Investigating The Effect of Personality Traits on The Relationship Between Mentalization and Epistemic Trust Using Experience Sampling Method

Dominika E. Zawadzka

Faculty of Behavioural Management Sciences (BMS)

Department of Technology, Human and Institutional Behaviour (HIB)

Section of Psychology, Health and Technology

University of Twente

Dr. Jorge Piano Simoes

Dr. Peter M. ten Klooster

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Abstract

In the past years, the concepts of mentalization and epistemic trust have gained a significant amount of attention due to their importance in people's relationship formation and overall well being. Prior studies have shown that mentalization and epistemic trust depend on the developed attachment style, suggesting that other factors might have an impact as well. Research indicates that 2 traits from the Big Five Model, openness to experience and agreeableness, are significant moderators of epistemic trust and mentalization. Moreover it has been suggested that mentalization and epistemic trust may be state-like constructs, however studies have often considered them more trait-like.

This study focused on whether trait openness to experience and agreeableness moderate the concurrent relationship between momentary mentalization and epistemic trust states over time utilising the Experience Sampling Method (ESM) to account for the dynamic nature of the latter constructs. A sample of 23 participants ($M= 23$, 65% females) completed two surveys: the first one measured their Big Five personality traits. The second survey the participants completed a 2-week ESM on mentalization and epistemic trust.

A moderation analysis was conducted with the data gathered over the 2-weeks period and the intake survey. Results of the study showed a significant moderating effect of the trait openness to experience in that individuals high on openness exhibit a stronger mentalization-epistemic trust relationship. In contrast, the analysis with agreeableness as a moderator was found to be insignificant. Additionally, the residual variance in both analyses was similar, indicating that there are other actors that play a role in the interaction. Thus, these findings highlight the complexity of the interplay between mentalizing, epistemic trust and personality, emphasising the importance of further research into this topic.

Investigating The Effect of Individual Differences on The Relationship Between Mentalization and Epistemic Trust

Understanding the relationship between mentalization and epistemic trust has been an area of interest in the psychological domain for the past few years, especially in psychopathology. These concepts seem to play a major role in the development and treatment of several disorders, such as bipolar personality disorder and depression (Fonagy et al., 2017; Ballespi et al., 2021; Locati et al., 2023a). However, the interplay between mentalization and epistemic trust goes beyond the clinical domain and is also relevant for individuals with no psychopathologies. For example, a study conducted by Locati and colleagues (2023) revealed that mentalizing abilities can serve as stress-management tools. Moreover, research suggests that both concepts are influenced by factors such as personality traits and attachment style, indicating their importance in the development of people's behaviours and relationships (Allen et al. 2017; Ståhl & Turner 2021; Desatnik, 2023).

Mentalization refers to individuals' awareness of their intentional mental states, such as emotions, desires, attitudes and goals that underpin their own and others' behaviour (Luyten et al., 2020; Ballespi et al., 2021). Metalization plays a crucial role in emotion regulation (Vahidi et al., 2021) and social environments as it enables people to adapt to situations and social relations, for example, comprehending and predicting behaviour of others (Bateman & Fonagy, 2019; Muller et al., 2023). Interestingly, the concept is often used in psychological treatments, as it is believed that awareness of one's own mental state can be instrumental in effectively coping with personal distress (Ballespi et al., 2021).

A conceptually related concept is epistemic trust. This term describes individuals' ability to evaluate the information received from others and incorporate it into their existing knowledge (Sperger et al., 2010; Locati et al., 2023b). The degree to which one trusts the information depends on several aspects, such as the topic of the communication or the person's social skills as well as openness to receive new information (Sperger et al, 2010). According to Campbell and others (2021), epistemic trust comprises three dimensions, namely epistemic trust, epistemic mistrust and epistemic credulity. The first dimension refers to openness to social learning. Epistemic mistrust, on the other hand, is characterised by perceiving information as unreliable or ill-intentioned. Lastly, epistemic credulity describes vulnerability to misinformation and

exploitation. These dimensions are believed to play a role in personality disorders, as research shows that patients with borderline personality disorder (BPD) often show high levels of mistrust and credulity (Orme et al., 2019; Campbell et al., 2021).

Research indicates that mentalization and epistemic trust are closely related concepts, however their exact interplay is still unclear. The foundation of epistemic trust and mentalization can be traced back to individuals' attachment styles. A study conducted by Santoro et al. (2021) showed that the developed attachment style reflected one's certainty about their mental state, e.g. a person with an insecure attachment is more likely to doubt their current emotional state. Interestingly, parental mirroring is considered to be an important factor in mentalizing (Fonagy & Bateman, 2007). When the child's subjective experience is reflected by the parents, it allows the baby to pay attention to and understand their own experience. As a result, they develop representations of these experiences, which forms the foundation for understanding their own states in the future.

Furthermore, research on communication between infants and their caregivers showed that the caregiver's ostensive cues, in the context of attachment, play a role in triggering a receiving stance to relevant and meaningful communication. In other words, the developed attachment style influences the extent to which a person believes in information. The ostensive process can be activated by mirroring interactions; the caregiver's accurate reflection of the child's emotional state in the present moment signals to the baby that they are noticed and recognised as an agent. This, in turn, reduces their levels of epistemic vigilance. As a result, the baby considers upcoming information as trustworthy and relevant (Locati et al., 2023b).

Hence, it can be argued that other individual characteristics might have an impact on the mentalization-epistemic trust relationship. One such factor is personality. While no studies have examined the combined interactions between epistemic trust, mentalization and personality traits, research was conducted on the distinct relationship between personality and mentalization or epistemic trust, with a focus on the Big Five Model of personality. A study conducted by Ståhl and Turner (2021) showed that epistemic trust correlates with openness to experience. Individuals who score high on this trait are characterised as curious, open to new experiences and have a high appreciation of beauty (Soto & Jackson, 2013). As mentioned above, epistemic trust is determined by one's openness to receive information, hence it seems plausible that openness to experience could be positively related to epistemic trust. Furthermore, research also suggests that

agreeableness is positively correlated to mentalizing (Allen et al., 2017; Desatnik et al., 2023). Individuals high on agreeableness tend to be more social, cooperative and compassionate. Thus, Allen and others (2017) suggest that people's ability to express concern and empathy for others is related to a greater capacity to understand their own mental states. It can be concluded then, that personality traits are likely to have an impact on mentalization and epistemic trust.

However, most research on mentalization and epistemic trust are performed in people with personality disorders, specifically BPD. Hence, there is little to no information available on the relationship between mentalization, and epistemic trust in a population with no severe mental health problems. Furthermore, studies emphasise the importance of both mentalization and epistemic trust in various areas, and states that these concepts are related to one another, there is little knowledge available about how they fluctuate and interact during the day. Most conducted studies used cross-sectional designs, assuming that mentalization and epistemic trust are trait-like constructs. However, studies have shown that the level of both constructs can change over time (Fonagy et al., 2010; Rodenhäuser, 2014).

This gap in knowledge can be addressed using the Experience Sampling Method (ESM). ESM is an intensive data collection method aimed to gather individuals' behaviour, thoughts and feelings throughout the day. The information is collected by self-reports given by the participants of the study. While this method is similar to traditional diary studies, in the case of ESM participants are proactively prompted at various, often random, times of the day for a specific period of time (Larson and Csikszentmihalyi 1983; Van Berkel et al., 2017). This enables researchers to observe fluctuations in the participants mood and behaviour over time (Gabriel et al., 2019). Since ESM uses *in-situ* self-reports, this diminishes the need to rely on participant's long-term memory to reconstruct the events. Moreover, with the current availability of mobile devices, these can be used as the data collection tools. This enables the researcher to have more insight into the participants' data, such as adherence to the study protocol (Berkel et al., 2017).

Taking into account the evidence for agreeableness and openness interacting with mentalization and epistemic trust (Allen et al., 2017; Ståhl & Turner, 2021; Desatnik et al., 2023), this study will further explore the relationship between these concepts. Moreover, as most studies treat mentalization and epistemic trust as trait-like construct, this study aims to apply the Experience Sampling Method to investigate the relationship between mentalization and

epistemic trust and how openness and agreeableness moderate the relationship in a general population.

Methods

Study Design

To investigate the relationship between mentalization, epistemic trust and personality traits, this study employed ESM to measure momentary states of mentalization and epistemic trust. (see Introduction for more details). Prior to the start of the study, the participants also completed an intake survey to collect demographic data and to measure their scores on the Big Five traits. Afterwards, the participants began the study for 14 days, using the application. During this period they were cued 6 times a day to complete a survey with items related to mentalization and epistemic trust. Ethical approval for this study was given by the Ethics Committee of the Faculty of Behavioural, Management & Social Sciences at the University of Twente on February 26th, 2024 (Study request number: 240111). To increase the transparency and reproducibility of this research, the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist guidelines (STROBE, 2024) was used.

Participants

The participants were recruited via convenience sampling of fellow students and via SONA Systems; a platform which Twente University students can use in order to participate in studies or experiments for mandatory research credits. Each participant recruited through the platform received 3.25 SONA credit points. These credits are necessary for students to graduate via extracurricular activities. In order to participate in the study, the participants had to meet three criteria. Firstly, they had to possess a device with an Android or IOS system. Secondly, they had to be between 18-35 years old and had to have an adequate level of English.

Measures

The study consisted of two surveys that were administered via m-Path; an online platform which enables practitioners and researchers to conduct ESM studies (m-path, 2024). The first questionnaire, administered once, collected participants' demographic data, such as age, nationality, marital and occupational status at the start of the study. Moreover, it included the ultra-short version of the Big Five Inventory (BFI, Soto and John, 2017) (see Appendix B),

which consisted of 15 items and measured personality traits in accordance with the Big Five model with a 5-point Likert scale (1 "strongly disagree" and 5 "strongly agree").

For the main part of the study, a second survey was developed, which measured mentalization and epistemic trust in participants. The survey was distributed 6 times a day over a period of 2 weeks, with each notification appearing semi-randomly in a 2-hour time interval. Within each time interval, the notifications were sent at random times to minimise predictability. The participants had 30 minutes to complete the questionnaire and if needed, they received a reminder 10 minutes after the notification was sent. As this study was a part of a larger project, this questionnaire measured participants' mentalization, epistemic trust and subjective well-being. The items were sourced from the Certainty About Mental States Questionnaire (CAMSQ, Müller et al., 2023) and the Subjective Well-Being and Emotional Balance Scale (SWEMBS, Tennant et al., 2007) scales. From each survey, mean scores were calculated for further analyses. To minimise participant's burden due to multiple assessment a selection of 3 items was performed based on the items highest factor loadings from the original surveys. To utilise the ESM approach, the selected items were adapted by adding the term "right now" at the end of the statements.

The CAMSQ is a self-report survey aimed to assess participant's level of mentalization (see Table 1). The survey performs high in several psychometric categories, namely convergent and discriminant validity, internal consistency, test-retest reliability, and measurement invariance (Müller et al., 2023).

To measure epistemic trust, a brainstorming session was held with other researchers that participated in the project to identify the most relevant items that would adequately measure the construct. This was done because the existing items measuring epistemic trust were deemed to be too difficult to be translated into ESM context. For example, a typical question of the Epistemic Trust, Mistrust and Credulity Questionnaire (ETMCQ, Liotti et al., 2023) would be: "When someone tells me something, my immediate reaction is to wonder why they are telling me this." As a result, 3 items were created, based on the information gathered from various questionnaires (Table 1).

Lastly, the daily ESM survey included general questions, for example pertaining to the participant's current activity and company. In total, the survey included 11 items with a 7-point Likert scale, where 1 indicated "not at all" and 7 "very much" (see Table 1).

Table 1

Overview of the ESM Items

Construct	Item	Response options
Context	What are you doing right now?	Working, Studying, Relaxing, Physical activity, Socialising, Other
Context	Who are you with right now?	I am alone, Family, Friend(s), Romantic partner, Co-worker/ Fellow student, Unknown people/ Strangers
Mentalization	I understand why certain things make me happy right now. I understand my feelings right now. I currently know the reason for my behaviour.	1 "not at all" to 7 "very much"
Wellbeing	I am feeling relaxed right now. I am thinking clearly right now. I am feeling close to other people right now	1 "not at all" to 7 "very much"
Epistemic Trust	I currently feel open to absorbing new information. I don't feel like learning new things from others right now. I currently feel I can rely on my knowledge to make decisions.	1 "not at all" to 7 "very much"

Procedure

      Before the commencement of the study, the participants scheduled either an online or face to face meeting with the researcher. Following the signup, they received a Zoom link or information about the location of the session via email. During the meeting, the researcher informed the participants about the study's objective, procedures, the risks and benefits of participation, steps taken to ensure confidentiality of data, and about their right to withdraw at any point during the study. In addition, the participants were informed that if they complete at least 80% of the study, they would enter a lottery to win a 50 euro Amazon gift card. Moreover, the researcher emphasised the importance of having their notifications on their mobile phone turned on. After the introduction, the participants had the opportunity to ask questions and received informed consent. Upon signing the document, the researcher helped the participants with downloading and setting up the m-path app to ensure they were comfortable with the app's functionality. The participants were asked to enter the m-path's researcher code (wvk75) to have access to the survey and monitor their responses. After completing the setup, the participants received the intake survey on their mobile phone.

      Once the participants completed the questionnaire, the researcher asked them about their daily routines to set up the prompts for the second survey. For example, prompts were distributed throughout the day taking into account participants' sleep habits. In total, the intake meeting took approximately 30 minutes. Following the meeting, the researcher set up for each participant prompts for the main part of the study, which started the day after the session. The participants could also contact the researchers if they faced any technical difficulties or had concerns during the 2-week period.

Data Analysis

      All analyses were performed in the statistical program R (version 2023.12.1 + 402, Posit Software, 2024). Firstly, the data underwent pre-processing; participants with response rates under 50% were removed from the analysis, since previous ESM studies reported that responses below that score are a threat to reliability (Bray et al., 2010) For items measuring mentalization, epistemic trust, openness and agreeableness, mean scores were calculated. To perform the statistical modelling analyses, the lme4 package (version 1.1-33, Cran Packages, 2024) was

applied. Moreover, the performance package (version 0.12.0, Cran Packages, 2024) was used to assess the quality of the models (Lüdecke et al., 2021). For data visualisation, the ggplot2 (version 3.5.1, Cran Packages, 2024) package was used.

Multiple mixed-effect linear regression analyses were performed with the lme4 package to investigate the moderating effects of agreeableness and openness to experience on the mentalization-epistemic trust relationship. Furthermore, fixed and random effects were taken into account by looking into the intercept of the models and residuals, respectively, to assess whether there are other factors influencing the mentalization-epistemic trust relationship. After all analyses were performed, the performance package was used to examine the quality and fitness of the model with measures such as r-squared, as well as model assumptions (linearity ,homogeneity of variance, independence of residuals and normality,). By conducting the analysis, all assumptions of linear analysis were assessed, which also gave an indication whether the study's sample was adequate and whether the models were a good fit for the data.

Results

The study included 23 participants, 8 males and 15 females, aged between 19-28 years old (M= 23, SD = 2.37). 17 participants were German, 2 Dutch and 4 individuals with other nationalities. Most participants were university students (n = 19), some of them working part-time (n = 4). In terms of the marital status, 12 participants reported to be in a relationship and 11 stated that they are single. For an overview of participant data, see Table 2. All of the participants had a response rate of at least 50% (min: 54%, median: 85%, max: 98%).

Table 2
Overview of Participant Data

Variable	Category	Number	%
Gender	Male	8	35%
	Female	15	65%
Age	18-20	3	13%
	21-23	10	44%
	24-26	8	35%
	27-29	2	9%
Nationality	Dutch	2	9%
	German	17	74%
	Other	4	17%
Occupation	Student	19	83%
	Part-time working	4	17%
	Full-time working	1	4%
	Unemployed	1	4%
	Other	3	13%
Marital Status	Single	11	49%
	In a relationship	12	51%

To investigate the moderating effects of openness and agreeableness on the relationship between epistemic trust and mentalization, linear mixed models were fitted. Figure 1 shows the epistemic trust and mentalization relationship with openness as a moderator, while accounting

for the random effects of each participant's intercept. The slopes represent the relationship between epistemic trust and mentalization; the red slope shows the relationship in individuals who score high on the openness trait while the blue slope shows the association in individuals with low levels of openness. The results show a significant, positive main effect of mentalization on epistemic trust ($\beta = 0.38$, SE $= 0.08$, t(1456.57) $= 4.66$, p $<.001$). Furthermore, there was a positive significant effect found between openness and epistemic trust ($\beta = 0.35$, SE $= 0.14$, t(299.16) $= 2.44$, p $= 0.015$). Additionally, a significant, however, negative interaction effect was found between mentalization and openness on epistemic trust ($\beta = -0.05$, SE $= 0.02$, t(1501,17) $= -2.28$, p $= 0.023$).

Transitioning to the fixed and random effects of the model, the random intercept for each participant captured the different baselines in their level of epistemic trust with a variance of 0.07. The residual variance of the model is 0.34, reflecting variability in epistemic trust that is not accounted for in this model (R squared $= 0.25$). Table 3 below shows a summary of the results.
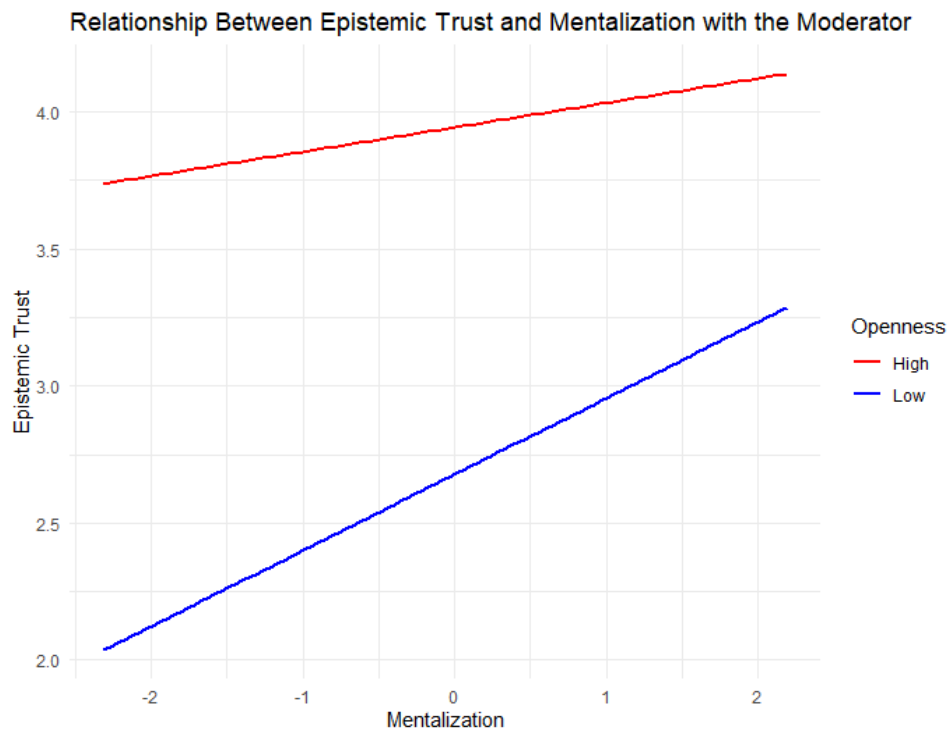
Figure 1

Table 3

Summary of The Results for The Moderation Effect Between Openness, Mentalization and Epistemic Trust.

Effect	Estimate	Standard Error	p-value
Main Effect	0.38	0.08	< 0.001
Openness	0.35	0.14	0.015
Mentalization x Openness	-0.05	0.02	0.023
Residual Variance	0.34		
R Squared	0.25		

Figure 2 below shows the relationship with agreeableness as a moderator. Similarly to Figurw 1, the red slope represents the epistemic trust-mentalization relationship in individuals with low levels of agreeableness, while the blue slope show s the relationship in people with high levels of agreeableness. The results revealed a significant main effect of mentalization on epsitemict trust, however, in comparison to the model above, the effect is weaker ($\beta = 0.18$, SE = 0.08, p = 0.02). The effect of agreeableness on epistemic trust was found to be positive, however not significant ($\beta = 0.06$, SE = 0.12, p = 0.7). Similarly, the interaction effect between mentalization and agreeableness was also found to be positive and statistically insignificant ($\beta = 0.01$, SE = 0.02, p = 0.8). The variance of random effects was 0.06, showing variability in baseline levels of epistemic trust in individuals. The residual variance was similar to the first model ($\sigma 2 = 0.34$, R squared = 0.26). Summary of results of this model can be found in Table 4.

Figure 2

Relationship Between Epistemic Trust and Mentalization with the Moderator
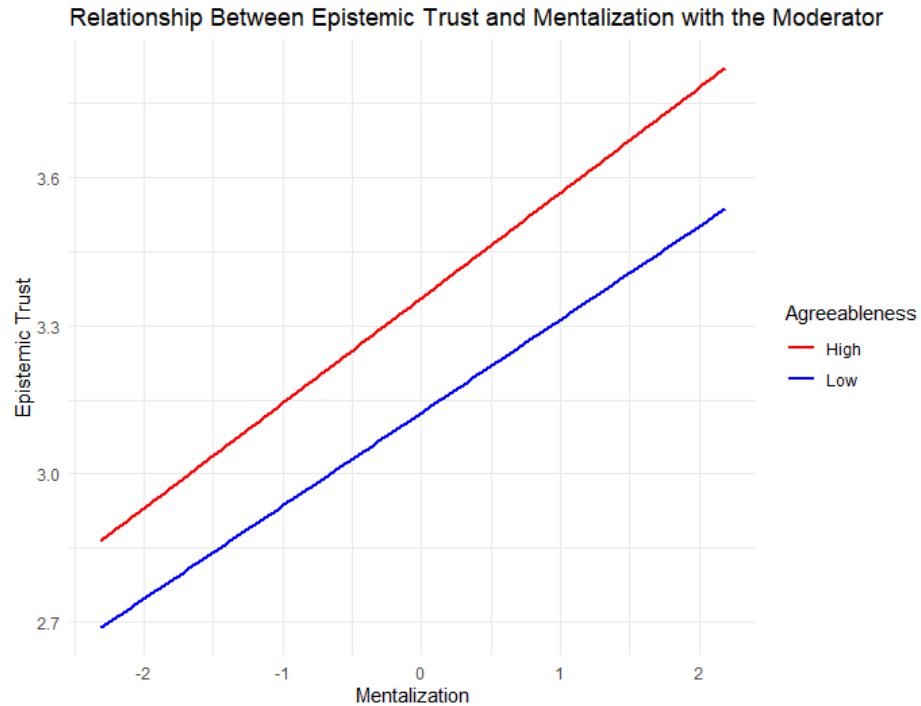
Table 4

Summary of Results From the Analysis of the Moderation Effects Between Mentalization,
Epistemic Trust and Agreeableness

Effect	Estimate	Standard Error	p-value
Main Effect	0.18	0.08	0.02
Agreeableness	0.06	0.12	0.7
Mentalization x Agreeableness	0.01	0.02	0.8
R Squared	0.26		

Lastly, using the performance package, the assumptions of the models were checked (see figures in Appendix C). The first figure represents the assumptions of the model with openness as a moderator while the second figure shows the assumptions of the model with agreeableness

as a moderator. Looking at the plots for both models, it can be seen that the assumptions of homogeneity of variance, multicollinearity and normality were violated, which indicates instability of the model and questions validity of the results.

Discussion

This study investigated the association between momentary epistemic trust and mentalization over time and whether personality traits moderate the relationship between mentalization and epistemic trust. Previous research has suggested that two traits from the Big Five model, openness to experience and agreeableness, might have an effect on both mentalization and epistemic trust (Allen et al., 2017; Ståhl & Turner, 2021), but it is unclear whether these personality traits might also affect the association between the two. Hence, the aim of this research was to investigate whether these traits moderate the relationship between mentalization and epistemic trust. In comparison to the research conducted before, this study employed an ESM design, which takes into account the time fluctuations between mentalization and epistemic trust throughout time.

Results from the analysis conducted on the relationship between mentalization and epistemic trust with openness as a moderator, it can be concluded that the personality trait indeed moderates the relationship between the two. As it can be seen in Figure 1, for those who score high on the trait, the mentalization-epistemic trust relationship is stronger in comparison to people with low levels of openness. This indicates that individuals who are more open to new experiences and perspectives also tend to exhibit higher levels of epistemic trust, enhancing their receptivity to new information, as well as their mentalizing capabilities. Indeed, Ståhl and Turner (2021) argue that openness to experience, particularly the facet of intellect, is a crucial predictor in the rationality people ascribe to incoming information. Thus, if a person scores high on the facet, the more likely they are to consider received information as rational.

Interestingly, the interaction effect between mentalization and openness was found to be negative. While this finding also suggests that openness is a moderator of the mentalization -epistemic trust relationship, it seems that higher levels of openness and mentalization slightly weaken epistemic trust, hence individuals could be sceptical towards new information. Studies performed on the Big Five personality traits and scepticism claim that individuals who score high on extraversion and openness to experience tend to demonstrate higher levels of scepticism

(Deneçli, 2016), which could be attributed to many reasons, e.g. being faced with conflicting perspectives on the subject, hence the person would not trust the information.

Returning to the residual variance of the model (see Results section), the output was 0.34. This could indicate that outside of openness, there are still factors that influence an individual's mentalization and epistemic trust. These could include contextual factors, for example the nature of received information as well as a person's background. As it was previously mentioned, Locati et al. (2023) found that epistemic trust is dependent on one's attachment style, which also could have played a role in this study, as it was not accounted for. Thus, for future research, it is advised to measure participants' attachment style, as it can be a significant factor in the analysis.

Looking at the results from the analysis performed with agreeableness as a moderator, the effect of the trait was found to be statistically insignificant. According to Ståhl and Turner (2021), the relationship between agreeableness and rationality is negative; the researchers found that low levels of agreeableness are associated with attributing moral value to information. In other words, individuals scoring low on agreeableness are more likely to question received information. Thus, individuals with high levels of agreeableness should be less likely to rationally judge incoming information, as it requires them to act against themselves. Nevertheless, taking into account the results of the performed analyses, it can be concluded that the hypothesis of this study is partially confirmed; while openness moderates the relationship between mentalization and epistemic trust in the expected direction, agreeableness does not.

These results should be interpreted considering some of the study's limitations. The main factor that played a role in the study is the validity of the short form of the BFI. Short-form measures of personality are often utilised in studies under the assumption that these tests can fully capture one's personality. However, Credé et al. (2012) found in their evaluation of the short-form personality test that the criterion validity of the items is low. Hence it is plausible that the insignificant findings on agreeableness and negative effect of openness is a result of using a short-form BFI, instead of the full version. Furthermore, the ESM items used in the survey were not validated, thus there is no systematic evaluation of whether mentalization and epistemic trust fluctuate over time. Moreover, the whole sample were university students, hence the results cannot be generalised, as they pertain to individuals of higher education and the sample did not include people from various educational and sociodemographic backgrounds. The results could have been affected by an unequal number of males and females in the study. Research on

mentalizing tasks and gender differences indicates that men made more errors in these tasks than women (Poznyak, 2019). Hence it is crucial to strive for an equal number of participants from both genders. Finally, several assumptions of the model were violated, thus it is advisable to look at the results "with a pinch of salt".

   To conclude, this study investigated the association between mentalization and epistemic trust at the momentary state level over time and how this relationship is affected by openness to experience and agreeableness from the Big Five Model. The findings showed that openness had a significant effect on both constructs; higher levels of openness lead to a stronger mentalization-epistemic trust relationship. In terms of agreeableness, the moderation results were insignificant. However, the unexplained variance from the analysis suggests that there are still factors which affect mentalization and epistemic trust. Taking under consideration the limitations of this study, it is advised for further research to include a sample of individuals of various backgrounds to ensure generalizability of results. Lastly, since results of the present study and the findings of previously conducted studies show contradicting findings about the effect of openness to experience and agreeableness on mentalizing and epistemic trust, it is important to note that the current research is one of the first one's that delves into the topic of the interplay between personality traits, mentalization and epistemic trust specifically, hence there is still a lot to explore in this area.

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Appendix

Appendix A

Informed Consent

Dear Participant,

Thank you for participating in this study!

Brief summary of the study:
This research aims to investigate the relationship between subjective well-being, epistemic trust, and mentalization using Experience Sampling Methods (ESM).
The primary purpose of this research is to investigate how individuals' levels of epistemic trust and mentalization fluctuate throughout the day and how the interaction between these factors impacts mental health and well-being.

Procedures:
You will be asked to complete an entry survey providing background information and a personality test based on the Big Five model.
If you agree to participate, you will be required to download the m-path app and answer multiple questions multiple times a day.
Participation involves answering questions related to your epistemic trust, mentalization, and well-being.

Risks and Benefits:
Participation in this study involves minimal risk. Some questions may prompt self-reflection, potentially leading to mild emotional discomfort. However, measures are in place to provide support if needed. The benefit of contributing to psychological research and understanding human behaviour is a potentially positive outcome. Participants who complete 80% of the daily prompts will have the chance to win a 50 Euro Amazon voucher as a token of appreciation.

Confidentiality:
All data collected will be treated confidentially. Your answers will be anonymized and handled with confidentiality. Only the research team will have access to the data.

Voluntary Participation:

Participation in this study is voluntary. You have the right to withdraw at any time without any consequences.

Contact Information:

If you have any questions or concerns, please contact one of the researchers:

a.m.sessmann@student.utwente.nl

d.e.zawadzka@student.utwente.nl

m.u.s.steins@student.utwente.nl

To participate in this study, we need to ensure that you understand the nature of the research, as outlined in the summary of the study. Please confirm at the bottom of the page to indicate that you understand and agree to the following conditions:

Consent Form for Understanding the Relationship Between Mentalization, Mental Health, and Epistemic Trust

Please tick the appropriate boxes	Yes	No	
Taking part in the study			
I have read and understood the study information dated [DD/MM/YYYY], or it has been read to me. I have been able to ask questions about the study and my questions have been answered to my satisfaction.	☐	☐	

I consent voluntarily to be a participant in this study and understand that I can refuse to answer questions and I can withdraw from the study at any time, without having to give a reason.	☐	☐	
I understand that taking part in the study involves answering questions multiple times a day on epistemic trust, mentalization and overall well-being.	☐	☐	
Use of the information in the study			
I understand that information I provide will be used for research purposes. .	☐	☐	
I understand that personal information collected about me that can identify me, such as [e.g. my name or where I live], will not be shared beyond the study team.	☐	☐	
Future use and reuse of the information by others			
Signatures			
_____ _____ _____ Name of participant Signature Date			

Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions, or discuss any concerns about this study with someone other than the researcher(s), please contact the Secretary of the Ethics Committee/domain Humanities & Social Sciences of the Faculty of Behavioural, Management and Social Sciences at the University of Twente by ethicscommittee-hss@utwente.nl

Appendix B

The BFI Ultra Short Form

1	2	3	4	5
Strongly disagree	Disagree a little	Neutral	Agree a little	Strongly agree

I am someone who…

1. I am someone who tends to be quiet
2. I am a person who has a soft heart; is compassionate
3. I am a person who tends to be organised
4. I am a person who worries a lot
5. I am a person who is fascinated by art, music or literature
6. I am a person who is dominant, acts as a leader
7. I am a person who is sometimes rude to others
8. I am a person who has difficulty getting started on tasks
9. I am a person who tends to feel depressed, blue
10. I am a person who has little interest in abstract ideas
11. I am a person who is full of energy
12. I am a person who assumes the best about people
13. I am a person who is reliable, can always be counted on
14. I am a person who is emotionally stable, not easily upset
15. I am a person who is original, comes up with new ideas

Items measuring openness to experience: 5, 10, 15

Items measuring agreeableness: 2, 7, 12

Appendix C

Figure 1

Assumptions of Openness

Figure 2

Assumptions of Agreeableness

Posterior Predictive Check
Model-predicted lines should resemble observed data line

Linearity
Reference line should be flat and horizontal

Homogeneity of Variance
Reference line should be flat and horizontal

Influential Observations
Points should be inside the contour lines

Collinearity
High collinearity (VIF) may inflate parameter uncertainty

Normality of Residuals
Dots should fall along the line

Normality of Random Effects (Participant_ID)
Dots should be plotted along the line