

You Reap What You Sow? How Knowledge Exchange Effectiveness is Affected by Different Types of Communication in Enterprise Social Media

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Abstract

The way in which people communicate affects their relationship building, social network structures and ultimately the knowledge they receive through their connections. For organizations, an effective knowledge exchange among employees is crucial for the competitive performance. Therefore, companies rely increasingly on social media platforms to facilitate communication and collaboration. To enhance our understanding of successful communication in enterprise social media, we apply human coding and quantitative analysis to the content and tone of 15,505 enterprise microblogging messages created by 1,166 employees of an international financial service provider. Specifically, we develop a model-based operationalization of communication styles and empirically derive two general communication types. Analyzing the quality and number of answers to questions from these communication types, we identify differences in the effectiveness of knowledge exchange. Our results suggest that a more factual-oriented communication type benefits from a higher knowledge exchange effectiveness compared to a primarily self-disclosing communication type.

1. Introduction

Organizational knowledge is considered being the most important asset to differentiate a company from its competitors and achieve competitive advantages. Consequently, its utilization and effective management is pivotal for enterprises [1]. A growing body of literature has demonstrated that enterprise social media (ESM) is a promising solution to support collaboration and knowledge exchange among employees [2]. Knowledge, in this sense, is not an immobile object acquired by an individual but is actively co-constructed through social exchanges and collaborations in networks [3]. Hence, the way individuals are connected in social networks influences the acquisition, construction, and exchange of knowledge [4].

The necessary prerequisite of knowledge exchange is communication. For networked learning environments, literature suggests that different communication types (CT) can influence the structure of social networks [4], the diversity of relational linkages as well as business outcomes [5, 6]. CT is understood as a particular way of making contact, communicating and forming a relationship with others [7]. In public social media CTs differ in their social network structures in terms of numbers of friends and followers [8] which affects collaborative knowledge exchange [4]. In the context of electronic networks of practice, research on knowledge exchange has been limited to the content [9] and purpose of messages [10] as well as the types of transferred knowledge [11]. Furthermore, various factors for contributing knowledge like self-esteem, self-consistency, and self-interest have been identified [12, 13]. However, no research has explored the different CTs in ESM and their role in knowledge exchange especially from a knowledge seeker perspective. Recently, several calls asked for more dedicated research on the use of social media in enterprises (e.g., [14]) and a more theoretical understanding of the type and characteristics of the content published (e.g., [8]).

This study will examine the knowledge exchange interaction via ESM from a communication perspective. Specifically, we assume that the way in which users typically communicate within an enterprise microblogging platform (EMB) influences their network structure – comparable to social networks – which ultimately affects the quality of knowledge they receive upon request. Therefore, we differentiate between four different *communication styles (CS)* on the single message level, based on the content and tone of the message, and a user's overall *communication type (CT)*, as an aggregation of the individual CS' expressed in the messages. To do so, we analyzed a large dataset of EMB messages to explore *what kind of communication type users adopt* on the EMB platform. Moreover, we assess the quality of each answer to these user's questions to examine *how communication types differ concerning*

effective knowledge exchange from a knowledge seeker perspective.

Regarding the CS, we analyze each message through the lens of the distinguished “communication square” model of Schulz von Thun [15, 16] which differentiates four styles of a message: factual information, self-statement, relationship indicator, and appeal. This approach allows us to analyze the style of single messages without having to rely on self-report measures.

By addressing these research questions, we contribute to collaboration literature by analyzing how communication types in ESM might foster knowledge exchange in organizations. Moreover, we provide insights into communicative behavior from a psychological perspective. Finally, we address the calls from Richter et al. [14] and Naaman et al. [8] by providing theoretically guided insights into the role of communication to leverage the value of social media for enterprises.

The remainder of this paper is organized as follows. In the next section, we outline the theoretical background for our research questions. Subsequently, we provide details of our empirical study, describe our research methodology, and illustrate the results of our analysis. Finally, we discuss our findings and present limitations of our work as well as implications for further research.

2. Theoretical Background

2.1. Knowledge Exchange and Quality of Answers in Enterprise Social Media

Knowledge and its exchange among employees is an organization’s key resource for maintaining a competitive advantage in the market [17]. In this regard, ESM technologies have shown to be a promising solution to support collaborative knowledge exchange between an organization’s (distributed) employees [2]. Following Szulanski [17], we consider knowledge exchange as dyadic communication process between two individuals: the knowledge seeker (recipient) and the knowledge contributor (source). However, previous research has shown that knowledge does not flow easily between the two [17] specifically in voluntary settings such as in enterprise networks of practice [18]. So far, the focus of these studies has been largely on the motivation of the knowledge contributor and the relationship with the knowledge seeker. Aspects as altruism [18] or personal outcome expectations like economic rewards [19] and reputation [20] have been found to enhance individual’s motivation to

contribute knowledge to others, thereby generally neglecting characteristics of the knowledge seeker.

The effectiveness of knowledge exchange, in general, has been described by theories of pragmatics as a function of quantity, quality, relation, and manner of the contribution [21]. The quality of answers on social media platforms has largely been evaluated in the comparable terms of relevance, corpora, and recency based on the Cranfield-type analysis [22]. Due to given difficulties of applying these categories to the field of ESM in general and EMB in particular [22], ESM research has assessed the quality of answers by means of their helpfulness [18, 23]. We follow this approach to determine the quality of answers as helpfulness is similar to the relation [21] or relevance criterion [22]. However, we acknowledge that more elaborated quality criteria are needed [22].

2.2. Communication Styles (CS) in the Human Interaction

By influencing the structure of a person’s social network, CTs substantially influence the process of knowledge creation and exchange [8]. The commonly established idea that individuals exhibit personality-like differences in their general CTs resulted in numerous self-report CT indices [4]. In this work, however, we will examine communication on a single message basis. By considering the tone and content of communication, we will first identify four potential communication styles (CS) within each message, and then derive overall CTs statistically. Given its potential to analyze single messages while respecting the complexity of communication, we build our analysis of CS’ upon the “communication square” model of the German psychologist Schulz von Thun [15, 16].

Based on the work on human communication by Karl Bühler and Paul Watzlawick, Schulz von Thun distinguishes in his seminal model of a communication square four different CS within one message. He proposes that any message principally contains information on four “sides” (in metaphorical terms of the communication “square”): the matter as such (factual information), the sender (self-statement), the receiver (relationship-indicator) and the intended impact (appeal). Although each message principally contains all four layers, it is acknowledged that people have different CTs based on which (combination of) CSs they address more explicitly [7]. Accordingly, it is important to clearly express the intended style to avoid misunderstanding. Which side of a message sender and receiver focus

on is influenced by the persons' individual background (e.g. culture, intentions, expectations, communicative skill), the characteristics of the situation (e.g. work or private environment), and non-verbal qualifications of the explicit content (e.g. tone, inflexion, gestures) [16]. In the following we will provide further details on the different CS'.

The **factual information** layer of a message comprises the content component delivering factual information on objects, events, or people. This hard fact can be judged based on three different criteria: truth, relevance and completeness. It is assumed that factual information can be clearly recognized as true or false, be more or less significant to the matter, and provide full or incomplete knowledge (e.g. "*An employee in this company works about 50 hours per week.*"). This side of the communication square is explicitly and predominantly focused on within work-related communication [16].

A **Self-statement** is a message that reveals something about the sender. This can either be a more voluntary form of self-presentation or a rather unintended self-revelation. The voluntary form of self-presentation encompasses techniques of intended self-display (e.g. ostentation or pretence as well as demonstrative self-diminishment). This side of the message is usually displayed in "Me-Statements" ("*I consider myself as very hardworking.*") [16].

The **Relationship indicator** contains two aspects of information: the sender's estimation of the receiver and his estimation of their mutual relationship. The assessment of the receiver is usually communicated in "You-Statements" ("You are very ambitious because you work far more than the average.") and classified according to the two dimensions "appreciation vs. depreciation" and "guidance/paternalism". The evaluation of the relationship is commonly phrased in "We-Statements" ("We both are working very hard together for the success of our company.") resulting in symmetric, complementary or meta-complementary relationships. Many times non-verbal signals like the tone of voice and the wording of a statement play a major role in the relationship layer [16].

On the **Appeal** layer of a message the sender is trying to affect the receiver to (not) do something (e.g. "*Please get this done by today, even if it means staying a little longer tonight!*"). This influence can be more or less obvious. The case of a hidden appeal is called manipulation and originates from an exploiting the other message layers and thereby enabling the sender to achieve something without taking responsibility for it (e.g. exploiting the self-statement layer by saying "I would want to make a good impression by having this work done by

tonight."). In order to express an appeal openly the sender needs to supplement the appeal with sufficient factual information as to why a certain intention is aspired.

3. Empirical Study – Communication Types in Enterprise Microblogging

Out of the different social media technologies worth analyzing with respect to our research questions, EMB is considered one of the most pervasive forms of electronic communication [14], and as such, is a promising technology for improving knowledge exchange [24] and collaboration in organizations [25]. Despite practitioners' concerns of productivity losses and information overload issues, scientific studies have already demonstrated the potential benefits of EMB in supporting collaboration and creating productive work environments [26]. Accordingly, we suggest that especially EMB is a promising social media technology for fostering organizational collaboration and communication [27].

3.1. Case Description and Data Collection

Data for the study were collected from an EMB platform at a leading international financial institution with globally more than one hundred thousand employees. The platform was implemented to support collaboration and knowledge exchange between individuals in different departments and countries in June 2010. By the end of the year it was extensively used by more than a thousand employees from all internal corporate divisions (e.g. HR and IT).

The functionalities are comparable to Twitter as users can post short messages of up to 300 characters that appear in a chronologically organized stream on the user's EMB interface. Although the posts are generally visible to everyone, filtering by keywords, users, and groups is possible. A 'follower-feature' enables customizing incoming message streams by defining to "follow" specific users and restrict incoming messages to them. Participation is voluntary and access is enabled via a desktop application, a web frontend, as well as different mobile devices. For each user the name as well as the profile picture was displayed as part of the message making participation non-anonymous.

Overall we collected a large data sample of over 15,000 message posted by 1,166 users on the EMB platform during the second half of 2010. As this period of time comprised the introduction of the tool, we cut off the first two months of data (July and August) to ensure no assimilation effects in terms of

use lags and unstable utilization [28]. Data from the third month (September) was used for coder training purposes as further described below [29]. Due to our specific research focus we then identified all users who at least asked one question. To determine which message is a question we only included posts containing a question mark. We neglected the possibility of missing some questions where users did not use a question mark, since previous research revealed that people usually include question marks in their questions on social networking sites [30]. Furthermore, 33 people with less than five messages were excluded due to the insufficient comparability of the message basis for identifying a communication type. The total sample contained 6,306 messages from 136 users who posted 556 questions and received 1,317 responses in return. Additionally, we conducted an expert interview with one of the IT managers responsible for the EMB system who revealed that approximately 80% of the users work in the IT department, which is one of the largest internal departments of the financial institution. Moreover, participants range from university hires to directors across all age groups.

3.2. Content Analysis Procedure

To discover the CS which users adopt on an EMB platform and to assess the quality of answers (QA) they receive from others to their questions, we conducted a manual content analysis. Content analysis is typically applied to classify text into specific categories based on an explicit coding scheme which allows drawing systematic, replicable, and valid inferences from data to the context [31]. Accordingly, we performed a directed content analysis [32] for CS and QA by using predefined categories and coding schemata based on existing theory.

To counteract the commonly addressed issue of subjectivity in content analysis [33], we considered established principles along all steps of our analysis. Furthermore, we followed proven rules to make our analytical approach transparent and ensure reliability and validity of the obtained measures and results [23]. Specifically, we closely followed Morris' 5-step process for manual content analysis [34]. In the first step, we decided on the unit of analysis, which defines the segments the data is broken down to for the following coding process [35]. Single messages are commonly adopted as the unit of analysis within literature, since these are objectively identifiable by independent coders [33] and reflect the sender's original meaning most closely [35]. Therefore, for CS

we chose each message of the user and for QA each answer as our unit of analysis.

Secondly, drawing on established theories [34, 36], we developed the coding schemata for CS based on the work of Schulz von Thun [37] and the QA referring to Wasko and Faraj [18]. To ensure validity, both schemata were intensively discussed with a panel consisting of one practitioner and three researchers who were familiar with the theoretical background. Moreover, the coding schemata were revised several times during the following process until the final version was created (further details can be found in section 3.3.).

The third step aimed at enhancing the coder's familiarity with the schemata as an important activity to establish objectivity of the judges [38]. Therefore, two researchers test-coded a training sample of 100 messages and answers each [29]. Afterwards, the results were compared and the coding schemata revised accordingly.

Fourth, iterative sample coding of larger reliability samples and revisions of the coding were conducted until all reliability measures reached an acceptable level. Specifically, following common guidelines from prior research, a reliability sample size of 200 messages was provided [33] and a reliability score in Krippendorff's alpha and Fleiss' kappa [29, 39] of above .70 was considered acceptable [40, 41]. Following each iteration, apparent discrepancies were discussed among the coders and the coding scheme was revised subsequently [34]. An acceptable level of intercoder agreement was reached for both coding schemata after two iterations. The messages used during step three and four were excluded from the final analysis.

As the last step of the content analysis, one author processed all 6,306 messages and 1,317 answers according to the previously established coding schemata. Although sometimes intercoder reliability is computed as based on the coding results of the entire data sample, in the case of large datasets, it is a common approach to rely on a data share [29, 42].

3.3. Method and Measures

A directed content analysis offers a more structured process than the conventional approach since it applies existing theory and findings from prior research [32]. In order to develop the coding schemata for CS and the QA, prescribed as the second step in the content analysis process [34], we first derived key concepts for initial coding categories and then provided operational definitions for each category deduced from theory and literature [43]. Generally, our coding aimed at offering a descriptive

evaluation of the message tone and content, without presuming the intent of the user sending the message (e.g., trying to manipulate others, showing-off).

3.3.1. Communication style (CS) coding. To determine the CS of the messages we used the concept of the four different CS' in the communication square model as a key concept for the coding categories [15]. Contrary to observational and interview data, in text-based data the disadvantage of transcription diminishes, which facilitates focusing on the manifest and the latent content as well [44]. This was especially important for the self-disclosing and the relationship layer, as these rely more heavily on subtle emotional expressions (e.g. irony). The operationalization of these CS categories was derived from the detailed descriptions of the specific CS' in the model [37]. Following the model's assumption that each message can principally contain all four CS' [16], we coded all styles apparent within each message. The following descriptions of the operational definitions will, however, focus on the description of singular CS for the sake of convenience. An overview of the definitions with examples for messages containing only one CS is provided in table 1.

explanation of future plans or suggestions (“@13d1032a I have just spoken to one of the developers - they are going to delete these malicious posts”) were considered factual information. The key criterion to distinguish factual information from self-disclosure was the absence of emotional cues. To differentiate between factual suggestions and appeal the immediacy of the message was considered: A suggestion made impersonally (“@696a5725 Uninstalling & reinstalling OCS solves the problem”) is considered factual information.

Messages were generally considered as self-statement then they were biased subjectively. “Me-Messages” as well as “We-messages” (when relating to a smaller group the sender was part of) were considered indicators for this message layer. Specifically subjectively framed (“Despite the flexibility problems, duplication, etc, I want a true air-gap between work and personal data and kit”) or emotionally displayed information (“Also takes me a long time (+ frustration) to interpret internet slang. Although the translator <http://domain.com/> is my best friend :-”) expressing personal opinion was counted as self-disclosing statements. Moreover, appraisal of projects or ideas („Great. This is an exciting project“) as well as (dis)agreement to another statement

Table 1. Overview of the four sides of the communication square

Communication Style	Definition	Example from data sample
Factual Information	What the sender informs about. Hard facts concerning objects, persons or events.	<i>Have a look see: http://domain.com/cg-bin/TWiki/</i>
Self-statement	What is being revealed about the sender. Information about the sender as person. This can either take the form of a voluntary self-presentation or an involuntary self-revelation.	<i>I just read the article too I am really excited to see things already in action in Tokyo.</i>
Relationship-indicator	What the sender thinks about the receiver and their relationship. The sender's assessment of the receiver as a person and of their mutual relationship.	<i>@54c719bc Great to meet you at the unconference - I hope you got something from the collaboration session. :)</i>
Appeal	What the sender is trying to induce. The sender prompts the receiver (not) to do something.	<i>Please someone help me to set up a sharepoint access location and its cost details.</i>

Factual information was coded whenever someone shared (or asked for) work related information concerning software (“WebEx is the existing bank standard for web conferencing, this is a version upgrade.”), responsibilities (“@9d94679c speak to 29vfgzu35 and 3f357223 who look after that area.”) or links to websites, news articles, video or audio files (“@1c83bfd Should be able to use <http://domain.com/wiki/Help:Collapsing>”). Also status updates about a person's past, current or future activities („I installed the Desktop Video plug-in this morning but now I need to configure some SIP registry settings to make a call“), as well as the

(“like @f2's idea to put a QR code on GD”) was included in self-disclosure. The differentiation from relationship statements was made by considering whether (dis)agreement or appraisal was directed towards a point/an idea (self-disclosure) or relating to a person (relationship). The use of emoticons served as an indicator for self-disclosure, since it conveys the sender's conscious intentions and motives [45].

Whenever someone was commenting on another person or their mutual relationship, this was assessed as a relationship statement. Therefore “You-” as well as “We-“ resp. “Our-messages” (when relating directly to the interaction people) served as indicators

for the relationship side (“we’d love to get your insights and also share what we’re collectively gathering in our community”). Whenever someone’s (dis)agreement or assessment was directed towards a person and not to a point (“Just took a look at the #9c06 wiki page, you guys are awesome! True collaboration in action.”) as well as making assumptions about another person (“I think you’ll like it (being smart and forward-thinking as you are :-))” was coded as a relationship statement. Thankfulness towards another person was only included when explicitly relating to another person (“John, thank you for your quick help. I appreciate it.”), whereas a simple “thanks” was excluded from the analysis due to its inconclusiveness. Emoticons were considered as an indicator for the relationship side due to their importance for relational communication online [46].

A message contained an appeal when someone explicitly instructed another person to (not) do something. This could happen either in form of demands (“So please let The Project know if you’ve a solution for this.”) or by instructively coordinating others (“@16fc can you make sure you are hooked up with @496f0414 please.”). Although questions contain a subtle demand for an answer only when explicitly having an appellative quality (“Could you or anyone advise how to do that?”), they were considered as an appeal. Suggestions formulated in a pressing fashion (“Let’s organize a lunch for Tokyo users to discuss how we can promote The Project!”) were also subsumed in this category.

For the following analysis we computed the average CS frequency within the total number of messages specifically for each knowledge seeker.

coding scheme we determined the extent to which the response addressed and answered the asked question. For the operational definition we referred to the rating system of Wasko and Faraj [18]. Accordingly, we rated responses on a unipolar five-point scale from not helpful to very helpful as depicted in table 2. This categorization had to be only slightly adapted during the content analysis procedure to the subject of microblogging posts. In its final version, the coding scheme has been applied to analyzing EMB posts [23]. For the individual QA score the mean response quality of all answers to a question was arithmetically averaged over all individual questions. Thus each question was weighted equal.

3.4. Analysis and Results

The main goal of our analysis is to identify different communication types and compare them in regard to the quality of knowledge they receive upon their questions. Therefore, first we categorized users into different communication types by conducting a cluster analysis based on the communication style of the messages that they posted. The descriptive results (see table 3) revealed that the most frequent CS were factual information (86.4%) and self-statements (59.5%), while relationship indicators (17.1%) and appeals (9.9%) are rather uncommon.

Cluster analysis allowed us to identify groupings of communication types where variations in the communication style is minimal within the group but maximal across groups [47]. This process involved deriving distinct and meaningful clusters from the

Table 2. Coding schema of the quality of answers (QA)

Score	Quality of Answer (QA)	Operationalization of QA
1	Not Helpful	Answer was not helpful for the knowledge seeker. This is confirmed by a corresponding comment on the answer.
2	Indirect Helpful	Answer is not directly providing the knowledge requested but contains a link to a potential information source or gives feedback information.
3	Somewhat Helpful	Answers the question posted at least partially, provides a valuable insight into how the issue was resolved elsewhere, and/or contains relevant knowledge (including meta-information like references to information sources, e.g. URLs).
4	Helpful	Answers the question posted directly and/or complements the initial request with useful information. The recipient confirms the helpfulness by a thankful respond. Answers marked by users with a ‘like’ tag were additionally added to this type.
5	Very Helpful	Answers the question and/or provides helpful information in the form of a valuable comment. Moreover, the reply is positively marked with a ‘win’ tag that can be set by the user to demonstrate the usefulness of this reply.

3.3.2. Quality of answer (QA) coding. The dependent variable in this study is the quality of received knowledge. Therefore we assessed the quality of answers (QA) towards the questions of the different CTs. As the key concept of our quality

assimilation of the four CS’. We followed the two-step process recommended by Ketchen and Shook [48], and Merchant [49] to identify the CTs. First, we conducted Ward’s hierarchical clustering method and inspected the Euclidean distances trend across the clusters in the dendrogram. The results of

this procedure suggested a two-cluster solution. Second, we evaluated the robustness of this solution by generating three-, and four-cluster solutions with the *K*-means clustering algorithm. All of these alternative solutions either had a weaker discriminatory power or produced less meaningful clusters. Furthermore, we replicated the two-stage clustering procedure with several randomly selected sub-samples. Each time the same two-cluster pattern was induced, providing support for the stability of this solution. We therefore concluded that the two-cluster solution best captured the CTs.

Table 3. Total and relative number of communication styles in EMB messages

Factual Information	Relationship Indicator	Self-Statement	Appeal
4110	845	3064	439
86.4%	17.1%	59.5%	9.9%
First row: total number of messages with respective CS Second row: ratio within all 6,306 messages			

In reference to previous work by Naaman et al. [8] in public MB, we labeled the first cluster “Informers” (N = 79) and the second cluster “Meformers” (N= 57). Figure 1 depicts the relative frequency of the CT within the sample and the mean average proportion of CS in the messages for each user as well as their inferential statistics comparison. To test for differences between the CT in the CS we conducted an a-priori MANOVA. No violation of variance homogeneity between groups according to Levene statistics was found. The MANOVA revealed significant differences between groups concerning the CS ($F_{4,131}=63.296, p<.01, \eta p^2=.659$).

Post-hoc analysis was conducted using Games-Howell tests because of variance heterogeneity. The analysis confirmed that Informers provide significantly more factual information ($\bar{x}_1=77.17, T=13.685, p<.01$) and appeals ($\bar{x}_1=9.16, T=3.454, p<.01$) than Meformers ($\bar{x}_2=44.63, \bar{x}_2=5.93$). Meformers, in turn, make more self-statements ($\bar{x}_2=51.75, T=4.252, p<.01$) compared to Informers ($\bar{x}_1=37.92$). Relationship-indicators did not differ between groups ($T=1.677, p<.05$). Interestingly, the number of Informers exceeds the number of Meformers contrary to the findings in public, non-enterprise microblogging environments. It is, however, important to note that the In- and Meformers in our EMB sample differ from the public EMB Meformers as described by Naaman et al. [8]. While Meformers on Twitter barely provide any factual information, in the business context they show a balanced proportion of factual information and self-statements. Informers in the EMB make a

considerable amount of appeals, which have been generally neglected in previous research.

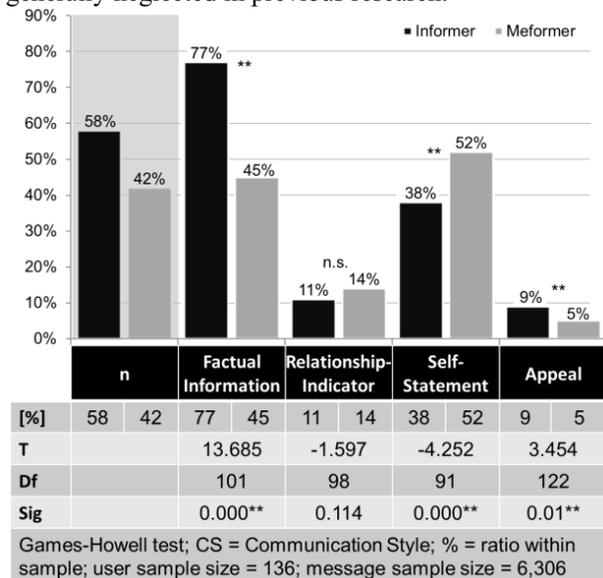


Figure 1. Post-hoc results on CS between CTs

To further explore the different knowledge seeking behavior of the two CTs we compared them regarding the numbers of questions asked and answers received. We conducted Tukey-Kramer tests (see table 4) which showed marginally significant ($T=1.67, p<.1$) more questions from Meformers ($\bar{x}_2=3.13$) than Informers ($\bar{x}_1=4.28$) and significantly ($T=1.932, p<.05$) more answers to Meformers ($\bar{x}_2=10.56$) compared to Informers ($\bar{x}_1=7.04$).

Table 4. Tukey-Kramer results on numbers of questions and answers between CTs

Group	n	DV	df	T	Sig
DV: Number of questions asked					
Informer	79	3.13	134	1.677	$p<.1^\dagger$
Meformer	57	4.28			
DV: Number of answers received					
Informer	79	7.04	134	1.932	$p<.05^*$
Meformer	57	10.56			
DV = dependent variable					

We addressed our second research question by comparing the two CT clusters concerning the average quality of answers they received upon their questions and the number of questions left unanswered. We assumed that a higher number of non-responded questions indicates a lower quality of knowledge exchange. Therefore, we conducted a MANOVA which revealed significant differences between CTs concerning both dependent variables ($F_{2,133}=4.232, p<.05, \eta p^2=.06$). The post-hoc comparison with Tukey-Kramer tests (depicted in table 5) showed that the average quality of answers was significantly higher ($T=2.298, p<.05$) for

questions of Informers ($\bar{x}_1=2.79$) compared to Meformers ($\bar{x}_2=2.95$). Also the number of unanswered questions was higher for Meformers ($\bar{x}_2=2.44$) than for Informers ($\bar{x}_1=3.96$). However, the Tukey-Kramer test only showed marginal statistical significance ($T=1.79, p<.1$). Based on these results we thus conclude that users who send more factual information and appeal messages (“Informers”) receive significantly higher quality and more frequently answers than those who make more self-statements (“Meformers”).

Table 5. Tukey-Kramer results on quality of received knowledge between CTs

Group	n	DV	df	T	Sig
DV: Quality of answers					
Informer	79	2.95	134	2.298	p<.05*
Meformer	57	2.79			
DV: Number of unanswered questions					
Informer	79	2.44	134	1.79	p<.1 [†]
Meformer	57	3.96			
DV = dependent variable					

4. Discussion

The aim of this study was to explore the knowledge exchange interaction on ESM platforms from a communication perspective. Specifically, we focused on the CT of a knowledge seeker and how knowledge exchange effectiveness differentiates between CTs. Therefore, we analyzed the behavior of knowledge seekers and the quality of responses they obtained towards their questions. Based on the results of our analysis we will discuss implications of our study for theory and practice and point out the potential for future research as well as limitations.

4.1. Implications for Theory and Practice

The primary theoretical contribution of this work is our analysis of CT on social media platforms based on the established communication square model [16]. Thereby we consider and extend previously identified CTs. Specifically, while previous research on CTs has mainly been restricted to categories like “information sharing” and “me now” messages [8], we extend the focus to relationship and appeal statements. As a consequence we found evidence for the existence of two different CTs. “Informers” primarily communicate factual information and appeals while “Meformers” focus on self-statements and less on factual information. Relationship indicators which express the sender’s attitude towards the receiver did not vary between the two CTs. The number of Informers exceeds the number of

Meformers contrary to related research [8]. This might be ascribed to the context of EMB, since the situation has a significant impact on the way in which we communicate (aside from individual influences, e.g., personal history, communicative skills) [16]. Thus, it seems that functionally comparable EMB tools deployed in different settings prompt different communicative behavior. The generally more factual-oriented communicative style is not restricted to the numbers in CTs but can also be seen in the overall numbers of CS. Over 86% of the messages sent contained factual information as opposed to 60% with self-statements, 19% with relationship-indicators and roughly 10% containing explicit appeals. Concerning the knowledge seeking behavior, Meformers ask more questions which arouse a higher number of answers compared to Informers. The difference in response frequency could be related to the crowd appealed to. While factual oriented questions can only be addressed by knowledgeable respondents, opinions can be answered multilaterally, which in turn triggers more responses to Meformers’ questions. Moreover, factual inquires could be more straightforward and require answers accordingly. Therefore, these questions could be answered sufficiently with less responses and thereby leverage an efficient knowledge exchange process. An additional contribution to theory is our consideration of knowledge exchange from the perspective of the knowledge seeker which has received only little attention by researchers so far [13]. Finally, we contribute to the small number of articles on social media in enterprises following a call by Richter et al. [14]. To the best of our knowledge we are the first to analyze communication types in an EMB platform.

The results of our analysis provide implications for practice in so far that it points out the importance of managing the CS on EMB platforms to support effective knowledge exchange. Informers’ questions are responded to more probably and with higher quality than questions of Meformers. Therefore it can be assumed that generally adopting a factual oriented CS is more rewarding when searching for answers than self-disclosing. As users seem to adapt their communicative behavior to the context, a strategic CS management should focus on the promotion of Informer-like behavior to leverage effective knowledge exchange.

4.2. Limitations and Future Research

When discussing the implications of our findings, the limitations of our work need to be recognized as well. A first potential limitation comes from the context of our study, which might not be

generalizable to other settings. This limitation concerns (1) our focus on the EMB platform which might not be comparable to other social media technologies, and (2) the context of a multinational financial services provider, which might not be representative for other industries or specific countries. The second potential limitation might be our method of extracting questions and answers. We might have missed questions where users forgot to include the question mark, or might have missed answers when people did not use the 'reply to' function. Even though this might have caused the loss of some relevant posts, we assume that both issues did not have a systematic influence on our results.

Our findings also provide the basis for various future research interests. Firstly, concerning the relation of the CS' with the quality of answers. It is likely that the connection between CT and QA is mediated by other factors like the number of friends [8], indebtedness [50] or the relationship (e.g., higher rapport in terms of similar CT') between knowledge seeker and contributor. Boer et al. [51] for example found that the willingness to share knowledge depends on the mutual similarity of relational models. More specific research is necessary to identify the relation of CT and QA. In this regard different questions have been related to different levels of response quality [52]. Maybe the CTs do not only differ regarding their general CS but also in terms of the questions they ask. Secondly, it seems plausible that the quality measure we applied does not necessarily reflect the relevant quality measure for the questions Meformers ask (e.g., multifaceted discussions). A consideration of e.g. the interpersonal communication competence [53] could help to provide a deeper understanding of relevant communication outcomes. Furthermore, the extent to which a response sufficiently answers a question is arguably the ultimate measure of effective knowledge exchange, although it is not overarching. Maybe as Meformers display more about themselves, followers might provide them with relevant information without even asking. A more passive form of knowledge provisioning should therefore also be considered. Thirdly, to make causal inferences between CT and response quality, a longitudinal study is necessary which considers changes in CT over time and relates it to QA. We intend to explore these associations in future work.

5. References

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