioned *“The spontaneous social things are not really happening in this virtual situation. [...] I noticed that in this online situation it is more difficult to call someone unannounced for a coffee or to chat or something. That is not so integrated in the way of working in our team.”*. Also, participant 4 (female, 25 - 30) did not feel comfortable to spontaneously call someone as she said this was against the team norms: *“I am not going to call colleague X during the lunch break. I think that will not be appreciated.”*. It was striking that 10 out of the 26 participants mentioning team culture, stated that the team culture changed regarding the initiation of unplanned interactions due to the change of setting from the office to WFH as a consequence of COVID-19. As participant 21 (male, 30 - 30) said *“Before Covid, I could just walk towards my colleague to ask for help [...]. During Covid, we need to schedule a meeting for everything.”*. Participant 26 (male, 30 - 35) also illustrates the impact of the change in culture on encouragement of informal interaction by saying *“It is possible to contact someone via Teams, but it is really different. People just don't respond for two hours. If someone taps you on the shoulder in the office, you respond naturally and you don't ignore someone for two hours. This does happen via MS Teams [...] That makes it difficult for me to contact someone unannounced.”*. In other words, via MS Teams team members are less responsive compared to when they are in the office setting and in turn unannounced calling was not common anymore. It can be said that unannounced calling is the equivalent of swinging by someone's office in the office environment. This indicates how a change in the team culture influenced the perceptual affordances to initiate informal interaction. At last, the norms within meetings also have an impact on the chances of individuals starting informal interactions during online gatherings. The participants suggest that online work-related meetings do not lend themselves to informal conversations. Participant 25 (male, 40 - 45 ) said *“The meetings are*

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*not like ad hoc meetings. There is always an agenda and it's always work-related."* However, the social rules around meetings can be changed through the actions of team members as proposed by participant 15 (male, 45 - 50) *"I spent a little bit more time at the start of calls than I would have before. You know, just socializing. [...] When we did that in team meetings as well, it gives the license to people to do that. [...] What I didn't want to happen was that the meeting became very routine and robotic, every meeting we jumped straight to the agenda."*

**Familiarity with people.** Being familiar, on a personal and professional level, with other team members was also discovered as a relevant contextual factor influencing the initiation of informal interaction via MS Teams. More specifically, 20 out of the 30 participants suggested that knowing someone on a personal or professional level gives them the license to contact someone unannounced. As participant 23 (male, 45 - 50) said *"It is easier to keep a good connection online if you know the people already. You can ask personal questions and questions about the family etc. These types of questions are a bit more difficult to initiate when you meet them for the first time."* Participant 2 (male, 30 - 35) supports this by explaining the consequences of not being familiar with team members; *"it made me much more aware of what kind of questions I was asking. [...] As a result, I postponed my questions a bit or only asked them if I was sure it was a good question. You are less confident in yourself if you have to do a fully digital onboarding."* In other words, team members observed the importance of feeling comfortable with colleagues in order for them to initiate unplanned interactions and it is suggested that this is partially created by knowing your colleagues. As participant 26 (male, 30 - 35) notes *"It's easier to get hold of someone in the virtual situation as you bond with them and become more important in a project."*

### Interview method

The following section presents the results of the statistical analyses related to the impact of the interview method on the attitude formation of participants towards informal interaction. In this analysis, H1 and H2 were tested based on the non-parametric 1-tailed Mann-Whitney U test. The test results can be viewed in Tables 4 and 5.

As can be seen in Table 4, the positive attitude quotations scores of the walk & talk method regarding informal interactions (Mdn = 16.0) were higher than those of the online interview method (Mdn = 15.0). As can be seen in Table 5, a Mann-Whitney test indicated that this difference was not statistically significant,  $U(N_{\text{walk \& talk method}} = 15, N_{\text{online interview method}} = 15,) = 105.00, z = -.321, p = 0.379$ .

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As can be seen in Table 4, the negative attitude quotations scores of the walk & talk method regarding informal interactions (Mdn = 13.6) were lower than those of the online interview method (Mdn = 17.4). As can be seen in Table 5, a Mann-Whitney test indicated that this difference was not statistically significant,  $U(N_{\text{walk \& talk method}} = 15, N_{\text{online interview method}} = 15) = 84.00$ ,  $z = -1.20$ ,  $p = 0.119$ .

Table 4

Ranks Mann-Whitney Test				
	Interview method	N	Mean Rank	Sum of Ranks
Informal positive quotations	Online interview	15	15.00	225.00
	Online walk & talk	15	16.00	240.00
	Total	30		
Informal negative quotations	Online interview	15	17.40	261.00
	Online walk & talk	15	13.60	204.00
	Total	30		

Table 5

Test statistics Mann-Whitney U Test		
	Informal positive quotations	Informal negative quotations
Mann-Whitney U	105.00	84.00
Wilcoxon W	225.00	204.00
Z	-.321	-1.20
Asymp. Sig. (2-tailed)	.749	.229
Exact Sig. [2*(1-tailed Sig.)]	.775 <sup>a</sup>	.250 <sup>a</sup>
Exact Sig. (2-tailed)	.759	.237
Exact Sig. (1-tailed)	.379	.119
Point Probability	.004	.0004

*a. Not corrected for ties*

*b. Grouping Variable: interview method*



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### DISCUSSION

Due to the increasing recognition of the importance of informal interactions in teams, this study investigated how team members perceive the influence of the groupware system MS Teams on informal interaction. This study focussed specifically on MS Teams as this groupware system was widely adopted by virtual teams during the COVID-19 pandemic. Based on the findings of this study, the process model of encouragement of informal interaction via MS Team (Figure 3) is suggested. This model illustrates the process that leads either to encouragement or discouragement of informal interaction between team members. This shows the interplay between the affordances of the features of MS Teams and the social agency of employees. This section further discusses the model and describes its practical implications. Furthermore, this section reflect on the performed study and suggests further research.

First of all, according to the theory of affordances of Gibson (1986), the actions of individuals are called forth by the affordances of an object or environment. Based on the perceptions of the participants, affordances (visibility, one-to-one privacy) and constraints (high-cost, awareness of others, privacy in groups) of MS Teams are suggested to respectively encourage or discourage informal interactions in the virtual space.

#### **Team members perceive that MS Teams discouraged informal interaction**

During the interviews, the participants mentioned that they perceived that MS Teams constrained lightweight initiation of interaction. Namely, they said that it took too much effort and time to start a conversation with a colleague which caused hesitation to initiate the informal interaction. The main reason was that participants had the feeling they needed to set up a complete meeting to ask one unplanned question. As mentioned in the theoretical background, if the costs to interact via groupware systems are too high the users are unwilling to use it for spontaneous conversations (Gutwin et al., 2008; Kraut et al., 1990) and in turn discourages the initiation of those kind of interactions. Nevertheless, it has to be noted that MS Teams has the function to instant message or call others unannounced. Instant messaging affords it to send an easy and quick message with emoticons to express themselves with low effort (Gutwin et al., 2008; Törlind & Larsson, 2002). This illustrates that the constraint of MS Teams is a perception of the team members while the groupware system in theory does have the features available to start informal interactions. Furthermore, team members observed that others are too busy or not available to interact spontaneously. This suggests that not only the perceived high-costs withhold individuals from unannounced interactions, but this constraint also interacts with the

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social norms and culture. This phenomenon is further discussed in the section about the role of team culture and familiarity.

As demonstrated in the results, team members observed that MS Teams is unsuccessful in displaying the actions and activities of others. To be more specific, the team members pointed out that they were not up to date on the projects others were working on and the specific tasks they were performing. As a consequence, the team members do not know who they should contact for questions about specific topics. In turn, this discourages the initiation of informal interactions. Namely, stated in the theoretical background is that in order for individuals to initiate human interaction it is a basic requirement to perceive, recognize, and understand other people's activities (Collazos et al., 2019; Gutwin et al. 2008; Willaert et al., 2012). This means that the perceptual constraint of MS Teams not supporting awareness of others discourages the team members to initiate informal conversations. This constraint is also perceptual as MS Teams does provide the opportunity to write in the description of your MS Teams profile what project you are working on and which topics you are specialized in. However, this is perceived as not sufficient enough to create awareness. It was suggested that MS Teams is missing the coffee machine or hallway feature, where individuals can bump into each other unannounced and exchange their ideas and the projects they are working on. This phenomenon is explained by the water cooler effect, which represents a belief that conversations in and around a water fountain, or canteens, significantly enhances knowledge transfer which indirectly contributes to positive work relationships (Davenport & Prusak as cited in Zenun et al., 2007).

At last, the team members observed that MS Teams does not provide the opportunity to start a private interaction during a group meeting as everyone is able to overhear the conversation. As mentioned in the theoretical background, people need to have the ability to control the boundaries of the conversation (Gutwin et al., 2008) and according to the study of Fayard and Weeks (2007), the absence of privacy makes individuals hesitant to initiate interactions, due to the possibly sensitive nature of informal interaction. Hence, this study concludes that this constraint of MS Teams discourages team members from initiating informal interactions during group meetings. Again, this constraint is perceptual as the Instant Messaging function allows employees to send each other private messages during group meetings but is perceived as less passable since this can be recognized as dishonest behaviour. This confirms the reciprocal relation between the features of Microsoft Tams and the team culture.

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### **Team members perceive that MS Teams encouraged informal interaction**

As mentioned during the interviews, the team members perceive that the features of MS Teams provide a clear overview of people's availability and thus creates visibility. MS Teams shows clearly if others are in a call, busy, or available. As earlier suggested, awareness and visibility enable individuals to adapt to the environment or immediate context by recognizing and understanding it (Saner, et al. , 2010). In turn, this context is a basic requirement for individuals to encourage informal interactions (Gutwin et al. 2008; Willaert et al., 2012). Based on this it can be concluded that the affordance of MS Teams of making team members aware of people's state encourages them to initiate informal interactions.

Lastly, the participants of this study mentioned that MS Teams provides the option to have private one-to-one conversations. Team members feel comfortable enough to initiate informal conversations with a sensitive subject as others are not able to interrupt private meetings. As mentioned earlier, due to the possibly sensitive nature of informal interaction the absence of privacy makes individuals hesitant to initiate interactions (Fayard & Weeks, 2007). Therefore, it is concluded that the private one-to-one conversations affordance of MS Teams encourages team members to initiate informal interactions.

### **The role of team culture and familiarity**

However, striking was that the results demonstrated that team culture and familiarity were perceived as highly relevant in encouraging or discouraging informal interaction. It was foreseen that the social context would play a role in the process, however, it was expected that the features of the groupware system were the decisive factors. Nothing is less true, appearing that social context and the features of MS Teams can be perceived as a synergy in encouraging informal interactions.

More specifically, team culture came out as the factor mentioned by the majority of the team members as relevant in deciding whether to contact someone unannounced via MS Teams. Team culture comprises "team vision, norms, and principles and provides initiative for participation" (Jamshed & Majeed, 2019, p.4). Shin, Kim, Choi, and Lee (2016) highlight that subcultures in organizations have a significant effect on team members, and more specifically on their attitude formation. As suggested by Razzaghi and Ramirez (2009), products do not only have physical properties, but also qualities based on inner experiences such as culturally-based user preferences. Veissière, Constant, Ramstead, Friston, and Kirmayer (2020) agree on this by stating that affordances are shaped by physical properties, the power to act, or expectations of the individual. They argue that the concept of 'cultural affordance' is useful

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for explaining this phenomenon. Cultural affordance is drawn from the general concept of affordance by Gibson. Cultural affordance is “The kind of affordance that humans encounter in the niches that they constitute.” (Veissière et al., 2020. P.3). In other words, the shared experiences and abilities humans gain in their culture forms a set of affordances available to a specific social world. This is in line with the social identity perspective which states that people obtain norms, preferences, and ways of doing things from the social groups and categories they belong to and with whom they interact (Hogg & Reid, 2006). However, the cultural affordance concept takes it a step further and suggests that these social norms and shared experiences equip individuals with affordances. Ramstead, Veissière, and Kirmayer (2016) propose two kinds of cultural affordances: ‘natural’ affordances and ‘conventional’ affordances. Natural affordances are possibilities for action, which depend on an agent making use of the interrelationship between its environment and its set of abilities. For instance, human agents have the ability to walk and a road affords a trek. This study focused on the conventional affordances, as these are possibilities for action which depend on agents’ ability to correctly make use of explicit or implicit shared expectations and norms in which they are immersed. The cultural affordance concept has been little used in organizational research. This study suggests that team culture is also a human niche, as the results demonstrate that participants frequently link the affordances of informal interactions to the social norms that implicitly apply in the team. Nevertheless, if the team culture affords informal interaction but the Microsoft Team features do not afford informal interaction, team members are still discouraged to initiate informal interaction and vice versa. Consequently, it is proposed that the perceptual affordances of the groupware system and the conventional affordances of a team are inextricably intertwined, and co-determining in encouraging informal interaction within virtual teams.

Secondly, familiarity was also mentioned in this study by team members as relevant in deciding whether to initiate informal interaction via MS Teams. Other studies claim that it is crucial for team members to have a good relationship and be familiar with each other on a personal and professional level, to be willing to share information and communicate without hesitation. Marlow, Lacerenza, Paoletti, Burke, and Salas (2018) suggest that familiarity among team members, in particular, has a positive effect on communication and performance. This can be explained by the fact that familiarity among team members positively enhances their level of interpersonal comfort, which reduces fear of ridicule or exclusion and thus members communicate more freely (Maynard, Mathieu, Gilson, Sanchez & Dean, 2019; Mesmer-Magnus & DeChurch, 2009). Gibson and Cohen (2003) also mention in their study that in dynamic virtual teams, inexperience with the other individual and not being familiar with each

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other often blocks full disclosure. The question arises why familiarity with colleagues enhances comfort and reduces fear of ridicule. This can be explained with the study of Dutton and Heapy (2003), which demonstrates the power of high-quality connections within organizations. “Theories of human behavior in organizations need to take seriously the quality of connections between people to understand why people flourish or flounder and to unpack how they affect organizational functioning.” (Dutton & Heapy, 2003. p.1). The quality of the connection is defined in terms of whether the connective tissue between individuals is life-giving or life-depleting. Dutton and Heapy mention the characteristic of a high-quality connection that has high emotional carrying capacity. In other words, individuals with high-quality connections have the ability to bear the expression of pure emotion and emotion of fluctuating kinds. This can concern both positive and negative emotions. This makes individuals less afraid to communicate and express their feelings with people they have a good connection with, and in turn, feel more comfortable. As a result, it can be stated that familiarity with colleagues through qualitative connections makes team members feel comfortable enough to contact others unannounced and thus encourages informal interaction via MS Teams. Nevertheless, if there is a high-quality connection between team members but the Microsoft Team features do not afford informal interaction, team members are still discouraged to initiate informal interaction and vice versa.

As a final point, the question arose how the concepts of cultural affordance and familiarity relate to each other. Chung and Rimal (2016) indicate that experience decreases the pressure to conform to conventional norms. As Prislin (1993) explains, more knowledge about behavior or person potentially leads to less dependence on others for information about what is appropriate in a given situation. This can be further explained through the concept of high-quality connections. High-quality connections afford the favorable circumstances and the psychological safety (Carmeli & Gittell, 2009; Kahn, 1990) to make claims, to delve into alternate identities, and consequently create an identity that fits with who team members wish to become. Dutton and Heapy (2003) believe that high-quality connections allow co-construction of identities and promote the expression of identities that are more real and genuine. At the same time, identity expression can mobilize change in the team culture and thus social norms. Nevertheless, this only occurs if organizations create the right atmosphere for building high-quality connections (Dutton & Heapy, 2003). Namely, in a team culture designed for informal interaction, fundamental attribution biases are reduced and people are more willing to initiate conversations unannounced, consequently enhancing the familiarity. An upward spiral is suggested where if the familiarity and quality of the connection are enhanced,

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individuals feel comfortable enough to express their identity. This can in turn can change the team culture and affect the perceived affordances of the team culture to initiate informal interaction enhancing the familiarity.

### **The influence of physical environmental setting**

It was remarkable that the results demonstrated that team members perceived that the office setting afforded informal interaction while the MS Teams setting was constraining this action. The new outline of the theory of affordances by Chemero (2018) is an interesting lens to use to discuss these results. Chemero (2018) argued that affordances are relations between the perceived abilities of organisms and features of the physical environment. The affordance is neither of the person, nor of the environment, but rather of their combination. That is to say, the competencies of an individual and the affordances of the environment are inseparably interwoven, and co-determining. Meaning that, if the environment changes but the team context remain the same, the affordances may change. This can explain why the participants perceived other affordances while being in the office environment compared with the MS Teams environment. Veissière and colleagues (2020) explain that this can be avoided by learning the individuals the right repertoire of cultural knowledge and practices, so one can “read” the new environment in the desired way. Thereby, discovering “new” affordances that were there all along. This suggests a reciprocal relationship between the setting and team context, wherein if the environment changes the team context must change to acquire the same affordances and vice versa. Thus, managers or other individuals must be aware of the interwoven affordances of the environment, team culture, and familiarity. In other words, the outcome of MS Teams encouraging informal interaction can differ per team in the same setting and per setting for the same team.

### **The process model of encouragement of informal interaction via MS Teams**

Based on the discussion, the process model of encouragement of informal interaction via MS Teams (Figure 3) is suggested. The model illustrates the process of MS Teams encouraging or discouraging the initiation of spontaneous interactions between peers. In figure 3, arrow A and B illustrate the reciprocal relationship between the features of MS Teams and the team context. Suggesting that the perceptual affordances of the groupware system and team context are inextricably intertwined, and co-determine the encouragement or discouragement of informal interaction. This means that, both the features of MS Teams and team context (team culture and familiarity) must afford informal interaction in order to encourage it. Individuals are still

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discouraged to perform informal interaction in the case that a team member perceives that MS Teams affords informal interaction but the team context constraints it. Informal interaction via MS Teams is encouraged (arrow E & H) whenever members perceive that the team culture and MS Teams affords it, and the connections between peers are of high-quality. Furthermore, within team context an upward spiral is suggested between familiarity and team culture demonstrated by arrows E and D. Whenever familiarity and the quality of the connection are enhanced, individuals feel comfortable enough to express their identity which in turn can positively change the team culture and affect the cultural affordances regarding informal interaction. Consequently, the team culture affords the initiation of spontaneous conversations, which enhances the familiarity between peers. At last, arrow C indicates the reciprocal relationship between the setting and team context. It is suggested that if the environment changes, the team context must change and vice versa to acquire the same affordances and in turn encouraging informal interaction.

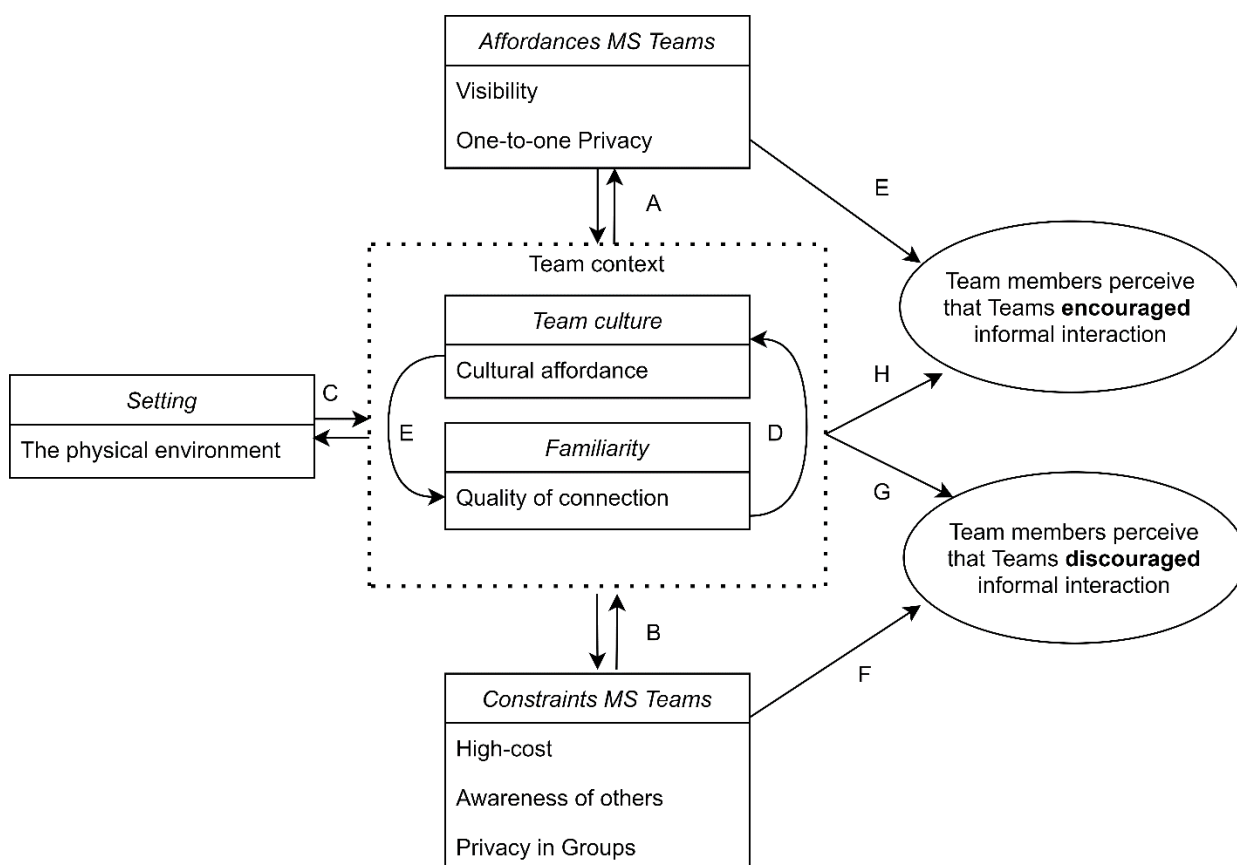


Figure 3. The process model of encouragement of informal interaction via MS Teams

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### **The influence of the interview method on attitude formation**

H1 and H2 are rejected, due to the insignificant results of the comparison between the data of the two different interview methods. H1 indicated that the walk & talk method ensures a higher amount of positive attitude quotations towards informal interactions. H2 indicated that the online interview method ensures a higher amount of negative attitude quotations towards informal interactions. In other words, it can be stated that the interview method does not impact the attitude formation of the participant towards virtual informal interaction. Multiple reasons for this outcome are suggested. As mentioned at the beginning of this report, the attitude formation of individuals can be influenced by social and cultural experiences. Tesser (1993) suggests that the likes and dislikes of a person are rooted in our genetics. This is illustrated by Kassin, Fein, and Markus (2016) showing that research on the attitudes of identical twins is more identical than those of fraternal twins. This demonstrates that individuals may be predisposed to hold certain attitudes through identity and the basic processes of learning. One of the factors having an impact on the attitude formation mentioned by Tesser (1993) is a personality trait. Meaning that someone with a character who finds informal interaction important (extrovert) can have a stronger positive attitude towards the initiation of informal interaction. These factors were not taken into account when the attitudes of the participants of the two different interview methods were measured. It can be the case that the personality trait and past social and cultural experiences have a stronger impact compared to the movement and environment while forming an attitude. Two different reasons for this phenomenon come to mind. Firstly, the participants were asked to think about their attitude towards the collaboration while working from home during the pandemic prior to the interview. This means that the individuals made up their attitude based on their personality traits and past experiences and walking outside did not influence their disposed attitude. Secondly, the interviews were held when the individuals were working at home for half a year and new habits and routines were created in and around the house. The majority of the participants mentioned after the walk & talk that they chose to walk their usual lunch walking route to not get distracted during the interview. From a reasoned action perspective, routinized behavior is guided by automatically activated attitudes which are based on past social and cultural experiences (Soro, Brereton & Roe, 2016). In other words, it is suggested that the environment did not impact the attitude of the individuals as it was a common location for them already associated with certain attitudes.

Another explanation of the outcome that the interview method does not impact the attitude formation of the participant is more in line with the affordance theory. A different context or environment has the ability to evoke a different affordance among individuals and



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thus different attitudes. The majority of the participants walking outside during the interview were surrounded by an urban environment. Multiple studies suggest that walking in nature has a more intense influence on the positive emotions of individuals compared to cities (Roe, 2008; Schebella, Weber, Schultz & Weinstein, 2020; Ulrich, 1979). This can explain the fact that the walk & talk method participants were not significantly more positive compared to the others, but just slightly.

### **Implications of the study**

Over the past year, the use of MS Teams has increased within organizations due to the COVID-19 pandemic and the restrictions to work from home. There has been growing recognition of the link between informal interactions and positive organizational outcomes, which makes it crucial for MS Teams to encourage informal interaction. Literature widely acknowledge that teams making use of groupware systems as MS Teams considerably less interact informally compared to co-located teams. However, this study has addressed a gap in the literature of *how* groupware systems as MS Teams encourage or discourage informal interaction. By studying the perceptions of team members, this study provided more clarification on the important concepts influencing the perceptual constraints or affords with regard to initiation of informal interaction via MS Teams.

The findings of this study stress the importance of the concepts of team culture, familiarity, setting, and the features of MS Teams in affording informal interactions between virtual colleagues. Moreover, all are equally important and interrelated. These insights contribute to understanding what can be done to enhance the affordances and reduce the constraints to encourage informal interaction between peers via MS Teams. For example, the concept of familiarity illustrates the importance of an adequate onboarding program for new employees. Namely, colleagues who are familiar with each other are less afraid to communicate and express their feelings with each other, and in turn, feel more comfortable to initiate informal interaction. I experienced the cruciality of this myself while doing my internship at Heineken in the middle of the COVID-19 pandemic. I started with the internship from home and I did not know anyone from the team. Due to this, I was hesitant to call my team members via MS Teams as I thought that they may not like to be disturbed, or maybe it was not common for an intern to call managers unannounced. In this virtual setting, it took me a while to get to know everyone and to realize that the team had a very informal team culture where people really appreciated it to be invited for a spontaneous virtual coffee. This would have been less of a hassle for me if at the beginning more time was scheduled for me to get familiar with my team members. Thus,

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a great onboarding program is one where you learn the tricks of the role, but more importantly a program that encourages employees to get familiar with peers. For instance, a friendly colleague around the corner may help in this situation. In other words, every newcomer gets appointed to a colleague who lives nearby and helps the newcomer with feeling comfortable and explain the unwritten rules in the team. Furthermore, it is also their task to help the new employee with setting up virtual coffee meetings to get to know their peers and to help them with breaking the ice. Consequently, it is expected that familiarity among peers enhances the perceptual affordance of the team members to start a spontaneous conversation via MS Teams. Secondly, the concept of setting shows that the perceived affordances by a team in one setting, can vary in another. This implies the importance of learning the team the right repertoire of cultural knowledge and practices which are useful in the current setting of employees. To exemplify, as a result of the COVID-19 pandemic the environment of the employees switched from an office setting to a working from home setting collaborating via MS Teams. Different skills and knowledge is needed for an individual to initiate informal interaction via MS Teams compared to the office. For instance, the team members were used to walk by someone in the office setting to spontaneously interact, while when using MS Teams team members must know how to call someone or how they can view the availability of their colleagues to reach out to them. If individuals do not know how MS Teams works, this constrains them in the new working from home environment to start informal conversations. For this reason, whenever there is a change of setting for the employees, it is important to provide a training which teaches them how to “use” the new environment into their advantage and showing them the affordances of the environment. Finally, it is shown that using a groupware system perfectly designed to afford informal interactions, does not necessarily lead to this intended outcome. The suggested model can be used by managers as a guideline to encourage informal interaction via MS Teams and remind them to be attentive to the interplay between the features, the team culture, and the familiarity. Likewise, developers of groupware systems are sensitized that the features have to match with the perceptual affordances of the conventional and natural team culture. Thus, groupware systems are not exclusively material, but the social components in teams also decide how the product is used.

### **Limitations and recommendations for future research**

This research is only a starting point in investigating how MS Teams encourages or discourages informal interaction. For this reason, the study is subject to several limitations. Firstly, this study has been conducted as a single case study, as only teams in one organization have been

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studied. Next to that, the participants were already familiar with using MS Teams before the pandemic as the participants were part of global teams. This is a limitation since the participants of this research may not be truly representative of the general population. A recommendation would be to test this model in a variety of organizations in different sectors and teams which vary in terms of size, team culture, and degree of familiarity. This generates a deeper and more general understanding of how MS Teams encourages or discourages informal interactions. Next to this, it can be interesting to investigate whether the process model of encouragement of informal interaction via MS Teams is also applicable on other groupware systems as Jira and Trello. Moreover, this study focused on the influence of the features of MS Teams and the team context on the initiation of informal interactions. Future studies might focus on the influences of the individual differences of team members, and how this intertwines with team context and affordances of MS Teams. For example, the role of personality in these processes or the familiarity with the groupware system. Namely, the learning curve theory suggests that individual performance improves whenever tasks or activities are repeated (Glock, Grosse, Jaber & Smunt, 2019; Jaber, as cited in Peltokorpi & Jaber, 2020). More specifically, repetition of tasks decreases the time to recall procedural information (Dar-El, Ayas & Gilad, 1995), enhance familiarity with a product (Peltokorpi & Niemi, 2019), which in turn lowers the perceived costs to use a product. As mentioned in the theoretical background, if the perceived costs for an individual to start the interaction are low, they are more likely to initiate it. At last, during the interviews, it appeared that the participants perceived the cultural and technical affordances as relative. The virtual context was most of the time compared with the office context while explaining the affordances. It can be interesting for further research to investigate further what kind of influence different contexts have on the perceptual cultural and technical affordances.

Secondly, there were several limitations with regard to the methodology of this study. First, Fayard and Weeks (2007) suggested that affordances are delicate as it is part of the daily routine and not always recognized by the individuals themselves. This statement implies that observations would be a more appropriate data collection method to answer the research question as “it is an approach to research which takes place in everyday situations rather than in laboratory conditions.” (Boeije, 2009, p. 59). Nevertheless, this was not impossible to carry out due to the mandatory social distancing during the pandemic imposed by the government. It was possible to join meetings as a ‘fly on the wall’ to investigate informal interaction, however, this would not cover the encouragement of informal interactions through a workday. That is why it has been decided to use semi-structured interviews. It is suggested for future research to

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carry out this study and collect data with observations whenever this is allowed by the government. Furthermore, the fact that the researcher was well known by the participants of this study can have a decisive influence on the data collection (Vidich, 1995). Boeije (2009) states that participants must enjoy the conversation and feel respected by the researcher in order for them to share rich information. Due to the social position of the researcher in the team, the participants felt comfortable talking freely about their experiences in the team collaboration during COVID-19. This was beneficial for the data collection. At last, the sample size of comparing the two different interview methods was relatively small due to time restrictions. It is expected that a bigger sample size enhances the possibility of significant results. Further research is recommended to investigate whether the walk & talk method affords different attitudes compared to the online interview method.

## CONCLUSION

The objective of this study was to investigate how MS Teams encourages or discourages informal interaction between peers. The results of this study show in the final model that environmental setting, team culture, familiarity, and the features of MS Teams are important constructs for team members in forming perceptual affordances. Whenever the perceptual affordances are enhanced and constraints are reduced, team members are encouraged to start an informal conversation via the groupware system MS Teams. This research provides further implications on how to enhance the affordances and reduce the constraints to encourage informal interaction between peers via MS Teams. This is valuable as informal interaction is seen as a crucial part of a way to stimulate innovative ideas, improve collaboration within teams, and consequently positive organizational outcomes. Next to this, the COVID-19 pandemic has accelerated the use of MS Teams within teams as individuals are forced to work from home. Chances are that the traditional co-located teams are less common after the pandemic which makes this study even more essential. Subsequently, it was investigated whether the interview method influences the attitude of team members towards informal interaction through MS Teams. Nevertheless, no evidence has been found for this to be true. Future research might consider comparing the methods with a bigger sample and taking more variables into account.

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## APPENDIX A: TIMELINE TEMPLATE

Actions and behaviors you engage in during episodes when primary work is accomplished  
(Task accomplishments/ monitoring progress/ coordinating)

Actions and behaviors prior to and between accomplishing primary work  
(Reviewing previous efforts/ interpret the environment/ prepare for future work)

Actions and behaviors focusing on the personal relationship with peers  
(Conflict management/ motivating/ confidence building)

			<b>Timeline template</b>					
			Working from home		Virtual teamwork		Virtual leadership & management	
								
<b>- Start timeline -</b>								
<b>March</b>								
March 12: Announcement to work from home	Tasks & Primary work							
March 15: Closing of schools, pubs, and catering industry. Events canceled (over 100 people), and no more travelling abroad	Formulating & planning goals and strategies							
March 23: "Intelligent" lockdown	Social interaction & helping others							
<b>April</b>								
	Tasks & Primary work							
April 21: Announcement primary schools and day care reopen on May 11th. All major events canceled until Sept 1.	Formulating & planning goals and strategies							
April 24: Announcement secondary school students could (partly) return to school on June 2nd.	Social interaction & helping others							
<b>May</b>								
	Tasks & Primary work							
May 11: Non-essential contact professions are allowed (hairdressers, beauticians etc.). Announcement of re-opening of catering industry on 1th of June	Formulating & planning goals and strategies							
	Social interaction & helping others							
<b>June</b>								
June 1: Re-opening catering industry and public buildings. Mandatory to wear a mouth mask in public transport.	Tasks & Primary work							
June 2 t/m 15: Re- opening of schools	Formulating & planning goals and strategies							
	Social interaction & helping others							
<b>July</b>								
July 1: Campsites re-open and up to 100 people allowed in public buildings. Allowed to do contact sports and sports competitions.	Tasks & Primary work							
	Formulating & planning goals and strategies							
July 21: Launch of the Office Space Reservation app within Heineken. Possibility to go to the office	Social interaction & helping others							
<b>August</b>								
	Tasks & Primary work							
	Formulating & planning goals and strategies							
	Social interaction & helping others							
<b>September</b>								
September: Corona cases are on the rise	Tasks & Primary work							
	Formulating & planning goals and strategies							
September 29: Closing of Heineken offices expect A/Wet. Suspend using the office booking app.	Social interaction & helping others							
<b>October</b>								
	Tasks & Primary work							
October 14 : Second (partial) lockdown	Formulating & planning goals and strategies							
	Social interaction & helping others							
<b>November</b>								
	Tasks & Primary work							
	Formulating & planning goals and strategies							
	Social interaction & helping others							
<b>- End timeline -</b>								

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## APPENDIX B: TOPIC STRUCTURE INTERVIEWS

**First months of the pandemic (March until May) – 10 min**

- a. *In the beginning* of the pandemic, you indicate in the timeline about **tasks & primary work** that... can you elaborate on this?
- b. *In the beginning* of the pandemic, you indicate in the timeline about **formulating & planning goals and strategies** that... can you elaborate on this?
- c. *In the beginning* of the pandemic, you indicate in the timeline about **social interaction & helping others** that... can you elaborate on this?

**Mid pandemic (June until August) – 10 min**

- a. *Mid pandemic*, you indicate in the timeline about **tasks & primary work** that... can you elaborate on this?
- b. *Mid pandemic*, you indicate in the timeline about **formulating & planning goals and strategies** that... can you elaborate on this?
- c. *Mid pandemic*, you indicate in the timeline about **social interaction & helping others** that... can you elaborate on this?

**Mid pandemic (June until August) – 10 min**

- a. *Mid pandemic*, you indicate in the timeline about **tasks & primary work** that... can you elaborate on this?
- b. *Mid pandemic*, you indicate in the timeline about **formulating & planning goals and strategies** that... can you elaborate on this?
- c. *Mid pandemic*, you indicate in the timeline about **social interaction & helping others** that... can you elaborate on this?

**Last months of the pandemic (September until November) – 10 min**

- a. *In the last months of the pandemic*, you indicate in the timeline about **tasks & primary work** that... can you elaborate on this?
- b. *In the last months of the pandemic*, you indicate in the timeline about **formulating & planning goals and strategies** that... can you elaborate on this?
- c. *In the last months of the pandemic*, you indicate in the timeline about **social interaction & helping others** that... can you elaborate on this?

**Walk & Talk Method – 5 min**

- How did you experienced having this interview while you were able to walk/ do whatever you like
- Did this method influence the way you answered questions? And if yes: how?

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## APPENDIX C: CODEBOOK

#	Code	Nr.	Subcode	Description	Nr.	Sub-subcode	Description	Example quote
3.	Team work	3.1	Transition processes	The behaviors and actions prior to and between action processes, reflecting on and interpreting previous accomplishments as well as prepare for future actions (mission, vision, strategy)	3.1.1	Formal (positive)	When team members positively refer to planned transition processes	<i>"I mean, we had a lot on our roadmap already planned, a lot of rollouts, a lot of initiatives, a lot of Epic's to deliver. This helped a bit in the beginning."</i> (participant 16)
					3.1.2	Formal (negative)	When team members negatively refer to planned transition processes.	<i>"There are a lot of things that need to be set up in preparation for next year. There's, of course the AP, which was a massive struggle"</i> (participant 16)
					3.1.3	Informal (positive)	When team members positively refer to unplanned transition interaction.	X
					3.1.4	Informal (negative)	When team members negatively refer to unplanned transition processes.	<i>"Where we were first very structured with timelines and who is going to do what, now it is much more ad hoc and you are randomly added everywhere. Is super busy and hectic because of that."</i> (participant 1)
		3.2	Action processes	The behaviors and actions when primary work is accomplished.	3.2.1	Formal (positive)	When team members positively refer to planned action processes.	<i>"The moment the standups were introduced digitally, I knew much better what everyone is doing and what they are working with. So I thought that was an advantage."</i> (participant 1)
					3.2.2	Formal (negative)	When team members negatively refer to planned action processes.	<i>"So daily tasks, it's really tough. I mean, towards the end of the year you would expect a bit of a dip, but that's not the case."</i> (participant 16)
					3.2.3	Informal (positive)	When team members positively refer to unplanned action processes.	<i>"I just felt that we'd have a laugh over lunch and we would be talking about things and getting updates but in a non-formal way."</i> (participant 12)
					3.2.4	Informal (negative)	When team members negatively refer to unplanned action processes.	<i>"Suddenly someone has a new role or a new project, and that is actually never clearly communicated. Earlier you</i>

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								<i>heard those things in the office. " (participant, )</i>
#	Code	Nr.	Subcode	Description	Nr.	Sub-subcode	Description	Example
3.	Team work	3.3	Inter-personal processes	The behaviors and actions focussing on the personal relationships between team members.	3.3.1	Formal (positive)	When team members positively refer to planned interpersonal processes.	<i>"We started organizing around some quizzes and other bits and pieces that were just interactions with people that had nothing to do with work. That really started to help." (participant 14)</i>
					3.3.2	Formal (negative)	When team members negatively refer to planned interpersonal processes.	<i>"I'm not really raising my hand to participate in online cooking sessions, so I started feeling very disconnected from the team in this virtual setting." (participant, 16)</i>
					3.3.3	Informal (positive)	When team members positively refer to unplanned interpersonal processes.	<i>"When the option was there to go to the office, and then I was able to come in and see you and meet up with collega X and some other colleagues. That was a very nice opportunity because we could go out for lunch and it didn't have to be like this planned call what it needs to be now" (participant 18)</i>
					3.3.4	Informal (negative)	When team members negatively refer to unplanned interpersonal processes.	<i>"You make social contact less easily over Teams. That really has a huge influence on team building, the atmosphere in the team and more the social aspect of working. You notice that in the whole team. As a result, the team is not really one unit." (participant, 10)</i>
5.	Perception	5.1	Of constraint	Participant perceived that the environment/object constrains their goals				<i>"Yeah, you just notice that because you're not face to face you are missing things like a whiteboard, post-its and stuff like that." (participant 3)</i>
		5.2	Of affordance	Participant perceived that the environment/object afford their goals				<i>"Yes, I think it's easier to switch gears, especially in the office. Because you just go to someone for a moment and you knock on the desk and you ask your question."(participant 4)</i>



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### **APPENDIX D: INFORMED CONSENT**

For my University master's thesis, I would really like to know what the impact of COVID-19 is on collaboration and team dynamics. To answer this question, I would like to talk about your experiences with the pandemic and teamwork!

What can you expect from this session? I will talk with you about the timeline you filled in. I will ask you to elaborate on some parts or ask additional questions

Before I start... Are you okay with me recording this conversation? This recording is only for me to analyse the data. No one else will be able to access the recording and the recording will be immediately destroyed after.

I will use your input to answer my research question, but I will process your answers confidentially and anonymously. On top of that, you are free to skip questions that you feel uncomfortable answering.

You always have the option to withdraw from this interview, without having to give a reason why.

Any questions at this point? If you have questions during the interview, don't hesitate to ask!