Article

Experiencing Emotions in Video-Mediated Psychological Counselling Versus to Face-to-Face Settings

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Abstract: How does using video technology influence the emotional experience of communication in psychological counselling? In this paper, the experience of emotion—as an essential factor in the communication between counsellor and client—is systematically compared for face-to-face and video formats. It is suggested that the research methodology for studying computer-mediated forms of communication links lab and (virtual) reality in an ideal way. Based on a sample of 27 cases, significant differences and their observed effect sizes are presented. The aim of this study is to investigate the emotional experience in direct and mediated interaction and thus to contribute to the systematic search for evidence as to whether and how the emotional experience in psychological counselling interviews changes during video-mediated transmission. The results suggest, among others, that negative emotions are more intense in the video format and positive emotions are intensified in the face-to-face format.

Keywords: video-mediated communication; emotional experience; psychological counselling online; face-to-face versus online communication; video-based counselling; field experiment; human communication

1. Introduction and Relevance of Video-Based Counselling

For a variety of reasons, it is often difficult for people with mental health problems to receive timely and appropriate psychological care. Digital, video-mediated communication technology can facilitate access, especially when clients are very busy in terms of time and work, have physical limitations, or live in rural areas or areas with inadequate psychotherapeutic and psychiatric health care [1] (p. 171).

How does using video technology influence the emotional experience of communication in psychological counselling? In this paper, the experience of emotion—as an essential factor in the communication between counsellor and client—is systematically compared for face-to-face and video formats. The measures reflect how intensely participants have felt emotions. Based on a sample of 27 cases, significant differences and their observed effect sizes are presented.

Video consultation has been in place in English-speaking countries for more than 15 years [2], but only recently found its way into the sociopolitical debate in Germany and is now covered by statutory health insurance [3]; this timely study of video counselling reveals interesting findings. This study does not specifically address the relevance on this topic in the context of the COVID-19 pandemic, primarily because this research was started before the pandemic. Nevertheless, the COVID-19 pandemic did lead to a complete shift in applying the results of this study in everyday communicative practice, as well in psychological counselling.

2. Relevance of Emotions in Psychological Counselling

Emotions are a Western component of psychosocial counselling and considered decisive for the success of the sessions [4]. A harmonious and coherent relationship, and thus positive emotions towards the other person, is a necessary basis for the success all further counselling, regardless of the format [5]. In contrast to a face-to-face conversation, emotions in the digital world do not arise directly, but are mediated by technology [6]. Comprehensive research has been done on computer-mediated communication and self-development [7–9] and pointed out that openness can be higher in forms of mediated communication than on face-to-face communication.

The aim of this study is to investigate the emotional experience in direct and mediated interaction and thus to contribute to the systematic search for evidence as to whether and how the emotional experience in psychological counselling interviews changes during video-mediated transmission. It is suggested that the research methodology for studying computer-mediated forms of communication links lab and virtual reality in an ideal way [10]. For this purpose, this article presents the study design, justifies the selection of methodology, and then critically assess the evidence basis in order to answer the research question.

3. Methodical Approach

To generate hypotheses and identify relevant research variables determining how communication in video-based counselling sessions differs from face-to-face contact, a comprehensive literature review was conducted.

In total, 28 studies and publications on video-based or internet-supported psychological treatment were reviewed. Of these, three studies[1] were classified as highly relevant to the subject of this study. The case studies, literature reviews, or randomized studies, some with control groups, were mainly conducted in English-speaking countries. In a first phase, database search was completed using the search terms *video-based therapy* or *counselling*, *video-based*, *video-mediated*, *Skype*, *therapy*, *counselling*, *or treatment*. Studies or publications that only referred to *e-mail* or *chat counselling* were excluded. The following essential characteristics of psychological counselling, which can be systematically compared using established instruments, emerged from the studies reviewed:

(1)   Quality of the relationship between counsellor and client,
(2)   Intensity of the emotional experience, and
(3)   Satisfaction with the counselling.

In this article, however, only the experience of emotion is dealt with. Based on insights from the literature, a video-assisted interview setting was designed for a roleplay experiment.

3.1. Experimental Setup and Procedure

To clarify the research question, an experimental setting was chosen in which the study participants took on the role of client or counsellor. To capture emotions, it is not sufficient to present a role description and have the participants assess how they would feel in that situation. Care must be taken to ensure that emotions actually occur [12] by setting up a roleplay which allows participants to interact instead of making assumptions on a conjunctive basis by reading the role descriptions and imagining the situations.

To test the research question, three surveys were conducted[2], in which participants roleplayed both video-assisted[3] and face-to-face conversations. They took on the role of client or counsellor once in each format. In the repeated 2 × 2 within-subject design with the factors role and format with two variations each, every participant changed roles and formats according to a predefined scheme, so the same couples never interacted with each other again, as Figure 1 illustrates. This prevented the second conversation from being distorted by the previous relationship.
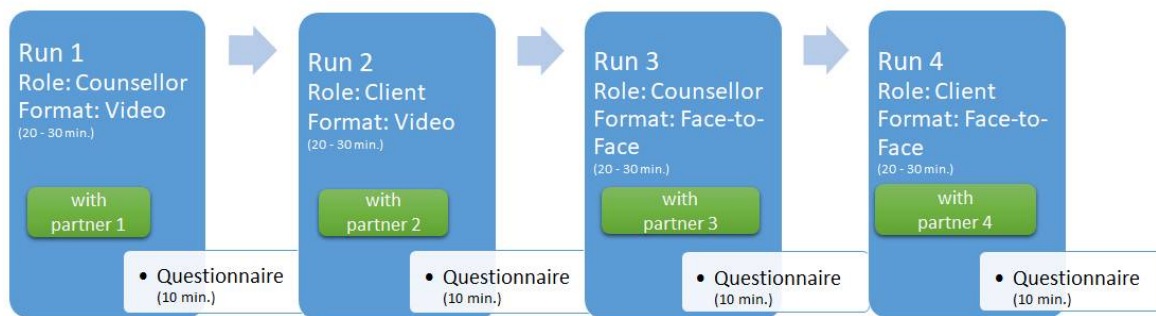
Figure 1. Experimental procedure.

The chronological sequence of the conversations and associated change of partners of the participants was supervised by the test leaders to ensure that every participant passed through every condition of the experiment. A retrospective survey of the emotional experience in the conversations was chosen, in which the participants recorded their emotions in a questionnaire directly after the interview [13]. Each interview therefore ended with completion of the questionnaire—by both client and counsellor.

To ensure maximum objectivity and to determine whether the results can be attributed to the format, but not to the counselling topics, a standardized setup with predetermined topics was chosen. Participants were provided with three role descriptions with fixed topics, which they could use as a guide in the counselling interview:

(1) Balancing studies and career;
(2) New task: Leadership position;
(3) Changing profession.

Roles and topics were described very specifically: with clear instructions and detailed reasons why counselling was requested. At the same time, they were free to introduce their own topics that were surveyed in the questionnaire data. To make the counselling situations more realistic and thus improve the external validity of the results, two graduate communication psychologists with relevant professional experience in counselling took part in the experiment in the last run in 2017. A reflection on whether and how the counsellors' professionalism influenced the quality of the conversation is found in Section 4.3.

3.2. Description of the Sample

All participants were students of the Master's Programme in Human Communication—Communication Psychology and Management at Dresden International University (DIU). Hence, all participants are characterized by a high degree of willingness to talk and reflexivity that was required to conduct the survey.

In total, 27 people took part in the experiments. Of these, two were professional counsellors and 25 were DIU masters' students. In total, 35% of the participating students had previous experience in counselling—in regards to professional activities of one year or more. The professional counsellors engaged in the last run of the experiment are characterized by a professional degree in the field of counselling and several years of professional expertise. Accordingly, there are two types of professionalism of the counsellors: students with or without previous experience in counselling and qualified consultants. The influence of the counsellor's professionalism on the emotional experience are considered in more detail in Section 4.3.

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[1] [1,2,11].
[2] In 2015, 2016, and 2017.
[3] Using the software Skype or Adobe Connect.

The age range was between 21 and 53. In total, 69% of the participants were female; 31% were male. All participants already had a (previous) university degree. In 41% of the roleplays, the participants had previous experience with video-based communication at work.

3.3. Selection of the Measuring Instrument

Due to the existing validation of the Positive and Negative Affect Schedule (PANAS) [14], this instrument was used and adapted to the research project. In addition, Thayer's Activation-Deactivation-Adjective Check List (AD-ACL) [15] was used, which has already been translated into German and tested for the assessment of emotions [16]. In terms of content, the items of both instruments proved to be adequate [14,16]. Feeling lively, relaxed, stressed, or jittery in the context of a counselling situation appeared to be an apt description to characterize the counselling process and/or format.

The original version of AD-ACL [15] served primarily as a frame of reference for selecting the emotions used. Emotions that were congruent were included in the new questionnaire and those that were not appropriate were removed[4]. To maintain a balance between positive and negative emotions, the 14 emotions selected at first were supplemented with six additional emotions from the PANAS. The translation by Schwerdtfeger, Eberhardt and Chmitorz [17] served as orientation. In this way, taking into account both the ideas of Thayer[5] [15] and Watson and Clark and Tellegen[6] [18], ten positive and ten negative adjectives were compiled from both existing instruments[7], as shown in Table 1.

Table 1. Selected items of the questionnaire of this study including Cronbach's α.

Positive Emotions $\alpha = 0.853$	Negative Emotions $\alpha = 0.855$
satisfied	nerveless
relaxed	depressed
full of energy	stressed
lively	irritated
full of pep	sleepy
wide-awake	tired
clutched	wakeful
still	tense
calm	fearful
placid	jittery

Employing the questionnaire in the context of the experiment, participants were instructed to answer the following question on a scale from 1 (= low intensity) to 5 (= high intensity): "How do you feel after the consultation?"

4. Investigation Results

The statistical parameters listed are based on the assumption of a dependent sample of two groups: video and face to face.

Evaluation of the 20 individual items was discarded in favor of a summary view based on two scales, which provides meaningful and compact results. The classification of the 20 items into two scales is explained and justified in the following.

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[4] In the test evaluation of the instruments used, the adjective "energetic" of the AD-ACL could not prove itself due to low discriminatory power [16] (p. 181), so it was not integrated into the combined survey construct. The item "active" from the PANAS [14] was replaced by the adjective "lively" from the AD-ACL [14] (p. 181), as it seemed more appropriate for the counselling context.

[5] Thayer [15] divides emotions into those aroused internally ("energetic arousal") and by tension ("tense arousal").

[6] Watson et al. [18] emphasize maintaining a balance between positive and negative emotions.

[7] The reliability and validity of answers can be increased by combining several questionnaires, selecting several items in one questionnaire for one dimension (in PANAS: positive or negative activation; in AD-ACL: activation or deactivation; [19]).

4.1. Emotion Scales

The reliability analysis of the scale validated by Thayer [15] "high activation/tension" showed insufficient internal consistency of the items (Cronbach's α = 0.49). At the same time, the scale division of the items by Thayer [15] and Watson et al. [18] proved to be inappropriate for the present study. Since the individual items of the questionnaires proved useful, Thayer's [15] and Watson's [18] scales were discarded and the authors considered possible alternatives regarding scale classification. A division into positive and negative emotion scales was made after a comparison of means with subsequent significance testing at the individual item level. The determination of the Cronbach's α confirmed this division. The items of positive emotions show good internal consistency with a value of α = 0.853 and thus indicate robust reliability of the scale. The items of negative emotions show the same quality of reliability with a value of α = 0.855.

4.2. Intensity of the Emotional Experience

First, it must be emphasized that the analysis of the central tendencies and simple pairwise comparisons were carried out in order to derive initial tendencies and to obtain an overview of the data. To counteract an accumulation of alpha error, the resilience of these tendencies was then tested and deepened in a multifactorial analysis of variance with repeated measures (MANOVA).

The mean values of the emotion scales differ depending on the format, as can be seen in Table 2. Positive emotions are thus experienced more strongly in the face-to-face format and negative emotions more intensely in the video setting.

Table 2. Mean values of the emotion scales by format.

Scale	Format	Client		Counsellor	
		Mean	SD	Mean	SD
Positive emotions	Video format	2.84 *	0.77	2.81 *	0.81
α = 0.853	Face-to-face format	3.38 *	0.68	3.50 *	0.50
Negative emotions	Video format	1.97 *	0.69	1.93 *	0.74
α = 0.855	Face-to-face format	1.52 *	0.52	1.44 *	0.42

Scale: 1 = low intensity; 5 = high intensity; n = 26[8], * significant difference between the different formats (asymptotic significance $p < 0.05$; Wilcoxon test).

To assess the significance of these differences, the normal distribution of the scales was first tested using the Kolmogorov–Smirnov test for two samples. The asymptotic significance shows a value of $p \geq 0.000$ for the scale of positive emotions and $p \leq 0.025$ for the scale of negative emotions. This means that there is no normal distribution for the scale of negative emotions. In this case, a classic T-test cannot be run; procedures that are more robust must be used. In the absence of a normal distribution of the scales to be tested, the Wilcoxon test provides information on the extent to which the different intensity of the emotional experience in the respective format is significant. The central tendencies of the scales for positive (asymptotic Wilcoxon test: $-2.949 \leq z \leq -2.868$, $p \leq 0.004$, $n = 26$) and negative emotions (asymptotic Wilcoxon test: $-2.313 \leq z \leq -2.128$, $p \leq 0.033$, $n = 26$) therefore differ highly significantly by format.

The results in Table 2 suggest that negative emotions are more intense in the video format and positive emotions are intensified in the face-to-face format.

Furthermore, when looking at the mean values of the emotional experience in Table 2, differences become evident not only between the video and face-to-face formats, but also between the roles of counsellor and client. To examine the effects of combining several dependent variables and different factors influencing them [20] (p. 237) and to counteract the accumulation of the alpha error in the context of the Wilcoxon tests reported above,

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[8] Due to the paired experimental design, only an even number of data sets could be included in the analysis.

the results of a multifactorial analysis of variance with repeated measures (MANOVA) are reported below.

First, an evaluation and examination of the statistical requirement must be carried out. The five-point scale of the dependent variable is equidistantly standardized, which means they are interval scaled according to the required prerequisites. As the distribution of the test feature in the sample is different from the normal distribution of scales, it needs to be examined whether MANOVA can be applied. Studies have shown that repeated measures ANOVA is robust to violations of the normal distribution [21] (p. 890) [22] (p. 6).

The multifactorial analysis of variance with repeated measures (cf. Table 3) confirms that the format is related highly significantly to the intensity of emotional experience ($p \leq 0.001$). Finally, it is required to assess whether the differences between the formats are large enough to rate them as significant. For both scales of emotions, the effect size of Cohen shows a value of $f \geq 0.79$, which is a strong effect. The differences are therefore to be classified as significant.

Table 3. Results of analysis of variance (MANOVA) for the factors format and role.

	Positive Emotions	**Negative Emotions**
Format	*Wilks'* Λ = 0.55 F (3.24) = 19.57 p = 0.000 f = 0.9027	*Wilks'* Λ = 0.61 F (3.24) = 15.30 p = 0.001 f = 0.7979
Format * Role	$F < 1$ ns	

To conclude, it can be stated that the intensity of the emotional experience is rated differently depending on the format, as the mean values in Table 2 show. In video format negative emotions, such as being depressed, tired, or stressed, are experienced more intensely than in the face-to-face setting. Positive emotions such as relaxation and liveliness, on the other hand, are experienced more intensely in the face-to-face setting. At the same time, it can be stated that although negative emotions were more intense in the video- compared to face-to-face format, positive emotions were more intense than negative emotions in both, as Table 2 shows. Therefore, it cannot be concluded that video counselling per se is experienced more negatively. The implications of negative emotions in counselling is considered and discussed in Section 6.

A multifactorial analysis of variance with repeated measures was used to test whether the interaction of role and format had a significant influence on the intensity of emotional experience. The results in Table 3 show that no such influence can be demonstrated (F < 1, ns). Furthermore, it could be demonstrated that the role itself has no significant relationship with the intensity of emotional experience (positive emotions: $p > 0.05$; negative emotions: F < 1, ns).

4.3. Correlation between Counsellor's Professionalism and Intensity of Emotions, as well as Other Factors Influencing the Emotional Experience

To test whether clients experience emotions more or less intensely when talking with a professional counsellor than with counselling students, the scales positive and negative emotions were correlated with the level of qualification of the counsellor. Comparison of the actual intensities of emotional experience determined as a function of the counsellor's level of qualification with the intensities that would have been expected if these characteristics were independent, using Cramer's correlation coefficient V, revealed no significant relationship. Accordingly, the professionalism of the counterpart—in contrast to the format—does not seem to have any influence on the emotional experience. Accordingly, the peer-to-peer approach applied in this experimental study, in which students counsel other students, could be confirmed in terms of emotional experience.

The influence of other factors on emotional experience was investigated: degree of experience with video-based communication, gender of the participants, counselling

experience, conversation topic, relationship to the counterpart (familiarity level), technical interference, and repeated participation in the experiment. However, no significant influences on the dependent variable of emotional experience were found.

5. Critical Appraisal of the Evidence

The significance of the results, including the high effect sizes, indicates that the investigated variable, emotional experience, can be classified as highly relevant for answering the research question how using video technology does influence the emotional experience of health communication. Due to exact match with preliminary considerations, study design and questionnaire were quite suitable for the research project and can be recommended for repeated investigations. The very good reliability and validity values indicate that the instrument captures intensity of emotion reliably.

It should be noted that systematic bias could never be completely excluded. Selection bias could have arisen, as the sample was not completely randomized. Accordingly, future research projects should select participants from different study programs with a connection to communication psychology, as was originally intended.

To ensure the transferability and representativeness of the results, it is recommended to repeat this study as field research. However, predictability, repeatability, and controllability of conditions [23] (p. 58) are less of a given in field research. The experimental measure was repeated under strictly controlled conditions (random assignment of the participants to the groups, clear time limits for the interviews, fixed topics with detailed descriptions of role and counselling situations, same conditions for all groups) at three different points in time. However, the specific characteristics of the experiment and the properties of the selected sample show similarities with the population, so parallels to real situations and derivations for real-life situations are possible. Since the participants understood the role of counsellor well due to their academic and professional backgrounds, essential preconditions for the success of the experiment were met. In addition, qualitative follow-up interviews demonstrated that the participants did not perceive the experiment as a mere roleplay and that their experience should therefore be understood as real. Since the predefined and free topics were job related, it can be assumed that the emotional intensity is comparable between the different conversations of participants[9]. The possibility that emotions are attributed to the content of the counselling and not to the format cannot be completely excluded. However, due to the chosen experimental setup with career-specific topics, this influence was balanced out in this study.

With regard to the sample size, adjustments could be made for future studies. With a greater number of participants, the experimental setup would be more extensive, but more clearly structured, as no complex rotation procedure would be required. In this context, additional considerations are required with regard to the size of the sample and the corresponding statistical power. [20] (p. 111) argue that test power increases with sample size. The optimal sample size was determined using the G*Power 3.1.9.2 software, applying the following parameters: Effect size = 0.375, α-error = 0.05, β-error = 0.95, four groups, and two dependent variables. The calculated optimal sample size of 32 is in accordance with Bortz and Döring [23] (p. 628), who recommend a sample of 32 to 64 for a medium effect. However, only tendencies can be gleaned from the results presented here, which will need to be verified or rejected in studies with larger sample sizes.

6. Conclusions

How does using video technology influence the emotional experience of health communication? In the present study, the experience of emotions was compared in the video format and face-to-face setting, as one of several factors that could be responsible for the limited use of this communication format in counselling.

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[9] In the analysis of the open topics, it was revealed that the themes revolved around the question of whether clients should pursue a doctoral dissertation.

In summary, it can be said that emotions are not generally subdued in the video format, as former pertinent studies have stated [24] as cited in [25] (p. 6); Similar to computer-mediated communication negative emotions can even be intensified in this format, which is at least "different." These results are particularly important for practice, as the inappropriate handling of emotions can lead to the failure or reduction in the quality of the counselling.

Therefore, counsellors need to be aware of the fact that, in the video format, emotions are experienced differently than in face-to-face counselling. It requires a different approach to the counselling process and the double influence of emotions has to be taken into account. On the one hand, most counselling sessions have to address content that can be very emotional (e.g., relationship or family problems); on the other hand, the format influences how these emotions are experienced in the counselling process.

At the same time, feeling negative emotions in the counselling context is by no means exclusively a disadvantage. Their reinforcement can make sense, as it is a central part of the counselling process and the treatment of mental disorders. As shown in the field of education, positive emotions foster active knowledge construction and negative emotions favor knowledge deconstruction, i.e., relearning. The theory of learning from mistakes by Fritz Oser; as cited in [26] (p. 47); emphasizes the positive significance of unpleasant emotions. According to this, mistakes are crucial for learning, although they can be accompanied by negative emotions. Emotions need to be addressed constructively by those involved, and then a positive influence on learning or the counselling process is possible [26] (p. 48). Hence, Kort et al.; as cited in [26] (p. 39); conclude that positive emotions should not be reinforced and negative emotions should be reduced, since disappointment, for instance as a result of misconceptions, can motivate learning. Rather, it is important to enable those involved in learning to deal with emotions in a way that is conducive to learning [26] (p. 39). For this reason, the counsellor needs to be very aware of the influence of the format on the counselling process.

Following on from this, the question can be raised as to whether the video format facilitates the exchange of negative emotions by more openness. In contrast, the face-to-face format improves the quality of interpersonal relationship between counsellor and client, which was also assessed as a research variable in the present study. The correlation between emotions and quality of the relationship should be explored in more depth in further research to examine the potentially positive impact of these reciprocal interactions in the counselling process. The question why negative emotions are increased in the video format can only be interpreted, but not answered conclusively. The lack of reassurance in the otherwise direct interaction with the other person may lead to an overestimation of one's own negative emotions in the video format and thus to increased uncertainty in mediated communication setting. Silence on the part of the interlocutor can be due both to technical conditions and to interpersonal factors, which may cause greater unease in the video setting. Explicit inquiries to clarify this insecurity may still be inhibited and must first be trained and strengthened by the interlocutors. A generally more inhibited or self-conscious demeanor in mediated formats can be a cause here. However, this does not mean that video consulting is generally unsuitable. Rather, a certain adjustment period is necessary, during which those involved in communication must become used to the format and learn specific communication strategies.

Furthermore, the eye contact dilemma [27] (p. 12) describes the phenomenon that direct eye contact is not possible in video communication. Due to the lack of eye contact, the client would remain more introspective, which could be significantly more strenuous and sometimes experienced more negatively; participants reported this in the qualitative follow-up interviews. This phenomenon may be one reason why the video format was experienced more negatively, but adds a special momentum of attractiveness to mediated communications as we know from computer-mediated communication where visual anonymity is a key feature causing highly relevant effects [28].

In addition, specific attitudes to media, associated with mental effort [29] (p. 29) [30] (p. 53), and lack of acceptance of communication technologies in psychological counselling settings [31] (p. 531) [32] (p. 3169) may play a significant role how users perceive and rate video technologies in health care, which in turn may influence emotional experience.

Furthermore, it must be emphasized that negative emotions cannot generally be attributed to the format and that the different levels (related to topic, personality, and relationship) on which emotions can arise must be taken into account. In the context of further research, additional factors influencing emotional experience in the counselling context could be examined.

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