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Matching your way to Success: The Influence of Motivational Frame Matching on Interaction Outcomes and Reciprocal Matching

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ABSTRACT

Theories of interpersonal sensemaking postulate that positive interactions emerge in interactions where speakers match on motivational frames. Across three experiments ($N = 1609$) using a hypothetical simulation framework, we provide the first evidence of a causal link between motivational frame matching and positive interaction outcomes in three intelligence-gathering contexts. In all experiments, participants actively responded through instrumental, relational or identity motivational frames towards an investigative interviewer, rival sports supporter or HR representative, who did (did not) match them back. Results showed that within a competitive interaction, motivational frame matching consistently led to more positive interaction outcomes. Within a cooperative interaction, motivational frame matching led to more positive interaction outcomes for all measured variables (in the investigative interview) and greater feelings of being understood and a higher willingness to identify with the rival supporter, with limited positive effects in the HR interview. In all experiments, participants displayed more reciprocal matching when interacting with a matching versus a nonmatching interaction partner, and this translated into increased information provision in an adapted trust game where participants could send information in exchange for money.

1 | Introduction

When conducting investigative interviews, such as suspect interviews or strategic interviews in a workplace context, research indicates that an information gathering approach, where the goal is to solicit information, is superior to an accusatorial approach, with its focus on obtaining a confession (Alison and Alison 2017). Within the information gathering approach, concepts, such as rapport (Gabbert et al. 2021), active listening (Noesner and Webster 1997) and self-disclosure (Childs and Walsh 2017), have all been mentioned as key drivers of information gain from suspects. While all important, less is known about how suspects and interviewers make sense of each other and how this interpersonal sensemaking might contribute to cooperation and information gain. This type of interpersonal sensemaking has been termed 'the forgotten skill', in that many people within the legal system agree that interpersonal sensemaking is important, but few studies explore how to create and sustain it (Taylor 2013).

Analyses of interpersonal sensemaking in police–suspect interactions (Taylor 2002; Taylor and Donald 2004; Watson et al. 2022) have found that negotiators' motivations for engaging in an interaction may be grouped into instrumental, relational or identity focused. Later research has demonstrated matching of these motivations to be associated with cooperation and conciliation (Ormerod et al. 2008; Wells and Brandon 2019), with recent research suggesting this might be especially true in cooperative (but not competitive) interactions (Sjöberg et al. 2023). Yet, as

the previous research was largely correlational in nature, it is unclear whether matching of such motivations is causally related to positive interaction outcomes. Consequently, the aim of the current set of experiments was to examine whether experimentally manipulating motivational frame matching would lead to more positive interaction outcomes within three intelligence-gathering situations: an investigative interview between a suspect and a police interviewer, a casual pub conversation between two rival sports supporters (Natapoff 2004) and an HR investigative interview between an employee and an HR representative.

1.1 | Sensemaking in Investigative Interviews

Interpersonal sensemaking refers to the ability of a person (e.g., an interviewer) to make sense of another person's (e.g., a suspect's) underlying goals and/or motivations (Taylor 2013), which then provides the basis for an appropriate response. For example, a suspect may be concerned about the criminal sentence that they might receive if they confess to a particular crime. An effective sensemaker would recognise this underlying concern and draw it out in their own responses, rather than switching to another topic that has nothing to do with the potential sentence (Wells and Brandon 2019). By acknowledging the suspect's motivation and taking it seriously, the interviewer signals that the suspect is worthy of interpersonal respect and recognition (Ury 1991). This might then constitute a subtle form of interpersonal acknowledgement that may lead to more positive interaction outcomes (Burgoon 1993). Although interpersonal sensemaking is important for identifying and recognising a suspect's underlying goals and motivations, it is just the first step for successful interpersonal interactions to occur. The second step involves communicating back in the same motivational frame (i.e., motivational frame matching). Hence, in the current study, motivational frame matching is conceptualised as being an important part of the interpersonal sensemaking process, where two speakers align their goals and motivations.

From a theoretical perspective, Communication Accommodation Theory (Giles and Coupland 1991; Giles and Ogay 2007) suggests that speakers accommodate their communication (e.g., matching of motivations) when they want to appear similar or be liked by their interaction partner. Similarly, the Interactive Alignment Model (Pickering and Garrod 2004) has indicated that successful interpersonal interactions often require alignment across multiple linguistic representations, such as semantic and lexical concurrence. Moreover, Interpersonal Adaptation Theory suggests that interpersonal matching (e.g., matching of motivational frames) may lead to positive outcomes (e.g., increased liking in interpersonal interactions; Burgoon et al. 1993). This can also be connected to emotional contagion which can be understood to be a form of synchrony of attention, behaviour and emotion that facilitates 'mindreading' (Hatfield et al. 2014, 159), of which motivational matching might be a particular type. Taken together, these theories and models all support the proposition that interpersonal matching is a potentially important component of interaction success.

Although the above literature might give the impression that motivational frame matching works mainly due to a homophily effect, this might not be the complete picture. For example, an investigative interviewer is often not very similar to a suspect in terms of group membership, social background and moral attitudes. Despite these differences, an investigative interviewer might be able to connect with the suspect through motivational frame matching or other ways of showing understanding (e.g., rapport building; Alison and Alison 2020). This connects with research on interpersonal mimicry showing that homophily (i.e., liking people who are similar) is one but many moderators of mimicry (Chartrand and Lakin 2013). Assuming motivational frame matching might be operating somewhat similarly, it is likely homophily might be one, but not the only, mechanism explaining the positive effects of motivational matching.

Alternative mechanisms include individual differences in perspective taking (Chartrand and Bargh 1999), mood and emotion (Likowski et al. 2011) and processing fluency (Sparenberg et al. 2012). Although these are all plausible explanations, it is beyond the scope of the current research to interrogate them extensively to determine the mediating role of each mechanism in the relationship between motivational frame matching and positive interpersonal outcomes.

Looking more systematically at suspect dialogue, Taylor (2002) observed that, within crisis negotiations, the behaviours of perpetrators could reliability be clustered into instrumental, relational or identity motivations. Although instrumental motivations related largely to the facts and information about a certain issue, relational motivations related more to the relationship between the speakers and how they managed their relationship. Finally, identity motivations revolved around personal worth and respect as well as notions of 'face' (Goffman 1967). In line with seeing interpersonal sensemaking as an alignment of motivations, Ormerod et al. (2008) found that motivational frame matching between a perpetrator and crisis negotiator was associated with more successful outcomes (e.g., the hostages were released or the perpetrator agreed not to take his own life). This gives some indication that matching of motivations might be an important part of successful interpersonal sensemaking, with positive interaction outcomes as a result. This led to the first hypothesis:

H 1. *: Matching of motivational frames will lead to more positive interaction outcomes compared to nonmatching interactions.*

1.2 | Cylinder Model and Its Relationship With Other Conversational Theories

In addition to the three motivational frames (instrumental, relational and identity), the cylinder model is a model of interpersonal communication developed by Taylor (2002) suggesting that at any one point in time, people tend to also adopt one of three main orientations towards an interaction. These are cooperative (e.g., friendly and accommodating), competitive (e.g., antagonistic and hostile) and avoidant (e.g., withdrawing and evasive). As each motivational frame can be adopted with each of the three orientations, they form a cylinder model structure where each of the nine communication strategies represents a unique point on the surface of the cylinder that describes the specific nature of the interaction.

Within social psychology, there are theories and models that have identified similar motivations and goals in conversations as those identified by Taylor (2002). For example, early work by Laver and Hutcheson (1972) distinguished between cognitive information (similar to instrumental motivations), interaction-management information (similar to relational motivations) and indexical information (similar to identity motivations), as three different types of information communicated in interpersonal interactions. Mirroring these findings, Dunbar et al. (1997) found that conversations in relaxed settings, such as in cafeterias and bars, tended to focus on personal relationships (relational motivations) and personal experiences (identity motivations), with a smaller proportion devoted to technical and work/academic topics (instrumentally focused). More recently, the conversational circumplex identified informational and relational motivations (referred to as goals) as two fundamental dimensions along which conversational goals differ (Yeomans et al. 2022). Taken together, this suggests that the three motivational frames (instrumental, relational and identity) identified in the cylinder model (Taylor 2002) might capture something fundamental about interpersonal interactions that may be relevant for interactions in a range of different situations, including police investigative interviews, pub conversations and HR investigative interviews.

Although the cylinder model originated from real-life conversational data from crisis negotiations (Taylor 2002), the current set of experiments offers a more static and controlled operationalisation of the model. This limits the generalisability of the findings to other more natural conversational contexts. At the same time, the fact that previous studies of the cylinder model have found similar findings as the current study (e.g., Ormerod et al. 2008; Wells and Brandon 2019) suggests that increasingly there is a convergence of the evidence.

1.3 | Orientation Towards the Interaction

In addition to having certain motivations, interaction partners may also display different orientations towards the interaction. Taylor (2002) identified cooperative, competitive and avoidant orientations as being commonly displayed by suspects. A cooperative orientation is characterised by mutual agreements and a willingness to make concessions with the other party. On the other hand, a competitive orientation reflects hostility and antagonism on the part of interaction partners who are not willing to make sacrifices to fulfil each other's goals or motivations. Finally, an avoidant orientation is characterised by relatively disengaged or withdrawn behaviour. Typical here are attempts to shift the topic of discussion or to dismiss the need to communicate at all (Wells and Brandon 2019).

Although no research has directly compared these orientations in investigative interviews and other conversational contexts, evidence from research comparing information gathering (cooperative) and accusatorial (competitive) interviews gives insights into their relative impact on an interaction. The large body of research supports the information gathering approach as being superior in gaining accurate and valid information from suspects (Alison and Alison 2017; Meissner et al. 2015, 2023; Russano et al. 2019). This is also true for authentic military interviews, where informational gathering approaches such as active listening and rapport tactics led to increased cooperation and information gain from suspects (Brandon et al. 2019). This formed the basis of the second hypothesis:

H 2. *: A cooperative (as opposed to a competitive) interaction will lead to more positive interaction outcomes.*

Although this hypothesis might seem self-evident, the fact that the Reid interview technique, which encourages lying and bluffing a suspect towards a confession (Inbau et al. 1995), is still being used in certain jurisdictions suggests there continues to be a widespread belief that acting in hostile and competitive ways would help obtain cooperation and information from suspects. Furthermore, although it could be theorised that power dynamics may also come into play in dictating whether a cooperative or competitive orientation would lead to positive (or negative) interaction outcomes, this fell outside of the scope of the current set of experiments.

1.4 | Matching and Orientation

Although matching would generally be perceived as leading to more positive interaction outcomes, there might be situations when this is not necessarily the case. For example, Sjöberg et al. (2023) recently looked at motivational frame matching in investigative interviews and found that, within a competitive interaction, motivational matching led to less willingness by participants to cooperate with the interviewer and lower feelings of being respected. This is supported by research showing that language style matching can be associated with both positive (Ireland and Pennebaker 2010) and negative interaction outcomes (Ireland and Henderson 2014), as well as evidence of coordination of communication and physiology among couples during conflicts (Levenson and Gottman 1983; Rehman et al. 2017). In this way, matching might work by intensifying the dominant orientation, be that cooperative or competitive. Specifically, matching might work by amplifying the emotional tone of the interaction, contributing to an emotional contagion effect (Hatfield et al. 2014). This suggests that motivational frame matching might backfire in cases where both of the parties have a more hostile agenda, leading to the third hypothesis:

H 3. *: There is an interaction between matching and orientation such that the benefits of matching will depend on whether the interaction is cooperative or competitive. Specifically, motivational frame matching will lead to more positive interaction outcomes in a cooperative interaction but less positive interaction outcomes in a competitive interaction.*

1.5 | Reciprocal Matching

As mentioned above, several theories predict that interactions where the interaction partners aspire to connect with each other tend to align their communication. This interpersonal alignment could be theorised to represent a form of subtle cooperation between interaction partners (Meinecke and Kauffeld 2019). Indeed, research has demonstrated that alignment in language style between a suspect and interviewer was associated with more

information gain in investigative interviews (Richardson et al. 2014). More recently, research has argued that individuals have certain expectations of what should take place in an interaction (e.g., the other person will make sense of what I am saying; Pelliccio and Walker 2022), and that when such expectations are violated, it might create a negative response by the other party (Burgoon 1993). This links to the notion that individuals have communication schemas for how people should act towards each other (Dalton et al. 2010), including notions of who should follow whom within an interaction and who is supposed to decide the direction of the interaction. Taken together, this indicates that reciprocal matching might constitute a form of subtle acknowledgement of the other person (Aafjes-van Doorn and Muller-Frommeyer 2020; Niederhoffer and Pennebaker 2002). In the current study, reciprocal motivational frame matching is understood to constitute the second part of the successful interpersonal sensemaking process (the first being active listening and identification of an interaction partner's motivational frame). On the basis of these presumptions, it was hypothesised that participants who interacted with an interviewer who consistently matched their motivational frame would, in turn, be more likely to engage in reciprocal matching with their interaction partner. Stated formally,

H 4. *: Police interviewer/rival supporter/HR representative matching will lead to more reciprocal participant matching. In other words, participants will reciprocate matching more in the matching versus the nonmatching condition.*

1.6 | The Role of Context

Although police investigative interviews are fundamental to the collection of information from suspects, there are other contexts where information collection occurs. For example, in certain situations, officers may interview family or friends of the suspect in order to obtain legally relevant information (Carter 1990). Or they may seek information from a covert human intelligence source (Nunan et al. 2020). Once a relationship has been established between a source and their handler, they will often meet in informal situations (e.g., a pub rather than a police station). This indicates that some information gathering within law enforcement is likely taking place outside of the traditional interview room. Hence, it is important to extend the research beyond formal investigative interviews to other less well-studied environments. Similarly, organisations may conduct investigative interviews as part of internal investigations when a wrongdoing has been identified. Such interviews may be conducted in more formal ways as well as in less formal, more exploratory ways, depending on the nature of the alleged wrongdoing.

1.7 | Generalisability of Motivational Frame Matching

Although the current study featured three different conversational contexts: a police investigative interview, a pub conversation and an HR investigative interview, there are reasons to believe the findings might also translate to other conversational contexts. Aligning with this logic, Alison and Alison (2020) argued that interview techniques that have proven effective with terrorists are also useful when interacting with family members and friends. Similarly, Voss (2016) applied insights from crisis negotiations (which is also the context Taylor 2002, used for identifying the motivational frames used in the current research) to show that it was possible to apply them effectively in everyday situations. In other words, it would not be surprising if the current findings would apply more broadly than merely being constrained to the current situational contexts. At the same time, it is important to not overgeneralise the findings beyond the scope of the current study.

1.8 | Interpersonal Outcomes

Information gathering conversations aim to obtain information from suspects (Jakobsen et al. 2017), and suspect cooperation is important for information provision (Brandon et al. 2019). Thus, we measured willingness to cooperate and provide information to the other person. Beyond informational outcomes, rapport, which is described as a positive working relationship between suspect and interviewer (Abbe and Brandon 2014), is also a positive outcome. Two aspects of rapport concern the ability to empathise and actively listen to the suspect (Alison and Alison 2017), and research supports the positive influence of feeling listened to and understood by the interviewer on positive interaction outcomes (Alison and Alison 2020; Voss 2016). Consequently, we measured feelings of being listened to and understood by the other person.

Second, suspects might also be concerned with the act of saving face and protecting their dignity during an interview (Goffman 1967; Kleinman 2006). This is echoed in research showing that a failure by the interviewer to protect the respect and integrity of the suspect can lead to feelings of alienation and even termination of the interview (Holmberg and Christianson 2002; Wells and Brandon 2019). Hence, we measured participants' feelings of being respected and treated fairly as well as their tendency to identify with the other person.

Third, trusting the interviewer is positively related to being willing to open up about wrongdoings (Brimbal et al. 2019), an important predictor of cooperation in conflict situations (Balliet and Van Lange 2013), and it has a significant positive relationship with matching (Vicaria and Dickens 2016). In the literature, trust has been defined as an intention to accept vulnerability on the basis of a positive expectation of how another person will act in the future (Rousseau et al. 1998). Thus, we measured participants' intention to trust the police interviewer/rival supporter/HR representative.

2 | Methods

2.1 | Design

The current study used a 2 (motivational frame matching vs. nonmatching; between participants) × 2 (cooperative vs. competitive; between participants) × 5 (interview round; within participants) mixed between- and within-participants design. Figure 1 shows the procedural flow through the experiment, whereas Figure 2

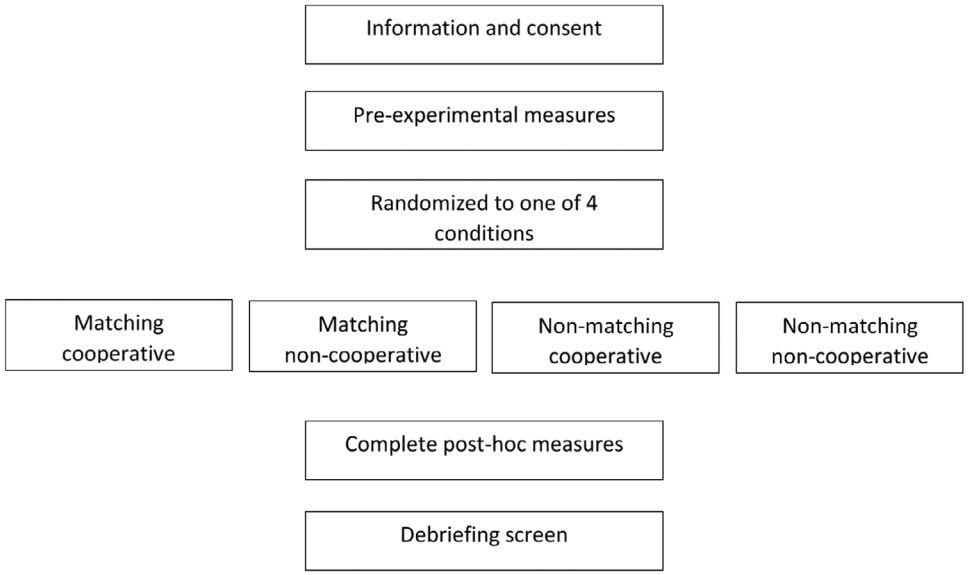

FIGURE 1 | Participant flow through the experiment. Although participants could choose between the three motivational frames at each round, they were constrained to either cooperative or non-cooperative (competitive) response options throughout the interaction.

demonstrates which of the three motivational frames was selected at each of the first three interview rounds.

2.2 | Transparency and Openness

The hypotheses for the current study were preregistered on the Open Science Framework (Experiment 1: https://osf.io/b9v48/?view_only=05ac54cbdb88452e873efc0d0ab4ec77; Experiment 2: https://osf.io/fkhp7/?view_only=ff76a4b417924c69b5b5bef0b3970fb5; Experiment 3: https://osf.io/ahy83/?view_only=31861c73bf9b49d8b717878bb7d4b068). The data and R-scripts used to analyse the data are also available online OSF project currently private to facilitate double-blind peer review.

2.3 | Participants

The software program G*Power was used to conduct a power analysis (Faul et al. 2007). Four hundred and sixty-nine participants were required to obtain a power (>0.90) to detect the smallest effect size of interest (Cohen's $f \geq 0.15$, which approximately converts into Cohen's $d \geq 0.30$, or a $\eta_p^2 \geq 0.022$) in the population (Anvari and Lakens 2021), at the standard (0.05) alpha error probability.[1] The power was calculated to account for both main and interaction effects, as well as the repeated measures single within variable (i.e., interview round).

Recruitment of participants took place via Prolific, an online platform that connects researchers with potential research participants. In total, 550 participants (373 women; 177 men), ranging in age from 18 to 89 years ($M = 40.28$, SD = 13.74), participated. The majority came from the United Kingdom and Ireland (480 participants), whereas 31 came from North America, 22 from Australia and New Zealand, 9 from South Africa, 7 from Europe and 1 from Japan. Most identified as White ($n = 506$ participants), followed by Black/African/Caribbean/Black British ($n = 17$), Asian/Asian British ($n = 14$), mixed/multiple ethnic groups ($n = 9$) and other ($n = 4$).

2.4 | Materials

2.4.1 | Investigative Interview

Participants took part in a five-round text-based simulation of an investigative interview. Participants were told that they were suspected of use of illicit substances and that, as a result, they would be interviewed about this by a police interviewer. They were not given any information about the police interviewer, and no effort was made to make participants believe that they interacted with a real live police interviewer. That being said, participants were made to feel like they interacted in a hypothetical situation (i.e., simulation of an investigative interview). Hence, in line with the idea that behavioural experiments can tell us something valuable about human behaviour even though they are simulations of real-life situations, as long as they are interpreted through the lens of theory or previous findings in the field (Levitt and List 2007), we expected the results to somewhat resemble how participants would have responded to a real live interviewer.

Over five rounds, the interviewer asked questions of the participants, who, in turn, responded. The participants could respond with a message that was of an instrumental, relational or identity motivational frame. Depending on the experimental condition, the interviewer then either matched participant's motivational frame or did not match participant's motivational frame. This matching/nonmatching was repeated five times after which the interaction ended.

To manipulate the orientation taken towards the interview, half the interviews featured a cooperative interviewer, whereas the other half of participants interacted with a competitive interviewer. As most previous literature has tended to focus on

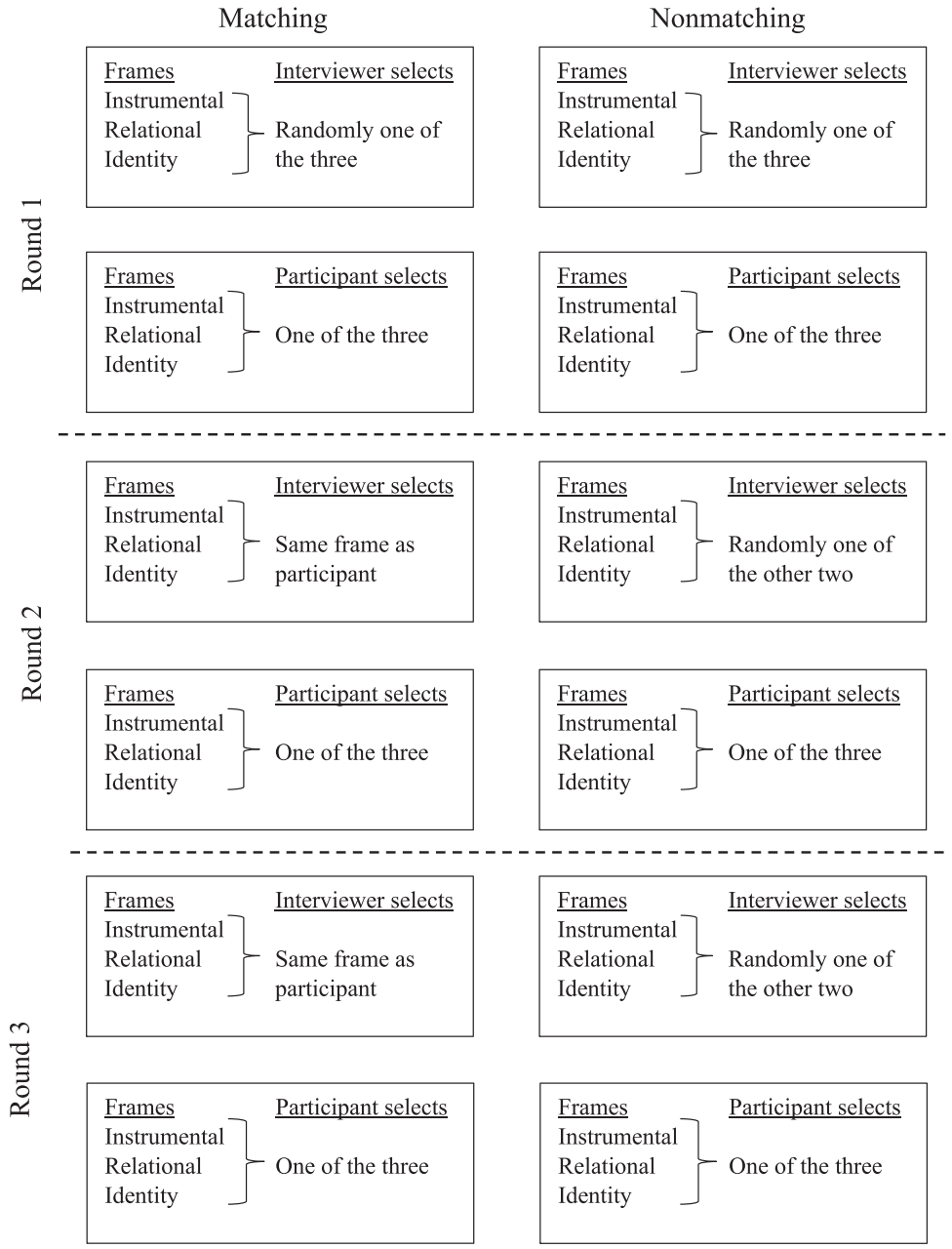

FIGURE 2 | Illustration of which motivational frame was selected for each of the first three interview rounds, Experiment 1 (the same logic applied to all three experiments).

cooperative and competitive interactions (Bonta 1997; Bowen et al. 2017; Kelley et al. 2003; Richardson et al. 2019), as well as the fact that an avoidant interaction by its very nature involves 'no comment' statements, which would be problematic to simulate experimentally, we focused only on the cooperative and competitive orientations. See Table 1 (cooperative) and Table 2 (competitive) for examples of the three motivational frame responses across the five interview rounds.

2.5 | A Note on the Design of the Current Experiments

One clear limitation with the current experimental design is that, in contrast to an authentic investigative interview, participants might not have had any incentives to withhold or disguise information. Although the trust game in the third experiment aimed to create a situation where participants would benefit financially by trusting the interviewer with their information, this still constituted a relatively low-stakes situation. As a result, having a more elaborate experimental paradigm, in which participants would have faced significant negative consequences by sharing information, would have more closely represented a real investigative interview. On the other hand, this would likely have introduced significant complexity and potential unreliability into the experiment (e.g., how would you ensure that every participant would have the same desire to withhold information?). As this is the first set of experimental explorations of the effects of motivational frame matching on interaction outcomes to date, it was decided to keep the design as clean and simple as possible.

TABLE 1 | Conversational scripts for the cooperative orientation interaction with instrumental, relational and identity motivational frame responses for Experiment 1.

Interview round	Instrumental frame	Relational frame	Identity frame
Round 1—Interviewer	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. Can you explain a bit about your working day and what your responsibilities are?	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. Are you feeling stressed today?	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. Are you the kind of person who would do something wrong?
Round 1—Suspect	S: Of course, it was just a normal day at work. My responsibilities relate to the engines of the planes and making sure that they are kept well and clean. We're a few people who are doing this work	S: Thank you very much for asking. I'm feeling a bit stressed, but I really appreciate that you read my rights before we started with the interview. I'll try to be as useful to you and your investigation as possible	S: I don't think so, I'm generally not the kind of person who would do something wrong. I'm a very honest person. Lying and using drugs are completely against my character. I care about my reputation around here
Round 2—Interviewer	I: That's great it was a normal day. Let's start from the beginning and tell us what happened. What did you do in the morning? For example, what did you have for breakfast?	I: No worries, I fully understand, it is completely normal to feel stressed in your situation. We will do our best to help you through this. We understand you have been knocked around in the past	I: Got it, you are an honest person and an honest person would probably not be lying and using drugs. What would people who know you say about you?
Round 2—Suspect	S: Well, I woke up and made breakfast around 8 am. I had toast with some cheese and a coffee as I listened to the morning news on the radio. Then I drove to work and started my shift early	S: Those words mean a lot to me. I have been knocked around in the past and it is reassuring to know that you want to help me. I really appreciate that you will listen to my story	S: People who know me always say good things about me and I would not do something wrong. For example, I've never lied to my colleagues about anything. I guess I'm just a very honest and respectable person
Round 3—Interviewer	I: Good you started your shift early. What did you do when you arrived at work? Was anyone else there when you arrived? Any information might be of value to us	I: Well, I can reassure you that we will listen to your story. We'll try to be as objective and neutral as possible towards what you are saying. We'll help you through this stressful situation	I: Yeah, it seems you are clearly an honest person. Such a person would probably not be lying to their colleagues. From what you are saying, it sounds like you would treat your colleagues with respect
Round 3—Suspect	S: Everything was normal and I don't think anyone was there when I arrived. I first went and changed into my work clothes. We have a small changing room at the back where we can change clothes before and after work	S: That is very nice to hear from you. It seems you genuinely care about me and want to help me through this stressful situation. It makes me feel good to know that you'd listen to my story	S: Yeah, I would. Being seen as a respected person is very important to me. I always aspire to be a good co-worker and treat my colleagues with respect. I hope you can see that I am a very honest person

(Continues)

TABLE 1 | (Continued)

Interview round	Instrumental frame	Relational frame	Identity frame
Round 4—Interviewer	I: Great to hear everything was normal. Speed forward to later in the day, what was the last thing you did before returning home? For example, what did you do with your co-workers?	I: I understand that you are going through a stressful situation. I can reassure you that we will do our best to listen to your story. We know your previous experiences with special agents are not overly positive	I: Agree, you definitely look like an honest person, and such a person would probably not do what is alleged in this case. Avoiding tarnishing your good reputation is clearly vital to you
Round 4—Suspect	S: I joked around a while with my co-workers. Then I went and changed clothes, said goodbye to my co-workers and the boss, and drove home. The sun was about to set when I arrived home	S: I really appreciate you making the effort to listen to my story. My previous experiences with special agents are not overly positive, but you seem like a great person. I appreciate that you will listen to my story	S: Being convicted of something like this would negatively tarnish my good reputation around here. To be honest, if I was guilty, I wouldn't have any problem with telling you exactly what happened. Honesty is important to me
Round 5—Interviewer	I: Thank you for providing detailed information about your working day, it's very valuable	I: We'll do our best to support and listen to your story. Thank you for speaking with me	I: It's great to know that you would tell us what happened if you were guilty. Thank you for highlighting your concerns so clearly
Round 5—Suspect	S: No worries, hope it's helpful information about my working day	S: No worries, thank you for listening to my story	S: No worries, thanks for honouring my concerns

This goes in line with calls to make psychology a cumulative science where studies can build on previous findings in a logical and systematic way (Curran 2009).

2.5.1 | Manipulation Check of the Interview Conversational Scripts

To ensure that all the interview questions and responses fell reliably into their respective motivational frame and orientation, two people unfamiliar with the study hypotheses (but familiar with the cylinder model) rated each conversational script as belonging to one of the instrumental, relational and identity motivational frames, as well as the orientation of the interaction (cooperative vs. competitive). Their agreement was 100% with the intended disposition of the script, suggesting the interview scripts were a good representation of their respective motivational frames and orientations.

2.5.1.1 | Post-Interview Measures. At the end of the interview, participants answered questions about whether or not they would be willing to cooperate and provide information to the interviewer (instrumentally focused; two measures), whether or not they felt understood and listened to by the interviewer (relationally focused), and whether or not they felt respected by the interviewer (identity focused). Participants were also asked if they would trust the interviewer.

2.5.2 | Cooperating and Giving Information to the Interviewer

To measure participants' willingness to cooperate with the interviewer, they were asked whether they would be willing to cooperate with the interviewer and, if they had information about the crime, how likely they would be to give this information to the interviewer. These two items were answered on a 7-point Likert scale anchored by 1 (*not at all willing*) and 7 (*completely willing*; these were single-item measures and therefore did not have a Cronbach's α score).

2.5.3 | Feeling Understood by the Interviewer

Three items tapped into participants' feelings of being understood and listened to by the interviewer. One example question was 'I felt understood by the interviewer.' The items in this scale were answered on a 7-point Likert scale anchored by 1 (*disagree strongly*) and 7 (*agree strongly*). The scale demonstrated excellent Cronbach's $\alpha = 0.97$.

2.5.4 | Perceptions of Being Treated Fairly

We used two items to measure whether participants felt like they were being treated fairly and with respect. These included 'I felt the interviewer treated me with dignity', and 'I felt the interviewer was respectful'. The items in this scale were also

TABLE 2 | Conversational scripts for the competitive orientation interaction with instrumental, relational and identity motivational frame responses for Experiment 1.

Interview round	Instrumental frame	Relational frame	Identity frame
Round 1—Interviewer	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. As we have evidence against you, can you explain to us what happened?	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. It looks like you are feeling a bit like crap?	I: I'm investigating the suspicion against you regarding the possession of illicit substances. You have the right to remain silent and everything you say may be used against you. Do you have any clues as to why you are here today?
Round 1—Suspect	S: As far as I'm concerned, I've not really been presented with any evidence of my guilt. I could tell you what happened, but it would be better if you just told me why I'm here	S: Yeah, I'm feeling a bit like crap to be honest. You just dragged me in here and it feels like you don't even care about me. I have a feeling you'll not believe a single word I'm saying	S: I don't have a clue as to why I'm here. This is ridiculous, you're clearly wasting your time trying to convict an innocent and respectful person. Do I look like a person who would do something like this?
Round 2—Interviewer	I: Well, I already told you the charges against you. Now it's time for you to start speaking up and give me some information. The evidence against you is pretty clear	I: Well, I'm not interested in listening to you whine about your emotions and how you want me to care about you, that's one thing that's for sure. I'm not even sure whether to believe a word you're saying	I: Well, since you're here talking with us, chances are you've done something wrong. There is nothing ridiculous at all about us or this investigation. To me, you don't look like a very respectful and hard-working person
Round 2—Suspect	S: You keep saying that you told me the charges against me, but I'm still not sure why I'm here. Just tell me the evidence you have on me first and then you might get some information from me	S: That's a very harsh thing to say to me. I'm pretty sure you will not believe a word I'm saying. You clearly don't care about me and I'm pretty sure you don't even like me	S: Just talk to my co-workers and they will tell you that I'm a very respectful and hard-working person. There must be more important things than prosecute an innocent person like me. You should be embarrassed of yourself
Round 3—Interviewer	I: Okay, I'm telling you this for the last time. You're suspected of possession of illicit substances and we have evidence against you. It's pretty clear you're involved in this	I: Well, I would lie if I told you that we would believe every single word you're saying. Again, we're not here to be friends with you. To be honest, I don't even like you	I: The only person here who is embarrassing is you. It doesn't surprise me that you don't have any close friends around here the way you are behaving. It's pretty clear no one would like and respect you
Round 3—Suspect	S: Well, do you have evidence that I really have any involvement in this? If you do not provide me with evidence of my guilt, it's impossible for me to give you any information	S: You clearly don't like me at all. I cannot believe that you are being so harsh to me. I wanted to be friends with you but now I feel like you don't really care about me at all	S: Don't you dare telling me I have no friends around here. I could find several of my friends in seconds and they would all tell you they respect me a lot. So don't try and corrupt my reputation

(Continues)

TABLE 2 | (Continued)

Interview round	Instrumental frame	Relational frame	Identity frame
Round 4—Interviewer	I: I cannot give you all of the evidence, that's classified information. What I can tell you is that it's about time you start speaking up and tell us what actually happened. Then we might reveal the evidence against you	I: Yeah, I don't really care about you. It would be impossible for me to care and be friends with every person I talk to. Especially, someone like you. I knew you would not be very keen on helping us	I: For some reason, I find that difficult to believe. The way you are behaving right now is not really typical of a respectful and honourable person. People won't respect you if you are found guilty of something like this
Round 4—Suspect	S: If you cannot give me evidence of my guilt, how do you expect me to provide you with any information about what happened? Tell me the evidence you have on me first and then you might get your information	S: That's not a very nice thing to say to me. But on the other hand, I am not too keen on helping you anymore to be honest. I would never be friends with someone like you	S: I cannot believe I'm talking about respect and honour with a special agent. People won't respect me if I was found guilty of something like this, and I'm not going to let you make that happen
Round 5—Interviewer	I: It sounds like you're not going to provide us with any information about what happened	I: It sounds like you're not willing to be friends or help us with anything	I: It sounds like you're more concerned about your reputation than speaking up
Round 5—Suspect	S: Yeah, under the current circumstances, I'll not give you any information about what happened	S: Yeah, I don't want to help or be friends with you at all	S: Yeah, I do care about my reputation and I'm not going to let you destroy it

answered on a 7-point Likert scale anchored by 1 (*disagree strongly*) and 7 (*agree strongly*) and showed excellent internal reliability (Cronbach's $\alpha = 0.98$).

2.5.5 | Inclusion of Other in the Self Scale

This single-item scale from Aron et al. (1992) was used to measure interpersonal closeness to the interviewer. Participants were presented with five pairs of circles with varying degrees of overlap and asked to select the pair that best described their relationship with the interviewer. As this measure was similar to the perceptions of being treated fairly items (approach pre-registered), we combined them into a single scale (Cronbach's $\alpha = 0.88$).

2.5.6 | Intention to Trust the Interviewer

Participants' intentions to trust the interviewer were measured with Gillespie's (2003, 2015) Behavioural Trust Inventory (eight items) and included both a willingness to disclose feelings and opinions to the interviewer (How willing are you to share your personal feelings with your interviewer), and a willingness to rely on the interviewer (How willing are you to rely on your interviewer's task-related skills and abilities?). They were answered on a 7-point Likert scale from 1 (*not at all willing*) to 7 (*completely willing*). The scale demonstrated very good internal reliability (Cronbach's $\alpha = 0.96$).

2.5.7 | Demographic Questions

At the last stage of the study, participants were asked about their gender, age, ethnicity and country of residence.

2.6 | Procedure

Participants were given background information about the study and requested to provide informed consent before commencing. After this, participants were provided with information about the crime the suspect was accused of committing. They were told that they, as suspects, would interact with a police interviewer and that they had to respond to the interviewer's questions by selecting one of a predefined set of responses. After responding, they would then see the interviewer's next utterance and had to respond again by selecting a response.

Depending on the condition, the interviewer would either consistently match the motivational frames of the participant's responses (instrumental, relational or identity) or randomly not match their response by selecting one of the remaining two motivational frames. Both interviewer questions and suspect response options were either cooperative or competitive in nature, depending on what condition they were assigned (i.e., cooperation–competition was a between-subjects variable). The interviewer's initial question was randomised across the conditions. After the interview, participants answered the post-experiment questionnaire, thanked for their participation and debriefed about the purpose of the study.

TABLE 3 | F-statistic (with η_p^2 effect sizes) for each analysis of variance test for the dependent variables.

Dependent variable	Frame	Orientation	Frame × orientation
W. to cooperate	5.54 (0.03)*	296.21 (0.54)***	0.39 (0.001)
W. to provide information[a]	4.52 (0.02)*	43.91 (0.14)***	0.008 (0.000)
Feeling understood[a]	17.45 (0.07)***	551.38 (0.68)***	0.41 (0.001)
Tendency to identify[a]	12.91 (0.10)***	670.19 (0.74)***	6.24 (0.01)*
Trust intention	7.39 (0.02)**	215.34 (0.46)***	0.60 (0.001)

[a]Due to the violation of the assumption of homogeneity of variance, the Box–Cox transformation was adopted.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

3 | Results

Before carrying out the statistical analyses, participants who failed to correctly answer the attention check question were removed. Since the experiment was short (5–6 min), one attention check question was deemed sufficient to ensure data quality. Furthermore, extreme outliers ($Q3/Q1 \pm 3 \times$ IQR; seven participants) were altered to their next highest/lowest score in line with Tabachnick and Fidell (2007). As a form of sensitivity analysis (Thabane et al. 2013), analysing the results without these outliers did not change the direction or significance of the subsequent statistical analyses.

To investigate if matching of motivational frames (**H1**) and a cooperative rather than a competitive interaction (**H2**) led to more positive interaction outcomes, and whether there was an interaction effect between the two (**H3**), analysis of variance tests were carried out.[2] As shown in Table 3, there were significant main effects of both frame and orientation for all the outcome variables. There was also a significant interaction effect observed for the tendency to identify with the interviewer. To further explore the differences between matching and nonmatching interactions in both the cooperative and competitive conditions, planned simple effects tests were computed.

3.1 | Willingness to Cooperate and Provide Information

These tests confirmed (1) that motivational frame matching led to significantly higher willingness to cooperate with the interviewer (**H1**) in both the cooperative (matching: $M = 5.79$, SD $= 1.28$; nonmatching: $M = 5.39$, SD $= 1.33$; $\beta = 0.20$, $t = 2.35$, $p = 0.02$) and competitive conditions (matching: $M = 2.90$, SD $= 1.54$; nonmatching: $M = 2.36$, SD $= 1.38$; $\beta = 0.27$, $t = 3.25$, $p = 0.0012$), (2) that motivational frame matching led to significantly higher willingness to provide information in both the cooperative (matching: $M = 5.73$, SD $= 1.50$; nonmatching: $M = 5.32$, SD $= 1.58$; $\beta = 0.69$, $t = 2.13$, $p = 0.03$) and competitive conditions (matching: $M = 4.37$, SD $= 1.87$; nonmatching: $M = 3.86$, SD $= 1.99$; $\beta = 0.73$, $t = 2.27$, $p = 0.02$). Furthermore, with reference to **H2**, participants were more willing to cooperate with the interviewer when the interaction was cooperative ($M = 5.59$, SD $= 1.32$) rather than competitive ($M = 2.63$, SD $= 1.48$; $\beta = -2.96$, $t = -25.01$, $p =<0.001$). Finally, participants were also more willing to provide information to the interviewer when the interaction was cooperative ($M = 5.52$, SD $= 1.55$) rather than competitive ($M = 4.11$, SD $= 1.95$; $\beta = 2.16$, $t = 9.48$, $p < 0.001$). In terms of **H3**, there was no significant motivational frame by orientation interaction for willingness to cooperate (*ns*) or willingness to provide information (*ns*).

3.2 | Feeling Understood

Concerning **H1**, motivational frame matching led to significantly greater feelings of being understood in both the cooperative (matching: $M = 5.61$, SD $= 1.23$; nonmatching: $M = 4.90$, SD $= 1.44$; $\beta = 0.08$, $t = 4.18$, $p < 0.001$) and competitive conditions (matching: $M = 2.13$, SD $= 1.15$; nonmatching: $M = 1.55$, SD $= 0.84$; $\beta = 0.10$, $t = 5.11$, $p < 0.001$). Furthermore, in terms of **H2**, participants felt more understood by the interviewer in the cooperative ($M = 5.25$, SD $= 1.38$) versus the competitive interaction ($M = 1.84$, SD $= 1.05$; $\beta = 0.48$, $t = 33.91$, $p < 0.001$). For **H3**, there was no significant motivational frame by orientation interaction.

3.3 | Identification With Interviewer

In connection with **H1**, motivational frame matching led to significantly higher tendency to identify with the interviewer in both the cooperative (matching: $M = 5.16$, SD $= 1.08$; nonmatching: $M = 4.64$, SD $= 1.09$; $\beta = 0.06$, $t = 3.59$, $p < 0.001$) and competitive conditions (matching: $M = 2.03$, SD $= 1.03$; nonmatching: $M = 1.37$, SD $= 0.64$; $\beta = 0.12$, $t = 7.17$, $p < 0.001$). As the interaction effect was significant (see Table 3; **H3**), this suggests that the effect of motivational frame matching was larger in the competitive than the cooperative orientation, representing a case of a non-crossover interaction. This type of interaction means that although the magnitude of the motivational matching effect was different across the two orientations, the direction was consistent across conditions. Furthermore, with regard to H2, participants identified more with the interviewer in the cooperative ($M = 4.90$, SD $= 1.12$) compared with the competitive interaction ($M = 1.70$, SD $= 0.92$; $\beta = 0.46$, $t = 39.18$, $p < 0.001$).

3.4 | Interviewer Trust

Regarding **H1**, motivational frame matching led to significantly higher willingness to trust the interviewer in the cooperative

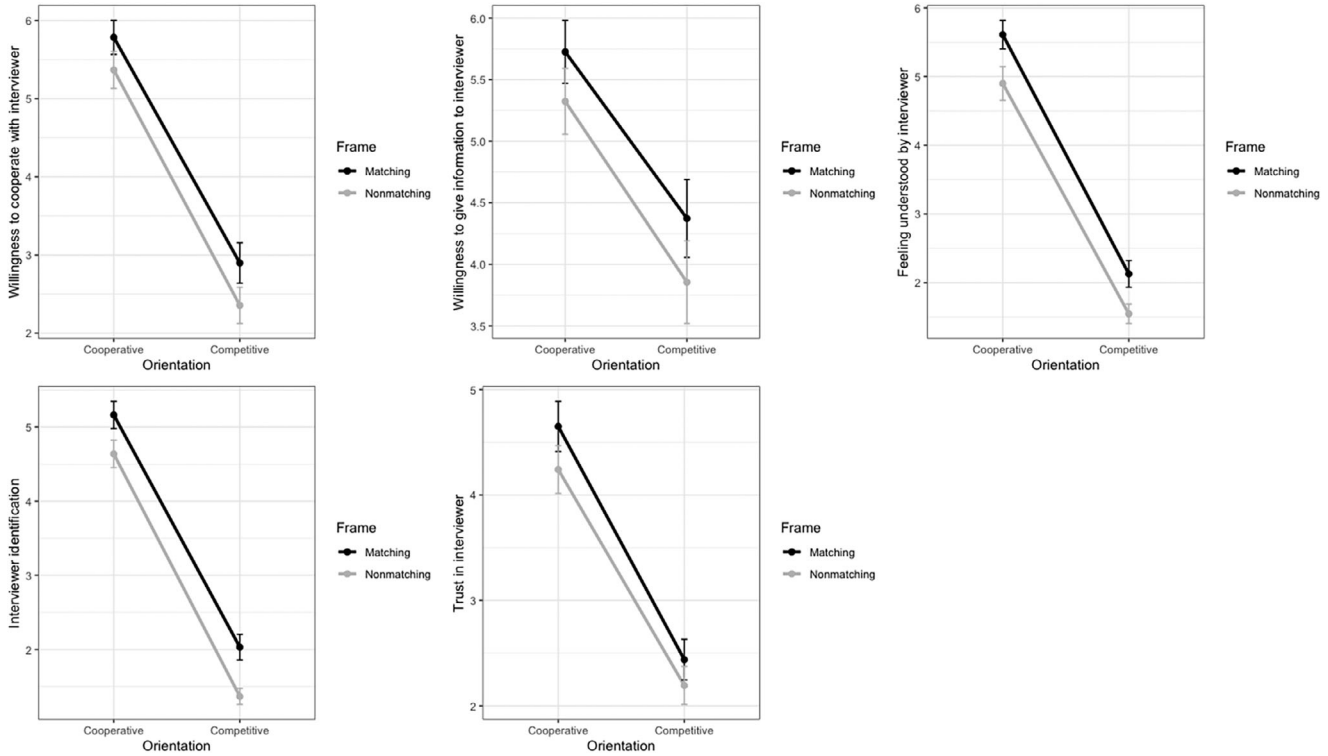

FIGURE 3 | Average willingness to cooperate, provide information, feel understood, identify and trust the interviewer across motivational frames and orientations. Error bars represent standard errors.

TABLE 4 | Number of frames selected by participants (with proportions) for each round of the interview.

Motivational frames	Round 1	Round 2	Round 3	Round 4	Round 5
Instrumental	261 (47.8%)	287 (52.6%)	364 (66.7%)	361 (66.1%)	300 (54.9%)
Relational	123 (22.5%)	107 (20%)	73 (13.4%)	81 (14.8%)	95 (17.4%)
Identity	162 (29.7%)	152 (27.8%)	109 (20%)	104 (19%)	151 (27.7%)

Note: Due to rounding, percentages do not all sum to 100.

condition (matching: $M = 4.65$, SD = 1.40; nonmatching: $M = 4.24$, SD = 1.33; $\beta = 0.20$, $t = 2.71$, $p = 0.0069$), but not in the competitive condition (matching: $M = 2.44$, SD = 1.14; nonmatching: $M = 2.19$, SD = 1.07; $\beta = 0.12$, $t = 1.64$, $p = 0.10$). However, as the interaction effect was nonsignificant, the main effect, rather than the simple effects, should take precedence when interpreting these results. Furthermore, in terms of **H2**, participants trusted the interviewer more in the cooperative ($M = 4.44$, SD = 1.38) compared to the competitive interaction ($M = 2.32$, SD = 1.11; $\beta = 1.06$, $t = 20.02$, $p < 0.001$). In terms of **H3**, there was no significant interaction between motivational frame matching and orientation. See Figure 3 for an overview of all the outcome variables across motivational frames and orientations.

3.5 | Participant Reciprocal Matching

To explore whether participants reciprocated matching more in the matching versus the nonmatching condition (**H4**), a mixed effects logistic regression model was carried out. The number of frames selected by participants at each round of the interview is displayed in Tables 4, 9 (study 2), and 12 (study 3). Analyses were carried out with the *lme4* package in R, version 4.1.2 (Bates et al. 2015; R Core Team 2021). In line with Brown (2021), the model was built up step-by-step, starting with a null model featuring the fixed effects of frame and orientation, then introducing a random intercept for interview rounds, and later adding in random slopes for motivational frames and orientations across interview rounds. As expected, the model with interview round included as a random intercept fitted the data significantly better than the null model ($\chi^2 = 60.54, \text{df} = 2, p < 0.001$). Introducing random slopes for motivational frames within interview rounds ($\chi^2 = 141.21, \text{df} = 2, p < 0.001$), and random slopes for orientations across interview rounds ($\chi^2 = 78.37$, df $= 3, p < 0.001$), both significantly contributed to improve the fit of the model. To decompose this model, each interview round was analysed separately with respect to the proportion of participant reciprocal matching across motivational frames and orientations. Table 5 provides summary statistics for these analyses.

For the first interview round, there was no significant difference in participants' reciprocal matching when they interacted with

TABLE 5 | Means (SD) for frame (matching vs. nonmatching) and orientation (cooperative vs. competitive) for proportion of participant reciprocal matching (expressed in decimals) across all interview rounds.

	Cooperative		Competitive	
Interview rounds	**Matching**	**Nonmatching**	**Matching**	**Nonmatching**
Round 1	0.63 (0.49)	0.65 (0.48)	0.31 (0.46)	0.41 (0.49)
Round 2	**0.87 (0.33)**	**0.74 (0.44)****	**0.68 (0.47)**	**0.20 (0.39)*****
Round 3	**0.87 (0.33)**	**0.62 (0.49)*****	**0.77 (0.42)**	**0.17 (0.37)*****
Round 4	**0.93 (0.26)**	**0.66 (0.48)*****	**0.93 (0.26)**	**0.09 (0.28)*****
Round 5	**0.67 (0.47)**	**0.39 (0.49)*****	**0.83 (0.38)**	**0.39 (0.49)*****

Note: Pairs in bold indicate a statistically significant difference.
**$p < 0.01$.
***$p < 0.001$.

a matching or nonmatching interviewer in neither the cooperative ($\beta = 0.11$, $z.\text{ratio} = 0.43$, $p = 0.67$) nor the competitive conditions ($\beta = 0.44$, $z.\text{ratio} = 1.71$, $p = 0.10$).

However, from the second time point, participants demonstrated higher reciprocal matching when they interacted with a matching interviewer compared to a nonmatching interviewer, both in the cooperative ($\beta = -0.88$, $z.\text{ratio} = -2.70$, $p = 0.0084$) and competitive conditions ($\beta = -2.16$, $z.\text{ratio} = -7.67$, $p < 0.001$). This was also true for the third interview round: cooperative ($\beta = -1.46$, $z.\text{ratio} = -4.65$, $p < 0.001$) and competitive interactions ($\beta = -2.84$, $z.\text{ratio} = -9.27$, $p < 0.001$), the fourth interview round: cooperative ($\beta = -1.85$, $z.\text{ratio} = -4.94$, $p < 0.001$) and competitive interactions ($\beta = -4.89$, $z.\text{ratio} = -10.97$, $p < 0.001$), as well as the fifth interview round: cooperative ($\beta = -1.14$, $z.\text{ratio} = -4.50$, $p < 0.001$) and competitive interactions ($\beta = -2.04$, $z.\text{ratio} = -7.10$, $p < 0.001$). These results provide support for **H4**. (Interviewer matching will lead to more reciprocal participant matching.)

Figure 4 presents the same effects of matching over time visually, to aid interpretation. As can be seen from Figure 4, which displays the four experimental conditions within each time period, the difference between a matching and nonmatching interviewer for participant reciprocal matching was larger in the competitive than in the cooperative interaction. This was confirmed by examining how the level of participant reciprocal matching varied across the matching and nonmatching conditions (**H4**). For both the cooperative ($\chi^2 = 33.73, \text{df} = 5, p < 0.001$) and competitive interactions ($\chi^2 = 149.25, \text{df} = 5, p < 0.001$), there was a positive relationship between participants' proportion of reciprocal matching when they interacted with a matching interviewer, but a negative relationship when they interacted with a nonmatching interviewer, supporting **H4**.

4 | Discussion: Experiment 1

Experiment 1 manipulated motivational frame matching and the orientation taken towards an investigative interview interaction to explore how these influenced interaction outcomes and reciprocal matching. Across all the dependent measures, interacting with a matching interviewer led to more positive interaction outcomes. This was true for both a cooperative and competitive interaction, although the trend was larger when the interaction was competitive. Although there was a significant interaction effect (tendency to identify with interviewer), this was a moderated interaction rather than a full crossover interaction, meaning that while the magnitude of the motivational matching effect was different across the two orientations, the direction was consistent across conditions. This goes somewhat contrary to recent findings that found an interaction between motivational frame matching and the orientation taken towards the interaction, with competitive and matching interactions generally being perceived less positively (Sjöberg et al. 2023). However, looking more closely at the results from that previous study, it appears that competitive matching based on the relational and identity motivational frames often was perceived more negatively than the instrumental frame. This goes in line with observations from negotiations where attacking a counterpart's identity or relationship often is detrimental to negotiation success (Ury 1991). Furthermore, in an investigative interview, participants may have expected the conversation to focus on the facts and information about the case, and when this was not the case, they perceived the interaction more negatively. In the current experiment, within the competitive interaction, most participants selected the instrumental frame, regardless of whether the interviewer matched their motivations or not. This prevented an accurate comparison between matching and nonmatching of the relational and identity motivational frames (as most participants chose the instrumental frame in the competitive interaction). By changing the social context, Experiment 2 provided a possibility of soliciting more diverse motivational frame responses from participants, as well as exploring the generalisability of the motivational frame matching principle.

5 | Experiment 2

To extend the current experiment to another information gathering context, the social situation of the second experiment was changed from an investigative interview to a pub conversation between two rival sports supporters. We made this change for five main reasons. First, a pub is a social space where people are expected to share both personal and public information (Thurnell-Read 2021), in contrast to an investigative interview

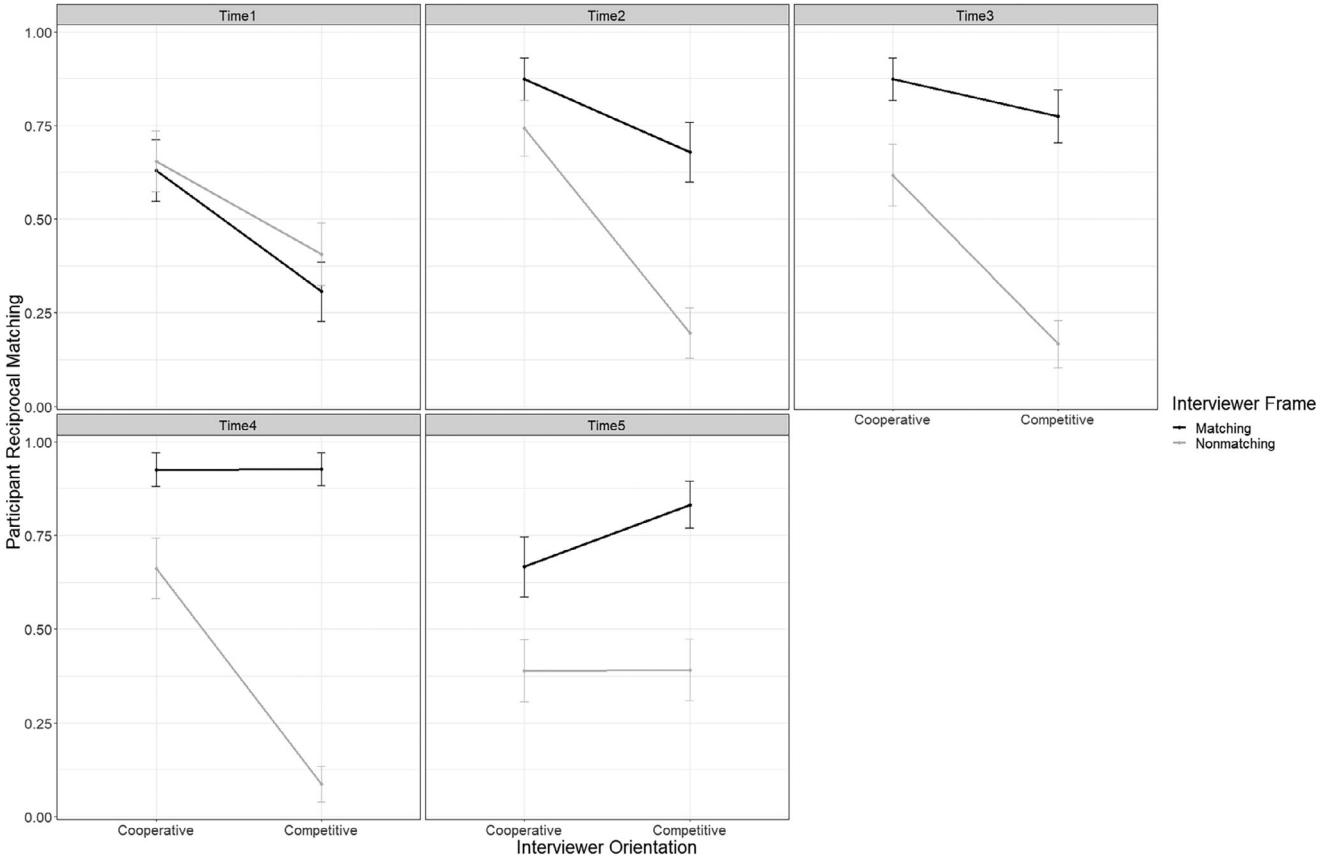

FIGURE 4 | Proportion of participant reciprocal matching at each interview round across motivational frames and orientations. Error bars represent standard errors.

where the main aim of the conversation is the provision of information (Jakobsen et al. 2017). Second, the focus on compliance ought to be lower in a pub conversation than in an investigative interview. This is because an investigative interview has a clear asymmetrical power relationship, with the interviewer having more power and authority than the suspect (Brandon et al. 2019). Third, although the stakes in an investigative interview could be life changing, the stakes in a pub conversation are usually lower. Fourth, in today's policing, soliciting information may happen at different stages of an investigation (not just at the interview stage; Natapoff 2004), and it is important to develop an understanding for how interpersonal sensemaking may contribute to information gain and trust in these non-structured situations. Fifth, changing the social context was expected to encourage more diverse participant motivational frame responses.

6 | Methods

6.1 | Participants

To conduct a power analysis, the software program G*Power was used (Faul et al. 2007). In order to detect the smallest effect size of interest (Cohen's $f \geq 0.15$, (which approximately converts into Cohen's $d \geq 0.30$),[4] or a $\eta_p^2 \geq 0.022$) in the population (Anvari and Lakens 2021), with a power (>0.90), at the standard (0.05) alpha level, 469 participants were needed.[6] Similar to Experiment 1, the power was calculated to account for both main and interaction effects, as well as the repeated measures single within variable (i.e., conversation round).

In total, 564 participants were recruited via Prolific. After elimination of participants who incorrectly answered the attention check question or dropped out before the completion of the study, 557 participants were left for data analysis. Of these, 221 identified as male, 335 as female and 1 as other. They were between the ages of 19 and 80 years ($M = 41.02$, SD = 13.06). The majority came from the United Kingdom and Ireland (509 participants), whereas 17 came from Australia and New Zealand, 16 from North America, 9 from South Africa, 5 from mainland Europe and 1 from Israel. Most identified as White ($n = 519$ participants), followed by Black/African/Caribbean/Black British ($n = 14$), Asian/Asian British ($n = 12$), mixed/multiple ethnic groups ($n = 9$) and other ($n = 3$).

6.2 | Materials

6.2.1 | Pub Conversation

In the current experiment, participants partook in a five-round text-based simulation of a pub conversation between two rival sport supporters. Participants were told that their favourite sports team had just lost a big game and that they found themselves in a pub conversation with a rival sports supporter. They were not given any information about the rival sports supporter, and no

effort was made to make participants believe that they interacted with a real live sports supporter.

Over five rounds, the rival supporter asked questions to the participant, who, as the supporter of the other team, responded after each conversation round. As in the first experiment, participants could respond in either an instrumental, relational or identity motivational frame, and depending on the experimental condition, the rival supporter would either match or not match the participant's frame. This continued for five rounds until the conversation terminated. As before, the orientation was manipulated by having half of participants interact with a cooperative and half interact with a competitive rival supporter. See Table 6 (cooperative interaction) and Table 7 (competitive interaction) for examples of the three motivational frame responses across the five interaction rounds.

6.2.1.1 | Manipulation Check of the Pub Conversational Scripts. To ensure that all the pub conversation questions and responses fell reliably into their respective motivational frame and orientation, two people unfamiliar with the study hypotheses (but familiar with the cylinder model) rated each conversational script as belonging to one of the instrumental, relational or identity motivational frames, as well as the orientation of the interaction (cooperative or competitive). Their agreement was 100% with the intended frame and orientation, suggesting the conversational scripts adhered well to their respective frame and orientation.

6.2.1.1.1 | Post-Conversation Measures. After the pub conversation, participants answered questions about whether they would be willing to cooperate as well as provide information to the rival supporter (these were single-item measures and so did not have a Cronbach's α score), whether they felt understood by the rival supporter (Cronbach's $\alpha = 0.97$), whether they felt respected and would be willing to identify with the rival supporter (Cronbach's $\alpha = 0.91$), and finally, whether they had the intention of trusting the rival supporter (Cronbach's $\alpha = 0.93$). These were the same post-conversation measures as in the first experiment and will therefore not be elaborated on further.

6.2.1.2 | Demographic Questions. At the last stage of the experiment, participants were asked to provide their gender, age, ethnicity and country of residence.

6.3 | Procedure

Before starting the study, participants were provided with background information about the study and asked to provide informed consent. Later, participants were informed about the pub conversation and told that they would interact with a rival supporter by responding via a set of predefined responses. Once they had responded, they would see the rival supporter's response and would then respond again. This was repeated over five rounds until the conversation ended.

As in the first experiment, the rival supporter would constantly either match (in an instrumental, relational or identity frame) or randomly not match the motivational frame of the participant by selecting one of the remaining two motivational frames. The rival supporter's and participant's answers and questions were either both cooperative or competitive, depending on the experimental condition. The rival supporter's initial question was randomised across the conditions. After the conversation, participants answered the post-conversation questions, were debriefed about the hypotheses of the study and compensated for their participation.

7 | Results

Before statistical analyses, extreme outliers ($Q3/Q1 \pm 3 \times$ IQR; five participants) were altered to their next highest/lowest score in line with Tabachnick and Fidell (2007). As before, participants who failed to correctly answer the attention check question were removed. Performed as a form of sensitivity analysis (Thabane et al. 2013), analysing the results without outliers did not change the direction or significance of the subsequent statistical analyses.

To investigate if matching of motivational frames (**H1**) and a cooperative rather than a competitive interaction (**H2**) led to higher willingness to cooperate with the rival supporter and whether there was an interaction effect between the two (**H3**), analysis of variance tests were carried out.[7] As shown in Table 8, there were significant main effects of frame and orientation, as well as significant interaction effects for all the dependent variables except willingness to provide information, hence largely supporting the three hypotheses.

7.1 | Willingness to Cooperate and Provide Information

These tests confirmed (1) that motivational frame matching led to significantly higher willingness to cooperate with the rival supporter (**H1**) in the competitive (matching: $M = 3.59$, SD = 1.58; nonmatching: $M = 2.55$, SD = 1.48; $\beta = 0.52$, $t = 6.41$, $p < 0.001$) but not in the cooperative condition (matching: $M = 6.08$, SD = 1.00; nonmatching: $M = 5.79$, SD = 1.24; $\beta = 0.14$, $t = 1.79$, $p = 0.075$), (2) that motivational frame matching led to significantly higher willingness to provide information to the rival supporter in the competitive (matching: $M = 5.09$, SD = 1.50; nonmatching: $M = 4.53$, SD = 1.75; $\beta = 0.28$, $t = 3.22$, $p = 0.0014$) but not in the cooperative conditions (matching: $M = 5.66$, SD = 1.31; nonmatching: $M = 5.53$, SD = 1.22; $\beta = 0.065$, $t = 0.74$, $p = 0.46$). However, as the interaction effect was nonsignificant, the main effect, rather than the simple effects, should take precedence when interpreting this finding. For the willingness to cooperate outcome variable (but not willingness to provide information), the interaction effect was significant (see Table 8; H3), but as the direction of the result was the same across orientations (the matching conditions having higher mean scores than nonmatching conditions), this represented a non-crossover interaction. This type of interaction means that although the magnitude of the motivational matching effect was different across the two orientations, the direction was consistent across conditions. Furthermore, with reference to **H2**, participants were more willing to cooperate with the rival supporter when the interaction was cooperative ($M = 5.94$, SD = 1.30) rather than competitive ($M = 3.07$, SD = 1.65; $\beta = 1.43$, $t = 25.15$, $p < 0.001$). Finally, participants were also more willing to provide

TABLE 6 | Conversational scripts for the cooperative orientation interaction with instrumental, relational and identity motivational frame responses in Experiment 2.

Interaction round	Instrumental frame	Relational frame	Identity frame
Round 1—Rival supporter	RS: We have come here to talk about the game where your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. Can you explain your reasons for why you believe your team played better?	RS: We have come here to talk about the game where your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. How are you feeling now as your team lost the game?	RS: We have come here to talk about the game where your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. What makes you feel your team deserved to win?
Round 1—Supporter	S: Of course, the reasons my team played better are very clear. My team was off to a solid start and never really lost the grip of the game. By scoring an early goal we really showed that we have a great teamwork	S: Thank you very much for asking how I'm feeling. I'm feeling a bit sad, but I really appreciate that you want to try to listen to how I'm feeling. I'll try to be as sympathetic to you and our conversation as possible	S: We deserved to win because we're a respectful team. I'm a very honest person. My team has always behaved very honourably in every game and treated the other teams with respect
Round 2—Rival supporter	RS: Indeed, your team scored an early goal and this might have been due to your great teamwork. Are there any particular reasons for why your team is so good at working together?	RS: No worries, I fully understand, it is completely normal to feel a bit sad after losing a game. I'll do my best to help you through your loss. I am sure we can work this out together	RS: Agree, you're definitely a very honest person and I can clearly see that your team deserved to win. In your view, what made your team more deserving of winning the game?
Round 2—Supporter	S: Well, I believe the team has done some significant work on our teamwork over the past few years. Recently, our coach has started to emphasise the importance of working together, and this seems to have paid off	S: It's reassuring to know that you want to work this out together. I was very nervous before the game and I really appreciate that you'll listen to me and how I'm feeling	S: In my view, our team deserved to win because we've never behaved disrespectfully towards another team. For example, we've won the award for the most respectable team several years. I guess we're just very honourable
Round 3—Rival supporter	RS: It's clear that your team really has a good teamwork. This surely helped you score some goals during the game. Your current coach seems to have helped quite a lot. How many years have your current coach been at the club?	RS: Well, I can reassure you that I'll listen to you and how you're feeling. I'll try my best to support you through your loss. We'll get through this stressful situation together	RS: Yeah, I know you're clearly an honourable team. Such a team would probably not be cheating their way to success. From what you are saying, it sounds like you really would've deserved to win the game
Round 3—Supporter	S: Our coach has been at the club for about four years. Right from the start, he put a lot of emphasis on the teamwork and how the team could work better together. It would be difficult to replace him at this point	S: It seems you genuinely care about me and want to help me through this stressful situation. It makes me feel good to know that you'd listen to me and how I'm feeling	S: Yeah, we definitely deserved to win. Throughout the years, we've always aspired to be an honourable team and treat other teams with respect. I hope you can see that we're just a very honest team

(Continues)

TABLE 6 | (Continued)

Interaction round	Instrumental frame	Relational frame	Identity frame
Round 4—Rival supporter	RS: It makes sense that it would be difficult to replace the coach at this point, especially since he has been so successful at the club. How long do you think he will stay on with the club?	RS: I understand that you are going through a stressful situation. I can reassure you that I'll do my best to listen to you and how you're feeling. I know your previous experiences with the supporters of my team are not overly positive	RS: Agree, you're definitely an honest team, and I believe you've treated other teams with respect throughout the years. Your behaviour has always been praiseworthy. You clearly deserved to win this game
Round 4—Supporter	S: It's likely that he will stay on for at least another couple of years. Considering all he has done for the club, it's likely that he will be offered an extension on his current contract	S: I really appreciate you making the effort to listen to how I'm feeling. Some of my previous experiences with the supporters of your team are not overly positive but you are clearly trying to help me. I appreciate that you'll listen to me	S: It's good you agree with me that we clearly deserved to win this game. Winning the game would've meant a lot to us. We've behaved so praiseworthy for all these years and I believe we deserve to get something back
Round 5—Rival supporter	RS: Thank you for giving information about the current coach and your reasons for winning	RS: I'll do my best to support and listen to you. Thank you for speaking with me	RS: I do agree with you that you've been a great team and definitely deserved to win the game. Thank you for highlighting your achievements so clearly
Round 5—Supporter	S: No worries, hope it's helpful information about the coach and our reasons for winning	S: No worries, thank you for listening to me	S: No worries, thanks for honouring our achievements

information to the rival supporter when the interaction was cooperative ($M = 5.60$, SD $= 1.26$) rather than competitive ($M = 4.81$, SD $= 1.65$; $\beta = 0.39$, $t = 6.36$, $p < 0.001$).

7.2 | Feeling Understood

In terms of **H1**, motivational frame matching led to significantly greater feelings of being understood in both the cooperative (matching: $M = 6.06$, SD $= 0.89$; nonmatching: $M = 5.56$, SD $= 1.24$; $\beta = 0.25$, $t = 3.73$, $p < 0.001$) and competitive conditions (matching: $M = 2.88$, SD $= 1.36$; nonmatching: $M = 1.74$, SD $= 0.907$; $\beta = 0.57$, $t = 8.48$, $p < 0.001$). As the interaction between motivational frame and orientation was significant (see Table 8; **H3**), this represented a non-crossover interaction effect. Furthermore, in connection with **H2**, participants felt more understood by the rival supporter in the cooperative ($M = 5.81$, SD $= 1.11$) versus the competitive interaction ($M = 2.31$, SD $= 1.29$; $\beta = 1.75$, $t = 36.84$, $p < 0.001$).

7.3 | Identification With Rival Supporter

Regarding **H1**, motivational frame matching led to significantly higher tendency to identify with the rival supporter in both the cooperative (matching: $M = 5.66$, SD $= 0.87$; nonmatching: $M = 5.42$, SD $= 0.89$; $\beta = 0.12$, $t = 2.02$, $p = 0.04$) and competitive conditions (matching: $M = 2.95$, SD $= 1.24$; nonmatching: $M = 1.72$, SD $= 0.84$; $\beta = 0.61$, $t = 10.53$, $p < 0.001$). The significant interaction effect between motivational frame matching and orientation (see Table 8; **H3**) suggested a non-crossover interaction. Furthermore, in terms of **H2**, participants identified more with the rival supporter in the cooperative ($M = 5.54$, SD $= 0.89$) compared with the competitive interaction ($M = 2.34$, SD $= 1.22$; $\beta = 1.60$, $t = 38.89$, $p < 0.001$).

7.4 | Trusting the Rival Supporter

Finally, with regard to **H1**, motivational frame matching led to significantly higher willingness to trust the rival supporter in the competitive condition (matching: $M = 3.64$, SD $= 1.17$; nonmatching: $M = 2.74$, SD $= 1.14$; $\beta = 0.45$, $t = 6.93$, $p < 0.001$), but not in the cooperative condition (matching: $M = 4.95$, SD $= 0.96$; nonmatching: $M = 4.75$, SD $= 1.03$; $\beta = 0.10$, $t = 1.57$, $p = 0.12$). Focusing again on the significant interaction (see Table 8; **H3**), the mean scores were higher for a matching compared to a nonmatching condition for both the cooperative and competitive orientations, representing a non-crossover interaction effect. Furthermore, concerning **H2**, participants trusted the rival supporter more in the cooperative ($M = 4.85$, SD $= 1.00$) compared to the competitive interaction ($M = 3.19$, SD $= 1.23$; $\beta =$

TABLE 7 | Conversational scripts for the competitive orientation interaction with instrumental, relational and identity motivational frame responses in Experiment 2.

Interaction round	Instrumental frame	Relational frame	Identity frame
Round 1—Rival supporter	RS: We have come here to discuss the progression of the game in which your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. Can you explain your reasons for why you believe your team played so well?	RS: We have come here to discuss the progression of the game in which your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. It looks like you are feeling a bit like crap?	RS: We have come here to discuss the progression of the game in which your team lost against my team. I believe we played a much better game than your team, but you seem to disagree. What makes you think your cheating team deserved to win?
Round 1—Supporter	S: Well, the reasons we played well are pretty obvious to me. We were off to a great start in the game and scored the first goal early in the game. To me, it's pretty clear that we were the superior team today	S: Yeah, I'm feeling a bit like crap to be honest. My team just lost a big game and it feels like you don't even care about me. I have a feeling you have no idea how I'm feeling right now	S: Cheating team? It's pretty clear my team has always behaved much more honourably than your team. In fact, your team was caught cheating just a couple of games ago. This is ridiculous, you should be ashamed of yourself
Round 2—Rival supporter	RS: It's not clear at all. Scoring the first goal means absolutely nothing if you can't sustain your lead for the entire duration of the game. After that first goal, your game only went downhill. I've rarely seen such a complete meltdown	RS: Well, I'm not interested in listening to you whine about your emotions and how you want me to care about you, that's one thing that's for sure. I'm not even sure I want to continue talking to you to be honest	RS: Your team is always trying to take the moral high ground in these games. If there's any team that has questionable moral values, it's definitely your team. If I were you, I would be ashamed of myself and my team for being such hypocrites
Round 2—Supporter	S: Scoring the first goal clearly shows that we have the qualities to beat your team. Hands down, we played a much better game than you today. The only reason we lost is because our goalkeeper has been suffering from an injury	S: You clearly don't care about me and I'm pretty sure you don't even want to talk to me anymore. It feels like you don't believe me when I'm saying that I'm feeling like crap	S: Hypocrites? Just talk to any expert and they will tell you that my team has excellent moral values. Your team on the other hand, has shown questionable behaviour throughout the season. You should be embarrassed of yourself
Round 3—Rival supporter	RS: Your goalkeeper seemed just fine to me. The reason we won the game has absolutely nothing to do with your goalkeeper but all to do with our great players. We were simply the superior team and today that was obvious	RS: Well, I would lie if I told you that I would believe every single word you're saying. Again, I'm not here to be friends with you. To be honest, I don't even like you anymore	RS: The only person here who is embarrassing is you. It doesn't surprise me that you lost the game the way you and your team are behaving. It's pretty clear no one would like and respect you and your team
Round 3—Supporter	S: Anyone who watched the game could see that our goalkeeper was definitely in great agony. He's clearly still suffering from his previous injury. In fact, your team was just lucky that we were not on top of our game today	S: You clearly don't like me at all anymore. I cannot believe that you are being so harsh to me. I wanted to be friends with you but now I feel like you don't really care about me or my team at all	S: Don't you dare telling me about respect. I could find several of my friends from other teams and they would all tell you that they respect me and my team a lot. So don't try and corrupt me and my team's reputation

(Continues)

TABLE 7 | (Continued)

Interaction round	Instrumental frame	Relational frame	Identity frame
Round 4—Rival supporter	RS: You keep saying your goalkeeper was suffering from an injury, but I definitely couldn't see any of that. The reason you lost the game is simply because we're a superior team with better players than your team. It's as simple as that	RS: Yeah, I don't really care about you or your team anymore. It would be impossible for me to care and be friends with you after everything you and your team has done. I knew you would not be very keen on talking to me	RS: For some reason, I find that difficult to believe. The way you are behaving right now is not really typical of a respectful and honourable person. If you are an accurate reflection of your team, things are not looking very promising for you
Round 4—Supporter	S: Your players are definitely not superior to our players. Most experts would agree that we have much better players than your team. Again, the reason we lost the game is simply because of our goalkeeper's injury. That's an obvious undeniable fact	S: Yeah, I'm not too keen on talking to you anymore to be honest. That's not a very nice thing to say to me and I would never be friends with someone like you	S: I cannot believe I'm talking about respect and honour with a person like you. People won't respect me if I was found talking with a person from such a rubbish and disrespectful team
Round 5—Rival supporter	RS: It sounds like you're not going to change your mind about the reasons for your loss	RS: It sounds like you're not willing to be friends or talk to me about anything	RS: It sounds like you're more concerned about your reputation than speaking up
Round 5—Supporter	S: No, under the current circumstances, I'll not change my mind about the reasons for our loss	S: Yeah, I don't want to talk to you or be friends with you at all	S: Yeah, I do care about my reputation and I'm not going to let you and your team destroy it

TABLE 8 | *F*-statistic (with η_p^2 effect sizes) for each analysis of variance test for the dependent variables.

Dependent variable	Frame	Orientation	Frame × orientation
W. to cooperate	41.09 (0.06)***	239.99 (0.53)***	10.66 (0.02)**
W. to provide information	10.34 (0.01)**	10.66 (0.07)**	3.05 (0.005)
Feeling understood	71.82 (0.12)***	561.72 (0.71)***	11.22 (0.02)***
Tendency to identify	110.83 (0.12)***	541.50 (0.73)***	36.14 (0.06)***
Trust intention	47.97 (0.06)***	103.81 (0.37)***	14.33 (0.03)***

**$p < 0.01$.
***$p < 0.001$.

0.83, $t = 18.18$, $p < 0.001$). See Figure 5 for an overview of all the outcome variables across motivational frames and orientations.

7.5 | Participant Reciprocal Matching

In order to explore whether participants reciprocated matching more in the matching versus the nonmatching conditions (**H4**), a mixed effects logistic regression model was carried out (analyses were carried out with the *lme4* package in R, version 4.1.2; Bates et al. 2015; R Core Team 2021). In line with Brown (2021), the model was built up step-by-step, starting with a null model featuring the fixed effects of frame and orientation, then introducing a random intercept for conversation rounds, and later adding in random slopes for motivational frames and orientations across conversation rounds. As expected, the model with conversation round included as a random intercept fitted the data significantly better than the null model ($\chi^2 = 117.41$, df $= 2, p < 0.001$). Introducing random slopes for motivational frames within conversation rounds ($\chi^2 = 153.12$, df $= 2, p < 0.001$), and random slopes for orientations across conversation rounds ($\chi^2 = 68.02$, df $= 3, p < 0.001$), both significantly contributed to improve the fit of the model.

To look at whether participants matched the rival supporter at each stage of the interaction and whether reciprocal matching was different for cooperative or competitive interactions, each interview round was analysed separately with respect of the proportion of participant reciprocal matching across motivational frames and orientations. A summary of these

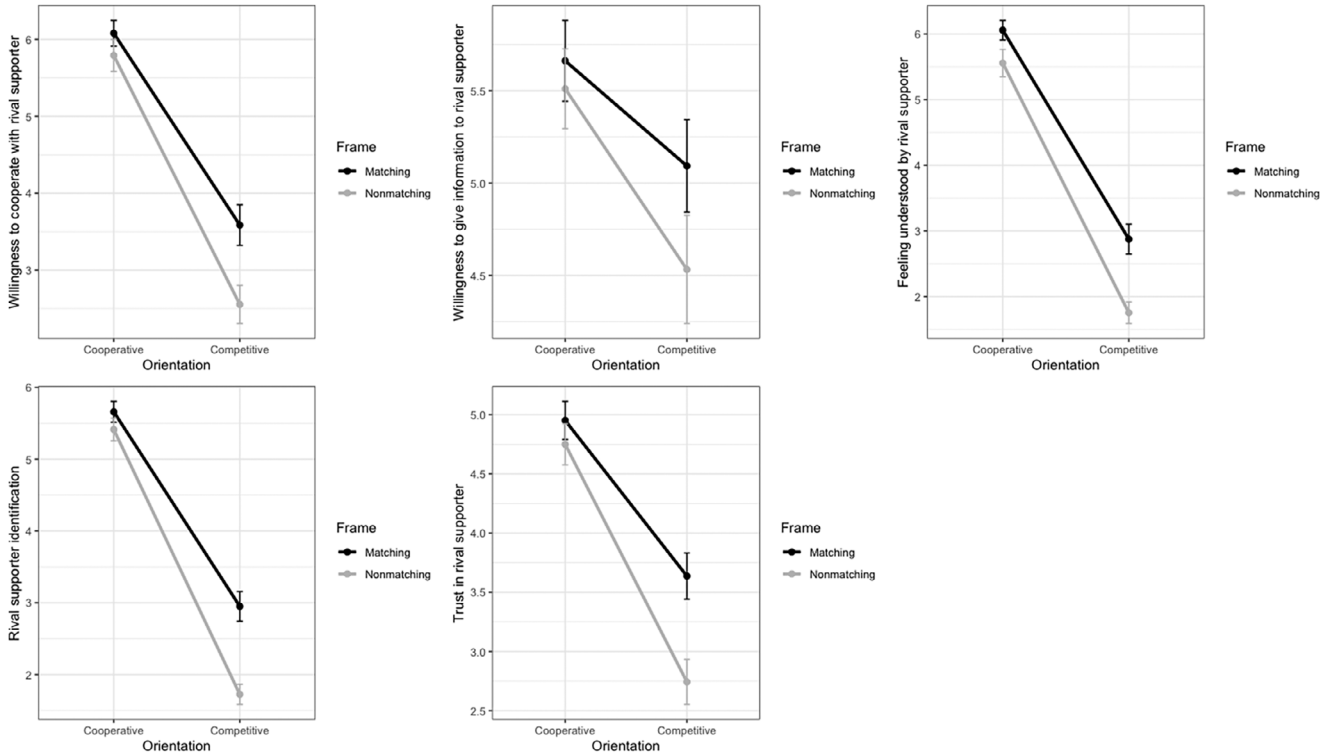

FIGURE 5 | Average willingness to cooperate, provide information, feel understood, identify and trust the rival supporter across motivational frames and orientations. Error bars represent standard errors.

TABLE 9 | Number of frames selected by participants (with proportions) for each round of the conversation.

Motivational frames	Round 1	Round 2	Round 3	Round 4	Round 5
Instrumental	346 (62.1%)	437 (78.5%)	413 (74.1%)	346 (62.1%)	252 (45.2%)
Relational	164 (29.4%)	69 (12.4%)	59 (10.6%)	175 (31.4%)	215 (38.6%)
Identity	47 (8.4%)	51 (9.6%)	85 (15.3%)	36 (6.5%)	90 (16.2%)

Note: Due to rounding, percentages do not all sum to 100.

TABLE 10 | Means (SD) for frame (matching vs. nonmatching) and orientation (cooperative vs. competitive) for proportion of participant reciprocal matching (expressed in decimals) across all conversation rounds.

	Cooperative		Competitive	
Conversation rounds	**Matching**	**Nonmatching**	**Matching**	**Nonmatching**
Round 1	0.48 (0.50)	0.40 (0.49)	0.39 (0.49)	0.53 (0.50)
Round 2	**0.70 (0.46)**	**0.45 (0.50)*****	**0.76 (0.43)**	**0.25 (0.43)*****
Round 3	**0.89 (0.31)**	**0.38 (0.49)*****	**0.92 (0.27)**	**0.32 (0.47)*****
Round 4	**0.95 (0.22)**	**0.76 (0.43)*****	**0.89 (0.31)**	**0.30 (0.46)*****
Round 5	**0.39 (0.49)**	**0.49 (0.50)**	**0.85 (0.36)**	**0.55 (0.50)*****

Note: Pairs in bold indicate a statistically significant difference.
***$p < 0.001$.

analyses is presented in Table 10. For the first conversation round, there was no significant difference in participants' reciprocal matching when they interacted with a matching or nonmatching rival supporter in neither the cooperative ($\beta = -0.32$, $z.\text{ratio} = -1.33$, $p = 0.28$) nor the competitive conditions ($\beta = 0.54$, $z.\text{ratio} = 2.21$, $p = 0.09$). However, from the second time point, participants demonstrated higher reciprocal matching when they interacted with a matching rival supporter

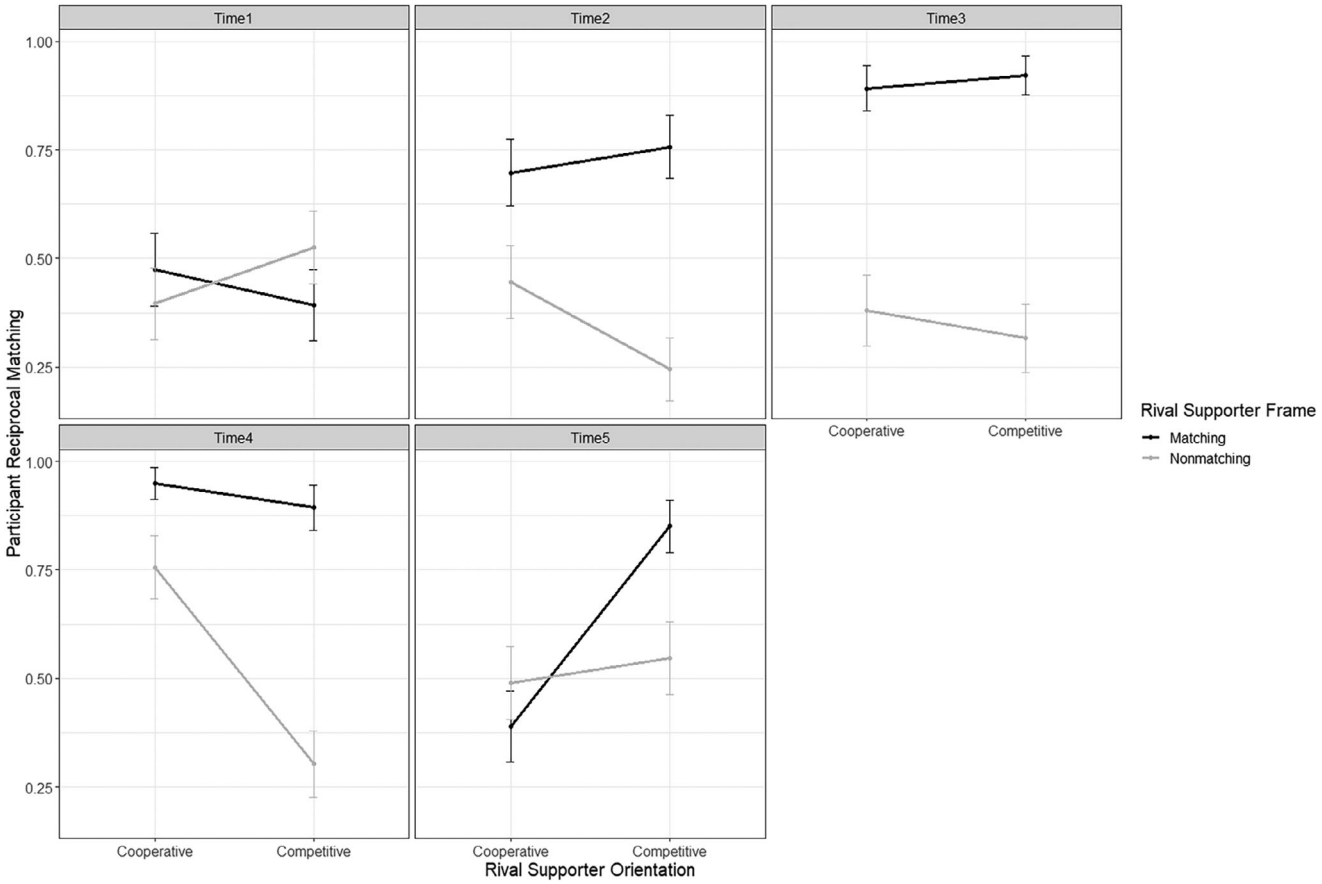

FIGURE 6 | Proportion of participant reciprocal matching at each conversation round across motivational frames and orientations. Error bars represent standard errors.

compared to a nonmatching rival supporter, both in the cooperative ($\beta = -1.05$, $z.\text{ratio} = -4.19$, $p < 0.001$) and competitive conditions ($\beta = -2.27$, $z.\text{ratio} = -8.12$, $p < 0.001$). This was the same for the third conversation round for both the cooperative ($\beta = -2.60$, $z.\text{ratio} = -8.004$, $p < 0.001$) and competitive interactions ($\beta = -3.23$, $z.\text{ratio} = -8.90$, $p < 0.001$), as well as for the fourth conversation round, both within cooperative ($\beta = -1.81$, $z.\text{ratio} = -4.16$, $p < 0.001$) and competitive interactions ($\beta = -2.96$, $z.\text{ratio} = -8.97$, $p < 0.001$). Finally, for the last conversation round, participants were more likely to reciprocate towards a matching compared to a nonmatching rival supporter, but only in the competitive condition ($\beta = -1.55$, $z.\text{ratio} = -5.31$, $p < 0.001$) and not in the cooperative condition ($\beta = 0.41$, $z.\text{ratio} = 1.69$, $p = 0.11$). These results generally provide support for **H4**. (Interviewer/rival supporter/HR representative matching will lead to more reciprocal participant matching.)

Figure 6 presents the same effects of matching over time visually, to facilitate interpretation. As observed from Figure 6, which displays the four experimental conditions within each time period, the difference between a matching and nonmatching rival supporter for participant reciprocal matching was larger in the competitive than in the cooperative interaction. This was further confirmed by carrying out a chi-square test of independence. For both the cooperative ($\chi^2 = 53.52$, df $= 5$, $p < 0.001$) and competitive interactions ($\chi^2 = 126.44$, df $= 5$, $p < 0.001$), there was a positive relationship between participants' proportion of reciprocal matching when interacting with a matching rival supporter, but a negative relationship when they interacted with a nonmatching rival supporter, providing support for **H4**.

8 | Discussion: Experiment 2

Although Experiment 1 investigated the effect of motivational frame matching and the orientation taken towards the interaction within an investigative interview, Experiment 2 expanded this research by manipulating the same variables during a pub conversation between two rival sports supporters. Consistent with Experiment 1, within a competitive interaction, interacting with a matching rival supporter led to higher willingness to cooperate, provide information, feel understood, identify and trust the rival supporter. Within a cooperative interaction, a matching rival supporter led to greater feelings of being understood and identify with the rival supporter, but not higher willingness to cooperate (although the results were marginally significant and in the predicted direction), provide information or trust them (these were all in the predicted direction). Again, the results support Sjöberg et al. (2023) for the cooperative interaction but somewhat contrasts with the results for the competitive interactions, where in that study, matching of motivational frames led to less positive interaction outcomes.

9 | Experiment 3

Although the first two experiments provided strong evidence of the beneficial effects of motivational frame matching on positive interaction outcomes, it was still unclear whether this would translate to changes in actual behaviour. Hence, in the third experiment, participants were invited to play an adapted trust game in which they could choose to share pieces of information with the interviewer, which then turned into monetary tokens that could be returned to the participants by the interviewer. As this constituted a risk for the participants of losing money, this setup provided a stronger measure of the potential positive effects of motivational frame matching on actual behaviour than the previous two experiments. In addition, the third experiment introduced a workplace investigative interview as a new interaction context.

10 | Methods

10.1 | Participants

As before, a power analysis was conducted in the software program G*Power (Faul et al. 2007). In order to detect the smallest effect size of interest (Cohen's $f \geq 0.15$ (which approximately converts into Cohen's $d \geq 0.30$)[9] or a $\eta_p^2 \geq 0.022$) in the population (Anvari and Lakens 2021), with a power (>0.90), at the standard (0.05) alpha level, 469 participants were needed.[11] Similar to the previous two experiments, the power was calculated to account for both main and interaction effects, as well as the repeated measures single within variable (i.e., interview round).

In total, 502 participants were recruited via Prolific. After elimination of participants who incorrectly answered the attention check question or dropped out before completing the study, 494 participants remained for data analysis. Of these, 232 identified as male and 262 identified as female. They were between the ages of 18 and 83 years ($M = 39.44$, SD = 13.17). The majority came from North America (282 participants), whereas 199 came from the United Kingdom and Ireland, with a smaller number of participants from Australia (13 participants). Most identified as White ($n = 346$ participants), followed by Black/African/Caribbean/Black British ($n = 120$), Asian/Asian British ($n = 15$), mixed/multiple ethnic groups ($n = 5$) and other ($n = 8$).

10.2 | Materials

10.2.1 | Workplace Investigative Interview

As before, participants took part in in five-round text-based interview, this time framed as a workplace investigative interview between an HR representative and a suspect (the three motivational frame responses were the same as in Experiment 1 except that the word 'Interviewer' was replaced with 'HR representative' to identify the individual conducting the questioning). Participants were told that they were suspected of use of illicit substances and that, as a result, they would be interviewed about this by an HR representative. They were not given any information about the HR representative, and no effort was made to make participants believe that they interacted with a real live HR representative.

The design of the experiment was identical to the previous two experiments and will not be elaborated on further.

10.2.2 | Post-Conversation Measures

After the workplace investigative interview, participants again answered questions about whether they would be willing to cooperate as well as provide information to the HR representative (these were single-item measures and so did not have a Cronbach's α score), whether they felt understood by the HR representative (Cronbach's $\alpha = 0.97$), whether they felt respected and would be willing to identify with the HR representative (Cronbach's $\alpha = 0.92$), and finally, whether they had the intention of trusting the HR representative (Cronbach's $\alpha = 0.98$). These were the same post-conversation measures as in the first experiment, and therefore, further explanation will not be provided.

10.2.3 | Trust and Information Game

To create a situation of personal risk for participants with financial stakes involved, a modified version of the trust game was constructed (Johnson and Mislin 2011). In essence, the setup was similar to a standard trust game, but instead of being endowed with money, participants had seven pieces of information about the incident which they could decide to share with the HR representative (e.g., what type of substance they used). Participants were told that each piece of information was worth 1 penny. Depending on how many pieces the participants decided to share with the interviewer, they were sent to the HR representative as 1 penny each and then tripled, after which the HR representative could decide how much of the tripled amount they would send back to the participant (maximum 21 pennies; which approximately represented a 20% bonus). Hence, this adapted trust game tapped into participants' willingness to give away information to the HR representative as well as their willingness to trust them. Furthermore, this involved a situation when giving away information entailed a personal risk (i.e., not receiving a bonus payment).

Although the adapted trust game involved some level of risk, the risk entailed by participants was still relatively low (not receiving a 20% bonus). It could also be pondered whether sending information in the form of tokens realistically tapped into participant's willingness to disclose information. At the same time, trust games have been used successfully in previous research to measure trust in situations of relatively small rewards as well as using tokens (e.g., 'experimental dollars') as a substitute for real money (Ben-Ner and Halldorsson 2010, 68), and hence, it could be argued that the current adaptation of the trust game was appropriate for use within the current context. Furthermore, the function of the informational tokens was established contextually within the setup of the game such that participants were clearly told that the information, if revealed, could be used to their detriment of the financial outcome of the game. Thus, the information still had

some usefulness to the participants in the sense that it represented something of value that, if trusted by the interviewer, could be used to harm them.

It is also difficult to see how one would ethically create a study where participants would share personally harmful or risky information that could be used against them beyond hypothetical information in a lab setup. While the content of the information (e.g., pieces of information converted into tokens) may not have been a perfect analogy for sharing self-incriminating or sensitive information, the mechanism of motivational frame matching might still operate similarly. Indeed, it is not uncommon for investigative interviewing studies to employ paradigms where participants are asked to share small amounts of information that are relatively harmless (Hope et al. 2022). This is also supported by real-world studies of crisis negotiations where motivational frame matching was positively associated with perpetrator cooperation (Ormerod et al. 2008).

10.2.4 | Demographic Questions

At the last stage of the experiment, participants were asked to provide their gender, age, ethnicity and country of residence.

10.3 | Procedure

Before commencing the study, participants were given information about the study and required to provide informed consent. Subsequently, participants were informed about the workplace investigative interview and told that they would interact with an HR representative by responding via a set of predefined responses. Once they had responded, they would see the HR representative's response and would then respond again. This was repeated five times until the conversation ended.

As in the first experiment, the HR representative would constantly either match (in an instrumental, relational or identity frame) or randomly not match the motivational frame of the participant by selecting one of the remaining two motivational frames. The HR representative's and participant's answers and questions were either both cooperative or competitive, depending on the experimental condition. The HR representative's initial question was randomised across the conditions. After the conversation, participants answered the post-conversation questions, played the trust game, were debriefed about the hypotheses of the study and compensated for their participation.

11 | Results

Before statistical analyses, extreme outliers ($Q3/Q1 \pm 3 \times \text{IQR}$; six participants) were altered to their next highest/lowest score as a conservative way to handle outliers while preserving the original order of the data points (Tabachnick and Fidell 2007). As before, participants who failed to correctly answer the attention check question were removed. As a sensitivity analysis (Thabane et al. 2013), excluding outliers did not alter the direction or significance of the statistical analyses.

To explore if matching of motivational frames (**H1**) and a cooperative rather than a competitive interaction (**H2**) led to more positive interaction outcomes with the HR representative, and whether there was an interaction effect between the two (**H3**), analysis of variance tests were carried out.[12] As shown in Table 11, there were significant main effects of frame and orientation on feelings of being understood and tendency to identify with the HR representative, with marginal significant main effects of intention to trust the HR representative, but no significant interaction effects for all the dependent variables, somewhat supporting the first two hypotheses (but not the third hypothesis about the presence of an interaction effect).

11.1 | Willingness to Cooperate and Provide Information

In contrast to **H1**, motivational frame matching did not lead to a higher willingness to cooperate with the HR representative in either the cooperative (matching: $M = 6.23$, SD $= 0.90$; nonmatching: $M = 6.19$, SD $= 1.15$; $\beta = 0.02$, $t = 0.21$, $p = 0.84$) or the competitive condition (matching: $M = 3.23$, SD $= 1.86$; nonmatching: $M = 3.02$, SD $= 1.79$; $\beta = 0.11$, $t = 1.14$, $p = 0.26$). Similarly, there was no effect of motivational frame matching on willingness to provide information in either the cooperative (matching: $M = 5.96$, SD $= 1.18$; nonmatching: $M = 6.09$, SD $= 1.14$; $\beta = -0.07$, $t = -0.65$, $p = 0.51$) or competitive condition (matching: $M = 3.84$, SD $= 1.82$; nonmatching: $M = 3.92$, SD $= 1.94$; $\beta = -0.04$, $t = -0.39$, $p = 0.70$). However, supporting **H2**, participants were more willing to cooperate (cooperative orientation: $M = 6.21$, SD $= 1.03$; competitive orientation: $M = 3.12$, SD $= 1.82$; $\beta = 3.08$, $t = 23.14$, $p < 0.001$) and provide information (cooperative orientation: $M = 6.02$, SD $= 1.16$; competitive orientation: $M = 3.88$, SD $= 1.88$; $\beta = 2.14$, $t = 15.21$, $p < 0.001$), when the orientation taken towards the HR interview was cooperative rather than competitive.

11.2 | Feeling Understood

As before, and somewhat supporting **H1**, motivational frame matching led to significantly greater feelings of being understood in the competitive condition (matching: $M = 2.36$, SD $= 1.39$; nonmatching: $M = 2.07$, SD $= 1.49$; $\beta = 0.06$, $t = 2.41$, $p = 0.016$), but not in the cooperative condition (matching: $M = 6.04$, SD $= 0.98$; nonmatching: $M = 5.81$, SD $= 1.30$; $\beta = 0.03$, $t = 1.21$, $p = 0.23$). However, as the interaction effect was nonsignificant, the main effect, rather than the simple effects, should take precedence when interpreting these results. Furthermore, in connection with **H2**, participants felt more understood by the HR representative in the cooperative ($M = 5.81$, SD $= 1.11$) versus the competitive interaction ($M = 2.31$, SD $= 1.29$; $\beta = 1.75$, $t = 36.84$, $p < 0.001$).

11.3 | Identification With HR Representative

Regarding **H1**, motivational frame matching led to significantly higher tendency to identify with the HR representative in the competitive condition (matching: $M = 2.31$, SD $= 1.33$; nonmatching: $M = 1.91$, SD $= 1.40$; $\beta = 0.07$, $t = 3.35$, $p < 0.001$), but not in the cooperative condition (matching: $M = 5.72$, SD $= 0.94$;

TABLE 11 | *F*-statistic (with η_p^2 effect sizes) for each analysis of variance test for the dependent variables.

Dependent variable	Frame	Orientation	Frame × orientation
W. to cooperate	1.30 (0.00)	250.76 (0.52)***	0.43 (0.00)
W. to provide information	0.15 (0.00)	111.88 (0.32)***	0.04 (0.00)
Feeling understood[a]	5.81 (0.02)*	432.33 (0.65)***	0.70 (0.00)
Tendency to identify[a]	11.22 (0.02)***	428.78 (0.66)***	3.13 (0.00)****
Trust intention[a]	2.84 (0.00)****	241.99 (0.52)***	0.86 (0.00)

[a]Due to the violation of the assumption of homogeneity of variance, the Box–Cox transformation was adopted.
*$p < 0.05$.
***$p < 0.001$.
****$p < 0.10$.

nonmatching: $M = 5.58$, SD = 1.19; $\beta = 0.02$, $t = 0.83$, $p = 0.41$). However, due to the nonsignificant interaction effect, the main effect, rather than the simple effects, should take precedence when interpreting these results. Furthermore, supporting **H2**, participants identified more with the HR representative in the cooperative ($M = 5.65$, SD = 1.07) compared with the competitive interaction ($M = 2.11$, SD = 1.38; $\beta = 0.49$, $t = 31.17$, $p < 0.001$).

11.4 | Trusting the HR Representative

Finally, with regard to **H1**, there was no evidence that motivational frame matching led to significantly higher willingness to trust the HR representative in the cooperative (matching: $M = 5.56$, SD = 1.13; nonmatching: $M = 5.52$, SD = 1.34; $\beta = 0.01$, $t = 0.36$, $p = 0.72$), or in the competitive condition (matching: $M = 2.76$, SD = 1.44; nonmatching: $M = 2.51$, SD = 1.40; $\beta = 0.04$, $t = 1.68$, $p = 0.09$). However, exploratory analyses found that motivational frame matching was associated with a greater tendency to rely on the HR representative in the competitive (matching: $M = 2.62$, SD = 1.46; nonmatching: $M = 2.28$, SD = 1.47; $\beta = 0.06$, $t = 2.38$, $p = 0.02$), but not the cooperative condition (matching: $M = 5.67$, SD = 1.12; nonmatching: $M = 5.59$, SD = 1.35; $\beta = 0.01$, $t = 0.54$, $p = 0.59$), providing some support for **H1**. Again, as the interaction effect was nonsignificant, the main effect, rather than the simple effects, should take precedence when interpreting these results. Supporting **H2**, participants trusted the HR representative more in the cooperative ($M = 5.54$, SD = 1.24) compared to the competitive interaction ($M = 2.63$, SD = 1.43; $\beta = 0.39$, $t = 23.01$, $p < 0.001$). See Figure 7 for an overview of all the outcome variables across motivational frames and orientations.

11.5 | Participant Reciprocal Matching

To examine if participants reciprocated matching more in the matching versus the nonmatching conditions (**H4**), a mixed effects logistic regression model was again executed (using the *lme4* package in R, version 4.1.2; Bates et al. 2015; R Core Team 2021). Following Brown (2021), the model was built up step-by-step, starting with a null model featuring the fixed effects of frame and orientation, then introducing a random intercept for interview rounds, and later adding in random slopes for motivational frames and orientations across interview rounds. As expected, the model with interview round included as a random intercept fitted the data significantly better than the null model ($\chi^2 = 89.03$, df $= 2$, $p < 0.001$). Introducing random slopes for motivational frames within interview rounds ($\chi^2 = 73.04$, df $= 2$, $p < 0.001$), and random slopes for orientations across interview rounds ($\chi^2 = 77.62$, df $= 3$, $p < 0.001$), both significantly contributed to improve the fit of the model.

To explore whether participants matched the HR representative at each stage of the interview, and whether reciprocal matching was different for the cooperative or competitive interview, each interview round was analysed separately in terms of the proportion of participant reciprocal matching across motivational frames and orientations. A summary of these analyses is presented in Table 13. For the first interview round, there was no significant difference in participants' reciprocal matching when they interacted with a matching or nonmatching HR representative in the cooperative ($\beta = -0.24$, $z.\text{ratio} = -0.89$, $p = 0.45$) nor the competitive conditions ($\beta = 0.04$, $z.\text{ratio} = -0.15$, $p = 0.88$). However, from the second time point, participants showed higher reciprocal matching when they interacted with a matching HR representative compared to a nonmatching HR representative, both in the cooperative ($\beta = 1.15$, $z.\text{ratio} = 2.65$, $p = 0.0097$) and competitive conditions ($\beta = 2.72$, $z.\text{ratio} = 8.63$, $p < 0.001$). This was also the case for the third interview round for both the cooperative ($\beta = 1.29$, $z.\text{ratio} = 3.41$, $p = 0.001$) and competitive interactions ($\beta = 2.90$, $z.\text{ratio} = 8.65$, $p < 0.001$), as well as for the fourth interview round, but only in the competitive interview ($\beta = 3.15$, $z.\text{ratio} = 9.19$, $p < 0.001$), and not in the cooperative interview ($\beta = 0.39$, $z.\text{ratio} = 1.26$, $p = 0.23$). Finally, for the last interview round, participants were more likely to reciprocate towards a matching compared to a nonmatching HR representative in both the cooperative ($\beta = 1.02$, $z.\text{ratio} = 3.86$, $p < 0.001$) and competitive conditions ($\beta = 1.18$, $z.\text{ratio} = 4.26$, $p < 0.001$). These results generally provide support for **H4** (HR representative matching will lead to more reciprocal participant matching).

To facilitate interpretation, Figure 8 shows the influence of matching over time visually. As illustrated from Figure 8, which displays the four experimental conditions within each time period, the difference between a matching and nonmatching HR representative for participant reciprocal matching tended to be larger in the competitive than in the cooperative interaction. This was further confirmed by carrying out a chi-square test of independence. For both the cooperative ($\chi^2 = 14.80$, df $= 5$,

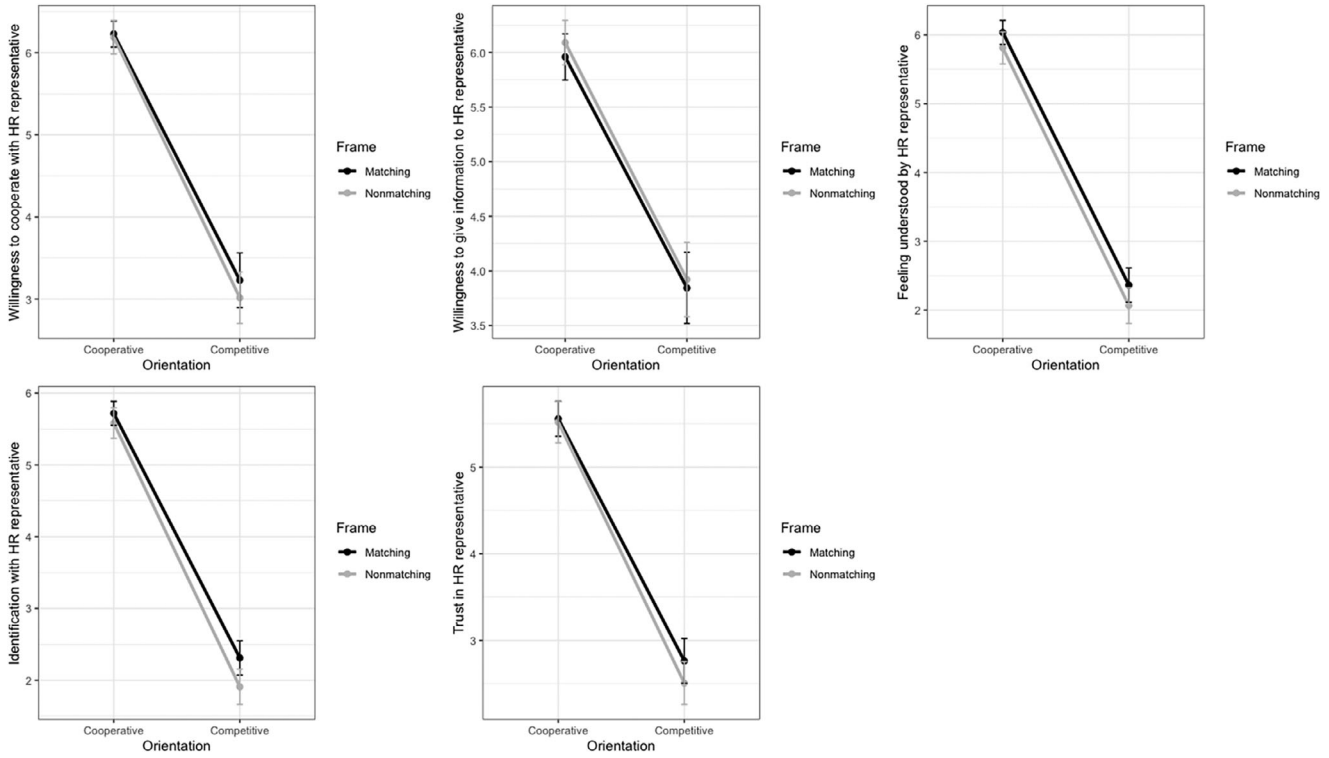

FIGURE 7 | Average willingness to cooperate, provide information, feel understood, identify and trust the HR representative across motivational frames and orientations. Error bars represent standard errors.

TABLE 12 | Number of frames selected by participants (with proportions) for each round of the HR interview.

Motivational frames	Round 1	Round 2	Round 3	Round 4	Round 5
Instrumental	264 (53.4%)	264 (53.3%)	281 (56.9%)	282 (57.1%)	228 (46.2%)
Relational	133 (26.9%)	124 (25.1%)	103 (20.9%)	112 (22.7%)	116 (23.5%)
Identity	97 (19.6%)	106 (21.5%)	110 (22.3%)	100 (20.2%)	150 (30.4%)

Note: Due to rounding, percentages do not all sum to 100.

TABLE 13 | Means (SD) for frame (matching vs. nonmatching) and orientation (cooperative vs. competitive) for proportion of participant reciprocal matching (expressed in decimals) across all interview rounds.

	Cooperative		Competitive	
Interview rounds	**Matching**	**Nonmatching**	**Matching**	**Nonmatching**
Round 1	0.62 (0.49)	0.67 (0.47)	0.36 (0.48)	0.37 (0.49)
Round 2	**0.94 (0.25)**	**0.82 (0.39)*****	**0.77 (0.42)**	**0.18 (0.39)*****
Round 3	**0.91 (0.29)**	**0.74 (0.44)*****	**0.87 (0.34)**	**0.27 (0.45)*****
Round 4	0.81 (0.39)	0.75 (0.44)***	**0.87 (0.34)**	**0.22 (0.42)*****
Round 5	**0.65 (0.48)**	**0.40 (0.49)**	**0.76 (0.43)**	**0.50 (0.50)*****

Note: Pairs in bold indicate a statistically significant difference.
***$p < 0.001$.

$p = 0.011$) and competitive HR interviews ($\chi^2 = 123.3$, df = 5, $p < 0.001$), there was a positive relationship between participants' proportion of reciprocal matching when interacting with a matching HR representative, but a negative relationship when they interacted with a nonmatching HR representative, providing support for **H4**.

11.6 | Trust Game

To explore whether participants provided more information to the HR representative in the matching compared to the nonmatching interview condition, and to what extent this was moderated by the orientation taken towards the interview, an analysis

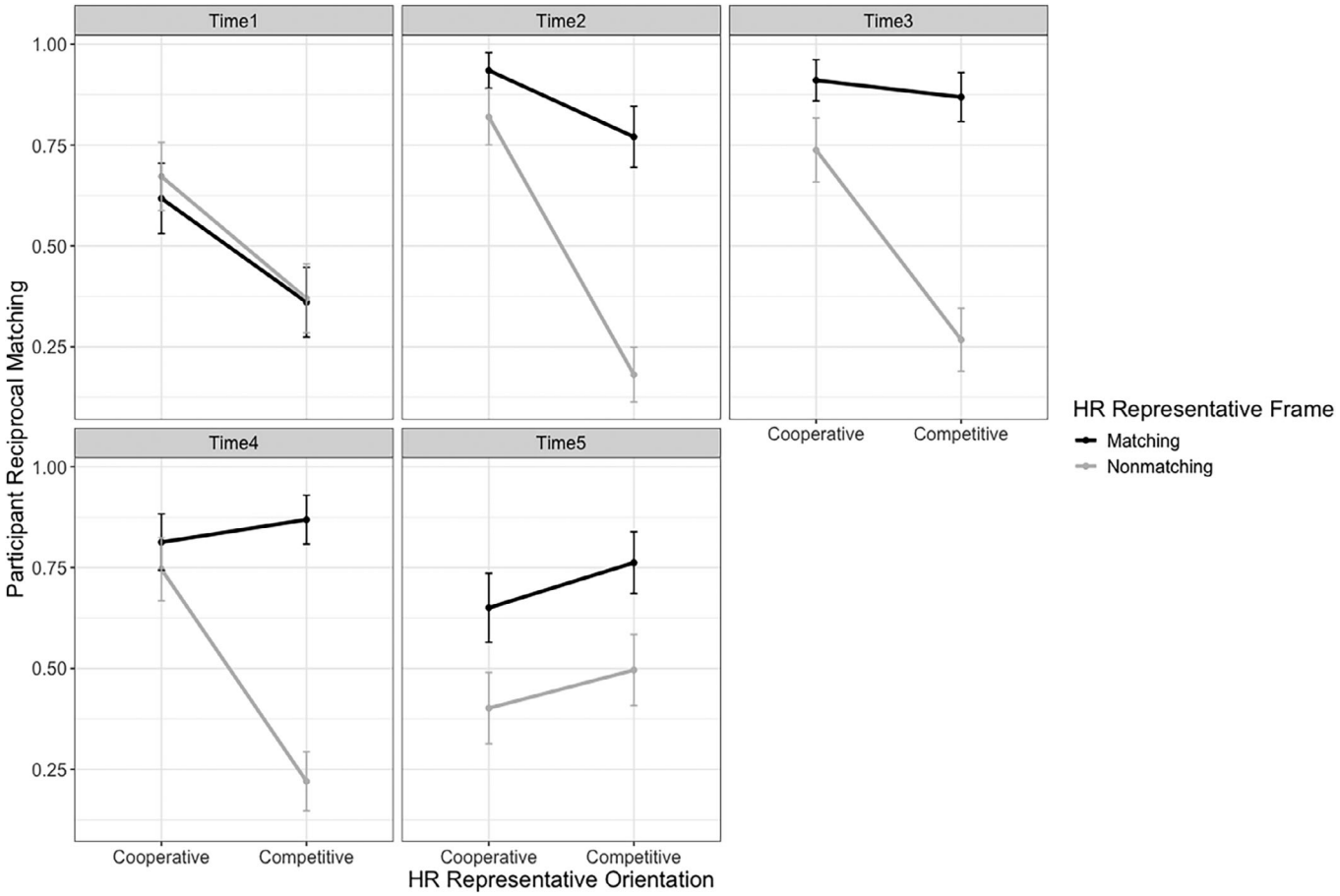

FIGURE 8 | Proportion of participant reciprocal matching at each interview round across motivational frames and orientations. Error bars represent standard errors.

of variance was carried out. In contrast to **H1**, there was no significant main effect of frame, $F(1, 490) = 0.01$, $p = 0.92$, $\eta_p^2 = 0.00$, and no interaction effect between frame and orientation, $F(1, 490) = 0.23$, $p = 0.63$, $\eta_p^2 = 0.00$, but a significant main effect of orientation on the amount of information provided to the HR representative, $F(1, 490) = 17.86$, $p < 0.001$, $\eta_p^2 = 0.06$, supporting **H2**. As expected, participants provided more information in the cooperative ($M = 3.43$, SD = 2.43; $\beta = 0.59$, $t = 5.52$, $p < 0.001$) compared to the competitive HR interview ($M = 2.24$, SD = 2.34).

Finally, as hypothesised, there was a positive relationship between participant reciprocal matching and information provided in the trust game, $F(1, 492) = 2.74$, $p = 0.098$, $\eta_p^2 = 0.0055$, such that higher participant reciprocal motivational frame matching was associated with more information provision in the trust game. As this was a pre-registered directional hypothesis, the more lenient alpha level ($p < 0.10$) was considered admissible, in line with Hales (2023).

12 | Discussion: Experiment 3

Although the first two experiments examined the effect of motivational frame matching and orientation in a police investigative interview and a pub conversation between two rival sports supporters, the third experiment expanded this into an HR investigative interview situation. In addition, it featured an adapted trust game to assess information gain in a situation of heightened stakes. Consistent with the first two experiments, within a competitive interaction, interacting with a matching HR representative led to greater feelings of being understood and identify with the HR representative, as well as greater reciprocal matching. In turn, reciprocal matching was associated with increased amount of information provision in the trust game. However, contrary to the previous two experiments, there was limited support for any positive effects of motivational matching in the cooperative interaction.

Although the limited support for motivational frame matching on interaction outcomes in the cooperative interaction was somewhat surprising, we propose three main reasons for this. First, closer inspection of the mean scores for the cooperative interaction found that participants had a tendency to report very high values on the outcome variables that were close to the maximum point of the scale (e.g., matching: $M = 6.23$; nonmatching: $M = 6.19$, on a 7-point scale, for the willingness to cooperate outcome variable), regardless of being in the matching or nonmatching condition, indicating a potential ceiling effect. If so, that means the potential positive effects of matching may have been 'masked' by participants' overall positive impression of the interaction, particularly in the cooperative interaction. Second, and aligning with this, participants might have perceived the HR investigative interview more positively than the two previous

situational contexts, making participants assume good faith from the HR representative. In such a situation, motivational matching might have become less impactful because the baseline for the positive interaction might already have been high. Third, in the HR interview, participants' understanding of cooperation might have had less to do with achieving interpersonal synchrony and more to do with fulfilling an organisational requirement or duty. If so, that means participants might have indicated a willingness to cooperate as this is what they believed was expected of them as an employee.

13 | General Discussion

Across three experiments, using a hypothetical simulation framework, participants took part in an interaction with an investigative interviewer, rival sports supporter or HR representative who either matched or did not match their motivational frame in either a cooperative or competitive way. As mentioned in the introduction, several models and theories in social psychology have suggested that people tend to focus on one of the three motivational frames when they communicate (e.g., the cylinder model, Taylor 2002; the conversational circumplex, Yeomans et al. 2022). However, to our knowledge, this is the first study to experimentally have manipulated motivational frame matching in order to look at its potential positive effects in three different situational contexts (i.e., an investigative interview, a pub conversation between two rival sports supporters, and an HR investigative interview).

It was shown that motivational frame matching generally led to more positive interaction outcomes in all three contexts, more consistently so when the interaction was competitive and in the investigative interview and pub conversation. This is the first known study that has demonstrated a causal link between motivational frame matching and positive interaction outcomes, using active responses from participants. The findings go in line with a growing evidence base demonstrating the positive effects of motivational frame matching on interaction outcomes (Ormerod et al. 2008; Sjöberg et al. 2023; Taylor 2014; Wells and Brandon 2019).

However, as mentioned above, although Sjöberg et al. (2023) found positive effects of matching within a cooperative interaction, they found negative effects of matching within a competitive interaction. This differs from the current study which did not find support for Hypothesis 3. (There is an interaction between matching and orientation such that the benefits of matching will depend on whether the interaction is cooperative or competitive. Specifically, motivational frame matching will lead to more positive interaction outcomes in a cooperative interaction but less positive interaction outcomes in a competitive interaction.) One potential explanation behind these different results could be that, in the previous study by Sjöberg et al. (2023), participants could not actively respond during the interaction. Instead, they were merely asked to imagine being the suspect and how they would experience the interaction from the suspect's perspective. This meant that the experimenters could control whether the entire interaction was motivationally fully matched or fully nonmatched. On the other hand, in the current study, participants could freely select how to respond to their interaction partners, which meant that it was relatively rare for an interaction to be fully matched or fully nonmatched.

Furthermore, follow-up analyses in Sjöberg et al. (2023) found that the negative effect of matching in the competitive interaction was largely driven by relational and identity frame matchings. They argue this suggests that participants perceived competitive matching on relational and identity frames as more detrimental than competitive instrumental frame matching. This is echoed in observations from tough negotiations where it was often better to argue fervently about the objective issues at hand rather than to attack a counterpart's identity (Ury 1991). Interestingly, in this study, most participants chose the instrumental frame, suggesting they were gravitating towards factual responses over more relational or identity responses. This, in turn, would have meant that in the matching condition, their instrumental frame responses would have been matched by instrumental frame responses by the interviewer. On the other hand, in the nonmatching condition, participants' instrumental frame responses would have been reciprocated with either relational or identity frame responses, both of which in previous experiments were associated with negative effects within a competitive interaction. This could help explain some of the differences in results between the two studies.

Theoretically, the findings from the current study suggest that the theory of motivational frame matching may need to incorporate boundary conditions based on the type of interaction and involvement of the participant. The failure of H3 to replicate in an active response setting, potentially due to participants preferring the less detrimental instrumental frame, indicates that in dynamic competitive interactions, the impact of the type of frame chosen may be a more important predictor for positive outcomes than the effect of simple frame matching. Specifically, the negative effects of motivational matching in competitive interactions may only emerge when the motivational frames are relatively pure and salient, such as the controlled hypothetical scenario of previous research (Sjöberg et al. 2023).

Although motivational frame matching led to both more positive interaction outcomes and reciprocal matching, this effect tended to be larger within a competitive than a cooperative interaction. One reason for this could be that, within a cooperative interaction, the positive effects of matching were overshadowed by the overall cooperativeness of the interaction. On the other hand, when the interaction was competitive, matching might have had a greater saliency because the overall interaction was more hostile, which might have made participants more sensitive to signs of frame matching in their interaction partner. This could help explain why the HR interview did only see positive effects of motivational matching in the competitive interaction and goes in line with arguments that successful interpersonal sensemaking is most important during intense interaction episodes (Wells and Brandon 2019). For example, Wells and Brandon argued that, within a competitive interaction, motivational frame matching is vital to reduce the intensity of the interaction and get entrainment with the suspect. It is not until the suspect and interviewer are on the same page that the interviewer may begin to shift motivational frames and expect the suspect to follow. In other words, motivational frame matching might be especially important when the interaction is confrontational or competitive in nature.

From a theoretical perspective, the stronger effect of matching in the competitive interactions could be related to the idea that competitive interactions might be perceived as more threatening and that social threats are normally accorded more cognitive resources (Fiddick 2011), which might help explain why competitive matching was more consequential. Furthermore, interpreted through the lens of schema theory and expectancy violation theory (Dalton et al. 2010; Burgoon 2016), in a competitive interaction, nonmatching might have been interpreted as the default expectation, and when participants encountered a matching interviewer, this might have signalled an unexpected willingness to connect and align their communication with the suspect. As a result, matching might have been perceived more positively by the participants in such a context.

As expected, in all three experiments, interacting with a cooperative interaction partner consistently led to more positive interaction outcomes across all measured variables. This supports the growing evidence for the use of an information gathering over an accusatorial approach to elicit accurate information (Alison and Alison 2017; Gabbert et al. 2021; Meissner et al. 2015; Russano et al. 2019). Furthermore, the size of the effect of orientation on positive outcomes was consistently larger than the effect of motivational frame matching, suggesting that maintaining a cooperative orientation might be more important than the matching of motivations. However, as the interactions in the current experiments were balanced on orientation, it is unclear how this would change if the orientation was allowed to vary across conditions.

As expected, it was found that participants displayed more reciprocal frame matching when they interacted with a matching rather than a nonmatching interaction partner, and this translated into increased information provision in the trust game. This supports previous research showing that alignment in language style was associated with more information gain in investigative interviews (Richardson et al. 2014). A possible explanation for this observation could have been that reciprocal matching from the interviewer/rival supporter might have constituted a subtle form of acknowledgement of the participants (Aafjes-van Doorn and Muller-Frommeyer 2020; Niederhoffer and Pennebaker 2002), who, in turn, may have responded with increased reciprocal matching as a result. This links to the notion that people have schemas for how to act towards each other during interpersonal interactions (Dalton et al. 2010), including when to follow or lead during an interaction. This is the first study to demonstrate that successful interpersonal sensemaking, through the use of motivational frames, may facilitate increased reciprocal sensemaking from participants in investigative interactions.

13.1 | Limitations

There are several limitations with the current research that warrant attention. First, there could have been a possibility of some conceptual overlap between the instrumental, relational and identity frame conversational scripts. If so, that would have meant that matching based on them would likely not have been a fully accurate measure of interpersonal sensemaking. Although this is a limitation with the current research, it is likely that this would have attenuated rather than strengthened the positive effects of motivational frame matching. This is because in such a situation, the matching and nonmatching conditions would have been more similar to each other, and hence, it would have been harder to distinguish successful from unsuccessful interpersonal sensemaking. Moreover, a validity and manipulation check with two independent raters confirmed that the conversational scripts fell reliably into their respective motivational frame, indicating they were a good representation of the three frames.

Second, as the interaction was relatively short, this could have meant that participants did not have adequate time to develop a sense of whether successful sensemaking and motivational frame matching did take place or not. Indeed, although the temporal aspect has been brought up as an important consideration in forensic research (Taylor et al. 2008), it is unclear exactly how long it takes to build successful interpersonal sensemaking (Taylor 2013, 2014; Wells and Brandon 2019). Still, the short nature of the interaction would likely have made the positive effects of motivational frame matching weaker rather than stronger.

Finally, as all of the current experiments were conducted online, it is impossible to ensure that participants were not distracted or inattentive during certain parts of their participation. Indeed, some researchers have been critical of using online participants for this very reason (Fleischer et al. 2015), whereas others have argued for the beneficial effects of using online samples, including reaching more diverse participant samples (Goodman et al. 2013). To minimise these potential limitations, attention checks were included to ensure that participants were paying attention during the course of the experiment, and participants who failed to fully complete the experiment were excluded from data analysis.

13.2 | Future Research

Although participants could choose their motivational frame in each round of the interaction, they could not choose between a cooperative or competitive orientation. This is, clearly, an unnatural constraint. Thus, an interesting avenue for future research would be to let participants choose not only motivational frame but also orientation. This would enable analyses regarding matching of both motivational frames and orientations simultaneously.

Another interesting future research stream would be to look at differences between cultures in how matching of certain motivations leads to more cooperation and reciprocal matching. For example, it could be hypothesised that individuals from certain cultures are more sensitive to challenges of their reputation and honour (i.e., identity motivations; Giebels and Taylor 2009; Taylor 2002), suggesting that matching of those motivations might backfire with certain populations. An additional potential avenue for future research would be to look at interpersonal sensemaking in other contexts (e.g., witness interviews) to see if motivational frame matching leads to positive interaction outcomes also in those situations.

Furthermore, from a practical investigative interviewing perspective, a problem not addressed in the current study is how to deal with suspects displaying an avoidant orientation. Taylor's (2002) cylinder model suggests that one way to get a suspect from an

avoidant to a cooperative orientation is to slightly challenge or provoke them at key moments of the interview (i.e., display a competitive orientation). Experimental demonstrations of such relationships would also be an interesting avenue for future explorations.[14]

Finally, due to the hypothetical nature of the current studies, questions remain about how well they would translate to real-life interviewing situations. Although previous research from authentic intelligence situations provides some support for the benefits of motivational matching (Ormerod et al. 2008), more controlled experiments from the field are still largely missing. Hence, a fruitful avenue for future research would be to replicate the current experiments in more authentic investigative interviewing situations.

14 | Conclusions

Over three experiments, using a hypothetical simulation framework, participants interacted with either an investigative interviewer, rival sports supporter or HR representative over five rounds and later answered questions relating to the perceptions of their interaction partner. Within a competitive interaction, motivational frame matching consistently led to more positive interaction outcomes for all the measured variables in the investigative interview and pub conversation, and feelings of being understood and identify with the HR representative in the HR interview. Within a cooperative interaction, motivational frame matching also led to more positive interaction outcomes for all measured variables (in the investigative interview) and greater feelings of being understood and a identify with the rival supporter (in the pub conversation), but not in the HR investigative interview. In addition, across all three studies, it was found that participants displayed more reciprocal matching when interacting with a matching versus a nonmatching interaction partner, and this tendency was stronger for competitive interactions. Furthermore, reciprocal matching was associated with higher information provision in the trust game. In sum, the results provide support for a causal link between motivational frame matching and positive interaction outcomes as well as reciprocal matching behaviour.

Conflicts of Interest

The authors declare no conflicts of interest.

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Ethics Statement

The current studies received ethical approval from the Faculty of Science and Technology at Lancaster University (ethics reference number: FST20068).

Data Availability Statement

The hypotheses for the current study were preregistered on the Open Science Framework (Experiment 1: https://osf.io/b9v48/; Experiment 2: https://osf.io/fkhp7/). The data and R-scripts used to analyse the data are also available online (OSF project currently private to facilitate double-blind peer review).

Endnotes

[1] This was calculated on the basis of the conversion formula (Cohen 1988; Lin 2023): $= \frac{d}{2}$, and the formula $\eta_p^2 = f^2/(1+f^2)$ from Cohen (1988). As effect size estimates may differ between types of analysis, the above calculations were made to facilitate consistency between effect sizes (Correll et al. 2020).

[2] As these tests were pre-registered and each related to an individual hypothesis (i.e., individual testing), they were not subjected to alpha-adjustments as advised by Rubin (2021).

[3] The Benjamini–Hochberg p value correction was applied throughout these analyses.

[4] This was calculated on the basis of the conversion formula (Cohen 1988; Lin 2023): $f = \frac{d}{2}$.

[5] This was calculated on the basis of the formula $\eta_p^2 = f^2/(1+f^2)$ from Cohen (1988).

[6] As effect size estimates may differ between types of analysis, the above calculations were made to facilitate consistency between effect sizes (Correll et al. 2020).

[7] As these tests were pre-registered and each related to an individual hypothesis (i.e., individual testing), they were not subjected to alpha-adjustments as advised by Rubin (2021).

[8] The Benjamini–Hochberg p value correction was applied throughout these analyses.

[9] This was calculated on the basis of the conversion formula (Cohen 1988; Lin 2023): $f = \frac{d}{2}$.

[10] This was calculated on the basis of the formula $\eta_p^2 = f^2/(1+f^2)$ from Cohen (1988).

[11] As effect size estimates may differ between types of analysis, the above calculations were made to facilitate consistency between effect sizes (Correll et al. 2020).

[12] As these tests were pre-registered and each related to an individual hypothesis (i.e., individual testing), they were not subjected to alpha-adjustments as advised by Rubin (2021).

[13] The Benjamini–Hochberg p value correction was applied throughout these analyses.

[14] We thank an anonymous reviewer for pointing out this interesting suggestion.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Supporting File 1: ejsp70039-sup-0001-SuppMat.docx