“No Label Please”: An Explorative Experiment in Organizational Communication

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Master Thesis

A B S T R A C T

Purpose. This study investigated whether the Essential 5 method (De Bruin, 2018a), designed for individuals with ASD, enabled these people to perform work-related tasks. This study also investigated whether the use of this method had an influence on the length of conversations, quality of life and personal well-being.

Design. Making use of the communication method this study executed a work simulation in a 2 (ASD diagnosis: yes vs. no) × 2 (Essential 5 communication: yes vs. no) experimental design. In the work simulation, respondents took the role of Human Resource Manager. In this role, they were asked to solve the case of an employee who was possibly caught drunk driving. Their performance was coded using the Individual Work Performance Questionnaire (Koopmans, 2014). Also, the influence of the work simulation on the quality of life and personal well-being was assessed using pre-existing scales.

Findings. An interaction effect was found for respondent type and communication type on the length of conversations. Specifically, making use of the Essential 5 method reduced the conversation length with individuals with ASD. While not making use of the method reduced the conversation length with individuals without ASD. Next, no effects were found for work performance, indicating no differences between both respondent groups and communication methods. A main effect was found for respondent type on the quality of life, indicating that respondents with ASD perceived their quality of life lower than individuals without ASD. Finally, an interaction effect was found for respondent type and communication type on personal well-being. Indicating that the use of the Essential 5 method improved the personal well-being of individuals with ASD, while not using this method improved the personal well-being of individuals without ASD.

Originality/value. This study showed the abilities of individuals with ASD as not being less than their associates without ASD. This indicates a shift in theory and practice because individuals with ASD no longer need to stand on the sidelines of society.

Keywords: ASD, Essential 5, Organizational Communication, Well-Being, Work Performance

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Introduction

Research into the Autism Spectrum Disorder (ASD) is increasing. Therefore, the understanding of ASD behavior starts to increase (De Bruin, 2017; Mous, 2015), earlier diagnosis can be given (Elsabbagh & Johnson, 2010), and continuously more suitable treatments are being found (Accordino, Kidd, Politte, Henry, & McDougle, 2016; National Institute of Mental Health, 2018). ASD affects multiple aspects of the daily lives of individuals suffering from disorders in this spectrum. Individuals in the autism spectrum suffer from being overstimulated, but they also have difficulties with communication (Mous, 2015). The difficulties with communication are expressed in their misunderstanding of other people. Inspired by her father, who had Asperger's Syndrome (a disorder in the autism spectrum), De Bruin (2018a) developed a communication method: *The Essential 5*. This method helps individuals in the autism spectrum process information better and faster when interacting with others, which in turn leads to a decrease in misunderstanding. The Essential 5 method is based on a puzzle of five key terms – *what, how, when, where,* and *who*. This method showed success in recent years in taking care of individuals with ASD (Naber, 2017).

The yearly report of Begeer, Wijngaarden, Vreugdenhil & Wijnker-Holmes (2017) showed that 46% of the individuals with ASD hold a job-related position. This percentage sounds relatively high, but it should be noted that most of these positions are part-time or on a volunteering basis. Further, Begeer et al. (2017) showed that 40% identify the level of work as fit with their capabilities, and 37% say the content of the work they perform is fitted well to their interests. Those are the reasons individuals with ASD call for help in finding more suitable places to work. Begeer et al. (2017) also found that 22% of the individuals with ASD have an IQ higher than 130 (vs. 2.3% of individuals without ASD). Their high intelligence suggests that individuals with ASD can become exceptional in specific disciplines. Nonetheless, in line with Begeer et al. (2017), the main body of research into work and ASD focused on low educated jobs. However, their high intelligence and call for help suggest there is a need for research into the higher educated labor market. Therefore, this study aims at discovering the abilities of individuals with ASD and juxtapose them to their associates without ASD, while making use of the developed communication method by De Bruin (2018a). Accordingly, the following research question is formulated: *To what extent does the Essential 5 method contributes to a reduction in conversation lengths, increased work performance, increased quality of life, and increased personal well-being among individuals with and without ASD?*

This paper is structured as follows: The theoretical framework will explain what ASD is. The framework also sheds light on the Essential 5 method and its relationship with ASD. Finally, using relevant literature, the framework investigates the relationship between ASD and work performance, quality of life, and personal well-being. In the following section, the research method will be addressed. The study is designed as a 2×2 experiment, which is translated into a work simulation. After the method of data gathering is elaborated, the results will be presented using full-factorial ANOVA analyses. In the next section, the results will be discussed, and its theoretical and practical implications will be pointed out, which are translated to directions for future research. The paper finishes with concluding thoughts.

Theoretical Framework

Autism Spectrum Disorder

Autism Spectrum Disorders (ASD) is a range of life-long neurodevelopmental disorders. The brains of individuals with ASD differ from 'regular' brains for multiple reasons (De Bruin, 2017). First, they miss an information processing filter. This filter is a part of unconscious information processing. Missing this filter translates to their less developed ability to process social information. Having less ability to process social information causes these people to behave in uncommon manners. Second, the neuron paths in the brains of individuals with ASD are designed less efficient than those of their associates without ASD. This inefficient design causes individuals with ASD to take more time with information processing.

For a long time, it was assumed that individuals diagnosed with ASD had low intelligence (RTL Nieuws, 2018). Therefore, they were unable to participate in society, partly due to their social clumsiness. This clumsiness is caused by their differing brain functions as described above. However, missing or having less developed information processing parts in the brains should not imply that these individuals are unable to participate in society (De Bruin, 2017). Yet, their clumsiness causes them to act in ways which are not expected by society. This unexpected behavior frightens 'normal' people to interact with individuals with ASD.

Essential 5 Communication and ASD

Individuals with ASD often have trouble understanding communication (Mous, 2015). Therefore, it is important to communicate more effectively with these individuals. The Essential 5 method is a method developed by De Bruin (2018a), which helps individuals with ASD process information more effectively. The Essential 5 method is adopted in this study, because this method has been found effective in different settings (Moes-Wisselink, 2014; Naber, 2017; Verhaert, 2016). However, the method has not been tested in an organizational setting yet.

De Bruin (2017) uses the Essential 5 method to describe the behavior of individuals with ASD in an understandable way. She introduces the metaphor of a puzzle to explain brain function and behavior. First, she states that individuals with ASD observe their environment fragmented. In other words: all information that these people gather from their senses is split in individual puzzle pieces. This means that every single fragment (i.e., puzzle piece) of information contains specific information. These fragments can consist of multiple different matters we see around us such as: colors, shapes, shadows, textures, proportions, and many more. To make sense of the environment, an individual with ASD need to process all the fragments individually and try to connect them to complete the picture. But, sometimes processing fragments can go wrong. For example, brains make distinctions between factual (e.g., the girl is holding a rose) and social information (e.g., the girl waves at you). Having said that, the brains of individuals with ASD can make an error in processing social information as factual (or vice versa). When information is processed as factual instead of social, this mistake leads the individual with ASD to not react properly (e.g., wave back). To prevent this error individuals with ASD take more time to process information as they have to assess every fragment individually. By collecting the right fragments an individual with ASD is able to make sense of his environment and respond accordingly.

The Essential 5 method is based on five key terms (puzzle pieces) – *what, how, when, where,* and *who*. *What* relates to any task an individual with ASD has to perform. De Bruin (2018b) defines the key term *what* as the centerpiece of the puzzle. The other four key terms further define *what.* For example, *how* defines the way the person has to act. Specifically, the order of steps to get to the end result. In turn, *when* defines the start of a task (e.g., every Monday 08:30 AM person A has to provide coffee for his colleagues) and the end of the task (e.g., everybody is provided with coffee). *Where* defines the place the task has to be performed, such as the floor the person has to work on and the room he belongs in (e.g., 2nd floor, room 5). Finally, *who* defines the person who performs the tasks. This may

include multiple people (for example, person A provides coffee for all colleagues on floor 2, room 1 to 10 and person B provides coffee for all colleagues on floor 2, room 11 to 20). All pieces together would give the following task to person A, who is diagnosed with ASD: *'Every Monday at 08:30 AM you have to provide coffee for all colleagues on the 2nd floor in room 1 to 10. First, you go through room 1 to 10 on the 2nd floor asking everyone if they would like a cup of coffee. Next, you are going to get the coffee from the coffee machine in our lunchroom on the 2nd floor. You pour the coffee in cups and then you bring the coffee to everyone who told you they wanted a cup of coffee. Your task is finished when everybody who told you they wanted a cup of coffee received it from you. When you are finished, you return to your office and start the next task on your list.'* For person B, who is not diagnosed with ASD, the task is described less exhaustive as this person can define the structure himself: '*Every Monday at 08:30 AM you have to provide coffee for all colleagues on the 2nd floor in room 11 to 20.'*

While the five elements sound as basic elements of communication, an important sixth term is missing: The *why*. De Bruin (2018b) considers *why* as 'background information'. This background information contains unclear, unspecific, or irrelevant information and also contains the underlying reasons of 'normal behavior'. More specifically words as 'many,' 'a few,' or a person's gender are words that can be considered as background information. Being more specific in communicating, by mentioning the exact number instead of 'many' or 'a few,' enables an individual with ASD to better process information. Also, as described earlier, individuals with ASD observe their environment fragmented. Therefore, they take more time processing information. Due to their fragmented observing, they have difficulties with social skills, which is another reason for the eliminated term *why* in the Essential 5 method (De Bruin, 2018b). Because individuals with ASD have difficulties with the *why* term, they have difficulties understanding the underlying reasons for 'normal behavior.' Individuals with ASD often do not know why they act in a certain way (De Bruin, 2017). They act in that way because of habit or because it is how it should be, without worrying about the underlying reasons.

Two examples from De Bruin (2018b) illustrate the relationship of the missing *why* term, the five key terms and ASD behavior. A parent is sitting in the bus with her child Gijs (7). An elderly woman steps into the bus. The parent says to Gijs: 'Gijs, please get up for the lady.' 'Why?' asks Gijs. 'Because she is old!' says his parent. 'So what?' responds Gijs. In this example, the behavior of Gijs seems rude, but he is missing the link between the elderly lady and standing up for her. Gijs behaves this way because he is not aware of the underlying reason of 'normal behavior' (i.e., you should give away your seat in public transportation to elderly people). Instead of using a reason (why) to get Gijs to stand up for the elderly lady, the parent should have acted as a role model by standing up herself and explain to Gijs: '*the next time* (= when) *you* (= who) *see an elderly person* (= what) *in the bus* (= where), *you have to stand up and give away your seat so he/she can sit*' (= how). In the second example, De Bruin (2018b) tells about a family who are busy moving to a new home. While the whole family is packing their stuff and bringing boxes to the truck, Tom (14) is sitting in the corner of his room reading a comic book. He does not understand that his family is expecting him to help. He thinks: why should I? I feel like reading my comic book now! In this example the family should have been explicit in the key terms and assign a task to the child: '*Tom, you* (= who) *have to pack your belongings* (= what) *in your room* (= where) *by placing them in these boxes with your name on it* (= how) *now* (= when). In other words, by being specific in your communication (the use of the five key terms) and avoiding the why (underlying reason of normal behavior), individuals with ASD will understand one easier and behave properly.

Using the five key terms – *what, how, when, where,* and *who* – and avoiding the *why* term while communicating with individuals with ASD, makes one communicate in a structured way. This structure of communication enables individuals with ASD to better and faster process information, and in turn, understands you better and enable them to respond quicker. Individuals with ASD understand patterns rather quick. By applying this method over and over again, the person with ASD one is interacting with knows what to expect from him/her. Consequently, the recognition of patterns, in turn, translates towards more socially desired behavior of individuals with ASD (De Bruin, 2017). However, as they

develop patterns from an early age, sometimes it might take a while and it can be difficult to change those. Once individuals with ASD has been in a situation, they will remember how to behave properly.

In summary, communicating using the Essential 5 method simplifies the nowadays complex ways of (interpersonal) communication. By simplifying communication, individuals with ASD are able to understand others quickly and respond more accurate. Therefore, it is expected that the use of the Essential 5 method make conversation with individuals with ASD more productive, and therefore shortens the conversation length. Thus, the following hypotheses are formulated:

> *H1a: Communicating using the Essential 5 method (vs. not using this method) effectively reduces the conversation lengths with individuals with ASD.*

> *H1b: Communicating not using the Essential 5 method (vs. using this method) effectively reduces the conversation lengths with individuals without ASD.*

Individual Work Performance

In organizational research, performance always has been an important factor. Especially the performance of employees has shown to be an important factor for organizational success (c.f., Kim, 2005; Ostroff, 1992). Yet, a reliable framework measuring the concept of employee performance was lacking. Until recently the Individual Work Performance Questionnaire (Koopmans, 2014) was developed. The IWPQ was constructed by analyzing other performance frameworks. She also had experts in the field of employee performance review her work. Individual work performance is defined by Koopmans (2014) "in terms of behaviors or actions of employees, rather than the results of these actions. In addition, IWPQ consists of behaviors that are under the control of the individual, thus excluding behaviors that are constrained by the environment" (p.63). The IWPQ constructs individual work performance in four dimensions: (1) task performance, (2) contextual performance, (3) adaptive performance, and (4) counterproductive work behavior.

In her review of different frameworks, Koopmans (2014) found many different labels for task performance (e.g., job-specific task proficiency, technical proficiency, or in-role performance). Also, multiple indicators were suggested. The use of multiple indicators led Campbell (1990) as cited by Koopmans (2014) to define task performance into two dimensions: job-specific proficiency (core job tasks) and non-job-specific proficiency. The latter refers to tasks that do not belong to the core job but are expected of all employees. Koopmans (2014) also found job-specific frameworks to use a wide range of dimensions, which were only applicable to certain positions. She aimed to develop a more generic framework, therefore she defined task performance as: "the proficiency with which an employee performs central job tasks" (Koopmans, 2014, p.63). Because task performance contains a wide variety of definitions and dimensions, it is important for organizations to communicate explicitly about their definition of task performance. Especially from an ASD perspective, clear communication gives individuals with ASD certainty of what is expected from them in their position.

Individual work performance is more than meeting work goals. Therefore, Koopmans (2014) added contextual performance to her framework. She found contextual performance to be defined similarly in most frameworks. Therefore Koopmans (2014) defined this concept as: "employee behaviors that support the organizational, social, and psychological environment in which the central job tasks are performed" (p.63). The most frequently mentioned dimensions she found were: *communication, effort, discipline, interpersonal behavior,* and *leading and developing others*. This indicates that interaction within the organization's environment is important for the assessors of contextual performance. Because individuals with ASD lack social skills, this may be a difficult domain for them. However, as studies have shown, the use of the Essential 5 method enables these individuals to properly interact with their environment (Naber, 2017; Verhaert, 2016).

In literature, adaptive performance is sometimes seen as a part of contextual performance. However, Koopmans (2014) determined it as a freestanding dimension. She defines adaptive performance as: "employee's proficiency in adapting to changes in work roles or environment" (Koopmans, 2014, p.63). She indicates that adaptive performance, as a freestanding dimension, is a new and upcoming dimension in work performance literature. Only the Job Ability Index (JAI) by Pulakos, Arad, Donovan, & Plamondon (2000) is a frequently used framework which applies the dimension of adaptive performance. Pulakos et al. (2000) pointed out eight indicators of adaptive performance: *handling emergencies and crisis situations*; *handling work stress*; *solving problems creatively; dealing with uncertain and unpredictable work situations; learning work tasks, technologies, and procedures*; *demonstrating interpersonal adaptability; demonstrating cultural adaptability;* and *demonstrating physically oriented adaptability*. These indicators inspired Koopmans (2014) in constructing adaptive performance in the IWPQ framework. Because adaptive performance relates much to changes, it may hold some difficulties for individuals with ASD. Individuals behave in predefined and learned patterns (De Bruin, 2017). When patterns change, these individuals can have some difficulties with adapting. Allowing them time to adapt and guide them with structured communication (the Essential 5), might help them increase their adaptive performance.

Finally, counterproductive work behavior is defined as: "behavior that is harmful to the well-being of the organization" (Koopmans, 2014, p.63). Behavior such as absenteeism, being late for work, engaging in off-task behavior, theft, and substance abuse. There are multiple reasons for engaging in counterproductive work behavior, such as job satisfaction, organizational commitment, and organizational justice (Dilal, 2005). Wherein high job satisfaction and organizational commitment lead to a decrease in counterproductive work behavior. Satisfaction and commitment are related in such a way that when an employee is satisfied at his job, he/she will be more committed engaging in (extra) tasks (Dilal, 2005). Organizational justice relates to the fairness of decisions in the organization (Dilal, 2005). From an ASD perspective, these reasons for engaging in counterproductive work behavior are important, because individuals with ASD do not understand the underlying reasons for behavior (the *why* term which needs to be avoided in communicating with these individuals). Therefore, individuals with ASD can have different perspectives on fairness of decisions than others. Another reason for engaging in counterproductive work behavior from an ASD perspective is the following. Decisions in organizations are constantly made, which cause changes in routines. Individuals with ASD have difficulties with changes, as they are used to behave in predefined patterns (De Bruin, 2017). Constantly changing these patterns may frustrate these individuals, which leads to a reduction in job satisfaction and, in turn, organizational commitment (Dilal, 2005). Communicating from an ASD perspective, with the Essential 5 method, makes one understand the perceptions of individuals with ASD. Then communicating using the method should imply a better acceptance of decisions and, therefore, a reduction in engaging in counterproductive work behavior.

Koopmans (2014) developed a scale with indicators for every dimension. Every scale consists of about four questions, which together result in a mean score for every dimension and indicates the work performance of an employee. This means employees can score points per dimension, which can be used to indicate differences in work performance between employees. Because this study juxtaposes the abilities of two different types of people, a scale measuring this construct on different dimensions is important. Therefore, the IWPQ framework is adopted.

This study makes use of two communication methods, one designed for individuals with ASD (Essential 5) and one that is 'designed' for individuals without ASD (not using Essential 5). Expected is that a corresponding method holds a positive effect on the work performance of individuals, as information is understood better. Therefore, the following interaction effect is hypothesized:

> *H2a: Communicating using the Essential 5 method (vs. not using this method) improves the (a) task performance, (b) contextual performance, (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals with ASD.*

H2b: Communicating not using the Essential 5 method (vs. using this method) improves the (a) task performance, (b) contextual performance, (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals without ASD.

In the introduction, it was mentioned that the group of individuals with ASD have a higher percentage of high intelligence, compared to their associates without ASD. Therefore, this study tries to discover the abilities of individuals with ASD and juxtapose them to the abilities of their associates without ASD. However, because of the clumsiness of individuals with ASD, misunderstandings might lead to unforced errors in work tasks. Errors lead to a reduction of work performance. Therefore, it is expected that their clumsiness reduces their work performance somewhat. Thus, an additional work performance hypothesis is formulated:

H3: The total score on the IWPQ of individuals with and without ASD do not differ significantly.

Personal Well-Being and Quality of Life

Due to their less developed ability to process information and the inefficiently designed neuron paths in the brains of individuals with ASD, it can be hard for them to recognize social information and, therefore, become clumsy (De Bruin, 2017). Previous research has shown that individuals with ASD suffer from loneliness (Mazurek, 2014). This research also suggests their loneliness causes a decrease in life satisfaction and an increase in depression and anxiety. Their clumsiness might make it harder for these individuals to make a connection with others to reduce their feeling of loneliness. Also, because they currently lack participation in society, no improvement is expected in the coming years (Mazurek, 2014). To validate these assumptions the following hypothesis is formulated:

H4: Individuals with ASD perceive their quality of life and personal well-being less than individuals without ASD.

The Personal Wellbeing Index – Adult (PWI- A) (International Wellbeing Group, 2013) is adopted to construct quality of life. There is no agreed definition of quality of life and most proposed scales are suited for the majority (International Wellbeing Group, 2013). However, the PWI-A is specially designed for the minority groups, which means the scale is suitable for this study. Then, to construct personal well-being the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS – Tennant et al., 2007) is adopted. Personal well-being is defined as: "a complex construct, covering both affect and psychological functioning with two distinct perspectives: the hedonic perspective, which focuses on the subjective experience of happiness and life satisfaction, and the eudemonic perspective, focusing on psychological functioning and self-realization" (Tennant et al., 2007, p. 2).

As mentioned earlier, communicating using the Essential 5 method makes it easier for individuals with ASD to understand and interact with other people. Thus, using this communication method might improve the overall quality of life and personal well-being of individuals with ASD as they will (re)act in less uncommon manners. Because they then will act more socially appropriate, individuals with ASD might be easier accepted into society. Having them accepted in society might show an increase in quality of life and personal well-being. Therefore, one can conclude the following, final, hypotheses of this study:

H5a: Communicating using the Essential 5 method (vs. not using this method) improves both quality of life and personal well-being of individuals with ASD.

H5b: Communicating not using the Essential 5 method (vs. using this method) improves both quality of life and personal well-being of individuals without ASD.

To give a comprehensive overview of the hypotheses, the research model is presented in Figure 1.

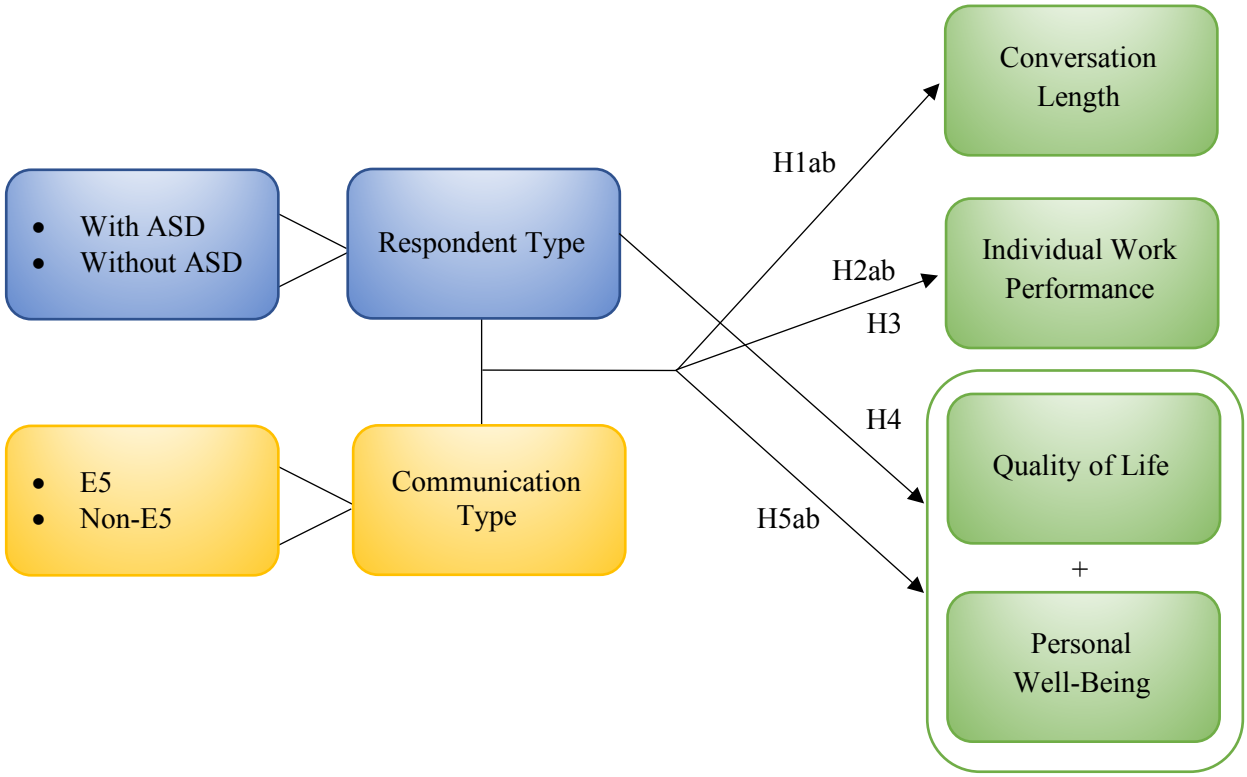

Figure 1 – Research Model

Method

Research Design

An online work simulation was conducted to investigate if the interaction of ASD diagnosis and different communication methods have an influence on individual work performance, quality of life and personal well-being. This study executed this work simulation in a 2 (ASD diagnosis: yes vs. no) × 2 (Essential 5 communication: yes vs. no) experimental design. Thus, depending on whether a respondent is diagnosed with ASD (conditions 1 and 2) or not (conditions 3 and 4), they will be exposed to one of the following conditions, where conditions 1 and 4 are the suitable communication conditions with the type of respondent (see Figure 2):

1. Respondent with ASD and exposure to Essential 5 Communication;
2. Respondent with ASD and no exposure to Essential 5 Communication;
3. Respondent without ASD and exposure to Essential 5 Communication;
4. Respondent without ASD and no exposure to Essential 5 Communication.

		Essential 5 Communication	
		Yes (+)	No (-)
Autism Spectrum Disorder	Yes (+)	*Condition 1*	*Condition 2*
	No (-)	*Condition 3*	*Condition 4*

Figure 2 - Matrix of Experimental Conditions

Pretest of Stimulus Material

Design of Stimulus Material

Work simulation. A work simulation was used to juxtapose the abilities of individuals with and without ASD. The work simulation was inspired by other work simulations, which also measured employee performance (c.f., Jimmieson & Terry, 1999; Koczwara et al., 2012; Parker, Jimmieson, & Amiot, 2013; Schmitt & Mills, 2001). In the work simulation respondents were provided with a description of an organization, what their role was in this organization, and a task they had to solve. All descriptions were in text-form. This way the Essential 5 method could be applied most effectively. After the task description, respondents were asked whether they liked to solve the task immediately (without gathering extra information), or if they first liked to reply in an e-mail to ask for the information. In the task, there were missing parts of information, which respondents needed to solve the case. As the extra information was gathered, or not, the respondents tried to solve the task by proposing a plan of action. The proposed plan of action, which was written in e-mail format, was subject to a coding scheme which reviewed their work performance.

Text versions. Two text versions of each description were created. For the tasks, two different tasks were used. Thus, initially eight different texts were created. The process of creating the texts was simple. First, a regular description of the organization, role, and tasks were written. These four texts were named the Non-Essential 5 texts. Then, to develop the Essential 5 texts, the Non-Essential 5 texts were used as a basis and were tweaked in such a way that all *why's* – unspecific, unclear, and unrelated information, and reasons for 'normal behavior' – were eliminated.

Task versions. To develop a successful work simulation, different tasks were considered. It was important that the tasks were open for interpretation of the respondent and did not consist of a single right answer. Two different tasks were thought of: the first option consisted of an employee who had possibly stolen something from the organization's warehouse, the other task consisted of an employee who was overheard by his boss, while he might have said he was caught driving under the influence of alcohol. The pretest determined which task was most open for interpretation by the respondent, and therefore provided the study with most diverse information.

Pretest

To determine if the stimulus materials were designed accordingly, a pretest was conducted. Respondents entered the pretest version of the work simulation online, where they were provided with one of the two versions of an organization description and role description. Next, the respondents were assigned to one of the two proposed tasks (i.e., theft of an employee or drunk driving). Eleven respondents were recruited to take part in this work simulation, of which five were assigned to the Essential 5 version of the texts. To check for differences in demographics between the two groups (Essential 5 vs. Non-Essential 5) independent sample *t*-tests were conducted, showing no significant differences in the groups based on: gender; $t(9) = -.98$, $p = .35$, age; $t(9) = -.08$, $p = .94$, or education; $t(9) = .89$, $p = .40$.

Design of stimulus material. To check if the materials were designed correctly, respondents were, after they solved the case, provided with the other text version. Respondents were asked to mention the elements present in the newly provided text. Respondents were able to give the following answers: *what, how, when, where, who,* and *why*. Also, they were able to provide any additional elements present, which none of the respondents did. In the original Non-Essential 5 group – now provided with the Essential 5 text – the element *why* should be missing. In this group, two out of six respondents noticed a *why* in the text. While in the other group – where *why* should be present – all of the respondents indicated this element was present.

To give the manipulations an extra check, respondents were asked to say whether their original text contained more contextual information than the manipulated text. To clarify, the Essential 5 text should contain less information (the *why*). In the Essential 5 group, four out of five respondents indicated the manipulated (Non-Essential 5 text) contained more contextual information, while in the Non-Essential 5 group the opinion was 50/50 split. Together the respondents indicated the Non-Essential 5 text as containing more contextual information than the Essential 5 text. This, together with the first analysis, indicated that the texts were designed accordingly.

Preference of task. Considering the two different types of tasks and different types of communication, one should expect to see differences in quality of the written e-mails (task performance), the perceived responsibility (contextual performance), the creativeness of the solutions (adaptive performance), and the personality of the respondents (counterproductive work behavior). But as the pretest sample is small, differences are hard to be found. Reading through the e-mails multiple time and considering the provided coding accompanied by the e-mails, a relatively small difference can be seen in the quality of the e-mails. The e-mails of the Non-Essential 5 group seem to be shorter and more to the point, while in the Essential 5 group, a noticeable difference in reasoning (towards the solution) is used. Between the two cases, it is noticeable that the case related to drunk driving was more open to interpretation resulting in more creative solutions, while the theft case mainly results in respondents thinking about cameras to prevent theft in the future. Further, no noticeable difference was found between the two cases. Therefore, the case of drunk driving was used for the main study.

Stimulus Material

As the stimulus material were designed accordingly, no changes in the texts were needed. The final stimulus materials are presented in Figure 3. On the left side, the text with Essential 5 applied is shown. On the right side, the text without Essential 5 applied is shown. Some parts are marked in bold, which indicates the differences between the two versions of texts. Behind some parts, in the texts, there are words marked in color and italic. The color and words indicate the elements of the Essential 5: Green = what, blue = how, orange = when, yellow = where, and purple = who. The why (unclear, unspecific, irrelevant) element is marked in red in the Non-Essential 5 text (right side).

Essential 5 Text – Organization Description	**Non-Essential 5 Text – Organization Description**
Liquids & Lessons is the European market leader in selling alcoholic beverages to both wholesalers and customers. **Liquids & Lessons** *(=who)* imports all types of alcoholic beverages from over the world to the Netherlands and redistribute this across Europe. Liquids & Lessons sells high-quality products such as specialty beers, rum, vodka, wines, and many other products. The owner of Liquids & Lessons is Jack Runner. He started the company in 1990. **Jack Runner** noticed an increasing demand for exclusive liquors from different countries in the world, **such as the Caribbean Islands, Russia, Canada, and South-Africa.** Jack Runner established his company in a small garage, from where he sold the alcoholic beverages to **10 local bars** *(=where)*. **In the last 5 years** *(= when)*, Liquids & Lessons grew rapidly to an organization with 1850 employees, in 25 different locations across Europe in 2018. Although the organization grew fast, Liquids & Lessons remained a flat, informal organization. All employees know each other and **the organization's** suppliers. With the personal contact the employees have with their suppliers, Liquids & Lessons succeeded in **over 100** *(=what)* exclusive resell deals, which means that other organizations in Europe are not able to buy the products from Liquids & Lessons' suppliers. Last year this resulted in the organization to do €680 million in sales, resulting in a €50 million profit. Liquids & Lessons' management **consists of the owner, an Executive Manager, a Financial Manager and a Human Resource Manager. Together, they think** it is important for their customers to have a drink every once in a while, hence, in a responsible manner. Drinking alcoholic beverages is known to have harmful effects on people's health, therefore they educate their customers (and wholesalers) in responsible drinking. To enhance their advice, they have strict policies in the company, for example, all employees must be at least 18 years of age **to be allowed to work for the organization** *(=how)*, and the employees must be of irreproachable behavior (e.g., no criminal record).	Liquids & Lessons is the European market leader in selling alcoholic beverages to both wholesalers and customers. **They** import all types of alcoholic beverages from over the world to the Netherlands and redistribute this across Europe. Liquids & Lessons sells high-quality products such as specialty beers, rum, vodka, wines, and many other products. The owner of Liquids & Lessons, Jack Runner – **a 50 years-old husband and father of 2 boys** – started the company **back in** 1990 **after he quit his former job as a bartender in Amsterdam. He** noticed an increasing demand for exclusive liquors **from across the world**. **Starting from** a small garage **in his backyard with only a few customers**, Liquids & Lessons grew rapidly to an organization with 1850 employees, in 25 different locations across Europe in 2018. Although the organization grew fast, Liquids & Lessons remained a flat, informal organization. **In which** all employees know each other and **their** suppliers. With the personal contact the employees have with their suppliers, Liquids & Lessons succeeded in **many** exclusive resell deals, which means that other organizations across Europe are not able to buy the products from Liquids & Lessons' suppliers. Last year this resulted in the organization to do €680 million in sales, resulting in a €50 million profit. Liquids & Lessons' management **(owner, Executive Manager, Financial Manager and Human Resource Manager) thinks it** is important for their customers to have a drink every once in a while, hence, in a responsible manner. Drinking alcoholic beverages is known to have harmful effects on people's health, therefore they educate their customers (and wholesalers) in responsible drinking. To enhance the advice, they have strict policies in the company, for example, employees must be 18 years and older, and of irreproachable behavior (e.g., no criminal record).

Figure 3 – Manipulated texts

Essential 5 Text – Role Description

Your role in the organization Liquids & Lessons is Human Resource Manager. **Your** *(=who)* **main responsibilities** *(=what)* are the recruitment, selection, rewarding, appraisal, and training of employees. **Next to these responsibilities**, **your role has two extra aspects** *(= more specific)*. **First**, you are part of the management. In the management, you help thinking about strategic initiatives such as mergers, talent management, and scheduling. The **second** aspect of your role is that you act as a neutral, honest mediator during issues between employees and management.

A workday for you is as follows:
Your role consists of 40 hours a week and your office hours are Monday to Friday between 08:30 AM and 5:00 PM. Your days at work consist of answering e-mails and phone calls **from colleagues** *(=who)*. **Next to these e-mails and phone calls** *(=what)* you are having walk-in hours, which means you are having conversations with whoever walks into your office between 10 and 12 AM. **In these conversations** *(=where + when)*, **employees can come to you with any issue they have. Using your communication skills as a Human Resource Manager** *(=how)*, you **try to** resolve all issues into win-win situations, in which both the organization and the employee profit.

Non-Essential 5 Text – Role Description

Your role in the organization Liquids & Lessons is Human Resource Manager, **which means you** are responsible for the recruitment, selection, rewarding, appraisal, and training of employees. **Besides these tasks**, you are part of the management, **in which** you help with thinking about strategic initiatives such as mergers, talent management, and scheduling. The final important aspect of your role is that you act as a neutral, honest mediator during issues between employees and management.

Your role consists of 40 hours a week and your office hours are Monday to Friday between 08:30 AM and 5:00 PM. Your days at work **mostly** consist of answering e-mails and phone calls, **and** having conversations with whoever walks into your office during walk-in hours between 10 and 12 AM. **Because of the different issues that may occur, your days are never similar. Your** task **is** to resolve issues into win-win situations, in which both the organization and the employee profit.

Essential 5 Text – Task Description
It is Friday afternoon. **You** *(=who)* **have received only 2 e-mails and no phone calls** *(=what)* **for the whole day** *(=when)*. **Looking** *(=how)* **at the clock** *(=where)*, **you notice it is 3:00 PM, which means it is time for the traditional Friday Afternoon Drink** *(=what)*. Every Friday the drinks start at 3:00 PM and ends at 5:30 PM. **After you have had 2 drinks** *(=when)*, the clock shows it is already 5:45 PM and you decide to go home. **But first, you give your mailbox** *(=what)* **a final check to see** *(=how)* **if you did not miss anything important** *(=what)*. **You open your mailbox and notice 1** *(=what)* high priority message from the owner:

> Dear Human Resource Manager,
> During the Friday Afternoon Drink, I heard Joe Blossom talking to Selina Flower. **I might have heard** *(=what)* **Joe** *(=who)* **say** *(=how)* he was caught by the police for drunk driving after last week's Friday Afternoon Drink. What actions are we going to take?
> Jack Runner

Essential 5 Text – Task Description
Imagine yourself in the Liquids & Lessons office on a Friday afternoon. **It has been quiet all afternoon**, **you have had a drink with your colleagues during the traditional Friday Afternoon Drink,** which starts at 3:00 PM and normally ends 5:30 PM as everyone leaves to go home and celebrate the weekend. **In the meantime**, the clock shows it is already 5:45 PM **and you decide to give your mailbox a final check before the weekend starts**. You notice one high priority message from the owner:

> Dear Human Resource Manager,
> During the Friday Afternoon Drink, I heard Joe Blossom talking to Selina Flower, **probably saying** he was caught by the police for drunk driving after last week's Friday Afternoon Drink. What actions are we going to take?
> Jack Runner

Figure 3 (Continued) – Manipulated texts

Participants

In total, 317 respondents were recruited to take part in the main work simulation. 119 respondents succeeded to complete the full simulation– 37.5% response rate. Four respondents failed to write an understandable e-mail or indicated to be unable to think about a solution and were therefore excluded from further analysis. Deleting the insufficient responses, left this study with 115 valid responses, of these respondents 50 were autistic. In Table 1 the distribution of respondents per condition is shown.

Table 1 Distribution of participants per condition

		Essential 5 Communication	
		Yes (+)	No (-)
Autism Spectrum Disorder	Yes (+)	24	26
	No (-)	30	35

Procedure

The data gathering consisted of an online work simulation. The work simulation was designed in Qualtrics. When respondents opened the work simulation, they were able to read an introductory text in which the reasons for conducting the work simulation was elaborated. Also mentioned was what the respondents could expect during the work simulation and what was expected from them. Once agreed with volunteered participation in the work simulation, the respondents were asked for demographic data, such as their diagnosis with ASD. Normally demographics are asked at the end of the survey, but to split the groups for successful randomization of the texts, Qualtrics needed groups. After the demographics were entered, respondents started the work simulation in which they first read the organization description, followed by their role in the organization, and finally, the task they had to solve. Respondents could decide to ask for more information or to solve the task immediately. When asked for more information, respondents had to write an e-mail, in which they explicitly mentioned which information they would like to receive. After sending the e-mail, the respondents immediately received the extra parts of information. To solve the task, the respondents had to write an e-mail in which they proposed a plan of action, which was realistic and consisted of logic reasoning. After they finished this e-mail, the work simulation ended, and respondents were thanked for their input. To finalize the data collection respondents were asked to fill out the PWI-A and WEMWBS scales for measuring their quality of life and personal well-being.

Measures

Using the Essential 5 method, this study expected this method to establish a decrease in conversation length, and an increase in the work performance, quality of life and personal well-being among individuals with ASD. To measure these concepts, three scales were adopted: The Individual Work Performance Questionnaire (IWPQ) (Koopmans, 2014), The Personal Wellbeing Index – Adult (PWI-A) (International Wellbeing Group, 2013) and the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS) (Tennant et al., 2007).

Conversation Length

To measure the conversation length in this study, the timer function of Qualtrics was used. Specifically, for every page, the software started a timer when a page loaded and stopped when the respondent submitted the page. In this study, a ‘conversation’ was one-way, as the respond only could read text. The ‘conversation length’ is the sum of the measured time of loading and submitting the following three pages: organization description texts, role description text, and task description text.

Individual Work Performance

Work performance was measured using the Individual Work Performance Questionnaire (IWPQ) (Koopmans, 2014). The IWPQ measures the work performance of an individual in four dimensions; task performance, contextual performance, adaptive performance, and counterproductive work behavior. The IWPQ functioned as a basis for the codebook, of which more later in this chapter.

Task performance is defined as "the proficiency with which an employee performs central job tasks" (Koopmans, 2014, p.63). Indicators of task performance in the IWPQ are; *work quality, planning and organizing work, being result-oriented, prioritizing*, and *work efficiently*. An example code of the developed codebook is: "*the procedure of future actions is logical and consistent*."

Contextual performance is defined as "employee behaviors that support the organizational, social, and psychological environment in which the central job tasks are performed" (Koopmans, 2014, p.63). The IWPQ divided contextual performance into two sub-dimensions; *interpersonal* (i.e., between colleagues) and *organizational*. The indicators of the interpersonal dimension are *taking initiative*, *accepting and learning from feedback*, *cooperating with others*, and *communicating effectively*. An example code is: "*respondent proposes to execute the plan of action"*. For the organizational dimension, the following indicators were determined; *showing responsibility*, *being customer-oriented*, *being creative*, and *taking on challenging work tasks*. An example code this study used is: "*creative solution others did not provide.*"

Adaptive performance is defined as "an employee's proficiency in adapting to changes in work roles or environment" (Koopmans, 2014, p.63). Indicators of adaptive performance are; *showing resiliency* (coping with stress, difficult situations and adversities; *coming up with creative solutions to novel, difficult problems*; *keeping job knowledge up-to-date*; *keeping job skills up-to-date*; *dealing with uncertain and unpredictable work situations*; and *adjusting work goals when necessary*. An example code of the used codebook is: "*stays professional in situation*."

Finally, counterproductive work behavior is defined as "behavior that is harmful to the well-being of the organization" (Koopmans, 2014, p.63). Indicators of counterproductive work behavior are; *displaying excessive negativity*, *doing things that harm your organization*, *doing things that harm your co-workers or supervisor*, and *purposely making mistakes*. An final example code is: "*shows negative behavior*."

It must be noted that the IWPQ is normally used to measure one's work performance on a three-month interval, for practical reasons the questionnaire was adapted to a shorter period. The IWPQ relies on self-report of employees, to prevent bias (e.g., socially desirable answers) the IWPQ was used as a basis for a codebook instead.

Coding of Individual Work Performance

To code the e-mails respondents wrote in the work simulation, a codebook was developed. The codebook was based on the IWPQ (Koopmans, 2014) and slightly adjusted to fit the work simulation properly. The IWPQ only suggested dimensions but did not include indicators/codes to score. Therefore, the researcher came up with codes himself by reviewing different parts of the work simulation to enable respondents to score points. The codebook ultimately had a similar look and feel like the way teachers grade students' exams. The developed codebook is presented in Appendix A.

To test the reliability of the codebook, two coders coded the first ten responses independently. Comparing the results of the two coders showed a similarity of codes of 84% on a total of 200 items. Therefore, the codebook can be considered reliable and valid. The similarities and differences between the two coders are presented in Appendix B. Most of the differences are found in the total score of the respondents. However, the differences were so low that they were negligible and would not affect the overall average score of respondents.

Personal Well-Being

WEMWBS measures personal well-being on a 14-item scale, in which respondents can score their agreement with their statements on a five-point Likert scale (1 = none of the time, 2 = rarely, 3 = some of the time, 4 = often, 5 = all of the time). The items cover both hedonic and eudemonic aspects of mental health, including positive affect, satisfying interpersonal relationships, and positive functioning. Examples of statements are: "*this work simulation made me feel cheerful*" and "*this work simulation made me feel confident*." The scale reported a Cronbach's Alpha of .89 in this study. Therefore, the scale be considered reliable.

Quality of Life

PWI-A measures the quality of life on a seven-item scale, in which respondents can score their agreement with statements on a 0 (no satisfaction at all) to 10 (completely satisfied). The seven items correspond all with one of the seven dimensions of quality of life (i.e., standard of living, health, achieving in life, relationships, safety, community-connectedness, and future security). Examples of statements are: "*how satisfied are you with what you are achieving in life*" and "*how satisfied are you with your future* security." The scale reported a Cronbach's Alpha of .94 in this study. Therefore, the scale can be considered reliable.

Because the scales differ in answer possibilities (five-point vs. ten-point), the scales were transformed into a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree). Respondents were provided with all statements of both scales, resulting in a 21-item scale.

Results

Descriptive Statistics

In total, 115 completed responses were used for the data analysis. 50 respondents (43.5%) were diagnosed with ASD, while 65 were not diagnosed with ASD (56.5%). The demographics of both groups are presented in Table 2. To check whether the demographics between the two groups are different, independent sample *t*-tests were conducted. These tests gave the following results: age; t(113) = 1.98, p = .05, gender; t(113) = -1.03, p = .30, education; t(113) = -2.94, p < .01, and employment status; t(113) = -.86, p = .39. Thus, these results show the two groups differ significantly on age (p = .05) – higher for the ASD group – and education (p < .01) – higher for the Non-ASD group. Therefore, for further analysis age and education level will be applied as covariates.

Table 2 Demographics of respondents

	Respondent type	ASD				Non-ASD			
Demographics		M	*SD*	*N*	%	M	*SD*	*N*	%
Age		37.00	11.81	50	43.5	32.45	12.54	65	56.5
Gender									
	Male			15	30			14	21.5
	Female			35	70			51	78.5
Education level									
	< High school			1	2			-	-
	High school			12	24			10	15.4
	Associate Degree			13	26			6	9.2
	Bachelor's Degree			19	38			34	52.3
	Master's Degree			5	10			13	20
	Doctorate or higher			-	-			2	3.1
Employment status									
	Employed Full-Time			12	24			16	24.6
	Employed Part-Time			13	26			15	23.1
	Unemployed, looking			6	12			2	3.1
	Unemployed, not looking			4	8			-	-
	Retired			-	-			2	3.1
	Unable to work			8	16			3	4.6
	Students			7	14			27	41.5

Hypotheses Testing

Conversation Length

Hypothesized was that communicating using the Essential 5 method effectively reduces the conversation lengths with individuals with ASD. While communicating not using the Essential 5 method effectively reduces the conversation lengths with individuals without ASD. A full-factorial ANOVA was conducted to compare the main effects of respondent type and communication type and the interaction effect between respondent type and communication type on the conversation length. The respondent type included two levels (ASD and Non-ASD), and communication type consisted of two levels (Essential 5 and Non-Essential 5). As mentioned above, age and level of education are applied as covariates. The main effect of respondent type yielded a F-ratio of F(1, 109) = .09, p = .76, indicating no significant difference between individuals with ASD (M = 224.89, *SD* = 158.91) and individuals without ASD (M

= 202.66, *SD* = 149.67). The main effect of communication type yielded a F-ratio of F(1, 109) = .01, *p* = .97, indicating no significant difference between the use of Essential 5 (M = 219.78, *SD* = 161.33) and not using the Essential 5 (M = 205.73, *SD* = 147.19). The interaction effect was significant at F(1, 109) = 7.462, *p* < .01, indicating that the use of a congruent method of communication (Essential 5 for ASD, Non-Essential 5 for Non-ASD) leads to a significant reduction in conversation length. The interaction effect is shown in Figure 4. This significant interaction effect indicates that H1a and H1b are accepted.

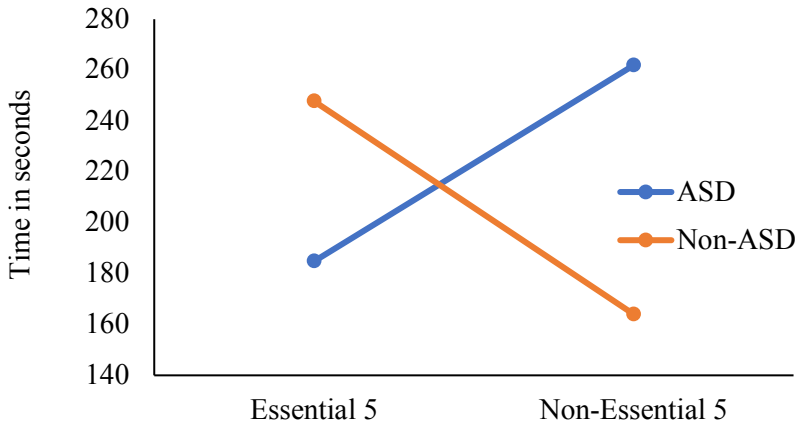

Figure 4 – Interaction effect of respondent type and communication type on conversation length

Individual Work Performance

For the dependent variable individual work performance, the following hypotheses (H2ab) were formulated: Communicating using the Essential 5 method improves the (a) task performance, (b) contextual performance, (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals with ASD. While communicating not using the Essential 5 method improves the (a) task performance, (b) contextual performance, (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals without ASD. Also hypothesized was H3: The total score on the IWPQ of individuals with and without ASD do not differ significantly. The average scores per condition, per dimension, are presented in Table 3. The statistical outcomes for the analyses of individual work performance are summarized in Table 4.

Task Performance

A full-factorial ANOVA was conducted to compare the main effects of respondent type and communication type and the interaction effect between respondent type and communication type on the task performance of the respondents. The respondent type included two levels (ASD and Non-ASD), and communication type consisted of two levels (Essential 5 and Non-Essential 5). None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = 1.50, *p* = .22, indicating no significant difference between individuals with ASD (M = 25.09, *SD* = 6.82) and individuals without ASD (M = 24.12, *SD* = 7.78). The main effect of communication type yielded a F-ratio of F(1, 109) = .02, *p* = .88, indicating no significant difference between the use of Essential 5 (M = 24.37, *SD* = 7.19) and not using the Essential 5 (M = 24.70, *SD* = 7.57). The interaction effect was also not significant F(1, 109) = .33, *p* = .57.

Contextual Performance

Interpersonal. A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the interpersonal contextual performance of the respondents. None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = .09, *p* = .76, indicating no significant difference between individuals with ASD (M = 7.44, *SD* = 2.94) and individuals without ASD (M = 7.42, *SD* = 3.14). The

main effect of communication type yielded a F-ratio of F(1, 109) = .08, p = .77, indicating no significant difference between the use of Essential 5 (M = 7.33, *SD* = 3.11) and not using the Essential 5 (M = 7.51, *SD* = 3.00). The interaction effect was also not significant F(1, 109) = .13, p = .72.

Organizational. A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the organizational contextual performance of the respondents. None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = .69, p = .41, indicating no significant difference between individuals with ASD (M = 5.86, *SD* = 2.01) and individuals without ASD (M = 5.50, *SD* = 2.37). The main effect of communication type yielded a F-ratio of F(1, 109) = .01, p = .93, indicating no significant difference between the use of Essential 5 (M = 5.67, *SD* = 1.98) and not using the Essential 5 (M = 5.65, *SD* = 2.43). The interaction effect was again not significant F(1, 109) = .64, p = .42.

Adaptive Work Performance

A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the adaptive work performance of the respondents. None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = 2.15, p = .15, indicating no significant difference between individuals with ASD (M = 12.44, *SD* = 5.40) and individuals without ASD (M = 10.75, *SD* = 5.67). The main effect of communication type yielded a F-ratio of F(1, 111) = .67, p = .42, indicating no significant difference between the use of Essential 5 (M = 11.15, *SD* = 5.74) and not using the Essential 5 (M = 11.78, *SD* = 5.49). The interaction effect was also not significant F(1, 109) = .29, p = .59.

Counterproductive Work Behavior

A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the counterproductive work behavior of the respondents. None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = 1.60, p = .21, indicating no significant difference between individuals with ASD (M = 13.45, *SD* = 3.78) and individuals without ASD (M = 12.02, *SD* = 3.85). The main effect of communication type yielded a F-ratio of F(1, 109) = .20, p = .66, indicating no significant difference between the use of Essential 5 (M = 12.62, *SD* = 3.79) and not using the Essential 5 (M = 12.66, *SD* = 3.87). The interaction effect was also not significant F(1, 109) = .51, p = .48.

Hypothesized was that communicating using the Essential 5 method improves the (a) task performance, (b) contextual performance, and (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals with ASD. While not communicating using the Essential 5 method improves the (a) task performance, (b) contextual performance, and (c) adaptive performance, and (d) decreases the intent for counterproductive work behavior of individuals without ASD. As no significant effects were found among any of the dimensions H2a and H2b are rejected.

Total IWPQ Score

A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the total work performance score of the respondents. None of the effects were statistically significant at the .05 alpha level. The main effect of respondent type yielded a F-ratio of F(1, 109) = 1.74, p = .19, indicating no significant difference between individuals with ASD (M = 64.28, *SD* = 17.53) and individuals without ASD (M = 59.80, *SD* = 19.32). The main effect of communication type yielded a F-ratio of F(1, 109) = .20, p = .67, indicating no significant difference between the use of Essential 5 (M = 61.14, *SD* = 18.42) and not using the Essential 5 (M = 62.29, *SD* = 18.93). The interaction effect was also not significant F(1, 109) = .47, p = .50.

Hypothesized was that the total score among all groups did not differ significantly, the above results confirm H3.

Table 3 Average score on IWPQ per condition

Group	Dimension	Communication Method	Essential 5		Non-Essential 5	
			Mean	SD	Mean	SD
ASD						
	Task Performance		24.58	6.64	25.56	7.08
	Contextual Performance					
		Interpersonal	7.25	2.94	7.62	2.99
		Organizational	5.67	1.90	6.04	2.13
	Adaptive Work Performance		11.71	5.19	13.12	5.60
	Counterproductive Work Behavior [a]		13.02	3.84	13.85	3.49
	Total IWPQ Score		62.22	17.28	66.17	17.89
Non-ASD						
	Task Performance		24.20	7.71	24.06	7.95
	Contextual Performance					
		Interpersonal	7.40	3.29	7.42	3.05
		Organizational	5.67	2.07	5.36	2.62
	Adaptive Work Performance		10.70	6.20	10.78	5.26
	Counterproductive Work Behavior [a]		12.30	3.78	11.77	3.95
	Total IWPQ Score		60.27	19.54	59.40	19.41

[a] High score means less counterproductive work behavior (vs. low score).

Table 4 Summary of statistics

Independent Variable	Dependent Variable	F	*p*
Respondent Type	Task Performance	1.50	.22
	Contextual Performance (Interpersonal)	0.09	.76
	Contextual Performance (Organizational)	0.69	.41
	Adaptive Work Performance	2.15	.15
	Counterproductive Work Behavior	1.60	.21
	Total IWPQ Score	1.74	.19
Communication Type	Task Performance	0.02	.88
	Contextual Performance (Interpersonal)	0.08	.77
	Contextual Performance (Organizational)	0.01	.93
	Adaptive Work Performance	0.67	.42
	Counterproductive Work Behavior	0.20	.66
	Total IWPQ Score	0.20	.67
Respondent Type * Communication Type	Task Performance	0.33	.57
	Contextual Performance (Interpersonal)	0.13	.72
	Contextual Performance (Organizational)	0.64	.42
	Adaptive Work Performance	0.29	.59
	Counterproductive Work Behavior	0.51	.48
	Total IWPQ Score	0.47	.50

Quality of Life and Personal Well-Being

Quality of life. A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the quality of life of the respondents. The main effect of respondent type yielded a F-ratio of F(1, 109) = 33.18, $p < .01$, indicating a significant difference between individuals with ASD (M = 4.05, *SD* = 1.13) and individuals without ASD (M = 5.41, *SD* = 1.01). The main effect of communication type yielded a F-ratio of F(1, 109) = .16, $p = .69$, indicating no significant difference between the use of Essential 5 (M = 4.84, *SD* = 1.23) and not using the Essential 5 (M = 4.80, *SD* = 1.29). The interaction effect was not significant F(1, 109) = .83, $p = .37$. The main effect of the respondent type indicated that the respondents without ASD perceive their quality of life higher than individuals with ASD, regardless of communication type used.

Personal well-being. A full-factorial ANOVA was conducted with respondent type and communication type as independent variables on the personal well-being of the respondents. The main effect of respondent type yielded a F-ratio of F(1, 109) = 1.61, $p = .21$, indicating no significant difference between individuals with ASD (M = 4.25, *SD* = 1.29) and individuals without ASD (M = 4.59, *SD* = 1.01). The main effect of communication type yielded a F-ratio of F(1, 109) = .67, $p = .41$, indicating no significant difference between the use of Essential 5 (M = 4.48, *SD* = 1.01) and not using the Essential 5 (M = 4.41, *SD* = 1.27). However, the interaction effect was marginally significant at F(1, 109) = 3.36, $p = .07$. This indicates that when the right communication method (conditions 1 and 4) is used with the congruent respondent type, personal well-being increases. The interaction effect is shown in Figure 5.

Hypothesized was that individuals with ASD perceive their quality of life and personal well-being less than individuals without ASD. As the main effect of respondent type on the quality of life was significant, the mean scores indeed indicated that respondent with ASD perceived that quality of life less than their associates without ASD, which means H4 is confirmed. Also hypothesized was that using the Essential 5 method would improve the quality of life and personal well-being of individuals with ASD. While not using the Essential 5 method would improve the quality of life and personal well-being of individuals without ASD. As the interaction effect of respondent type and communication type on personal well-being was significant on the .10 alpha level, therefore, H5a and H5b are marginally supported.

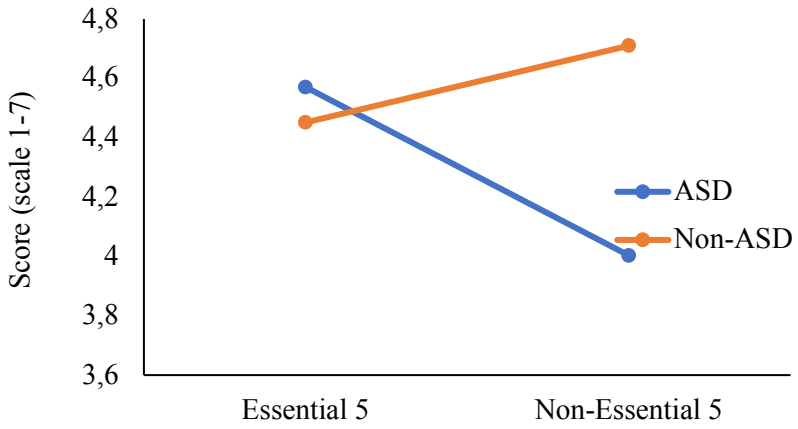

Figure 5 – Interaction effect of respondent type and communication type on personal well-being

Discussion

This study examined the differences and similarities in work abilities of individuals with and without ASD. The results showed both unexpected and expected outcomes. First, a significant interaction effect of respondent and communication type was found for the conversation length. In this study, a conversation was defined as a one-way form of communication, which was via textual descriptions. The results showed that using the right method of communication significantly led to a reduction in conversation length in both groups. This finding indicates that, when using the right method of communication, the conversation will become shorter. Also, the transmitting of information is more efficient, because the information is processed the right way (De Bruin, 2018b). This leads to a better understanding. Finding an interaction effect is no surprise as the Essential 5 method is specially designed for individuals with ASD. Also, the Essential 5 method has been found successful in different settings (Moes-Wisselink, 2014; Naber, 2017; Verhaert, 2016). For theory, this finding means that different types of people need different forms of communication that accommodates their needs.

Taking another perspective on shorter conversation length might lead people to think that a shorter conversations lead to a less deep understanding. This should translate to less performance in this study because in the conversation the task was described. However, no significant effects were found for respondent type and communication type on the dimensions of individual work performance. This indicates both groups in this sample did not differ in their ability to perform work-related tasks. Also, the proposed communication methods did not seem to make a difference. This means that there is no indication that shorter conversations lead to a less deep understanding. Therefore, this study's sample indicated that individuals with ASD and without ASD have similar capabilities, based on the IWPQ (Koopmans, 2014). This finding is somewhat surprising because other studies have shown individuals with ASD need assistance finding jobs (c.f., Migliore, Timmons, Butterworth, & Lugas, 2012; Perry Lattimore, Parsons, Reid, & Ahearn, 2006; Xu, Cheung, & Soares, 2015). Also, literature stated that individuals with ASD have difficulties with uncertain and changing environments (contextual- and adaptive performance). As no interaction effect was found, this study shows that individuals with ASD are certainly able to adapt to changing environments. Literature also expressed reasons for engaging in counterproductive work behavior, such as job satisfaction, organizational commitment, and organizational justice. Especially focusing on organizational justice (the fairness of decisions), the study did not indicate individuals with ASD to make different kinds of decisions or have a different way of reasoning towards their decision than individuals without ASD.

But at the same time, these findings are not surprising. Because these individuals perform well once accepted in organizations (Hagner & Cooney, 2005). An explanation might come from Hedley et al. (2017) indicating that this field of research is still poorly understood and more research is needed. Also, previous studies on individuals with ASD focused on low educated and low wagered work. For theory, the above findings mean a shift of perspective for new studies. These studies should focus on the higher educated job market, as this study has shown individuals with ASD do not perform less than individuals without ASD. More research into work and ASD will create more awareness of the abilities of these individuals. As more awareness will be created among employers, the employment rate might increase. Larger employment of these individuals will come with challenges for sure. This will create a new research gap. Therefore, future research can consist of case studies of success stories to investigate what the predictors are of successful employment of individuals with ASD.

Finally, an interaction effect was found for respondent type and communication type on the personal well-being, which indicated that the use of a congruent method of communication (Essential 5 for ASD, Non-Essential 5 for non-ASD) leads to an increase in personal well-being. Also, for quality of life, a significant main effect was found for the respondent type, which indicated that individuals with ASD perceive their quality of life lower than individuals without ASD, regardless of the communication type used. As the participation of individuals with ASD in society is low, finding these effects is not

surprising. To increase their participation in society, investigation is needed into reasons why their participation is low. Probably their low participation has something to do with the acceptance of them in the workplace. This leaves some questions to be answered in future research. For example, does the acceptance of individuals in the workplace actually lead to an increase in quality of life and personal well-being? And what do these individuals make them feel accepted? Also, more communicative questions remain. For example, what styles of leadership and types of organizations are most fruitful for the optimal performance of individuals with ASD? Discovering new, more fruitful, methods might translate to more successful employment of these individuals.

Practical Implications

This study has shown that individuals with ASD can successfully perform work-related tasks, just as individuals without ASD. This means for HR departments and/or (hiring) managers they should be aware of the capabilities of both groups. Especially when selecting candidates for vacancies, they should focus on strengths rather than pitfalls. But, employing individuals with ASD has its implications in the organization's environment. For example, this study has shown that making use of the Essential 5 method reduced conversation length with individuals with ASD and not using this method reduced conversation length with individuals without ASD. Therefore, colleagues and managers working with both groups, should excel in their interpersonal communication and adjust themselves in such a manner that they can successfully apply both methods of communication at the same time. This might lead to extra work as messages have to be designed twice. Or, they need to find a way of integrating both communication methods. However, this might lead to miscommunications in the organization, as one group can deal with unclear, unspecific, and unrelated information (the *why*) and the other group is less able to process this piece of the information. Future research into the integration of both communication method might help to find the sweet spot to let both groups perform best and reduce miscommunications.

Limitations and Future Research

This research is not without its limitations. The first limitation that needs to be addressed is the environment of the work simulation. The work simulation was conducted online, while most work environments are not virtual, this might have led to different results. The respondents were able to conduct the simulation in their personal environment, in which they feel more comfortable than in a real work environment. In a real work environment, people often behave differently than they do in more comforting and personal environments. Applying this work simulation in a real work environment might, therefore, hold other results than shown in this study. Future research might benefit from investigating different environmental stimuli which might affect the performance of individuals with ASD, such as sound, odor, and light to find the optimal workplace environment in which they feel comfortable and will perform. Investigating these types of stimuli might affect the work performance of individuals with ASD as they are quickly overstimulated and run into information overloads (De Bruin, 2017). Having them run into an information overload causes them not to react and in turn not perform their tasks, which may have far-reaching effects for co-workers and the organization. Therefore, investigating elements of an optimal workplace environment makes sure individuals with ASD are able to perform.

A second limitation comes forth of the used fictive company and role in the organization. For this work simulation, a fictive wholesaler in alcoholic beverages was chosen because of the regulations that come with this kind of organizations. Because individuals with ASD easily comply with rules, regulations, and structures, this might have been beneficial for them. However, to compensate individuals without ASD, the role of Human Resource Manager was chosen. As this role is socially oriented, this might have held some difficulties for individuals with ASD. Therefore, applying another type of company and role in another work simulation might show different results. Therefore, future research should test different work simulations to discover disciplines in which individuals with ASD

outperform individuals without ASD and vice versa. Recruiters can use this information to specify their organization's vacancies and selection of prospects.

The final limitation also comes forth of the used work simulation. The work simulation measured the work performance of the respondents on a single task. Evaluations of work performance are normally accumulated over time, however, for practical reasons following respondents for a longer period of time was not possible. Therefore, this study indicated that the respondents' performance on a single task did not differ, however, over a longer period of time one might discover different results in the dimensions of the IWPQ. Future research, therefore, should keep using similar work simulations to discover more similarities and differences of individuals with and without ASD. Future research should focus on a longer period of time, in which multiple different tasks must be performed. This way the work performance can be assessed more accurate. Also, future researchers should focus on different types of disciplines. This way researchers will get a broader picture of the abilities of both groups and can advise practitioners with more specific advice.

To conclude, the Essential 5 method has shown its success in this study. Therefore, future research should develop new communication methods for groups of people who are misunderstood or cannot express themselves properly. These studies should focus on the way of information processing of these groups of people, as De Bruin (2018b) showed with the development of the Essential 5 method, which matched the information processing of individuals with ASD.

Conclusion

This study was set up to investigate the abilities of individuals with ASD and juxtapose them to their associates without ASD while using different communication methods. This study showed that the abilities of both groups did not differ significantly. But, results showed significant main and interaction effects of and respondent type communication type for the conversation length, quality of life, and personal well-being. Therefore, the reasons for their low employment remains guessing, but the study showed there is a need for raising this number. The Essential 5 method is found successful in many different settings now. For example, in raising children (Moes-Wisselink, 2014), taking care of individuals with ASD (Naber, 2017), and in an organizational setting with this study. This indicates that the use of this method in daily life is increasingly important to individuals with ASD. Especially, as this study showed, for improving their quality of life and personal well-being.

The employment and participation in society is of unconditional importance for individuals with ASD. Because they perceive their quality of life significantly lower than individuals without ASD. Giving individuals with ASD a brighter future might increase their quality of life and in turn, have many more positive effects. It is a moral duty to integrate individuals with ASD into society because individuals with ASD are as good as people as their associates without ASD. Especially from this study's point of view, successful integration of individuals with ASD into the workplace, and in turn society, is possible. This study shows that the use of the Essential 5 method makes effective communication with them possible. The one important thing that is needed to integrate individuals with ASD in society is a switch in the mindset of the people who are currently neglecting this group. It might be a difficult switch from focusing on pitfalls rather than strengths. But this, more openminded, perspective certainly has a positive effect on the acceptance of individuals with ASD and other minority groups. This, in turn, translates to a global increase in quality of life and personal well-being among all group in society. Adjustment, however, does not only have to come from others. Individuals with ASD also need to adjust themselves somewhat to fit in the organizations and accept that not everything they want goes the way they like. Therefore, concluding this study, more acceptance and willingness should come from both sides. This way, employers can make use of the expertise of individuals with ASD, and individuals with ASD can increase their personal well-being and quality of life by participating in society.

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Appendix

Appendix A – Codebook

Construct	Sub-category	Definition/code
Task Performance	Work quality	Quality here is if respondent complies to the rules (format), speed (to the point), analytical skills (reasoning). 5 points for every criterion met -0.5 for every spelling error (max of -5 points).
	Planning and organizing work	If plan of action is provided in detail = 7 points; details lacking = 3.5 points; no plan of action = 0 points
	Being result-oriented	The plan of action has to be realistic, realistic = 6 points; somewhat realistic = 3 points; no realistic plan = 0 points

	Prioritizing	The procedure of future actions needs to be logic and consistent
		logic and consistent = 6 points;
		somewhat logic = 3 points;
		no logical order = 0 points

	Working efficiently	Based on percentile scores of time writing the e-mail: < 10% = 0 points 10-25% = 2 points 25-50% = 4 points 50-75% = 2 points > 75% = 0 points.

Appendix A – Codebook (Continued)		
Contextual Performance - Interpersonal	Taking initiative	Respondents proposes to execute plan of action = 4 points, waits on answer from boss = 2 points, doesn't show initiative = 0 points
	Cooperating with others	Knows how to deal in situation = 4 points; Is somewhat unsure = 2 points; Totally unsure/unaware of situation = 0 points.
	Communicating effectively	Makes use of 2 or more points of extra information = 4 points; Makes use of 1 point of extra information = 2 points; Does not make use of extra information = 0
Contextual Performance - Organizational	Showing responsibility	Knows what can be done as HRM = 2 points; Is unaware of duty as HRM = 0 points
	Being customer-oriented	Does not act upon rumor = 3 points Acts upon rumor, but does not harm Joe = 1.5 points Acts upon rumor + possibly harms Joe = 0
	Being creative	Creative solution others didn't provide = 3 points Average solution (often mentioned) = 1.5 points) No solution / below average = 0 points
	Gather extra information	Asks your extra information + is explicit in information need = 3 points; Only asks for information = 1.5 points; Does not ask for information = 0 points

Appendix A – Codebook (Continued)		
Adaptive Performance	Showing resiliency/flexibility	Does not show signs of stress + does not act upon rumor = 6 points; Does show some signs of stress or does act upon rumor = 3 points; Does show stress + does act upon rumor = 0 points
	Dealing with uncertain and unpredictable work situations	Stays professional in situation = 6 points; Stays somewhat professional in situation = 3 points; Is not professional in situation = 0 points
	Adjusting work goals when necessary	Adapts initially provided solution based on extra information = 8 points; Adapts initially provided solution somewhat = 4 points Does not adapt provided solution on extra information = 0 points
Counterproductive Work Behavior [a]	Displaying excessive negativity	Shows negative behavior (>4 negative words) = 0 points; Shows some negative behavior (2-4 negative words) = 2 points; Shows positivity (1 or less negative words)
	Doing things that harm your organization	Chooses a solution that will harm the organization = 0 points; Chooses a solution that will harm the owner = 3 points; Chooses a solution that does not harm anyone = 6 points
	Doing things that harm your co-workers or supervisor	Chooses a solution that will harm Joe = 0 points; Chooses a solution that might harm others than Joe = 3 points; Chooses a solution that does not harm anyone = 6 points
	Purposely making mistakes	Uses information that has not been provided (2 or more examples) = 0 points; Uses information that has not been provided (1 example) = 2.5 points; Does not use extra information that has not been provided = 5 points

[a] High score on counterproductive work behavior means less intent, thus high score is positive.

Appendix B – Intercoder Reliability

Construct	Sub-category	Awarded points per respondent									
		1		2		3		4		5	
		S[a]	D[b]	S	D	S	D	S	D	S	D
Task Performance	Work quality	5	+0.5	10	+0.5	15	=	15	=	10	+5
	Planning and organizing work	3	=	3	=	3	=	6	=	3	=
	Being result-oriented	3	+3	3	=	3	=	6	=	0	=
	Prioritizing	0	=	2,5	=	5	=	2.5	=	0	=
	Working efficiently	0	=	4	=	4	=	0	=	0	=
Contextual Performance - Interpersonal	Taking initiative	0	=	4	=	2	=	4	=	4	=
	Cooperating with others	2	=	2	=	2	=	4	=	0	=
	Communicating effectively	0	=	4	=	0	=	4	=	0	=
Contextual Performance - Organizational	Showing responsibility	2	=	2	=	2	=	2	=	0	=
	Being customer-oriented	0	=	3	=	1.5	=	1.5	=	0	=
	Being creative	0	-1.5	0	-1.5	1.5	=	3	=	0	=
	Gather extra information	0	=	3	=	3	=	3	=	0	=
Adaptive Performance	Showing resiliency/flexibility	0	=	3	=	3	=	6	=	0	=
	Dealing with uncertain and unpredictable work situations	3	=	6	=	6	=	6	=	0	=
	Adjusting work goals when necessary	0	=	4	=	4	=	8	=	0	=
Counterproductive Work Behavior [a]	Displaying excessive negativity	2	=	4	=	2	=	4	=	4	=
	Doing things that harm your organization	3	+3	3	=	3	=	6	=	6	+3
	Doing things that harm your co-workers or supervisor	3	=	3	=	0	=	3	=	0	=
	Purposely making mistakes	2.5	=	5	=	5	=	2.5	-2.5	5	=
Total Score		28.5	+2	68.5	-1	65	-	86.5	-2.5	32	+8

Construct	Sub-category	Awarded points per respondent

		6		7		8		9		10	
		S[a]	D[b]	S	D	S	D	S	D	S	D
Task Performance	Work quality	15	+3	15	+0.5	10	=	10	+0.5	10	+0,5
	Planning and organizing work	3	=	3	=	3	-3	3	=	3	=
	Being result-oriented	3	=	3	=	3	=	0	=	3	+3
	Prioritizing	5	=	2.5	=	2.5	=	0	=	3	=
	Working efficiently	0	=	4	=	2	=	4	=	2	=
Contextual Performance - Interpersonal	Taking initiative	2	=	4	=	2	=	2	=	2	=
	Cooperating with others	4	=	2	=	2	=	2	=	2	=
	Communicating effectively	4	=	0	=	2	-2	0	=	0	=
Contextual Performance - Organizational	Showing responsibility	2	=	0	=	2	=	0	-2	0	=
	Being customer-oriented	0	=	0	=	0	=	1.5	=	1.5	=
	Being creative	1.5	=	1.5	=	1.5	=	0	=	1.5	=
	Gather extra information	3	=	3	=	0	=	1.5	=	3	=
Adaptive Performance	Showing resiliency/flexibility	3	=	3	=	3	=	3	=	0	=
	Dealing with uncertain and unpredictable work situations	6	=	3	=	6	+3	3	=	3	=
	Adjusting work goals when necessary	8	=	4	=	0	=	4	=	4	=
Counterproductive Work Behavior [a]	Displaying excessive negativity	2	=	3	+3	4	=	4	=	4	=
	Doing things that harm your organization	0	=	3	=	3	=	6	=	3	=
	Doing things that harm your co-workers or supervisor	0	=	6	+6	0	=	3	+3	3	+3
	Purposely making mistakes	5	=	5	=	2.5	=	5	=	5	=
Total Score		66.5	+3	65	+9.5	48.5	+2	52	+1.5	53	+6.5

[a] S = Score of second coder

[b] D = Difference with original coder (Original score – score of second coder). Example: Coder 1 scores 10, Coder 2 scores 11, S = 11, D = +1.