Abstract

One question that remains unanswered in motivational psychology is how an initial intention leads to the actual execution of an action. PSI research goes one step further and investigates the extent to which subjective intention can change objective reality through a high incentive. This mechanism of action is called the micro-psychokinesis effect (micro-PK). The study investigated the extent to which the incentive of sexual desire influences a quantum coincidence when the data are not objectified in a deletion condition. First, the subjects' level of sexual desire was increased by an experimental manipulation before they were subsequently presented with erotic or neutral stimuli selected by a quantum randomizer. The descriptive data support our H1 that significantly more erotic stimuli are shown in the experimental group, in which the images shown are not memorized, than in the control group. A Bayesian t-test for independent samples could not verify this assumption. Furthermore, we hypothesized in H2 that there is a correlation between the intensity of desire and the number of erotic images in the experimental group. The results of a Bayesian ANCOVA speak against this assumption. While the bayesian statistics do not support the existence of a micro-PK effect, several factors must be considered that may have biased the data and thus obscured the effect.

***Keywords**: Sobjectivity, micro-psychokinesis, PSI research, quantum randomness, motivational psychology, complementarity principle, pragmatic information, unus mundus theory, sexual desire*

1. Introduction

1.1 Theoretical foundations

How exactly the mechanisms behind motivation work and how volitional impulses ultimately become reality is a much-researched question. This raises further existential questions about what reality actually is. The most obvious answer, following the axiom of confirmation, would be that everything that is objectively verifiable is real. However, there seem to be things and states that are considered real, although objective confirmation is not yet possible. For example, the working mechanisms of motivation that initiate an action. According to conventional theories, motivation is behavioral control with the intention of transforming an objective reality, independent of the observer. Here, perception is merely a passive verification. In subjective reality, a conscious intention or motivational goal as a starting point becomes a physical reality through an actor's action (Rudolph, 2013; Brandstätter et al., 2018). However, there is an unexplained gap between the intention and the actual execution of the action. One possible explanation could be a third reality, called sobjectivity, which acts as an interface between objectivity and subjectivity and combines them. It encompasses a new understanding of motivation as the construction of a reality that is dependent on the observer through perception and intentional measurement. In order to understand this approach, it is necessary to consider the theoretical foundations, which are explained below.

Maier et al. (2022) draw on pragmatic information theory for the basics of measurement and thus the proof of sobjectivity and postulate that both objective and subjective components are necessary for effective information exchange. Pragmatic information theory examines information through which the sender intends to elicit a specific response from the receiver. The theory states that every piece of information is defined as $I_{Pragmatic}$ = Firstness (E) x Confirmability (B). Firstness refers to the individual, autonomous and unique aspects of a message that are not previously known to the recipient. Confirmability, on the other hand, refers to the already known, intersubjectively shared and stable parts of a message. Confirmability is necessary for an exchange of information to work at all; a certain basis must be shared in order to be able to understand each other. In order for an exchange of information to be effective and lead to a change in the recipient, the message must also contain aspects that were not previously known to him or her.

previously known, i.e. it must contain a certain degree of novelty (Maier et al., 2022; von Weizsäcker, 1974). Lucadou (1995) assumes that firstness and confirmability are multiplicatively linked and complementary to each other (Maier et al., 2023). If one condition is 100% fulfilled, the other automatically drops to 0%, leaving no room for pragmatic information.

According to Walter von Lucadou (1995), Maier et al. (2023) describe how the concept of pragmatic information can be applied to measurement theory. If a measurement is non-invasive and there is a separation between the measurement and the object being measured, this is referred to as objectivity. Replicability and independence from the measuring instrument are fundamental requirements for objectivity in the natural sciences. If the separation between the object of measurement and the measuring instrument is removed, observations become subjective and often introspective. Reality is no longer merely observed, but actively constructed (d'Espagnat, 2006; Rudolph, 2013).

According to Walter von Lucadou (1995), confirmability corresponds to objectivity. Objective reality is passively recorded by clearly separating the measuring instrument from the object being measured. This is characterized by the fact that replications with different measuring instruments lead to the same results. Objectivity can therefore be understood as the a priori existing parts of reality and in pragmatic information theory it corresponds to a maximum of confirmability. Modern science, for example, has perfected confirmability (B = 100%) and thus established universal laws of nature that are independent of observer and measuring instrument. However, taking into account the complementarity of confirmability and firstness, the result is a firstness of zero and therefore the absence of pragmatic information ($I_{pragmatic} = E \times B_{max} = 0 \times B_{max} = 0$). He also compares the first time with subjectivity. This is highly individual due to its introspective nature and the experienced reality is completely dependent on subjective perception and construction. Here, the lack of a common information base makes the exchange of information impossible ($I_{pragmatic} = B \times E_{max} = 0 \times E_{max} = 0$). Mathematically optimal for an exchange of information would be an equilibrium in which both conditions are 50% fulfilled.

This approach is characterized by the complementarity of the elements. The "complementarity principle" introduced by Niels Bohr (Bohr, 1928) originally referred to the description of physical particles that could be observed to complement each other in contradictory forms. It was concluded that

states of reality in quantum physics appear to be dependent on the measuring instrument (Favrhold, 1999). Due to the fact that the object of measurement (subject) and the measuring instrument cannot be strictly separated in research into psychological phenomena either, Bohr suspected that the previous considerations could be transferred to the psychological theory of science (Bohr, 1929). Bohr specified the principle of complementarity and identified three key aspects. First, the complementarity of two associated but mutually exclusive, i.e. paradoxical, quantum mechanical observations. Second, the complementarity of observer and observed object, of mental and physical processes, and of the causality of brain processes and the feeling of having free will. Finally, the complementarity principle as conclusions and as useful for science (Fahrenberg, 2013).

René Descartes (1641) describes a similar distinction to that between objectivity and subjectivity in his mind-body dualism. He differentiates between two separable and independent entities: res extensa, entities described by the principles of logic and materiality, and res cogitans, a more mental substance, also known as the soul. Previous research has often assumed objectivity and subjectivity as opposites, but sobjectivity seems to represent an intersection between the two realities.

It is possible that sobjectivity is part of the unus mundus constituted by Pauli and Jung (1969). This is understood as a preconscious, intangible reality in which both matter and subjective experience have their origin. Two entities that are actually complementary and separated from each other by the Cartesian cut. Through archetypes and laws of nature, holistic reality (the unconscious and the pre-materialistic world) becomes local reality (conscious thought and matter) and thus transcends the epistemic split. The previously unconscious leaves the Unus Mundus and becomes perceptible to us. Although subjectivity and objectivity have the same origin, it can be assumed that they are complementary to each other and thus influence each other. Our subjective experience therefore influences objective reality (Jung, 1969).

Central criticisms of the sobjectivity approach are the hard problem of free will, which states that mental activity and the physical characteristics of the brain cannot interact with each other (Shariff et al., 2008), the hard problem of consciousness (Chalmers, 2010), which describes that subjective states, such as consciousness, cannot arise from a physical entity such as the brain (Maier et al., 2022), and the determinism problem, which describes the impossibility of making precise predictions by taking subjective influence into account.

physical entity such as the brain (Maier et al., 2022), and the determinism problem, which describes the impossibility of making precise predictions by taking subjective influence into account, unlike in physics, for example (Maier et al., 2023). Established scientific measurement methods have so far failed to capture subjectivity, which points to the need for alternative methods of objectification with $B < 100\%$.

1.2 Previous research and preliminary considerations

Maier et al. (2022) assume in their research that actual randomness, i.e. quantum randomness, as well as the deletion of objective data cancels out the absoluteness of objectification to a certain extent and use this circumstance to achieve a $B < 100\%$. According to the complementarity principle, this would make the first time> 0%, which makes pragmatic information possible. As a result, micro-psychokinesis effect (micro-PK), the subjective influence on reality depending on the measuring instrument used, become visible. Micro-PK is a sub-area of PSI research that investigates the interaction between mind and matter, but cannot be proven using conventional objective methods. By reducing objectification, it is possible to achieve both confirmability and first time > 0%, which leaves room for pragmatic information exchange and allows the effect to be empirically recorded. Based on these considerations, a number of studies have already been conducted in which micro-PK tasks with quantum randomization were designed to show the effect of subjective reality, expressed in desires and preferences, on quantum-based stochastic outcomes. Some of the studies conducted so far have investigated the subjective influence of objective reality by distinguishing between positive and negative imagery, hypothesizing that the incentive to view positive images is higher, resulting in more frequent viewing of these images or longer viewing time (De Mattia, 2022).

Part of the theory is that there is a deliberate influence on objectivity if there is an incentive to do so. For the present study, we therefore chose an incentive that should be stronger than the desire to see positive images and for which the direction of effect is clearer. We assume that high sexual desire is accompanied by a strong desire to see erotic images, which leads to an influence on quantum randomness. According to Levine (2003), sexual desire consists of the biological sex drive, the culturally shaped desire and the motive to satisfy the desire. From this we conclude that sexual desire as a

behavior-influencing motivator and can serve as a strong incentive in the predicted direction in our study.

1.3 Hypotheses

The basic research question for the hypotheses is whether the micro-PK effect can work by deleting the objective data, i.e. whether there is an effect of subjective intention on the measurable reality (Maier et al., 2022) and whether sexual desire is an effective stimulus for this. We therefore divided our VPN into two groups: the control group, in which the images shown were memorized and thus objectified, and the experimental group, in which the images were not memorized, leaving room for a micro-PK effect. We hypothesize that sexual desire leads to a higher incentive to view erotic images and that this volition should have an influence on quantum randomness through the micro-PK effect. Therefore, in our H1, we postulate that significantly more erotic images are shown in the experimental group than in the control group. In order to investigate how exactly the degree of sexual desire, which we take as an indicator of the intention to view erotic images, affects the measurable reality, we consider in H2 to what extent the influence of the group condition (experimental or control group) on the number of erotic stimuli presented depends on the degree of sexual desire.

2. Methods

2.1 Test subjects

The study was conducted as part of an empirical internship in the winter semester 2023/24 at LMU Munich under the supervision of Professor Markus Maier. VPNs were collected over a period of five weeks (December 2023 to January 2024), with participants being recruited privately. A "hand-on-heart item" was included, which asked whether the data provided should actually be included in the evaluation. Based on this, the data of 3 participants was excluded, resulting in a final sample size of N = 420.

Of these, 171 stated that they felt they belonged to the male gender, 241 assigned themselves to the female gender and the remaining 8 people identified as diverse. All subjects were of legal age and the average age was M_{Alter} = 23.25 (SD_{Alter}= 7.06). The study could be conducted on a laptop or smartphone and the VPNs were asked to go into a private environment at the beginning.

2.2 Ethical guidelines

At the beginning of the study, the subjects were informed of their right to discontinue the study at any time without consequences and asked to consent to the anonymous processing of their data. The experiment was conducted and analyzed in accordance with the applicable APA guidelines and the experimental design was approved by the LMU Ethics Committee. To avoid possible bias due to assumptions about the intentions of the study, no further information on the content was provided.

2.3 Data collection

The final sample size was 420 and Bayesian statistical analyses using R and JASP were used to analyze the data. Our results are based on a Bayesian independent t-test for H1 and a Bayesian ANCOVA for H2. For further exploratory analyses, bayesian independent t-tests with uninformed prior (δ ~Cauchy[0.1]) and a bayesian multivariate ANOVA were performed.

2.4 Hardware and software

The survey was an online study that could be carried out via a link by anyone who had one. Test subjects were mainly recruited via WhatsApp and Instagram among the participants' circle of acquaintances.

The actual choice of the stimulus shown was made in several steps. The erotic image chosen after the story determined the pool that was subsequently available for selection (heterosexual, gay or lesbian couple). Before each trial, either the pool of erotic stimuli, with 10 pictures each, or the neutral pool was determined by a quantum randomizer. Finally, one of the 10 images was selected from the chosen category using a software randomizer. Images that had already been shown were not excluded from the remaining trials. As the quantum randomizer selected one of the pools again in each trial, there was a statistical probability of 50% of seeing an erotic image in each run. The quantum random number generator follows the functionality of a double-slit experiment in which the determined localization of the photon is translated into numerical data (0 = pool of erotic images; 1 = pool of neutral images). The quantum random number generator was connected to the relevant server via USB (Iovine, 2022).

2.5 Material

Stimuli

A total of 30 non-copyrighted images showing couples in an intimate, erotic situation were selected for the study. Ten pictures each showed heterosexual, gay or lesbian couples and the test subjects were able to choose before the trials which type of couple photo they found most attractive and eroticizing. In addition, there was a pool of neutral stimuli that showed abstract close-ups of stone or wood, for example.

2.6 Implementation and design

First, the test subjects were asked to give their consent to the processing of their data and were informed about their rights. They were also informed in the form of a disclaimer that erotic images would be shown below, which may be perceived as triggering by some people, and were asked to conduct the study in a private setting. Before the actual start of the study, neutral sample images were shown to clarify the difference between neutral and erotic images. The VPNs were then presented with an eroticizing story that represented an experimental manipulation and was intended to intensify sexual desire (see appendix). They were then asked what gender the other, non-gendered person from the story was in the VPN's imagination (m/f/d) and how they rated their current sexual desire. For this purpose, a five-point Likert scale from 1 "strongly disagree" to 5 "strongly agree" according to Van Tuijl et al. (2022) with three items was used, the mean value of which was intended to capture the situational sexual desire of a person. The items asked were "I feel sexually aroused at this moment", "I feel sexual desire at this moment" and "I am open to sexual activity at this moment". In the following, three sample images of the different couple constellations (hetero, lesbian, gay) were presented, from which the VPNs were asked to choose the one they found most sexually arousing.

Depending on this, a quantum random number generator selected from the chosen pool of 10 erotic images and a pool of 10 neutral stimuli in ten trials. Using a software randomness algorithm, the VPNs were assigned to the experimental group, i.e. the group in which the data was not objectified, or the control group, in which the images shown were stored. After each trial, the participants were asked whether they had just seen a neutral or erotic image. After the 10 trials, the degree of sexual arousal was again assessed in the form of a five-point Likert scale from 1 "not aroused at all" to 5 "very aroused", this time using only one item "How aroused are you at this moment?". Finally, the demographic variables of age and gender were surveyed.

gender were collected. The VPNs were also asked to classify themselves on the eight-level Kinsey Scale, which measures sexual orientation. The Kinsey Scale was briefly explained in advance (Kinsey et al., 1948). They were also asked which sex the VPNs were currently most attracted to and how they would define their current relationship status. Finally, a "hand on heart item" was used to ask whether the information provided should actually be included in the data analysis.

3. Results

The aim of the study was to demonstrate that if deletion of the objective data leaves room for a micro-PK effect, this will manifest itself in more erotic images being shown, as we assume that sexual desire is associated with the desire to see erotic stimuli. We also investigated whether the intensity of desire is positively related to the number of erotic images shown.

3.1 Descriptive analyses

In H1, we expected that significantly more erotic images would be shown in the experimental group in which the objective data were deleted than in the control group. Based on the comparison of objective (M = 5.015, SD = 1.592) and subjective (M = 5.045, SD = 1.662) data in the control group, it can be seen that the values are close to each other, which means that the subjective data can be used as a reliable source of information for further analyses. In these studies, the group condition (experimental or control group) is analyzed as the independent variable and the number of subjectively reported images as the dependent variable. Descriptively, the predicted trend can be read from the subjective data. More erotic images are shown in the experimental group (M = 5.123, SD = 1.822) than in the control group (M = 5.045, SD = 1.662). Based on these results, it can be assumed descriptively that the objectification of the data has a small, but nevertheless existing influence on the quantum randomness and that this influence counteracts the predicted micro PK effect.

Table 1

Comparison of the subjectively reported number of erotic images in the experimental and control group (H1)

	Subjectively reported number of erotic images	
	Experimental group	**Control group**
N	219	201

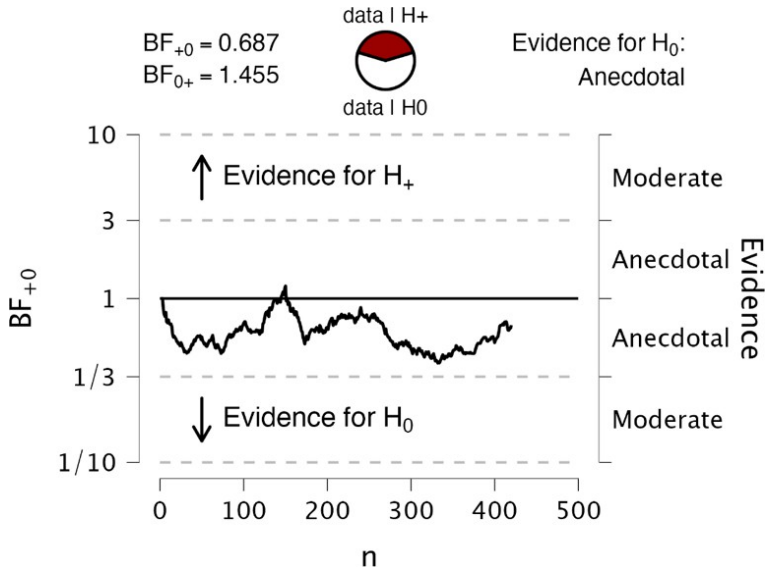
	Subjectively reported number of erotic images	
	Experimental group	**control group**
Mean value	5.123	5.045
Standard deviation	1.822	1.662

3.2 Confirmatory analyses

A Bayesian t-test for independent samples was carried out to test H1, that significantly more erotic images are subjectively reported in the experimental group than in the control group. The number of subjectively reported erotic images was examined as the dependent variable and divided according to group condition (experimental or control group). The resulting Bayes factor (BF_{10} = 0.687) speaks against the assumed H1 and can be interpreted to mean that the null hypothesis is 1.455 times more likely than the alternative hypothesis. This means that the experimental group does not display significantly more erotic images than the control group. The results speak against the predicted micro-PK effect.

Figure 1

Sequential Bayesian t-test analysis to test H1



In H2, it was predicted that the influence of the group condition (experimental or control group) on the subjectively reported number of erotic images presented depends on the level of sexual desire. Sexual desire is to be understood as a moderating variable between the group condition and the number of erotic stimuli. To test this, a Bayesian ANCOVA was carried out, which included the subjectively reported number of erotic images as the dependent variable, the group condition as a fixed factor and the mean value of sexual desire for the story as a covariate.

covariate. The ANCOVA shows that the null model explains the results better than the interaction model ($_{BF10}$ = 0.015). Based on these results, we assume that our H2 cannot be confirmed, i.e. sexual desire does not moderate the relationship between group condition and number of erotic stimuli.

Table 2

Results of the Bayesian ANCOVA to test the H2

models	P(M)	P(M|data)	BFM	BF10	error %
Zero model	0.250	0.792	11.445	1.000	
Demand before	0.250	0.101	0.337	0.127	0.002
Group condition	0.250	0.095	0.315	0.120	0.135
Group condition+ Demand before	0.250	0.012	0.035	0.015	1.406

3.3 Exploratory analyses

Relevant for the interpretation of the results is the question of how well the experimental manipulation of desire through the story worked and how desire changed as a result of the pictures. Based on the descriptive data, it can be determined that the mean value from the three items that were collected directly after the story was on average "Partly/ Partly" (M = 2.016, SD = 1.093). The arousal level after the ten trials is lower (M = 1.050, SD = 1.011). Based on these data, it must be questioned how well the experimental manipulation worked and whether the sexual desire and thus the stimulus was high enough to achieve a micro-PK effect.

Table 3

Descriptive data of desire before the trials and arousal after the trials

	Desire before	Arousal after
N	420	420
Mean value	2.016	1.050
Standard deviation	1.093	1.011

Another interesting aspect of the intensity of desire is the differentiation between the genders. For both the desire before and the arousal after, it can be seen that the test subjects who identify as diverse reported the highest values on average (before: M = 2.500, SD = 1.309; after: M = 1.875, SD = 1.458),

followed by the male test subjects (before: M= 2.136, SD= 1.114; after: M= 1.111, SD = 1.014). In both surveys, the female subjects stated on average that they tended not to be aroused (before: M = 1.914, SD = 1.063; after: M = 0.979, SD = 0.981). However, it should be noted that the sample of people identifying as diverse (N = 8) is too small to draw reliable conclusions.

Table 4

Gender-related differences in reported sexual desire

	Desire before			**Arousal after**		
	diverse	**male**	**female**	**diverse**	**male**	**female**
N	8	171	241	8	171	241
Mean value	2.500	2.136	1.914	1.875	1.111	0.979
Standard deviation	1.309	1.114	1.063	1.458	1.014	0.981
Minimum	0.333	0.000	0.000	0.000	0.000	0.000
Maximum	4.000	4.000	4.000	4.000	4.000	3.000

The differences in sexual desire suggest that there is a difference in the number of erotic images between the genders in the experimental group. Since we assume in H2 that higher desire leads to a greater number of erotic stimuli shown, it follows that the largest number of erotic images would be expected among VPNs who identify as diverse. To test this, a Bayesian ANOVA is performed with the subjectively reported number of erotic images as the dependent variable and gender and group condition (experimental or control group) as fixed factors. However, the resulting Bayesian factor (BF_{10}= 0.002) speaks against the assumption and states that there is no interaction between gender and group condition with regard to subjective statements about the number of images shown.

Table 5

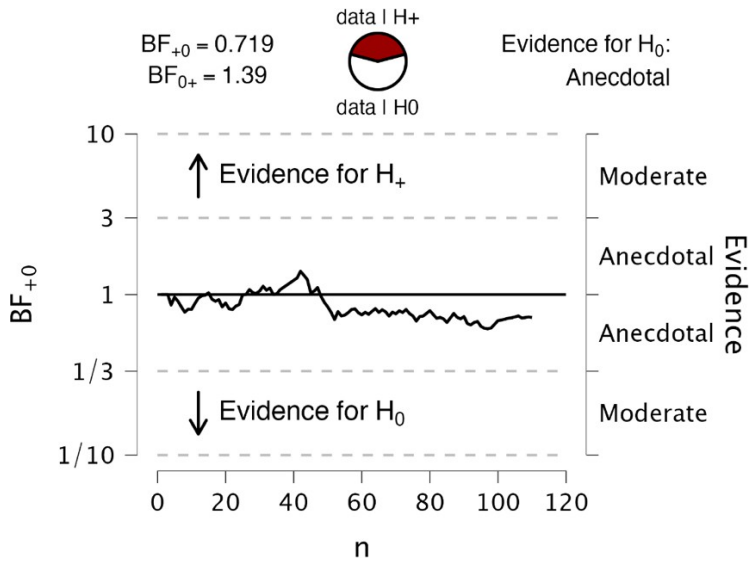
Bayesian ANOVA to test the interaction relationship between gender and group condition

Models	**P(M)**	**P(M|data)**	**BF_M**	**BF_{10}**	**error %**
Null model	0.200	0.818	17.930	1.000	
Group condition	0.200	0.098	0.435	0.120	0.135
Gender	0.200	0.075	0.323	0.091	0.033
Gender+ Group condition	0.200	0.008	0.033	0.010	1.147
Group condition+ Group condition + Group condition∗ Group condition	0.200	0.001	0.006	0.002	1.858

In the previous analyses, all subjects were always considered, regardless of their reported sexual desire. In H1, it was investigated whether a micro-PK effect is visible in the experimental condition due to the non-objectification of the data, in that there are more subjectively reported erotic images in this group condition than in the control condition. Subjects who reported very low desire before the picture trials were also included. To control for possible bias, we separately examined subjects whose desire was 3 ("Partly / Partly") or higher. We therefore set a cut-off at 3, resulting in a sample of N= 110. However, the Bayesian factor resulting from the Bayesian analysis of the data (BF_{10} = 0.719) also speaks against the assumed H1, from which it can be concluded that there was no significant influence on the number of erotic images shown even in the subpopulation in which sexual desire was rather high. Here too, the results must be viewed critically due to the sample size of N = 110.

Figure 2

Sequential Bayesian t-test analysis to test H1 in the subpopulation with cut-off sexual desire ≥ 3



4. Discussion

4.1 Summary of results

The aim of the study was to show that a strong intention leads to an influence of actual chance. More precisely, that sexual desire and thus a greater desire to see erotic images influences the quantum random number generator in the experimental condition in such a way that more intimate images are actually shown than would be expected by chance.

than would be expected by chance. In our H1, we hypothesized that significantly more erotic images would be subjectively reported in the experimental group, in which the deletion of the objective data should leave room for a micro PK effect, than in the control group. The descriptive data support this assumption, but a Bayesian t-test for independent samples argues against it. It can therefore be concluded that the experimental group did not show significantly more erotic images due to the quantum random number generator, i.e. there was apparently no deliberate influence of chance in the desired direction by the stimulus of sexual desire. In H2, we postulated that the influence of the group condition (experimental or control group) on the subjectively reported number of erotic images presented depends on the level of sexual desire. We therefore assume a moderation effect due to the intensity of sexual desire. A Bayesian ANCOVA could not detect this relationship, which leads us to assume that desire does not moderate between group condition and subjectively reported number of erotic stimuli.

The results of our study speak against our hypotheses. It was therefore not possible to prove the subjective influence of reality and thus the existence of sobjectivity as a link between subjectivity and objectivity by means of the study conducted. However, some factors must be taken into account that may have had an impact on our data and could have masked the effect.

4.2 Limitations

Design

It is possible that the results do not support our hypotheses because the number of trials was not chosen optimally. It is possible that there should have been more trials in order to detect a clear deviation of the number of erotic images shown from the statistical probability of five. Since we always expect rather small effects in the context of PSI research, it could alternatively be that actual results would only become visible with a larger sample and our survey with N = 420 was not large enough. In addition, we received feedback from some VPNs that the request to indicate after each trial whether an erotic or neutral image was shown was misleading. Although neutral example images were shown at the beginning of the study to counteract this ambiguity, some subjects understood that they were supposed to evaluate the stimuli they saw subjectively and indicated whether they themselves perceived the image as erotic. As a result

erotic images were rated as neutral, which meant that the subjective and objective data no longer corresponded.

Another point that needs to be critically considered is the effectiveness of the manipulation and elicitation of desire. The data indicate that the attempt to increase desire through the story did not work. As sexuality is only implicitly alluded to, desire was not or not sufficiently activated, which meant that the volitional impulse to see erotic material was only marginal. It could also be that the visual material was not arousing enough or that the presentation of ten trials in a row led to a strong habituation effect, which tended to reduce desire. It must also be taken into account that the "putting back" the images, it was possible that the same image was shown several times in succession, which could also reinforce a habituation effect. In addition to the manipulation of desire, the measurement could also pose a problem. It is conceivable that the items used to measure sexual desire did not measure the motive that was activated in the story.

When interpreting the exploratory analysis of the comparison of sexual desire before and after the trials, it must be noted that, strictly speaking, other constructs were tested. Sexual desire, which was asked in the form of three items before the trials, represents a more motivational construct and the explicit questioning of the degree of arousal after the trials asks for the subjective assessment of a physiological measure. It is questionable how meaningful this comparison is. Nevertheless, we consider the results and the comparison in the exploratory analysis to be meaningful, as we assume that the subjects interpreted the items similarly due to the frequently synonymous use of the terms in everyday language. In future studies, a clearer differentiation should be made between arousal and desire and care must be taken to ensure that the same motive is asked for proper comparisons.

Furthermore, it is unclear to what extent the subjects' sense of shame could have led to a distortion of the results. This may have inhibited the manipulation of sexual desire or distorted the self-report of the intensity of desire, as arousal and sexuality are still perceived as taboo subjects by many people. In an online study, it is also not possible to check whether the test subjects complied with the request to go into a private environment or whether the study was conducted in public or in company, for example,

which could also have led to an increase in the feeling of shame and thus to a distortion of the data. This bias could be characterized by a fundamentally lower activation of sexual desire and a lower reported desire.

Micro-psychokinesis

The field of micro-PK in general has many unanswered questions that can only be speculated about so far. For example, it has not been proven whether the micro-PK effect can be induced at all with the motive of sexuality. Attempts are being made to induce an effect on a metaphysical level with the motive of sexual desire, which contains a strong physiological component in the form of arousal. It is possible that the non-significance of the results is due to this perhaps insurmountable discrepancy. The assumption that a higher incentive leads to a greater effect of subjective influence on objectivity is fundamental to our hypotheses, but has also not yet been demonstrated. It is also possible that the direct questioning of what type of image was seen, from which the subjective data was drawn, left no room for a micro-PK effect, as the subjective data is too close to the objective data.

A still unresolved question in micro-PK research is whether the effect should work equally for all people, or whether it is possible that it only occurs in specific people or groups of people. In our exploratory analysis on gender differences, we did not find any significant differences, but there are numerous other factors that could be used to group VPNs. These grouped analyses would require a larger sample and the collection of additional factors.

4.3 Implications

In future research, the limitations mentioned should be taken into account. In particular, it should be investigated whether sexuality in general is a suitable stimulus for subjective reality manipulation and if erotic stimuli are used, care must be taken to ensure that the materials actually and sustainably lead to an increase in sexual desire. Furthermore, it would be useful to collect larger samples in order to be able to make statements about sub-samples. Our data suggest that people who identify as diverse may be particularly receptive to the sexual desire motif, as they reported the highest scores. Our sample is too small to draw reliable conclusions, but the results could provide an interesting starting point for future research.

interesting starting point for future research. In general, it would be useful to test future studies on a smaller population before actual data collection to ensure that the instructions are unambiguous and to eliminate potential problems before actual recruitment.

It is clear that clear statements and interpretations are currently only possible to a limited extent due to the state of PSI research, as many factors have potentially influenced the results. Nevertheless, the descriptive data point in the predicted direction, which is reason to invest further in PSI research and the investigation of the micro-PK effect.

Bibliography

Bohr, N. (1928). The Quantum Postulates and the Recent Development of Atomic Theory. *Nature*, 121, 580-590. https://doi.org/10.1038/121580a0

Bohr, N. (1929). The Quantum of Action and the Description of Nature. *The Natural Sciences*, 17, 483-486

Brandstätter, V., Schüler, J., Puca, R. M. & Lozo, L. (2018). *Motivation and emotion*. Berlin: Springer.

Chalmers, D. J. (2010). Facing Up to the Problem of Consciousness. In D. J. Chalmers (Ed.), *The Character of Consciousness*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195311105.003.0001

Descartes, R. (1641). Meditationes de prima philosophia [Meditations on the first philosophy]. Michael Soli.

De Mattia, E. (2022). Subjective Influence on Quantum-based Stochastic Outcomes. [Unpublished paper]. Ludwig-Maximilians-University Munich.

d'Espagnat, B. (2006). *On physics and philosophy*. Princeton University Press. https://doi.org/10.1515/9780691240237

Fahrenberg, J. (2013). On the category theory of psychology. *Complementarity principle. Perspectives and changing perspectives.* https://doi.org/10.23668/psycharchives.10413

Favrholdt, D. (1999). Complementarity Beyond Physics (1928-1962). Volume 10. Amsterdam: Elsevier.

Iovine, C. (2022). Superior MPK effect through confounding? Deletion of objective data attracts subjectively meaningful images. [Unpublished paper]. Ludwig-Maximilians-University Munich.

Jung, C.G. (1969). On the nature of psyche. *The structure and Dynamics of the Psyche. Collected Works, vol. 8, Princeton.* Princeton University Press. 159-236.

Kinsey, A. C., Pomeroy, W. B., & Martin, C. E. (1948). Sexual behavior in the human male. *American Journal of Public Health*, *93*(6), 894-898. https://doi.org/10.2105/ajph.93.6.894

Levine, S. B. (2003). The Nature of Sexual Desire: A Clinician's Perspective. *Archives of Sexual Behavior*, *32*(3), 279-285. https://doi.org/10.1023/a:1023421819465

Lucadou, W. (1995). The model of pragmatic information (MPI). *European Journal of Parapsychology*, *11*, 58-75.

Maier, M. A., Dechamps, M. C., & Rabeyron, T. (2022). Quantum Measurement as Pragmatic Information Transfer: Observer Effects on (S)objective Reality Formation. *Journal of Anomalous Experience and Cognition*, *2*(1), 16-48. https://doi.org/10.31156/jaex.23535

Maier, M. A., Dechamps, M. C. (2023). *Complementarity of subjective and objective reality.* [Manuscript in preparation]. Ludwig-Maximilians-University Munich Rudolph,

U. (2013). *Motivational psychology compact: With online materials*. Beltz.

Shariff, A. F., Schooler, J., & Vohs, K., D. (2008). 9 The Hazards of Claiming to Have Solved the Hard Problem of Free Will. In J. Baer, J. C. Kaufman, & R. F. Baumeister (Eds.), *Are We Free?: Psychology and Free Will*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195189636.003.0009

Van Tuijl, P., Verboon, P. & Van Lankveld, J. (2022). The Relation of Mood and Sexual Desire: An Experience Sampling Perspective on the Dual Control Model. *Archives Of Sexual Behavior*, *51*(8), 3871-3886. https://doi.org/10.1007/s10508-022-02357-w

Weizsäcker, E. U. v. (1974). Novelty and Confirmation as components of pragmatic information. In E. U. von Weizsäcker (Ed.), *Open Systems I,* 82-113. velcro.

Appendix

Eroticizing story

Erotic story used to experimentally manipulate the intensity of sexual desire

It's a warm summer evening, we go to a bar. As soon as we arrive, we order our first round of cocktails. Sitting opposite each other, our eye contact becomes more and more intense and I realize that my desire is mutual. Our hands often touch on the table. There is tension in the air. An impatient thought creeps in about what would happen between us if we were alone, but I control myself. Three cocktails later and our conversations are becoming increasingly erotic, a promise of what might come? It seems as if we both know exactly how the evening will end. The walk home becomes an adventure. We can't keep our hands off each other. Our hands explore each other. My breathing speeds up. I can feel the hands on my body. I get more and more aroused. I only want one more thing...