

Adaptability in Undercover Operations: The Relationship Between Adaptability, Uncertainty
Avoidance and Goal Achievement

Master Thesis

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Abstract

The present study examined the relationship between adaptability - cognitive, behavioural and emotional regulation that assists in responding to novel and uncertain situational demands - in the context of undercover operations. An experiment was designed in which one set of participants took on the role of undercover 'agents', while another set of participants took on the role of 'granters' - persons the agents will interact with and play a partial role in the agent's ability to reach their mission objective. The agents completed three missions for which they were provided with an objective and an expectation (e.g., of an interaction with a professor during the mission). However, during the missions the agents' expectations were systematically violated (e.g., by having them interact with an assistant instead of a professor) to elicit adaptive responses. The agents rated their own adaptability for each mission as well as their degree of uncertainty avoidance. The results showed that (i) adaptability predicts goal achievement in covert operations, (ii) agents scoring lower on uncertainty avoidance rated themselves as more adaptive. However, uncertainty avoidance did not mediate the effect of adaptability on goal achievement. The current research sets the first step in building a knowledge base on the beneficial characteristics for undercover agents and how to measure them, to eventually aide recruiters in the process of recruiting undercover agents. The results imply that people are able to correctly assess their own adaptability post-hoc in a specific situation. Additional research is necessary to determine whether people are also able to assess their own overall, context-independent adaptability.

Keywords: law-enforcement, covert operations, false identity, adaptability, uncertainty avoidance, goal achievement

In the recent decades, crime has become more sophisticated and the use of undercover operations have been found an effective addition to more traditional investigative approaches (Dimitrovska, 2017). However, even though the prevalence of undercover operations is rising, it has received little scientific attention. There is little available information about best practices for undercover agents or which personal characteristics that would fit the job. This is largely due to the secretive nature of the practice, which makes undercover agents and their supervisors reluctant to openly share professional experiences. Therefore, not only do we have little information on what undercover agents attempt to do, how they do it, and the effectiveness of their attempts, we also do not know what information their decisions and assessments are based on (Picano & Roland, 2012). It is nevertheless important to build a solid base of knowledge on this. For example, research can provide knowledge into relevant personnel characteristics and improve personnel recruitment (Mason & Belt, 1986) and assist in the development of more effective training programs (Wexley, 1984). The current research will attempt at starting to fill the current research-gap by examining the role of adaptability and uncertainty avoidance in attaining mission objectives in a covert setting by creating an experimental paradigm, fit for this examination.

Undercover Policing

The undercover operation can be defined as a complex strategic police-tactical method used only for serious crimes and offences, when other tactical methods cannot be used or when the applied methods has not yielded the expected results (Dimitrovska, 2017). During such a mission, the undercover agent works under a false identity, usually to extract information in order to prevent future planned offences (Dimitrovska, 2017; Kruisbergen et al., 2011). Compared to other police work in the field, the uniqueness of the job of undercover agents stems from spending a prolonged time under a false identity in unpredictable environments. Undercover policing differs from other secretive means of gathering

information done by the police (such as placing telephone taps or hidden cameras), in the way that this method of information gathering solely consists of interactions between persons and is deceptive in nature (De Jong & Kruisbergen, n.d.). The combination of interacting with other brings about a great deal of unpredictability. Firstly because human behaviour is harder to control and to predict than the operation of purely technical instruments, given the fact that humans make their own decisions (based on e.g., emotion and cognition (Ketelaar, 2004)) and technical instruments are programmed to do a specific job (De Jong & Kruisbergen, n.d.). Secondly, because this is even harder to do while acting under the premise of a false identity.

The unpredictable aspect of working undercover, which is caused by working with other humans while omitting your real identity and goals, forms a significant threat for the outcome and goal achievement of the undercover agent. This is the case because the undercover agent needs to prevent undesirable outcomes by balancing two different threats to the outcome of their – usually very expensive - mission. The first threat is the threat of being discovered as a secret agent (Dimitrovska, 2017), which could endanger the agent's life. The second threat is that of (accidentally) playing an active role in criminal activities while being undercover, which is prohibited by law in many countries wherefor it would render the agent's findings unusable in a court of law (Dimitrovska, 2017). Taking both these two threats into account while performing the job is a difficult task, since the risk of being discovered or being suspected of being an undercover agent increases when you are not actively participating in criminal actions in a criminal environment, and the risk of actively participating in criminal activities increases when you do not want to be discovered as a secret agent. Given this balancing act, it is important that undercover agents are adept at dealing with uncertain situations while attempting to achieve investigative objectives. They need to think quick on their feet when they are, for example, suddenly asked to actively commit a crime by the person they are investigating or when someone suddenly becomes suspicious of

their identity. In other words, it is important that undercover agents are adaptable.

Adaptability

Adaptability is defined as cognitive, behavioural and emotional regulation that assists individuals in effectively responding to change, variability, novelty, uncertainty and transition (Martin et al., 2012; 2013). In past research on adaptability, such as that of Chandra and Leong (2016), the focus has been on dealing with possible threats and challenges posed by change or uncertainty (e.g., the reduction of negative emotions). However, while dealing with the negative consequences of uncertainty is a part of adaptability, it does not constitute the construct as a whole (Martin, 2017). Martin (2017) argues that looking at adaptability from this one-sided viewpoint only, adaptability is easily conflated with resilience. According to Martin and his colleagues (2012; 2013) adaptability does not only constitute the ability to deal with potential threats posed by a novel or uncertain situation, but also the ability to recognize and make optimal use of potential opportunities brought about by the novelty or change. In other words, in an ambiguous or uncertain situation, adaptable individuals are both capable of recognizing and reducing potential threats and challenges, as well as recognizing and acting on the potential opportunities brought about by the uncertainty (e.g., increase the chance of achieving their goal).

The research that has been done about the construct of adaptability until now, recognizes three different ways in which people can adapt to uncertain or changing situations: Affective adaptability, cognitive adaptability and behavioural adaptability (Martin et al., 2013).

Affective adaptability refers to the way people react emotionally to a novel or uncertain situation. This construct refers not only to what happens inside the mind of the individual, but also their visible emotional responses. Affective adaptability could be important in situations that involve human interaction, since the adaptation of certain

emotional responses can influence the interaction by altering the shape and mode of the delivery of (non)verbal messages (Gross & John, 2003). Affective adaptability could also play a role in novel situations in general, since it also encompasses the ability to ‘keep your head cool’ in the face of uncertainty.

Cognitive adaptability encompasses the ways in which people mentally react to and deal with uncertain or novel situations. Theory about cognitive adaptability recognizes two different processes that take place on this level: Cognitive appraisal and cognitive regulation. Cognitive appraisal refers to the way in which individuals think about and evaluate a situation or phenomenon (Folkman et al., 1986). Whether they view a changing situation as potentially threatening or potentially beneficial, could be a part of cognitive appraisal. Cognitive regulation refers to an individual’s ability to adapt their thinking in order to process novelties in the ongoing situation (Heckhausen & Schultz, 1993).

Behavioural adaptability refers to the observable behaviours an individual shows to deal with an uncertain or novel situation. It encompasses new behaviours as well as the adjustment of existing behaviour (Schulz & Heckhausen, 1996). Given the fact that emotional as well as mental processes are known to influence behaviour and decision making in general (Ketelaar, 2004), it may be assumed that affective and cognitive adaptability influence behavioural adaptability.

Although it is possible to measure these three aspects of adaptability separately, the current research focusses on the construct of adaptability as a whole, with the aim to examine whether adaptability – rated by the participants themselves – predicts goal achievement in a covert setting that is manipulated to be novel.

Uncertainty Avoidance

The initial concept of uncertainty avoidance was coined by Geert Hofstede (1980) as a part of a theoretical and empirical framework on value development within national cultures.

He defined uncertainty avoidance as the amount of tolerance one has for unpredictability (Hofstede, 1991). On the cultural level, Hofstede (1980) found that cultures high in uncertainty avoidance are also risk averse. On the individual level, the individuals that were part of these cultures value stability in their lives and careers, and want their environment to be predictable. To foster compliance among their members, cultures high in uncertainty avoidance structure the behaviour of the members of their cultures through mechanisms such as laws, religion and customs. Individuals in such cultures avoid vague situations by attaching themselves to the dominant cultural group and comply with its expectations (Hofstede, 1980). In other words, according to Hofstede, individuals high in uncertainty avoidance tend to reduce the uncertainty in their lives by forming a relatively inflexible and closed mindset that is not susceptible to change nor to adapt with changing circumstances.

Applying Hofstede's theory to the context of undercover operations and the adaptability needed to be a successful undercover agent, individuals high in uncertainty avoidance would make a poor match with the job. Although uncertainty must be avoided or reduced to a minimum during these operations, they would not be willing or able to adapt themselves to the changing circumstances, given their rigid mindset. Additionally, individuals high in uncertainty avoidance may not be attracted to the undercover job in the first place, since they might tend to avoid risky or ambiguous situations.

However, more recent research in the organizational and social psychology domains suggests that individuals who are high in uncertainty avoidance have multiple strategies for avoiding and reducing uncertainty. For example, managers who are high in uncertainty avoidance are likely to engage in proactive behaviours in an attempt to effectively deal with a dynamic environment (Schneider & De Meyer, 1991). Instead of attaching themselves to cultural norms and values to make themselves a predictable factor in changing relationships, high uncertainty avoidant managers try to reduce risk by controlling future outcomes, thus

making their environment more predictable (Geletkanycz, 1997). Research by Baker and Carson (2011) supports this theory. They found that individuals high in uncertainty avoidance both attach themselves to the work group or organization and meet their (future) environment through proactivity and achievement-orientation. In other words, they attempt prepare for possible future expectations or uncertainties. Applying this more recent knowledge about uncertainty avoidance to the context of undercover operations would implicate that individuals high in uncertainty avoidance might make a good match with the job of undercover agent, although not through their ability to adapt. They would instead prepare themselves and their environment to reduce the uncertainty posed by the characteristics of the job to ensure the desired outcome.

The Relationship between Adaptability and Uncertainty Avoidance

As can be seen in the previous paragraphs, both adaptability and uncertainty avoidance play a role in effectively responding to novel situational demands. People who are adaptable are able to think quick on their feet in a novel or uncertain situation to help them achieve a certain outcome (Martin, 2012), whereas individuals high in uncertainty avoidance tend to prepare for possible future novelties (Baker & Carson, 2011). Although the strategy that people who are high in uncertainty avoidance adopt might be useful to get certain results, this is not adaptability. The key difference being that adaptability can only occur in situations that are uncertain, thus not anticipated or prepared for. Adaptability is about dealing with the uncertainty in the moment that it occurs, whereas preparation attempts to remove the uncertainty before it occurs.

Individuals high in uncertainty avoidance tend to be risk-averse and uncomfortable in uncertain situations. Research by Starcke and Brand (2012) shows that individuals who are under stress make more conservative decisions and less adjustments to the situation they are in. This can be explained by stress increasing the reliance on lower level automatic response

tendencies and decreasing controlled cognitive processes (Masicampo & Baumeister, 2008; Kassam et al., 2009). Feeling uncomfortable might also shift an individual's attention away from the current situation and towards their emotions (Kassam et al., 2009).

Although no current research exists on the relationship between adaptability and uncertainty avoidance, based on the research of Starcke and Brand, the current paper theorizes that adaptability and uncertainty avoidance are negatively related to each other because the discomfort that high uncertainty avoidance individuals experience in uncertain situations decreases their ability to adapt. To begin to experimentally explore the relationship between adaptability and uncertainty avoidance, a study has been designed in which the manipulated novelty or uncertainty can pose a threat as well as an opportunity.

The Present Study

The aim of the current study is to examine the relationship between adaptability and uncertainty avoidance in the context of undercover operations. The main research questions examine whether adaptability is related to goal achievement and whether this relationship is (partially) explained by uncertainty avoidance. To investigate this, an experimental set up has been developed. In the development of this experimental set up, observations from practice and previous research by Martin (2017) were taken into account. In this experimental set up, participants take on the role of a secret agent and are asked to complete three missions with given objectives (e.g., retrieve the fingerprint of a university employee that is suspected of committing fraud). In the instructions that the participants receive, an explicit expectation is formed (e.g., the only thing that needs to be done to get the fingerprints, is to get the employee to touch a piece of paper). During the mission that expectation will be violated (e.g., the employee is instructed to wear latex gloves to prevent the spreading of a new virus and a box of used gloves is present on the table). The agent must then adopt adaptable behaviours to either circumvent the novelties posed by the expectancy violation or make use

of the new opportunities brought about by the expectancy violation (e.g., convincing the employee to take off their gloves or acquiring the gloves previously worn by the employee.) If the participants manage to successfully achieve their mission objective, they have reached goal achievement.

Hypothesis one of this paper states that adaptability positively predicts goal achievement. This is expected because the experiment is designed in such a way that, in order to reach the goal, the participant needs to adapt to a manipulated expectancy violation. The experiment ensures that they can only reach the goal if they show at least some form of adaptable behaviour and it is expected that individuals who score higher on adaptability have a larger chance to reach their goal.

Hypothesis 1: Adaptability positively predicts goal achievement

Hypothesis two states that adaptability is negatively related to uncertainty avoidance. It is expected that people who are high in uncertainty avoidance will be low in especially affective adaptability, because of the amount of negative emotions resulting from the manipulated expectancy violation. It is also based on the assumption that people low in uncertainty avoidance will not be able to recognize opportunities for goal achievement resulting from the manipulated expectancy violation. Given the exploratory nature of this research, the theoretical background for this hypothesis is derived from assumptions based on what is hitherto known about adaptability and uncertainty avoidance.

Hypothesis 2: Adaptability is negatively related to uncertainty avoidance

Hypothesis three states that the relationship between adaptability and goal achievement is mediated by uncertainty avoidance. It is expected that adaptable people are better at achieving a goal for which they need to adapt their behaviour, because they are lower in uncertainty avoidance, thus more comfortable in uncertain situations.

Hypothesis 3: The relationship between adaptability and goal achievement is mediated by uncertainty avoidance.

Method

Participants

The sample consisted of 116 university students (52 male, 44 female) between the ages of 18 and 41 years old ($M = 22.60$, $SD = 3.13$). The participants in the experiment took part in two different groups: Agents and granters. In this paper, they will be referred to accordingly. The agents and the granters were recruited separately. The agents were recruited to participate in the role of a secret agent, the granters were recruited to assume different roles of employees on their first day of work, that the agent needed to interact with to achieve the mission objective.

Agents. The agents were recruited by means of three different methods. In all three methods they were told that they would be participating in a study in which they would take the role of an undercover agent. The first method was the spreading of flyers in the buildings on the campus of the University of Twente, the second method was through participation via the online recruitment system SONA and the third method was the experimenters personally recruiting the agents. Participation was voluntary. The agents were incentivised to take part in the research by means of the receiving of either a € 10,- voucher or credits in the online SONA system as compensation for participating. Agents ($n = 29$) included 18 males and 11 females between the ages of 19 and 41 years old ($M = 22.03$, $SD = 4.04$). The agents were assigned both randomly and based on opportunity (availability) paired with three granters – one for each operation they would carry out. They were asked to participate in a randomly picked time-slot and rescheduled according to their availability in cases in which they were unavailable in the picked time-slot. The agents completed the missions in three different orders (see table 1 for an overview of the mission orders) to reduce possible order effect.

Table 1

Mission set of questionnaire A, B, and C.

Order A	Order B	Order C
Secret note	Fingerprints	Photograph
Fingerprints	Photograph	Secret note
Photograph	Secret note	Fingerprints

Granters. The granters were recruited by the same three methods as the agents. In all three of the methods, the granters were told that they would participate in a study regarding employee's behaviour on the first workday. Participation was voluntary. The granters were incentivised to take part in the research by means of the receiving of either a € 5,- voucher or credits in the online SONA system. The granters ($n = 87$) included 47 males and 40 females between the age of 18 and 34 years old ($M = 22.54$, $SD = 3.20$). They were assigned both randomly and based on opportunity (availability) to one of the three operations (secret note, photo-evidence, fingerprints).

Experimental Set-up

The current research was part of a larger research project which examines behavioural adaptability in undercover agents. In this larger research project an experimental paradigm was developed. In this experiment, participants take on the role of a secret agent and will complete three different missions, which last five minutes each. To elicit adaptive behaviour, the missions all have three components: A mission objective, an expectation and a violation of that expectation. For example, in one operation called the photo-operation, the agent was given the objective of taking a picture of a lab-assistant who was allegedly committing identity fraud - Lucas. The agent was told that they would meet the lab assistant under the pretence of wanting to sign up for an experiment. This was the expectation. However, when the researcher introduced him- or herself to the agent, it turned out not to be Lucas. Instead,

there was a picture of Lucas hanging on a whiteboard in the office. This created the expectancy violation. The expectancy violation is a crucial part of the experiment, as it forces the agent to adapt their behaviour in the moment, thus creating the conditions for measuring adaptability. Initial pilot testing has shown that this experimental paradigm successfully elicits adaptive behaviour (Oleszkiewicz & Mac Giolla, 2019).

Procedure

The procedure of the experiment will be explained in line with order A.

Agents

As the agents arrived they were brought to a room in which they would read and sign the informed consent and subsequently read the instructions (see appendix A for full instructions). Here, they were also informed by the experimenter about the fact that this experiment would be filmed and that it might include socially stressful situations. In the instructions, the agents could read that they would be taking on the role of an undercover agent and that they would go on three different missions. They were also informed about their contact person (the experimenter) and of their cover name (Kim). After reading the instructions and affirming their understanding of the instructions, the agents read the instructions for the first mission and were given five minutes to prepare (See appendix B for full instructions for all the missions). When the preparation was done, the experimenter escorted the agents to the room in which the first mission would take place. Right before starting the mission the agents were asked two control questions by the experimenter: “Do you remember your name?” and “Do you remember your objective?” After this, the mission would start by the participant knocking on the door of the designated office. This was repeated before each new mission.

The secret note mission. The objective of the first mission was to collect a secret note from the book Social Cognition that was located in the office of a professor – professor

Balthazar. The instructions of this mission was made to give the expectation that the professor would be present in the office, and that he would be friendly and willing to lend the book to the agent. However, when the participant enters the office, they encounter the professor's assistant (the granter), who has been told to make sure the professor's books and other belongings are in order for when he returns. The assistant had not been informed about whether they were allowed to lend out any books, so they would be more hesitant to do so than the professor himself would have been (expectancy violation).

The fingerprints mission. The objective of the second mission was to collect the fingerprints of a study advisor that was suspected of committing fraud. The agents were instructed to go to a meeting with this study advisor and were given a sheet of paper (with their grades on it) to possibly collect the fingerprints on. The instruction stated explicitly that the agent needed to get the study advisor to hold the paper. However, the study advisor had been instructed to wear latex gloves to avoid spreading germs from students amongst the personnel (expectancy violation), and the agent could find a box of used gloves on the table.

The photograph mission. The objective of the last mission was to take a photo of a lab-assistant, Lucas, that allegedly committed identity fraud. The agents were told to enter the room under the pretence of wanting to sign up for Lucas' study and to take a picture during the interaction. However, when the researcher introduced him- or herself to the agent, it turned out not to be Lucas. Instead, there was a picture of Lucas hanging on a whiteboard in the office, of which the agent could take a picture (expectancy violation). Additionally, the lab-manager that they were meeting was instructed to prohibit the use of phones in the room (expectancy violation).

Following each mission, the agents were escorted back to the room in which they started the experiment by the experimenter to fill a post-operation questionnaire. After completing this questionnaire they were presented with the next mission. Once the last post-

operation questionnaire was answered, the agents were instructed to fill out the final questionnaire. Once this questionnaire was filled out, the agents received a debrief text, an oral debrief from the experimenter and the opportunity to ask questions. The agents were also asked to sign a confidentiality agreement and give written consent to use the videos for the purpose of the study. If the performance of the agent and the conduct of the experiment was judged exemplary for the experimental paradigm, they were also asked to sign a written consent to show the video in possible future presentations. Finally, the agents received their compensation.

Granters

The participants that acted out the role of granters were not aware of the true purpose of the study. As stated before, they were recruited on the premise of participating in a study on employees behaviour on their first day of a new job.

As the granters arrived, they were instructed to sit in the room in which the experiment would take place. They were asked to read and sign the informed consent and they were given the general instructions about the experiment (see appendix C for full instructions). After the granters signed the informed consent and had read the general instructions, they were given descriptions of the task that they had to complete on their first day of work (see appendix D for full descriptions of each task). There were three different tasks, each corresponding with one of the missions that the agent went on.

Assistant (secret note mission). The granters that were assigned to the task of assistant were informed that the university wants to relieve researchers from administrative work and are hiring assistants to help. The participant would be acting out the role of this assistant and was instructed to put the books of a professor – professor Balthazar – in order. They were furthermore told that professor Balthazar is very keen on order, which is why it is important that they put everything in the exact right place. The granters in the role of assistant

were also given a sign-up sheet where students could sign up for a meeting with the professor, in case someone came to make an appointment.

Advisor (fingerprints mission). The granters that were assigned to the task of advisor were instructed that the university is setting up a new program in which students advise other students about their study choices and that they will be meeting a student for this reason. Furthermore, these granters were instructed to wear latex gloves when touching other people's belongings, as a part of a new protocol to avoid spreading diseases, specifically from students to staff. They were expected to comply with the new protocol, because they were under the impression that their behaviour on the first day of work would be evaluated.

Lab manager (photograph mission). The granters that were assigned the role of lab manager were instructed to organize the research materials in a designated office. They had to sign up new participants for experiments and create a fitting schedule for these experiments to take place. Moreover, they were instructed that there would be sensitive personal information in the office, because of which it was prohibited for anyone to use their phone or take pictures in the office. As these granters were told they would be evaluated as if it was their first day of work, they were expected to be reluctant to grant a possible request of an agent to take a picture in the office.

Once the granters completed their role in one of the three tasks described above, the task was over and they filled in a post-experiment questionnaire. After filling in this questionnaire, the granters were fully debriefed by the experimenter. They were also told the true purpose of the study and were given the opportunity to ask questions. They were asked to sign a confidentiality agreement and give permission to use the videos for the purpose of the study. If the performance of the agent with which the granter was paired, and the conduct of the experiment was judged exemplary for the experimental paradigm, they were also asked to

sign a written consent to show the video in possible future presentations. Finally, the granters received their compensation.

Materials

As stated before, this research is part of a larger research project. In this section, only the materials relevant to the current research will be described.

Manipulation checks

Agents. This study included manipulation checks to test for a) perceived difficulty in taking the participation seriously, b) motivation, c) predictability of the operations, d) the operations as a measurement for adaptability (as opposed to e.g. resilience or coping), e) how challenging the operations were perceived, and f) occurrence of the expectancy violation

To check for the perceived difficulty in taking the participation seriously two questions were asked: 1) “How difficult/easy was it to take the role seriously?”, 2) “How difficult/easy was it to take the mission seriously?”. Both questions were answered on a seven-point Likert scale, ranging from 1 = “Very difficult” to 7 = “Very easy”.

To test the agents’ motivation, they were asked how motivated they were to complete the mission. This was asked for all three the operations. This question was answered on a seven-point Likert scale, ranging from 1 = “Very difficult” to 7 = “Very easy”.

To test the predictability of the operations, the agents were asked to predict the expectancy violation that would occur for each of the three missions. (e.g., “Before operation 1 started, I had predicted exactly that the professor would not be present.”). This question was answered on a five-point Likert scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”.

To ensure that the agents’ behaviour in the operations could be used to measure adaptability, the agents were asked how much each example in Table 2 described their

perception of the expectancy violation. This question was answered on a five-point Likert scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”.

Table 2

Given Examples for How the Participants Perceived the Expectancy violation

Example	Description
A change	A new or different situation
An adversity	A difficult or unpleasant situation
A novelty	An original or unusual situation
A threat	A situation likely to cause damage or danger
An uncertainty	An unsure or unknown situation
A challenge	A situation that tests your abilities or is seen as difficult
A confrontation	A hostile or argumentative situation

To control that the missions were perceived as challenging, the agents were asked to whether they had perceived the mission as a challenge. This question was answered on a five-point Likert scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”.

Finally, for an agent to have objectively reached their mission-objective, the expectancy violation had to be present in the mission. This wasn’t always the case. For example, when the granter decided not to wear gloves in the fingerprints mission. Making sure that this requirement was met, was done by coding the videos of each participant, by three different coders in independent excel sheets. The videos were watched, and the coders noted down for each video whether the expectancy violation was present. The cases that had no expectancy violation were excluded from the analyses.

Granters. For the granters, this study had manipulation checks in place to check for the perceived difficulty of taking the participation in the experiment seriously and for

participant motivation.

For the perceived difficulty of taking the participation seriously the granters were asked two questions 1) “How difficult/easy was it for you to take your role as a “new employee” seriously?” and 2) “How difficult/easy was it for you to take your “day at work” seriously?”. Both questions were answered on a seven-point Likert scale ranging from 1 = “Very difficult” to 7 = “Very easy”.

To check for the granters’ motivation, they were asked “How motivated were you to do your job during your “day at work”?” The granters gave an answer on a seven-point Likert scale ranging from 1 = “Not motivated at all” to 7 = “Very motivated”.

Main measurements

Adaptability. To measure the adaptability of the participants in the role of secret agent, the state version of the Adaptability scale from Collie and Martin (2016) was used. This is a self-report scale that includes nine questions (See table 3) that need to be answered on a five-point Likert scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”. Questions one to three measure cognitive adaptability, questions four to six measure behavioural adaptability and questions seven to nine measure affective adaptability. The underlined text in the table shows the parts of the questions that were altered for the three operations. For the adaptability questions asked for each operation, see appendix E.

Table 3

The Adaptability Scale for Operation 1

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1. During the secret note operation, I was able to think through a number of possible options to assist me when I realized the professor would not be present
 2. During the secret note operation, I was able to revise the way I was thinking (when I realized the professor would not be present) which helped me through it

3. I was able to adjust my thinking or expectations during the secret note operation to assist me in the interaction with the assistant when it was necessary
 4. During the secret note operation, I was able to seek out new information or useful resources to effectively deal with the assistant (rather than the professor)
 5. When dealing with the assistant during the secret note operation, I was able to develop new ways of going about things (e.g., a different way of doing something or finding information) to help me through
 6. To assist me in dealing with the assistant during the secret note operation, I was able to change the way I wanted to do things when it was necessary
 7. During the secret note operation, I was able to reduce negative emotions (e.g., social anxiety, feeling awkward) to help me deal with the fact that the professor would not be present
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Uncertainty avoidance. To the measure uncertainty avoidance of the participants in the role of secret agent, the English version of the uncertainty avoidance scale by Jung and Kellaris (2004) was used. This is a self-report scale that originally consisted of seven items, that the participants answered on a 5-point Likert scale, ranging from 1 = “Strongly disagree” to 5 = “Strongly agree”. The item “I believe that rules should not be broken for mere pragmatic reasons” was excluded from this research to ensure idealism (versus pragmatism) was not interpreted as uncertainty avoidance. See table 4 for a complete view of the used questions.

Table 4

The Uncertainty Avoidance Scale

1. I prefer structured situations to unstructured situations.
2. I prefer specific instructions to broad guidelines.

3. I tend to get anxious easily when I don't know an outcome.
 4. I feel stressful when I cannot predict consequences.
 5. I would not take risks when an outcome cannot be predicted.
 6. I don't like ambiguous situations.
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Results

Sample Characteristics

To conduct the analyses, first, two new variables were created from a) the sum adaptability score of the agents on each of the three missions and b) the mean of the uncertainty avoidance score. As these constructs were measured with a Likert scale, the data would technically be ordinal. However, it was treated as continuous in this analysis as it is harmless to assume Likert-type categories constitute interval-level measurement when multiple items are combined, since the results tend to be normally distributed (Jamieson, 2004). The outcome variable goal achievement is a categorical binary variable.

A Kolmogorov-Smirnov test and visual inspection of the histograms and normal Q-Q plots were used to determine whether the data on adaptability and uncertainty avoidance was normally distributed. The Kolmogorov-Smirnov test showed that the data on adaptability did significantly differ from normality. However, visual inspection of the histogram and Q-Q plot for this measure seemed to show normality. As the sample size is rather large, the visual inspection should be the leading factor to determine normality (Field, 2013, p.188). Both the Kolmogorov-Smirnov test and the visual inspection showed that the measurement for uncertainty avoidance was negatively skewed, thus not normally distributed. To deal with this non-normality, all analyses performed with the data on uncertainty avoidance, were done with bootstrapping samples.

Manipulation Checks

The participants in the role of undercover agents took their role ($M = 5.21$, $SD = 1.55$), and the operations ($M = 5.31$, $SD = 1.49$) seriously. The agents were motivated to complete all three operations (Operation 1: $M = 6.03$, $SD = 0.82$, Operation 2: $M = 6.21$, $SD = .73$, Operation 3: $M = 6.07$, $SD = 1.16$). The participants in the role of granters took their role ($M = 4.94$, $SD = 1.36$) and their first day at a job ($M = 5.49$, $SD = 1.40$) seriously and were motivated ($M = 6.21$, $SD = 1.36$) to do their job.

To test the operations as a measurement for adaptability, a one sample t test was used to compare the agents' perception of operation one ($M = 3.28$, $SD = .96$), operation two ($M = 3.90$, $SD = .87$) and operation three ($M = 3.48$, $SD = .56$) as a change, novelty and uncertainty against the mid-point of the scale (2.5). The difference was statistically significant for all three operations (operation one: $t(28) = 4.37$, $p < .001$., operation two: $t(28) = 8.61$, $p < .001$., operation three: $t(28) = 9.44$, $p < .001$).

A one sample t test comparing challengingness of each of the operations against the mid-point of the scale (2.5) indicated that all three operations were perceived as a challenge (operation one: $M = 3.17$, $SD = 1.44$, $t(28) = 2.51$, $p = .018$., operation 2: $M = 4.10$, $SD = 1.11$, $t(28) = 6.37$, $p < .001$., operation 3: $M = 3.79$, $SD = .98$, $t(28) = 7.12$, $p < .001$).

The participants could not exactly predict the expectancy violation of operation one ($M = 1.59$, $SD = 1.02$), operation two ($M = 1.38$, $SD = .903$) and operation 3 ($M = 2.41$, $SD = 1.55$).

In a total of 13 of the 87 executed missions, there was no expectancy violation present. The data from these missions was excluded from the analyses described in the next paragraph. The total amount of missions included was 74.

Adaptability and Goal Achievement

Hypothesis 1. To examine whether adaptability is a predictor of goal achievement in

completing a mission, first the mission type was analysed to check for differences between the missions. A difference was found between the fingerprints mission ($M = -1.50$, $SE = .51$) and the book mission ($M = -.68$, $SE = .504$), $p = .017$ with a Tukey correction for multiple testing. The photograph mission ($M = -.677$, $SE = .441$) was not significantly different from the other two missions.

Then a generalized linear mixed effects model was used, in which centred mean adaptability was a predictor, participant was a random effect and mission success was the dependant variable. A generalized mixed effects model was used because the experiment had a mixed design: there were multiple data points from each participant. Therefore, the data violates the assumptions of a standard regression. Furthermore, there was a lot of missing data due to the exclusion of missions that did not have an expectancy violation. Using a generalized linear mixed effects model allowed for excluding this data per mission, instead of per participant.

The model was ran with and without inclusion of the random effect. The generalized linear mixed effects model showed no significant difference in the prediction value between the model including the random effect, and the model excluding the random effect. This shows that there was no effect of participant on the outcome variable.

The generalized linear mixed effects model for logistic regression showed that the model including the fixed effect of adaptability (model 1) was significantly better at predicting the outcome variable than the model including only the random effect (model 0), ($\alpha = .05$), χ^2 ($df = 3$) = 19.88, $p < .001$ (model 0: AIC = 103.1, BIC = 107.7, model 1: AIC = 89.1, BIC = 100.8). Coefficients for the predictors of model 1 are presented in Table 5. Adaptability significantly predicts mission success ($p = .013$). These analyses were conducted in RStudio with packages ‘lme4’ and ‘emmeans’.

Table 5

Task and Adaptability Predictor Coefficients for the Model Predicting Success

	<i>b</i>	<i>SE(b)</i>	<i>z</i>	<i>p</i>	OR [95% CI]
Constant (Fingerprints)	-.57	.28	-1.99	.046	.57 [.32,.98]
Book	-.92	.40	-2.28	.022	.40 [.17,.85]
Photo	1.02	.40	2.55	.011	2.77 [1.29,6.27]
Adaptability	.94	.38	2.48	.013	2.55 [1.28,5.72]

Note. CI = confidence interval, OR > 1 = less successful than the constant.

Adaptability and Uncertainty Avoidance

Hypothesis 2. To examine whether adaptability and uncertainty avoidance are negatively related, a Pearson's correlation with a 1000 samples bootstrapping was executed using IBM SPSS Statistics 26. Bias corrected and accelerated bootstrap 95% CIs are reported in square brackets. The bootstrapping method was used to deal with the not normally distributed uncertainty avoidance data. Furthermore, bootstrapping generates more accurate confidence intervals than the standard intervals obtained using sample variance and assumptions of normality. Adaptability showed to be significantly related to uncertainty avoidance $r = -.303$ [-.484, -.118], $p = .008$ for adaptability. The relationship was in the predicted direction. Hypothesis 2 was accepted.

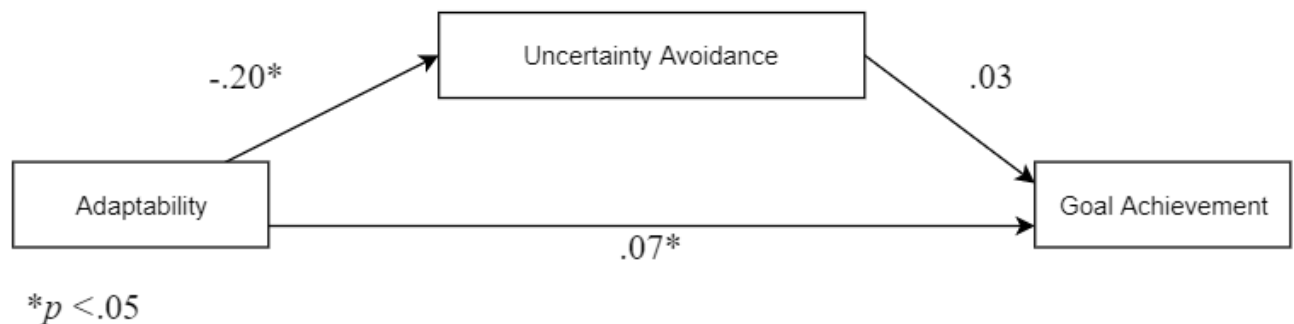
Uncertainty Avoidance as a Mediator Between Adaptability and Goal Achievement

Hypothesis 3. To test whether uncertainty avoidance is a (partial) mediator between adaptability and goal achievement, a mediation analysis with bootstrapping was conducted using Hayes' PROCESS macro for SPSS. The relationship between adaptability and goal achievement was not mediated by uncertainty avoidance. As Figure 1 illustrates, the regression coefficient between adaptability and uncertainty avoidance was statistically

significant, as was the regression coefficient between adaptability and goal achievement. The regression coefficient between uncertainty avoidance and goal achievement was not significant. There was no statistically significant indirect effect. Hypothesis 3 was rejected.

Figure 1

Regression Coefficients for the Relationship Between Adaptability and Goal Achievement as Mediated by Uncertainty Avoidance



Discussion

This study examined the role of adaptability and uncertainty avoidance in achieving mission objectives as an undercover agent. To examine this role, three hypotheses were tested. First, it was hypothesized that being able to effectively respond to changing, novel and uncertain situations – adaptability – would be a predictive factor in achieving a mission-objective. This hypothesis was supported. The second hypothesis proposed that adaptability is negatively related to uncertainty avoidance – the tolerance one has for uncertainty. This hypothesis was also supported. Finally, it was hypothesized that uncertainty avoidance would mediate the relationship between adaptability and goal achievement. In other words, it was hypothesized that part of the reason that people who are adaptable are more successful at achieving an objective, is because those people are comfortable in uncertain situations. This hypothesis was not supported.

Main Findings

Adaptability and Goal Achievement

It was expected that adaptability would predict whether an agent would attain a mission objective, in which a higher score on the adaptability scale would implicate a larger chance for mission success. This study showed that this indeed, is the case. In a situation in which the expectation is violated, adaptable individuals are more likely to attain a certain goal.

Adaptable individuals in this experiment reported that they were able to think of new ways of going about things, execute those, and reduce possible negative emotions resulting from the expectancy violation. This possibly resulted in mission success because emotional and mental processes are known to influence behaviour and decision making in general (Ketelaar, 2004).

The experiment was designed in such a way, that it was impossible for the agent to attain a mission objective without taking the expectancy violation into account. For example, to obtain the fingerprints, the agents could not ignore that the granter was wearing gloves wherefor any possible preparations needed to be revised and adjusted to this novelty. In other words, they had to adapt in order to obtain the mission objective. Given the fact that adaptability was measured on a self-report scale, this result implies that individuals who perceive themselves as having been adaptable in a certain situation are better at attaining the mission objective in that situation. With these findings, this paper sets the first step of building evidence that might later be used in the recruitment process for undercover agents. The findings implicate that recruiters could introduce an adaptability questionnaire in the procedure, to estimate whether someone is fit for the job. However, given exploratory nature of this research and the limited amount of research currently available on the topic of adaptability in undercover agents, more research is necessary to determine whether an adaptability scale truly predicts goal achievement in later work (e.g., when the questions

concerning adaptability are not asked about a specific executed mission, but about the agent in general).

Adaptability and Uncertainty Avoidance

The expectation that adaptability and uncertainty avoidance would be negatively associated with each other was also confirmed by this study. The results indicate that individuals who are lower in uncertainty avoidance, thus more comfortable with uncertainty, are higher in perceived adaptability.

Given the fact that emotion-regulation influences behaviour and decision-making processes in general (Ketelaar, 2004), it is probable that people who are low in uncertainty avoidance are more adaptable because they feel more comfortable in uncertain situations. This allows for the possibility to make decisions and act without the interference of negative emotions such as anxiety or fear resulting from the violated expectation. As Starcke and Brand (2012) showed, high levels of stress decrease adaptability. The expectancy violation might have induces stress in individuals high in uncertainty avoidance, which could be the explanation for their low adaptability.

Another explanation for finding this effect might be the fact that adaptability was measured on a self-report scale. People who are high in uncertainty avoidance might have perceived themselves as less adaptable, because they felt uncomfortable during the novelties in the experiment. They especially might have perceived themselves as low in affective adaptability – the ability to keep your head cool in uncertain or novel circumstances or draw from positive emotions – because of this. Currently, this possible explanation is speculative and mostly based on the formulation of the questions in the used scales. To determine whether the relationship between adaptability and uncertainty was found because

Adaptability and Goal Achievement Mediated by Uncertainty Avoidance

The final expectation that this study examined was that part of the reason that adaptable individuals are better at attaining a mission objective, is because they are low in uncertainty avoidance. This study found no such effect. While adaptability leads to goal achievement, and while those higher in adaptability are lower in uncertainty avoidance, the present study found no mediation effect of uncertainty avoidance and no effect of uncertainty avoidance on goal achievement at all.

These results implicate that uncertainty avoidance is related to perceived adaptability, but does not predict whether individuals were successful at adapting to achieve a goal. A possible explanation for these findings might be that individuals high in uncertainty avoidance perceived themselves as less adaptable, because they felt uncomfortable during the novelties in the experiment. They might have rated themselves very low on the questions about affective adaptability (e.g., To help me through the interaction with the assistant, I was able to draw on positive feelings and emotions). As said in the section about the relationship between adaptability and uncertainty avoidance, this possible explanation is speculative and should be tested in additional research.

This finding is relevant for the area of recruitment and selection of undercover agents. While combining the findings of the first two analyses – adaptability relating positively to goal achievement and negatively to uncertainty avoidance, it might seem to implicate that uncertainty avoidance would be a predictor for success because it is also related to perceived adaptability. However, while this might intuitively make sense, this third analysis, disproves this. The results of this study implicate that, when hiring undercover agents based on how likely it is that they will complete their objective, one should not reject applicants based on high uncertainty avoidance alone, since this is not indicative of their mission success.

Limitations and Future Directions

The current study was subject to multiple limitations. In this section the limitations that were most relevant for the research question will be discussed. Future directions for additional or replicative research will be given where applicable.

The first limitation has to do with the fact that the pool of participants solely consisted of students. Although this is the case in many psychological experiments, and does not always pose a problem, in this study it matters because students cannot be assumed to be representative for undercover agents. Undercover agents at least have had some training in operating under a false identity (Dimitrovska, 2017), while the participants in this experiment did not. The videos of the experiment showed awkward situations resulting from participants hesitantly saying their fake name and in some situations, the participants giving their real name instead, which is possibly a result of them feeling uncomfortable, or being inexperienced with posing under a fake identity in general. The participants did not only have to adapt to the manipulated expectancy violation, but also to the novelty of operating under a false identity to begin with. For real undercover agents, operating under a false identity would not be a novelty that they have to adapt to, but rather something they have prepared for. In future research, this effect could possibly be compensated for by drawing from a pool of individuals that are at least to some degree familiar with operating under a false identity, such as actors or artists, when it is not possible to draw from a pool of undercover agents. If this is not possible the participants could also be given a practice session or trial run, to make them a little more familiar or comfortable with acting under a false identity.

The second limitation of this study has to do with the self-assessment of adaptability. The scores that the participants gave themselves reflect their own perception of their adaptability, rather than objective adaptability. Using a self-assessment scale has the downside that people can underestimate or overestimate their own abilities (Brown et al.,

2013). One could attempt to measure objective adaptability by counting how many adjustments a participant made. However, since quantity of adjustments does not necessarily imply quality, it is questionable whether the amount of adjustments made would be indicative of whether a person's response to change, variability, novelty or uncertainty is truly effective. Moreover, some adjustments made could be detrimental to ~~goal achievement~~effectiveness (e.g., trying to take a picture in the photograph mission, but not being subtle enough and being caught), ~~instead of beneficial~~. Another way to attempt to measure objective adaptability, is to check whether some specific adjustments – or again, a higher number of adjustments - lead to better results than others. However, this would be very dependent on the situation, wherefor it would only measure adaptability in one specific situation and not adaptability overall. Therefore, even though it has some downsides, measuring adaptability on a self-report scale is hitherto the most optimal solution. Moreover, the results of the current research indicate that individuals are capable of estimating their own effective adaptability, since perceived adaptability was shown to predict mission success in a situation in which the expectation was violated.

A third limitation was the use of participants instead of confederates in the role of 'granters'. It is common practice to use confederates in roles that interact with participants in an experiment, because this ensures similar experimental conditions for all participants. However, in this study participants were chosen in the role of granters, because the granters play a large role in determining whether an agent achieves mission success (e.g., when the agent can to convince the granter to take their gloves off). The use of confederates would have called for specific instructions concerning which behaviours or arguments would result in the granter granting the agent their mission objective (e.g., which behaviours or arguments would make the granters take their gloves off). This would have limited the agent's options to successfully adapt heavily, since the options would be subject to which behaviours or

arguments the designers of the experiment would have been able to come up with. In other words, this would have impacted the results negatively of all participants who could come up with adaptive behaviours that could not be predicted by the experimenters. In other words, adapting by thinking ‘outside-of-the-box’ would be punished. Therefore, a strong argument for choosing participants in the role of granters in this experiment can be made, since it allowed for all adaptations made by the agents, to be possibly successful.

As a last side-note it should be noted that the number of participants was fairly small, which limited the power of the experiment and could be a possible explanation for not finding an effect of participant in the generalized linear mixed effects model. However, the low amount of participants probably does not explain the non-significance of the mediation analysis between adaptability, uncertainty avoidance and goal achievement, since the effect sizes of both the effect of adaptability on goal achievement and uncertainty avoidance on goal achievement were very low. The small amount of participants was mainly a result of cancellation of the experiments due to COVID-19 measures that had to be taken. If this experiment is to be replicated in the future, it is advisable to enlarge the amount of participants.

Conclusion

This study attempted to add to the limited knowledge on the work of undercover agents by exploring the role of – and the relationship between – adaptability and uncertainty avoidance in achieving objectives in novel and uncertain situations. It showed that individuals higher in perceived adaptability have a larger chance of attaining mission objectives and that individuals high in perceived adaptability are likely to be low in uncertainty avoidance. However, uncertainty avoidance was not a predictor for mission success. Furthermore, adaptable individuals being better at achieving their goals cannot be explained by their low uncertainty avoidance. These findings can help recruiters in the process of hiring and

selecting undercover agents by assessing their adaptability by means of a self-report questionnaire. Although there is a relation between adaptability and uncertainty avoidance, the latter should not be taken into account while hiring new undercover agents, since it is not indicative of mission success.

It is important to further examine the relationship between adaptability, uncertainty avoidance and reaching a mission objective in undercover operations and to gain a deeper understanding of the skills or traits that are useful in covert settings. Given the relevance of adaptability for reaching mission objectives, a recommendation for future research could be the assessment of the trainability of adaptability.

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Appendix A – Agent Initial Instructions

Instructions

In this study you will take the role of a special agent that will conduct three undercover operations. Before each operation you will receive a brief case file. The case file will (a) explain the background and the purpose of the operation, and (b) state your mission objective. After each operation you will answer a short questionnaire.

Please note that the operational descriptions will be concise and direct. This means that you will only be informed on what you are expected to complete (i.e., your objectives). No information will be provided for how to complete it. This will be left entirely up to you.

You will have about 5 minutes to prepare for each operation.

You have already been introduced to your “contact” (i.e., the experimenter). The contact will give you your case-files and you will bring any item you obtain back to your contact. When all three operations are completed you will fill in a post-operation questionnaire. When you have filled in this final questionnaire the study is over.

There will be a video camera recording the operations. We ask you to do your best to ignore the fact that you are being video recorded. The purpose of the video recording is to supplement the information you provide in the questionnaires.

Please note that as the operational scenarios are fictional you will have to play along with them. We thus request that you take your role as an agent in a serious manner and involve yourself in the role as if it was true.

Importantly, as we aim to simulate specific aspects of reality, the situations you are about to encounter may sometimes be more or less straightforward. But do note that all mission objectives are accessible, even if it would not seem so at first sight. It is therefore central that you do your best to imagine the importance of completing your mission objectives and commit yourself to that outcome.

Your alias during this study will be Kim

Appendix B – Mission instructions

Operation 1: The Secret Note

Purpose	There is information that a double agent has left a secret message to a foreign intelligence agency at the University. We need you to collect that message before it gets into the wrong hands.
Background information	The message is written on a note placed in the book “Social Cognition” by the author Fiske and Macrae. This book has a grey cover and can be found in Professor Balthazar’s office. You need to visit the Professor’s office, collect the note, and bring the note to your contact. The Professor is known to be friendly to students who show an interest in learning. Since you are going to ask to borrow a book on psychological theory (on how people make sense of social situations), it is likely that the Professor will be nice to you.
Mission objective	Collect a note hidden in a book in the office of Professor Balthazar without raising suspicions about your intent.
Tools	(None).

Operation 2: The Fingerprints

The Purpose	There is reason to believe that a student, working on the new “students consulting students” program at the University, is committing fraud by working under a false identity. You need to collect this student’s fingerprints so that they can be matched with the personal identity system.
Background information	A meeting with the student, Alex, has been arranged. You are to consult Alex on what courses you should take next semester. What courses you are planning to study and ask about is up to you, but it is recommended that you stay as close to the truth as possible. To collect the fingerprints, you need to make Alex hold a paper with your grades. If Alex holds the paper, the fingerprints will be collected.
Mission objective	Collect the fingerprints of the student Alex when you discuss your future studies without raising suspicion about your intent.
Tools	A paper with your grades for collecting Alex' fingerprints.

Operation 3: The photograph

Purpose	A foreign spy going under the name 'Lucas' is suspected of stealing sensitive personal data from the University. We have to urgently confirm his identity in order to prevent private information from being sold to fraud companies.
Background information	Lucas true identity can be confirmed by securing a picture of his face. With a clear picture of Lucas' face we can compare it with a CCTV video (surveillance camera) from our intelligence unit and thereby identify who he truly is. Lucas is working with a team of research assistants in the Social Psychology Lab (Room C333). When you have confirmed that you are talking to Lucas (request to sign up for his experiment on wine tasting), take and secure a picture of his face and the mission is completed.
Mission objective	Enter the Social Psychology lab, sign up for Lucas wine tasting study, and take a picture of Lucas face in a manner that does not raise suspicions about your intentions.
Tools	Phone camera.

Appendix C – Granter Initial Instructions

Instructions

In this study you will take the role of a new employee at the University. Before starting your new job you will receive a brief job description. This description will (a) explain the purpose of your job and (b) state what is expected of you during your first day.

Please note that the job description will be brief and direct. This means that you will only be informed on what your job is (i.e., your duties). No information will be provided for how you will do it. This will be left entirely up to you.

You will have about 5 minutes to prepare before “starting your new job”.

You have already been introduced to your “employer” (i.e., the experimenter). The employer will give you your job description. When your first day has been completed you will fill in a questionnaire (the employer will let you know when your first day is completed). When you have filled in this questionnaire the study is over.

There will be a video camera recording your “day at work”. We ask you to do your best to ignore the fact that you are being video recorded. The purpose of videotaping you is to supplement the information you provide in the questionnaires.

Please note that as your “day at work” is fictional you will have to play along with it. We thus request that you take your role as a newly employed person in a serious manner. We also ask you to do your best to imagine that you find it important to do well at your first day at work.

Appendix D – Granter Job Descriptions

Assisting a professor

The job

The University of Twente has decided to relieve successful researchers from administrative tasks, so that they can focus more on research. In an effort to do so the University of Twente will try-out employing assistants tasked with managing the administration of professors. You have been assigned to be the assistant of Professor Balthazar.

Job description

Professor Balthazar has gained broad recognition because of his excellent studies into research methodology. However, Prof. Balthazar has recently been accused of committing research fraud by using questionable methods in his own research, which have placed him in serious controversy. Due to extensive public criticism, Prof. Balthazar has taken a two-week vacation to get away and recover from all the negativity. Prof. Balthazar will be back in his office on Monday next week.

Your task

As Prof. Balthazar left in a hurry, we want to make sure he has a good start when he comes back: being a clean and organized office! Your job will be to organize Prof. Balthazar's office during his absence. You will inventory his books, categorize his papers, and schedule his appointments starting next week. Please note that Prof. Balthazar is very keen on order. It is very important that all his belongings can be found exactly on its right place when he returns.

Alias

Your alias during this study will be Charlie

Student advisor

The job

Recent studies have shown that students' academic concerns are better resolved by talking with fellow students rather than consulting professional study advisors. The University of Twente has thus decided to try out a new program called "students consulting students". You have been assigned to consult another student on what courses to take next semester.

Job description

Your task is to meet the student Kim who wants to discuss what courses to take next semester. You will listen to Kim's concerns and try to help Kim work out a path of future studies (e.g., what courses to take). Importantly, your job is not to convince Kim on what Kim should do, but rather to help Kim consider multiple options so that Kim can make informed decisions. Please note that to reduce the high number of sick leave among staff the university has begun a new initiative to reduce the spread of viruses and bacteria from students to staff. This initiative has ordered all personnel to use plastic gloves when receiving items from students. Therefore, a box with plastic gloves has been made available in case you receive any items by the student (e.g., pens, papers, books etc.). Please remember to put on these protective gloves in case you are asked to touch any objects brought in by the student.

Your task

You will meet the student named Kim who wants to discuss what courses to take next semester. Your job is to learn what classes Kim has already studied, what grades Kim achieved on these courses, and have Kim explain if the grades truly reflect Kim's true qualifications (e.g., performance, skills, and effort). Based on Kim's answers to your question you will together come up with a plan for what Kim should do next semester. Please do not forget to wear the protective gloves if you are asked to hold any objects.

Alias

Your alias during this study will be Alex

Research lab manager

The job

The Research Data Management policy (RDM), adopted by the University of Twente, highlights that proper management of research data makes science more transparent while improving scientific integrity and societal trust. To ensure that our researchers adhere to the ethics and integrity of RDM, the University of Twente will try out employing laboratory managers tasked with monitoring the ethical procedures of the research data. You have been assigned to be the lab manager of the research group of Social Psychology.

Job description

Your task is to organize the research material in the laboratory office, to administer research assistants (i.e., students helping out with data collection) and to sign up research participants (i.e., students who want to participate in social experiments). Importantly, as there is plenty of personal and sensitive information kept in the lab office it is absolutely forbidden to take pictures or make videos in the office. Hence, the lab office has a zero-use policy on cell phones (i.e., a phone is not allowed out of the pocket). Be aware that many students who comes to sign up for participating in research wants to take a picture of the schedule for the experiments. You will have to inform them that they can look up the schedule on the lab webpage.

Your task

You will have to organize the working schedule for all employed research assistants (e.g., how many and who are working in what project). You also have the schedule for all ongoing and upcoming research experiments so that students who wants to participate can sign up on these.

Alias

Your alias during this study will be Kasey

Appendix E – Adaptability Questions

Secret note operation

1. I was able to think through a number of possible options to assist me when I realized the professor would not be present.
2. I was able to revise the way I was thinking (when I realized the professor would not be present) which helped me through it.
3. I was able to adjust my thinking or expectations to assist me in the interaction with the assistant when it was necessary.
4. I was able to seek out new information or useful resources to effectively deal with the assistant (rather than the professor).
5. When dealing with the assistant, I was able to develop new ways of going about things (e.g. a different way of doing something or finding information) to help me through.
6. To assist me in dealing with the assistant, I was able to change the way I wanted to do things when it was necessary.
7. During the operation, I was able to reduce negative emotions (e.g., social anxiety, feeling awkward) to help me deal with the fact that the professor would not be present.
8. When I realized the professor would not be present, I was able to minimize frustration or irritation so that I could deal with it best.
9. To help me through the interaction with the assistant, I was able to draw on positive feelings and emotions (e.g., enjoyment, satisfaction).

The fingerprints operation

1. I was able to think through a number of possible options to assist me when I realized the consultant would put on gloves.
2. I was able to revise the way I was thinking (when I realized the consultant would put on gloves) which helped me through it.
3. I was able to adjust my thinking or expectations to assist me when the consultant had the gloves on when it was necessary.
4. I was able to seek out new information or useful resources to effectively deal with the consultant when the gloves were on (rather than when the gloves were off).

5. When dealing with the fact that the consultant had gloves on, I was able to develop new ways of going about things (e.g. a different way of doing something or finding information) to help me through.
6. To assist me in dealing with the consultant with the gloves on, I was able to change the way I wanted to do things when it was necessary.
7. During the operation, I was able to reduce negative emotions (e.g., social anxiety, feeling awkward) to help me deal with the fact that the consultant had gloves on.
8. When I realized the consultant would put on gloves, I was able to minimize frustration or irritation so that I could deal with it best.
9. To help me through the fact that the consultant had gloves on, I was able to draw on positive feelings and emotions (e.g., enjoyment, satisfaction).

The photograph operation

1. I was able to think through a number of possible options to assist me when I realized it was not allowed to take pictures in the lab.
2. I was able to revise the way I was thinking (when I realized it was not allowed to take pictures in the lab) which helped me through it.
3. I was able to adjust my thinking or expectations to assist me in dealing with the fact that I was not allowed to take pictures in the lab when it was necessary.
4. I was able to seek out new information or useful resources to effectively deal with the fact that I was not allowed to take pictures in the lab.
5. When dealing with the fact that I was not allowed to take pictures in the lab, I was able to develop new ways of going about things (e.g. a different way of doing something or finding information) to help me through.
6. To assist me in dealing with the fact that I was not allowed to take pictures in the lab, I was able to change the way I wanted to do things when it was necessary.
7. During the photograph operation, I was able to reduce negative emotions (e.g., social anxiety, feeling awkward) to help me deal with the fact that I was not allowed to take pictures in the lab.
8. When I realized it was not allowed to take pictures in the lab, I was able to minimize frustration or irritation so that I could deal with it best.

To help me through the fact that I was not allowed to take pictures in the lab, I was able to draw on positive feeling and emotions (e.g., enjoyment, satisfaction).