"Active Listening" in Written Online Communication – A Case Study in a Course on "Soft Skills for Computer Scientists"

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Abstract - **"Active listening" is a well-known ingredient in contexts that involve gathering information and solving problems. Demanding both verbal and nonverbal skills, this way of communication improves mutual understanding by using techniques like paraphrasing. The benefits are manifold and crucial for computer scientists. For instance, it avoids misunderstandings, as people verify they do really understand. Our study investigates active listening in an online educational setting using written communication, which is a novel asset. We explore whether active listening is effective in written online communication and examine this medium's capacity to fully exploit this concept's benefits. The study was conducted in a technology-enhanced course on "Soft Skills for Computer Scientists". Interestingly, analysis reveals that active listening techniques do have positive effects on communication in the analyzed setting of online communication. Furthermore, it appears that instant messaging tools facilitate to let the other completely verbalize his or her thought before responding.**

Index Terms – Active Listening, Written Communication, Soft Skills.

INTRODUCTION

Day-to-day we are confronted with communication problems in any kind of interpersonal relationships. Listening to each other is not as easy as it seems. However, listening – real listening – is a key factor. In fact, it plays an important role in a wide variety of disciplines, among them psychotherapy [1], education [2], and business [3-6].

Communication skills are generally regarded as one of the top generic key skills in higher education [7] [8]. For IT graduates seeking employment, communication skills are crucial. The study "Higher Education and Graduate Employment in Europe" [9] revealed oral communication skills as the third most important competency required for employment. Especially listening abilities are regarded as important soft skills for IT graduates [10].

A highly recognized concept is the model of active listening. And so it is no coincidence that communication experts and trainers in soft skills pay attention to it. As it derives from oral communication, it is applied to spoken language. However, nowadays computer-based communication – mostly in written form – predominates both in business and in technology-enhanced learning settings. Especially for computer scientists, who frequently work in distributed teams, it is important to exploit the full potential of computer-based communication. For this reason, we tried to apply the concept of active listening to written online communication and dedicated a case study to this field.

THEORETICAL BACKGROUND

Often, when people talk to each other, they do not listen attentively but are half-listening, half-thinking about something else. When engaged in a conflict, people frequently focus on formulating a response and winning the argument rather than paying attention [2] [5].

Active listening is a way of listening and responding to another person that improves mutual understanding by involving both verbal and nonverbal communication skills [1]. Active listeners take care to fully attend the speaker using techniques like paraphrasing or encouraging [5] [11].

Characteristics of Communication

Communication settings, whether or not enhanced by information and communication technologies, hold a wide range of characteristics. A basic distinction of characteristics is, whether people interact simultaneously or at different points in time. Moreover, it can be distinguished, whether people are collocated or distributed. As soon as communicators are not collocated, communication takes place by means of some additional medium. Communication channels determine whether the communication flow is one-way or two-way, and how many people can communicate with each other (e.g., 1:1, 1:n, n:m) [12] [13].

We further distinguish between oral and written communication. People retain what they are communicating orally in their individual memories only; speech evaporates [13]. Written interaction is slower than oral communication but offers the ability to capture communication [13], which

leads to a further characteristic: permanence. Permanence is the degree to which a medium is capable of creating and keeping a record of messages / information [12].

Using the media richness theory [14], we can describe a medium regarding its capacity for immediate feedback, the number of cues and channels available (symbol variety), language variety, and the degree of personal focus.

Every setting can be qualified by above-mentioned characteristics. For exemplification, the following tries to match characteristics with communication settings:

- **Face-to-face** communication between two persons: synchronous, physical presence, oral, no permanence, direct communication, two-way, 1:1, very rich.
- **Instant messaging** (e.g., using ICQ, MSN Messenger, Skype) between two persons: asynchronous (depending on the setting short lag only or long-term asynchronism), distance, written, permanence, computer-mediated, two-way, 1:1, rich.

The media synchronicity theory [15] [16] distinguishes communication media for their interactivity by arguing that interactivity is the higher the more it enables immediate response. Adhering to this theory, Table 1 compares face-to-face communication and instant messaging according to the categorization by [17]. Face-to-face conversation is a communication form with high media synchronicity due to offering immediate feedback and low parallelism. Instant messaging provides medium feedback and parallelism and, thus, less media synchronicity than face-to-face talks.

TABLE 1
CHARACTERIZATION OF MEDIA

	Face-to-Face	**Instant Messaging**
Time Aspect	synchronous	synchronous
Space Aspect	dependent	independent
Ways of Expression	all	textual
Social Presence	very high	low
Communicative Richness	high	low
Feedback Immediacy	high	medium
Symbol Variety	high	low-medium
Parallelism	low	medium
Rehearsability	low	medium
Permanence / Reproducibility	low	low-high

Listening Modes

Listening requires one person (the talker, sender) sending a message and one or more listeners receiving that message [18]. It is possible to distinguish several modes of listening. However, a widely accepted model of differentiation does not yet exist, and therefore several models are to be found in literature (e.g., [2] [6] [19]). While, for instance, [19] satisfies with four ways of listening, [2] differentiates in more detail and discusses following seven forms:

- **Active listening**: A listener reflects back to the sender his or her impression of what is expressed without judging (cf. section Active Listening).
- **Passive listening**: The listener is genuinely interested in hearing and understanding the other person's point of view and therefore listens intently. Assuming to have

heard correctly the listener does not say anything but indicates interest and attention by nonverbal aspects of communication like by maintaining eye contact and periodically nodding or smiling [2] [20-23].

- **Inattentive listening**: Sound enters someone's ears but there is little chance or even attempt to comprehend or respond (e.g., listening to someone while reading the newspaper) [2].
- **Pretend listening**: Pretend listening frequently happens in classrooms, when students attend a lecture, maintain an interested facial expression but are actually thinking about something else. Unlike inattentive listening, the sender may not even realize that attention is lacking [2].
- **Conversational listening**: When the roles of sender and listener alternate frequently, we speak of conversational listening. The person listening is allowed and expected to interrupt the sender to express a point of view [2].
- **Argumentative listening**: Argumentative listening is more passionate than conversational listening. The listener keeps looking for flaws in the sender's argument. Argumentative listening can be beneficial. But unfortunately it frequently degenerates into an attempt to blast the sender's argument and even the sender's self-esteem into bits [2].
- **Informational listening**: Informational listening occurs when a person attempts to gather information that someone else possesses. Informational listening may sometimes change to conversational or argumentative listening, when the listener does not agree with the information or point of view [2].

The differences between the forms of listening are easily blurred; it mainly depends on the conversation partners, their intentions and emotions.

Active Listening

Although the highly recognized concept of active listening goes back to the American psychologist Thomas Gordon [20-22], it has its roots in Carl Rogers' client-centered therapy and nondirective counselling [5]. Inspired by his professor's work on reflective listening, Thomas Gordon [20-22] started to apply the communication skills used in therapeutic settings in rather everyday situations. And so the Rogerian reflective listening has become a widely-know ingredient in a variety of contexts that involve gathering information and solving problems [5].

Basically, active listening requires us as listeners to capture what the sender is communicating from the sender's point of view. More than that, we have to convey to the sender that we are seeing things from the sender's point of view [24]. We can never be sure to understand another person completely or in detail. Therefore it is essential in active listening that the listener frequently and continuously validates the accuracy of understanding in order to keep distortion and misunderstandings at a minimum [21].

While paraphrasing traditionally addresses the level of content, active listening goes further and tries to capture what lies beneath – the feelings that come with what is said. According to [24], to listen actively means that there are several things to do: listening for total meaning, responding to feelings, and paying attention to all cues.

Techniques in and for Active Listening

While some people believe in active listening as a philosophy, it is in any case a method making use of certain techniques. The commonly used techniques are: paraphrasing, verbalizing emotions, asking, summarizing, clarifying, encouraging, and balancing (cf. [25]). Table 2 provides a brief overview over these techniques' use and purpose, and illustrates these with examples.

TABLE 2
ACTIVE LISTENING TECHNIQUES

Technique	Purpose	To Achieve Purpose	Examples
Paraphrasing	• convey interest • encourage to keep talking	• restate the information just received with one's own words	"So you showed up at the meeting on time."
Verbalizing emotions	• show that one understands • help the speaker to evaluate his or her own feelings	• reflect the speaker's basic feelings and emotions in words	"And this has made you really angry."
Asking	• get more information	• ask questions	"And after that, John did not react?"
Summarizing	• review progress • pull together important ideas • establish a basis for further discussion	• restate major ideas expressed including feelings	"These seem to be the key ideas you've expressed…"
Clarifying	• clarify what is said • help the speaker see other points of view	• ask questions for vague statements • restate wrong interpretations to force further explanation	"You said that you have reacted immediately. Was this still on the same day?"
Encouraging	• convey interest • encourage to keep talking	• disagree • use varying intonations • offer ideas and suggestions	"Then your manager approached you. How did he behave?"
Balancing	• get more information • help the speaker to evaluate his or her own feelings	• ask questions	"Did you perceive the inconvenience worse than not being taken seriously?"

Benefits of Active Listening

The benefits of active listening are manifold. The most important positive effects are summarized below (cf. [23]):

- **Avoidance of misunderstandings**: As people confirm that they do really understand, active listening contributes to prevent misunderstandings [20-23] [26].

- **Disturbing feelings fade**: People frequently use negative feelings as codes for messages in order to get attention. If the sender is addressed empathically, strong negative feelings give way for much weaker or even positive ones [21].

- **Increased trust**: The fact that someone listens and understands releases positive feelings. This furthers the relationship between sender and listener and a sense of trust emerges [20] [23].

- **Increased willingness to listen**: If someone listens to what we have to say, we are more willing to listen to the other's point of view. Persons who are paid attention to are more likely to become good listeners themselves than people who do not get the chance to be heard [20] [23].

- **Demonstrating respect**: It is difficult to convince people that they are respected by telling them so. Rather one is much more likely to get this message across by behaving that way. Active listening gives the sender the feeling of being worth listening and respected [24].

- **Revealing the core of the problem**: People's problems are like onions – they come in layers. Only after peeling off the outer layers one finds the underlying core problem. Active listening helps effectively to advance to the core problem [21].

- **Higher sense of responsibility**: Active listening furthers to express feelings and verbalize problems. Instead of providing ready solutions for these problems, it encourages and stimulates self-dependent thinking and to find solutions oneself. Based on this, people get more self-dependent and more responsible [20-23].

- **Personality development**: Besides providing the listener with more information than other modes of listening, active listening tends to alter constructively the attitudes of the listener resulting in an experience of growth [24]. On the sender's side, the process of solving a problem independently may contribute to his or her personality development [20-23]. In particular, it may strengthen self-esteem and self-confidence.

- **Better handling of criticism**: People who are listened to empathically tend to listen more carefully to themselves and get better aware of their feelings and thinking. With this experience, people are more likely to feel that their contributions are worthwhile [24].

RESEARCH QUESTIONS

This study explores active listening in an online educational setting using written online communication. Transferring the concept of active listening to written communication is a novel asset. Therefore, the presented case study aims at analyzing whether this concept deriving from oral communication is appropriate and effective in online written communication.

Specific research questions are: Can active listening be applied to settings with written online communication? What are the drawbacks of combining online written communication and active listening?

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STUDY

Course Description

This case study was conducted in a course on "Project Management – Communication and Soft Skills" for computer science students at the University of Vienna in the winter term 2005/2006. This course is part of the Master programme, which indicates that the participants had already received a Bachelor degree in computer science. As this course was held as a technology-enhanced course, it included presence phases in class and online elements.

The course aims at improving students' competencies in project work situations, in particular in team communication, ad hoc presentations, and moderation techniques. It is based on active, experiential learning and accompanied by an e-learning platform for knowledge intensive inputs and materials. The facilitator / instructor moderates the initial three workshops, and then students take over. More precisely, student teams (about 3-4 persons each) are free to decide on a particular soft skills topic, based on their interests, which they prepare. Each team moderates its own workshop on the respectively chosen topic. Feedback is given during the workshops as well as in online reaction sheets [27].

Implementation of the Case

After a preliminary kick-off meeting, the concept of active listening was both elaborated theoretically and exercised practically in class in the first two-day presence phase. We thereby seized on the suggestions by [2] to start with sequences where two persons (a dyad) take turns listening to each other, since this scenario seems to be an effective way to learn this concept's basics and to experience its benefits.

After this first presence phase, students were assigned to build groups of two persons using a web-based team-building tool in order to exercise online active listening in dyads. Students had to act once in the role of the listener and once in the role of sender (talker) (as suggested by [2]), for which they were free to choose any instant messaging tool they liked. Since the course's facilitator did not suggest any topic, students could pick up any topic or feeling.

After the exercise, every student had to reflect in writing on the exercise addressing following two questions: (1) What happened during the exercise? (2) How did I perceive it as the talker and as the listener?

Data Collection and Methods

Students' written reflections were to be provided on the course's e-learning platform as well as the log files (protocols) of the communication sequences, on which these reflections were based.

Text and qualitative content analysis [28] were applied to evaluate students' reflections. Categorization was undertaken by two researchers in order to provide inter-subjectivity. The classification scheme was developed inductively from raw data. For reliability reasons, the log files were used for reflexive interpretation (reference to and rechecking on the original source).

Sample

From 21 participants of the course, 19 students took part in the face-to-face and online active listening exercise. Due to the impair number of participants only 16 students could carry out the exercise in pairs; the remaining three students worked in a threesome. Each team carried out the face-to-face teams as well as the online exercise in the same line-up. Consequently, 19 reflections with a total word count of 3631 and 10 communication log files (the threesome delivered two log files) could be analyzed. In general, the sample constitutes of 5 female (26%) and 14 male participants, reflecting the average female ratio of 25-30% for computer science students at the University of Vienna.

RESULTS

Formal characterization of active listening logs

On average students spent 28 minutes with the online active listening exercise (varying from 12 to 44 minutes). Time breaks between single statements in the logs took up to 6 minutes (e.g., one student had to answer the phone during the exercise). Only one team did explicitly change the roles of listener and sender and indicated the turn in their log files; the others varied their listening and talking parts according to upcoming themes.

Characterization of logs' content

Generally teams chose to talk about a wide variety of topics that were often related to what they had experienced on the day of the conversation and what they were usually interested in (e.g., parties, bands, problems with cars, fitness training, having a cold, telephone bills, shopping tours, diets, road charges, politics, soccer matches). As we had expected, university courses (e.g., homework, master's thesis, professors, deadlines) had also been among the discussed topics (addressed in 4 conversations).

Although some conversations seem like small talk at first sight, several students also shared emotions in their conversation that currently affected them deeply (e.g., one student was very upset and frustrated because she missed an important lecture and had an argument with a course instructor). Probably conversations did not get emotionally deeper since the time frame was rather short. Although the degree of prior acquaintance of teams varied to a great extent, most teams knew each other only from their studies. (We assume that sharing deep emotions requires a certain level of trust, which may not have developed yet among the observed teams.) Furthermore, the log files of the conversations were to be provided on the course's e-learning platform and, thus, accessible to all participants. This may have deterred the one or other student from sharing deep feelings. While in oral settings (e.g., in encounter groups) people do not shy away from sharing deep emotions with a large group, knowing about its permanence may increase the

caution against sharing feelings with instant messaging tools. "Then it is like being carved in stone – especially if up to 23 persons read everything", one student explains.

All of the above-mentioned techniques in and for active listening could be found in almost every active listening log. Therefore we refrained from including more detailed data in this paper.

Results of reflections

Table 3 gives a brief overview of reflections' analysis. Generally, many students reported that they experienced the online active listening exercise as rather easy since they had already been familiar with chatting (8 nominations). Only one student surprisingly stated, "I have to say that I have not chatted before in my whole life because I think it is needless." Interestingly some students mentioned that it was difficult for them to follow the instructions of the exercise (8 nominations). Students reported that they were distracted and could not fully concentrate on the conversation or the active listening exercise turned into a common conversation since too many questions appeared (e.g., "Hence, we have not really accomplished to listen actively for a longer time because we were simply too curious and could not refrain from counter questions.")

TABLE 3
SUMMARY OF REFLECTIONS' ANALYSIS

General Reaction on Exercise	
Exercise was easy because of familiarity with chatting	8
Deviation from instructions	8
Active Listening techniques used by students	8
Familiarity with chatting partner	4
Starting problems because of low familiarity with chatting partner	2
Difficulties of online chatting	
Specific difficulties for online active listening	5
Overlaps / Getting mixed up of messages	6
Misunderstandings	5
Distractions and missing attention	9
Easier in f2f to judge attention of partner	2
Missing non-verbal cues and voice	3
Waiting for next message	4
Further Characteristics of Online Chatting	
Permanence	3
Emoticons	2
Suitability of f2f or Chatting	
Chat is useful for exchanging information	2
F2f is better suitable for important, deeper, complicated or longer conversations	6
Chat is no compensation for f2f meetings	4

In their reflections students also refer to their use of several active listening techniques (8 nominations). Examples are: "With clichés like 'I understand' and 'okay, I am with you' he accomplished to create an atmosphere, in which I found myself being understood and taken seriously." and "In the beginning of the conversation, though, I repeatedly wanted to comment on Simon's statements. I have not done that in order to let Simon finish his thought and to be able to listen better."

The degree of prior acquaintance of teams varied to a great extent. One student, for instance, reflected: "This task was easy for me… naturally the factor was relevant that Tina and me frequently communicate with each other via instant messaging", on the other hand another student wrote: "In the beginning of our conversation we both did not know what to talk about, because we knew each other only by sight."

In their online reflections students especially put emphasis on describing difficulties of online chatting. The majority of mentioned problems were distractions and missing attention of conversation partners (9 nominations, e.g., "… of course, one can also deal with other things [while chatting] and thus be distracted. This means for active listening that the narrator is not paid full attention.") While in face-to-face conversations people can see that one is occupied and, thus, hesitate to interfere, in online settings it has to be signalised actively that one does not want to be disturbed. Interestingly only one dyad reported that they arranged for not being disturbed by using the "invisible mode" in their tool. At first sight it may seem that, when being distributed, the opportunities for not paying full attention are seductive. It, though, is people's attitude, which evokes distraction; those, who reported of having been distracted, actively engaged with other tasks (e.g., chatting with other people, burning discs, etc.) while accomplishing the active listening exercise.

When using instant messaging, it can happen that conversation inputs overlap (6 nominations), which can cause misunderstandings (5 nominations, e.g., "I noticed [,,,] that misunderstandings occur every now and then. This mostly happens because messages 'get mixed up'.")

Besides missing non-verbal cues and voice (3 nominations), students came up with further difficulties for online active listening (5 nominations). E.g., "With questions, difficulties can easily occur, so that the emerging atmosphere of an empathic conversation is destroyed due to problems of associating messages in their sequence. Active listening is then retarded by the limited possibilities for interaction and coordination.", "In course of [the exercise] I noticed that it is more difficult for me to communicate in written form that I do not understand something. […] In face-to-face conversation I usually do not have problems to ask until I understand. But under these circumstances it is more difficult.", "[…] this way there is somehow missing something. One does not really feel understood when one is deeply emotionally moved."

As an advantage of online listening students mentioned its permanence (3 nominations); with instant messaging, one can re-read all messages. As is expected according to media choice theories, students argue that although chatting is useful for exchanging information (2 nominations), it is no compensation for face-to-face meetings (4 nominations), which are better suitable for important, deeper, complicated or longer conversations (6 nominations).

Finally it appears interesting that students generally show skepticism concerning active listening by means of

instant messaging, while, at the same time, they explain that it worked out well in the exercise.

CONCLUSION

Exploring active listening in an educational setting with computer science students, we analyzed whether this concept is effective in written online communication.

Interestingly results reveal that all of the commonly used techniques in active listening (e.g., paraphrasing, summarizing, or encouraging) are applicable when communicating via instant messaging. Rather than a concentration of only a few techniques, all of them could be found in almost every of the analyzed online conversations.

The prevailing drawback of online active listening was distraction and missing attention. While students claim the online setting furthers distraction, we attribute it to attitude and the lack of awareness that paying full attention can be controlled. Further research and specific trainings seem necessary in this field.

Besides this, students tend to be able to handle difficulties like mixed up messages, which may induce misunderstandings. Due to being used to instant messaging, they are able to overcome these difficulties, although they experience it as more demanding than in face-to-face talks.

Finally, we could observe that students generally show skepticism concerning online active listening, although they report that it worked out well in the exercise. This opposition demands for further analysis whether it is a pure acceptance problem or if both settings are suited while the face-to-face conversation is regarded as the superior one.

We can summarize that training computer scientists in active listening proved to be a positive learning experience and is a meaningful contribution to improving students' communication skills. With regard to their future jobs, students will especially profit from a thoughtful combination of active listening in face-to-face and online settings.

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