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## **Women and Communication: Measuring Effectiveness and Efficiency in Intra- and Intergender Communication.**

Katja Wiedemann\* & Markus G. Kittler

(University of Erlangen-Nuremberg)

katja.wiedemann@wiso.uni-erlangen.de

### **Abstract**

Equal job opportunities for women and men are a desirable objective, yet this objective does not seem to be realized up to now. One reason for the existing imbalance can already be found in the process of personnel selection. With an equal number of male and female applicants, HR-managers often opt for the male candidate, as they perceive the applicants' communication skills with a gender bias. The objective of this article is to develop an experimental design to allow a quantitative analysis of communication skills, creating an impressive amount of usable data. The presented experiment "EXPLANATORIUS!" enables to assess communication effectiveness and efficiency. In addition to technical hindrances of the communication process, interferences can also occur as a reason of different context orientations, resulting e.g. from different gender of individuals carrying a conversation. The collection of data on intra- and intergender communication processes and its analysis is currently 'work in progress'.

### **Keywords**

personnel selection, intra- and intergender communication, effectiveness, efficiency



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### **The role of communication in process of personnel selection: The case of ‘The Apprentice’**

An important reason for frequent disadvantages of women in the process of personnel selection are differences in the HR-managers’ perception of the candidates’ skills due to their sex or gender. An example to illustrate these differences and their consequences is presented in a recent article of Katherine N. Kinnick and Sabrena R. Parton (2005) ‘Workplace Communication: What The Apprentice Teaches About Communication Skills’. This article presents results of a content-analysis of the first season of the US-TV-Reality-Show ‘The Apprentice’, broadcasted by NBC in 2003/04. The goal of this medial assessment-center taking place over 13 weeks was the selection of a suitable promising young professional for a company of the US-multimillionaire Donald Trump. In weekly succession two teams were given concrete business tasks. The results were compared and judged at the end of each part of the series. Finally, one member of the losing team was dismissed by Trump using the words ‘You’re fired!’. The reality-show which initially was planned to be a midseason-fill-in, unexpectedly developed to be a blockbuster with a regular audience of over 20 million viewers. Kinnick and Parton’s (2005) content-analysis of ‘The Apprentice’ reveals differences in the evaluation of women and men referring to their interpersonal skills and particularly regarding the applicants’ ability to communicate:

*‘Although cell sizes were too small to allow tests for significant differences, several gender differences were apparent in the nature of the criticisms. Women’s interpersonal skills were twice as likely to be criticized as males’ [...] with criticisms including “too flustered and emotional,” “too confrontational,” talking to a client “like he was a 4-year-old,” and “blurting out” inappropriately in meeting. The criticisms of males’ interpersonal skills focused only on poor listening skills. [...] Gender-based differences were also apparent in the data for competitors’ praise. Despite the fact that all-female teams won the challenges in the first four episodes of the show, only one female competitor [...] received any praise from teammates for her communication skills. She was praised by a male teammate for her presentation skills in sales. In contrast, five male competitors received a total of 10 compliments on their communication skills from teammates.’ (Kinnick/Parton, 2005, pp. 438-440)*

To be mentioned in passing, it should be noted that a male applicant was selected at the end of the first season. Referring to the brief analysis presented above, the question arises, whether the processes of personnel selection are corresponding with the quality criteria of personnel selection such as validity, reliability, complexity, social quality and legality (Holtbrügge, 2005, p. 93) considering differences of sex or gender. The analysis of Kinnick und Parton (2005) gives reason to disbelieve that. Particularly, doubts arise considering reliability, which should ensure that the decision of selection depends on the applied method and not on the HR-managers subjective perception. Different perceptions of candidates' communication skills are also underpinned by a current meta-analysis of Dow and Condit (2005, p. 453) who analyse the meaning of gender as an independent variable regarding the characteristics of communication: 'In general, [...] it seems fair to say that the literature shows unstable, contextspecific, relatively small, and variable effects.'

The obvious perception of significant gender differences regarding the applicants' communication skills to the disadvantage of women in business is an important reason, why women are still discriminated in business life and come across barriers in developing their professional careers. As structured interviews are e.g. by far the most commonly used instrument of personnel selection in German companies (Holtbrügge, 2005), the consequences of different (and unjust) perceptions become clear and offer a reasonable explanation for any sex or gender imbalances in the overall results of personnel selection. In a recently implemented study, Lickleder (2005) emphasizes the important role of the applicants' communication skills, analyzing data from 199 German HR-managers (see figure 1).

The importance of communication skills and the differences in attributing these skills to applicants of different sex or gender are discussed above. Yet, the question remains, whether the different perception of communication is justified or not. Consequently, the objective of our research is to empirically analyse, sex or gender differences regarding the communication skills of women and men. Communication skills can be attributed to an individual, when her/his communication achieves its goal. Effectiveness and efficiency are suitable criteria to measure the quality of these skills. Measuring for sex-/gender-specific differences of communication effectiveness and efficiency will reveal whether differences in women's and men's

communication skills exist or not and therefore indicate whether perceived differences of applicants' communication skills in the process of personnel selection could be valid.

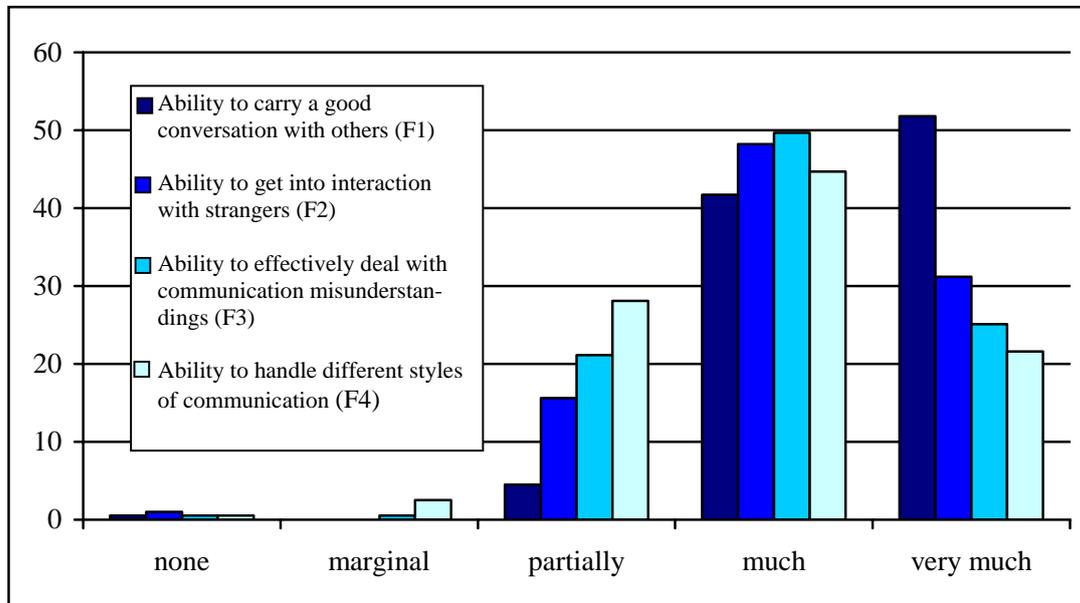


Figure 1: The relevance of communication skills regarding personnel selection (in %); Source: Lickleder (2005, p. 48)

The remaining article is structured as follows. In the next paragraph, the theoretical background particularly Krippendorff's (1986) information theory and the notion of communication as understood in this article are described. In the next paragraph research propositions are deduced. In the following section, the experimental design is presented, focusing on procedures and measures of the modified version of the research tool "EXPLANATORIUS!", originally developed to make the impact of cultural differences on communication processes measurable. Results and interpretations are still work in progress. The article ends with implications and limitations of the experimental design.

## Theory and hypothesis

### Theoretical foundations

#### *Communication and communication effectiveness / -efficiency*

In this article, **communication** is defined as the interaction of two individuals in order to exchange messages and to create meaning (e.g. Adler, 2000). Communication includes any

behavior that intends to indicate something to someone with another human being perceiving and interpreting it (Burkart, 2003; Keller, 1994).<sup>1</sup> Moreover communication is considered as a complex interpersonal process that uses any combination of speech, writing and other signals as a basis for the exchange of thoughts, opinions, or information. While intragendercommunication is regarded to take place between individuals of the same sex or gender, **intergender communication** can be seen as the intention to transmit meaning from one individual to another with each individual embedded in or socialized by different gender contexts. In this article, a distinction is drawn between the two poles intragender and intergender communication with the latter being conceived as communication between individuals of different sex.<sup>2</sup> Following this definition, two archetypes of intragender and two archetypes of intergender communication processes can be identified. Intragender communication takes place when women communicate with women or men communicate with men. In intergender communication sender and receiver can be either women or men, but the communication processes must not take place between individuals of the same sex. In the case that the sender is a woman, for intergender communication to appear – according to our definition using sex as the specific characteristic of gender – the receiver has to be a man et vice versa.

The effort to exchange meaning does not imply the intended outcome. As Adler (2003) argues, communication does not necessarily lead to understanding but may have different results and therefore different degrees of effectiveness and efficiency. Communication is successful to the extent it achieves its intended purpose. According to Gudykunst and Nishida (2001), successful communication depends on ‘the degree of congruence between the cognitions of two or more individuals following a communication event. [...] Stated differently, communication is effective to the extent that we are able to minimize misunderstandings.’ Following this view, **communications skills** are expressed by the extent to that individuals are able to communicate without producing errors in the process of communication, i.e. to communicate effective and efficient. Therefore, **effective** communication is information that is disseminated and understood

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<sup>1</sup> Since, according to the Watzlawick-Axiom, it is not possible not to communicate (Watzlawick 1967), unintended elements are also part of the communication process and are referred to in the following as interferences.

<sup>2</sup> We acknowledge that sex is not a unique gender indicator. Referring to the extreme poles and the objective of this article to analyze communication differences for male and female applicants, sex seems to be an adequate, yet not perfect measure.

by the receiver. The degree of effectiveness can be measured by the congruence between the intended and the perceived meaning. Complete congruence indicates perfect, i.e. highly effective communication; divergences indicate the presence of interferences. Effective communication, however, is not necessarily **efficient**. Efficiency in communication ‘refers to the extent to which skills are used to achieve some outcome with a minimum of effort, time, complexity, and investment of resources. [...] Interpersonal skills are efficient if they accomplish their intended function in a parsimonious manner’ (Spitzberg and Cupach, 2002, p. 579).

### *Krippendorff's (1986) information theory*

Information is the key to Klaus Krippendorff's (1986) approach to communication. His concept builds on the classic Shannon/Weaver model, which considers communication as a chain of processes. The target of communication is to transport an intended meaning from a sender to a receiver. The sender's entropy can be compared to the meaning of the message and therefore consists of information and context. The message sent and the message received do not have to be identical but should correspond to one another. In this ideal case, Krippendorff (1986) speaks of a perfect channel where encoding and decoding are considered to be inverses of each other. In the process of communication interferences are likely to occur which lower the quality, i.e. effectiveness and efficiency of communication. Krippendorff (1986) identifies two basic categories of interferences: equivocation and noise. Figure 2 shows the flow of information through a communication chain and visualizes these two interferences: ‘Equivocation subtracts from the sender's entropy, yielding the quantity of information actually transmitted, and noise adds unrelated variation to this transmitted quality, yielding the entropy at the receiver. The amount of information transmitted is the entropy shared by both – input and output, sender and receiver, and so on’ (Krippendorff, 1986, p. 24). A way to increase the amount of information transmitted and therefore to improve the communication quality is to add correction channels or to enter redundancy into the channel. E.g. Shannon and Weaver (1963) observed that the English language is about 50 percent redundant while other researchers have even found a ratio of up to 70 percent. Therefore redundancy seems necessary in the communication process in order to improve understanding. A non-redundant language would be a more efficient means of communication but totally insensitive to transmission errors of any kind.

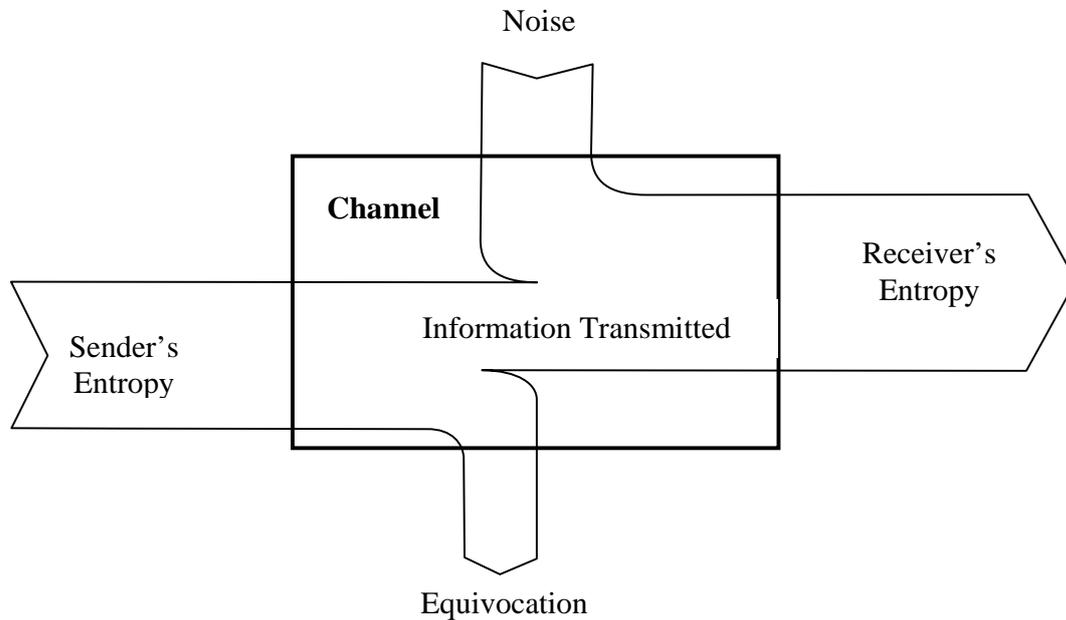


Figure 2: Krippendorff's process-model of communication; source: Krippendorff (1986, p. 25)

### Hypotheses

Based on the observation that the decision makers in the process of personnel selection perceive differences in the communication skills of women and men, we assume at this point of the study that there are differences in the communication skills of women and men based on different gender. Yet, we do not deduce hypotheses from theory stating in favour of whom eventual differences exist. We rather want to find out more about (the existence of) differences in communication and communication skills on an intra- and intergender level. Therefore we make propositions referring to the existence of differences as follows:

Regarding the **intragender** communication the flow of information between women ( $W \rightarrow W$ ) as well as between men ( $M \rightarrow M$ ) will be observed. If women are provided with a lower degree of communication skills than men (or vice versa), this lack of skills would indicate, that there are significant differences for the intragender communication of women and men.

According to our definition of communication skills described by the ability to communicate effective and efficient, the following to propositions can be made:

**Proposition 1:** *The effectiveness of **intragender** communication processes differs significantly for the two archetypes ( $W \rightarrow W$ ) and ( $M \rightarrow M$ )*

**Proposition 2:** *The efficiency of **intragender** communication processes differs significantly for the two archetypes ( $W \rightarrow W$ ) and ( $M \rightarrow M$ )*

The two archetypes for **intergender** communication are the flow of information from woman to man ( $W \rightarrow M$ ) as well as the flow of information from man to woman ( $M \rightarrow W$ ). According to the argumentation of gender differences in intragender communication, also differences for intergender are conceivable. If communication skills actually exist, they could be observed in intergender communication for senders (as well as receivers) of different gender. Therefore, propositions 3 and 4 are as follows:

**Proposition 3:** *The effectiveness of **intergender** communication processes differs significantly for the two archetypes ( $W \rightarrow M$ ) and ( $M \rightarrow W$ )*

**Proposition 4:** *The efficiency of **intergender** communication processes differs significantly for the two archetypes ( $W \rightarrow M$ ) and ( $M \rightarrow W$ )*

In the case that the propositions 1-4 are supported and differences could be empirically underpinned, a logical consequence would be differences in intra- and intergender communication. We postulate the propositions 5 and 6:

**Proposition 5:** *Intra- und Intergender communication processes differ significantly regarding the measured effectivity*

**Proposition 6:** *Intra- und Intergender communication processes differ significantly regarding the measured efficiency*

In order to empirically assess these propositions, data has to be generated which is suitable for quantitative analyses. As a consequence, we apply experimentation as a suitable tool. The method and the experimental design is subject of the following paragraph.

### **Method and Experimental Design**

Communication is a concept difficult to assess and to measure. A basic challenge is to classify sender and receiver and a systematical identification of contextual noise and loss. As Hall (1976, p. 90) argues, ‘in real life the code, the context, and the meaning can only be seen as different aspects of a single event. What is unfeasible is to measure one side of the equation and not the others.’ A ‘powerful tool’ (Leung et al., 2005) to meet this challenge is experimentation which provides the opportunity to observe indications of behavior under controlled conditions (Bredenkamp, 1980; Hussy and Jain, 2002; Muthig, 1981).

Hall’s (1976) communication-oriented concept of High- and Low-Context-Cultures and Krippendorff’s (1986) information theory build the theoretical foundation for the experimental design “EXPLANATORIUS!” which is employed to assess communication effectiveness and efficiency for intra- and intercultural communication processes. The participants’ task is to explain randomly selected terms under given restrictions in a game-like situation. While playing the game, intra- as well as intercultural communication processes are generated. During the game, the players are instructed to fill out a questionnaire after each term has been explained in order to identify interferences in the communication process. Efficiency and effectiveness of communication are measured as well. The measured data makes it possible to classify sender and receiver according to Edward T. Hall's (1976) classification of High- and Low-Context-Cultures based on the amount of interferences observed in a communication process. The interferences are conceptualized according to the information theory of Klaus Krippendorff (1986). For our study, this experimental research tool is slightly modified and described in the following:

### **Procedures of the Modified Experiment**

In order to model a unidirectional process of communication with a clear role distinction (sender, receiver), the following experimental design “EXPLANATORIUS!” was created: A unidirectional communication process with a clear role distinction appears when a sender A tries to transmit a message (meaning) to receiver B. E.g., this is the case when A tries to explain a certain term to B without mentioning the term itself. The communication is effective when B recognizes the term, i.e. when sender’s and receiver’s entropy match. Efficiency can be measured by the time needed for the communication to be effective. When A tries to explain the term also to other receivers  $B_2$  to  $B_n$  with one of the receivers recognizing the term, one effective and  $n-1$  less effective communication processes take place. Since the meaning sent was sufficient for one of the receivers, interferences may be assumed in the various communication processes between the sender and the other receivers. It is possible that less successful receivers have (a) not received enough information and/or (b) have misinterpreted the message received with the cognition of different meaning, which indicates the existence of errors and in consequence a lack of communication skills for the less effective communicators.

To allow for measuring these effects, the following game design was created: The participants of the experiment are split into different groups with a similar number of players and are seated at the tables assigned to them according to the following seat arrangement: A supervisor is seated at the end of the table, next to him the player sending the messages. The designated sender attempts to explain a randomly chosen term that he receives on a gamecard to the other players of his group (receivers). Each sender receives 4 gamecards one after each other. The **sender** has a maximum of 30 seconds for each gamecard in order to explain the term to the receivers. Restrictions to the explanation are (1) zero to six forbidden terms that must not be used by the sender, and (2) the use of a specific language according to a specification on the game card. The restrictions are presented on the gamecard in figure 4. The **receivers** call their suggested solutions towards the sender. False suggestions do not have any consequences. Violations of the rules mentioned above, however, are endorsed by the supervisor and the term to be guessed is evaluated with 0 credits. The time until this violation took place, however, is considered in the game evaluation. There is also no credit if the defaulted time (30 seconds) elapsed without the term being guessed by the receivers. If the term is guessed by one of the

receivers, this player and the sender receive one credit each. If several receivers are successful simultaneously, all winners and the sender will receive a credit. The extent of the two interferences contextual noise and contextual loss for the less successful communication participants is measured by self assessment after each communication process. After having explained 4 terms, the sender changes his role with one of the previous receivers who takes over the role of the sender and begins with the procedure explained above. This alternation occurs until all participants held the role of the sender once and the communication group takes over the tasks of the monitoring group and vice versa. All in all, 1132 intragender and 312 intergender communication processes took place.

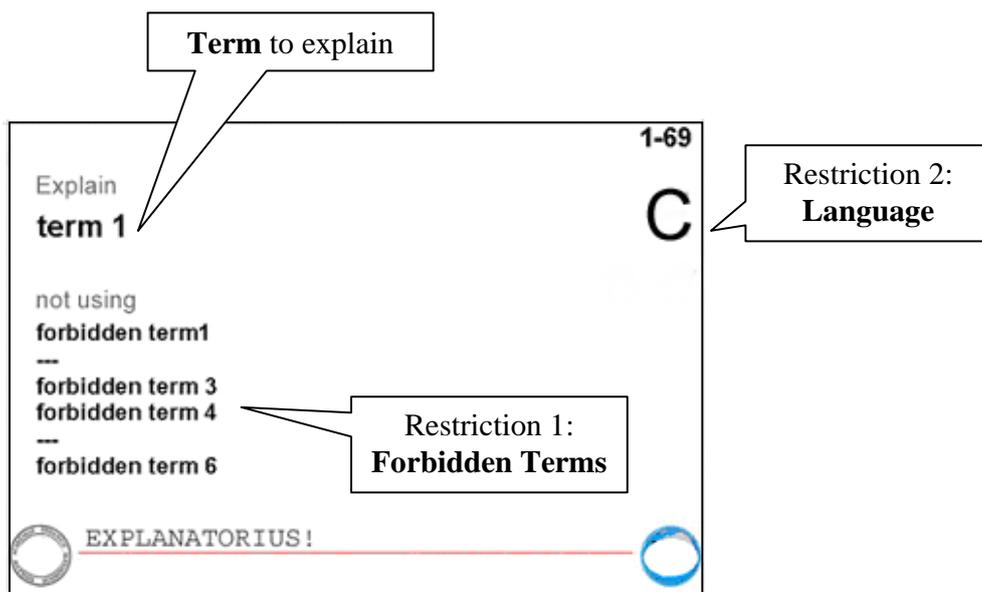


Figure 3: Gamecards of “EXPLANATORIUS!”

### Measures

Effectiveness can be seen as a single and simple outcome by the result of matching (Walther and Parks, 2002). According to Daft and Lengel (1984), efficiency, in turn, is seen as the effective accomplishment of understanding within a specific time interval. From a sender perspective, the

term is not efficiently explained when either the term is not guessed in the given time period (STOPTIME, 0;1) or when the rules of the game are violated (STOPRULE, 0;1). In this case the senders effort to communicate did not have the intended effect (NOT\_SUCC, 0;1) and therefore was not effective. A more elaborated measure is offered from the receivers' perspective. Communication effectiveness again is measured by a dichotomous item (SUCCESS, 0;1), with 1 = effective communication (i.e. the term is guessed by the receivers) and 0 = non-effective communication (the term is not guessed by the receivers). In the case of successful communication (NOT\_SUCC = 0), the communication did reach its intended goal for at least one receiver who mentioned the explained term first (SUCCESS, 0;1). For the other receivers, the communication was not as effective as for the winning receiver(s) but still effective to a certain degree. This was measured through self-evaluation on two items after each term. The two questions (a) 'How much more information would you have needed to find out the term explained?' (C\_LOSS) and (b) 'How much additional (afterward recognized as unrelated and wrong) associations did you make?' (C\_NOISE) where asked on a 7-point Likert scale (0 = strongly disagree, 6 = strongly agree). Based on these perceptions, the extent of receivers' perceived **effectiveness** (P\_EFFECT; [0;1]) is measured as follows:

$$P\_EFFECT = \min_x \left[ 1 - \left( \frac{C\_LOSS_x}{6} \right); 1 - \left( \frac{C\_NOISE_x}{6} \right) \right]$$

In the case of efficient communication, efficiency suggests to make the message sent as short as possible, i.e. the shorter the time needed to guess the term will be, the more efficient it is. **Efficiency** therefore was measured for successful communication interactions by the time needed. The time needed (TIME) was measured in seconds in an interval of ]0s;30s].

### **Results and Discussion**

As the experiment is carried out very shortly before the conference, this part of the article has to remain under construction. If possible, first results could be presented at the conference.

### **Contributions, Limitations and Implications for Further Research**

This article presents a research tool which makes it possible to measure for communication effectiveness and efficiency in interpersonal communication processes. In order to analyze the impact of gender on communication, the experimental design of the intercultural research tool “Explanatorius!” was slightly modified and presented above. As a result, possibly existing differences of communication effectiveness and efficiency between man and women can be identified and analyzed. Furthermore, the experimental design allows a comparison of intra- and intergender communication. The experiment has already been conducted on a large scale with 102 participants at the University of Erlangen-Nuremberg in June. Unfortunately, the data entry and the analysis of the results are not completed yet.

The lack of empirical results is a first limitation of the present paper. Yet, this is only a temporary deficiency of our research. From a communication scholars perspective, a reasonable limitation could be seen in the unidirectional process of communication modeled using “Explanatorius!” On the one hand it is clear, that interpersonal communication takes place with a permanent change of the participants’ roles as sender and receiver. On the other hand the abridged view of the communication process offers a suitable quantitative access to measure communication effectiveness and efficiency which seems to be a reasonable trade-off concerning the feasibility of this study. Another limitation of this article is the synonymous use of gender and sex. As gender - in our definition the condition of being female or male - could as well be seen (and in gender research often IS seen) as sexual identity, especially in relation to society or culture - and sex, the synonymous use in our study could be a source of misunderstanding to scholars more rooted in this perception of gender. Nevertheless, we argue, that the latter notion of gender is not suitable in the case of this study, as the items to characterize gender are also characterized by communication behavior of individuals. Furthermore, as our motivation was to find out whether the women are discriminated in the process of personnel selection, our notion of gender seems to be quite appropriate again.

The problem of an adequate definition of gender in the context of this study could be regarded as a limitation of our research but also as an impulse to further evaluation or analysis. As items focusing on communication behavior (cf. Bem 1974) are used to indicate gender (in

the notion of sexual identity), a more elaborated analysis focusing on implicit vs. explicit communication or the use of gestures as restrictions to the communication process could reveal gender-specific ways of communication. As the results of this study will be based on the observations of an experiment with student participants, the validity of the results also might be limited. Other studies employing participants from different fields should be conducted to provide a more reliable picture on communication effectiveness and efficiency of women and men.

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**\*Corresponding Author**

**E-Mail:**

katja.wiedemann@wiso.uni-erlangen.de

**Postal:**

Department of International Management  
Lange Gasse 20, D-90403 Nuremberg, Germany  
Tel.: ++49 911 5302-102