

An Integration of Cognitive Absorption and Interruption Overload Through the Lens of Neurodiversity: Some Preliminary Results

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Abstract

One prominent stream of IS research focuses on cognitive absorption during technology use, which generally leads to favorable attitudes toward technology and increased performance. Another stream of IS research has examined outcomes of interruptions, such as interruption overload and decreased work performance. Do these two streams of inquiries, so far virtually independent from each another, in fact examine opposing sides of the same coin? Building on the autism research literature, this study presents a new theoretical model that integrates these two disparate sets of observations as opposing manifestations of one phenomenon, called autistic inertia, to explore impacts of neurodiversity on remote work. A survey is being carried out to empirically test the model. Data that we have collected so far have provided empirical support for the model. Implications for IS research and practice are discussed.

Keywords: Autistic tendency, autistic inertia, cognitive absorption, interruption overload, neurodiversity, AQ.

1. Introduction

One prominent stream of Information Systems (IS) research focuses primarily on a user's positive cognitive experience during technology use, such as the flow experience (Csikszentmihalyi, 1990; Trevino & Webster, 1992), cognitive engagement (Webster & Ho, 1997), and cognitive absorption (Agarwal & Karahanna, 2000), which is seen as a rich measure of system usage (Burton-Jones & Straub, 2006). Cognitive absorption, seen as an outcome of intrinsic interest in IT (e.g., personal innovativeness with IT, computer playfulness), generally leads to favorable attitudes and intentions toward technology adoption and use (e.g., Agarwal & Karahanna, 2000; Goel et al., 2011; Wakefield & Whitten, 2006) as well as performance outcomes (e.g., Rutkowski et al., 2007).

In contrast, another stream of IS research focusing on a user's negative cognitive experience has examined how technology-mediated interruption can force attentional shifts from one task to another, leading to interruption overload, exhaustion, and decreased work performance (Chen & Karahanna, 2018). This increase in interruption overload is also associated with reduced technology use and heightened work-life conflict (Tams et al., 2020).

Taking these two streams of research on user cognitive experience together, it appears that absorption in technology use is generally a desirable psychological state for "optimal performance" (Csikszentmihalyi, 1990) as long as one is so engaged. However, interruptions during IT use, especially during heightened focus such as the flow state, can cause undesirable outcomes such as cognitive overload and other strains. Do these two streams of inquiries, so far virtually independent from each another, in fact examine opposing sides of the same coin? Is there a unifying theoretical framework that can explain the totality of the cognitive experience?

Building on the autism research literature, this study extends prior research (e.g., Jia, Steelman & Jia, 2022) by applying the emergent neurodiversity lens and exploring the possibility that cognitive absorption and interruption overload can represent the Janus faces of one phenomenon, called *autistic inertia* (Murray et al., 2005; Murray, 2019). We describe its opposing sides as Janus faced after "the Roman deity with two faces, cursed and blessed with the necessity of facing in two directions at once" to allow "theoretically and empirically for contrariness ... and irony to arise within the analytic frame" (Arnold, 2003, p. 232).

While in physics, Newton's first law of motion, also called the "law of inertia", deals with momentum of an *object* (Knight, 2008), autistic inertia is concerned with momentum of *thought* and is considered central to the autistic condition (Murray et al., 2005; Murray, 2019). As technology has continued to attract and absorb our attention in our work and daily lives, understanding how a user's cognitive

experience is affected is critical for ensuring productive technology use. As elaborated in later sessions, individuals high in autistic tendencies are more likely to become cognitively absorbed, but also experience significant psychological strains when their absorption is interrupted. Thus, understanding the mechanism of the performance-enhancing absorption and strain-inducing interruptions and achieving a balance between the two will be critical in creating a productive work environment.

Though autism has long been characterized in the popular press as an “engineer’s disorder” (Silberman, 2001) and an “open secret” of the IT profession (Mayor, 2008), systematic examinations of the autism-IT linkage have only recently begun in the IS field. To answer the question, “What makes one intrinsically interested in IT?”, recent work has built on the autism literature and established autistic tendency as an antecedent of intrinsic interest in IT (Jia et al., 2022).

Key relationships in the three streams of work discussed above (Agarwal & Karahanna, 2000; Chen & Karahanna, 2018; Jia et al., 2022) are summarized in Figure 1. We next introduce the autistic condition and discuss how it leads to cognitive absorption and interruption overload, the opposing manifestations of autistic inertia.

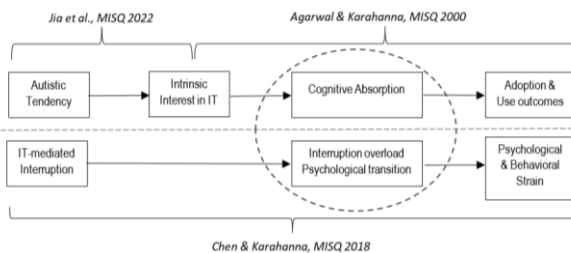


Figure 1. Three existing streams of IS research

2. Theoretical development

2.1 Autistic tendency and neurodiversity

Autism is a neurodevelopmental condition that is present from early childhood and persists throughout one’s life span (Wright et al., 2013). It is “strongly genetic in origin,” accounting for over 50% etiological contribution (Mandy & Lai, 2016, p. 271). Its prevalence rate in the U.S. is 1 in 36 children between 3 and 17 years of age (Zablotsky et al., 2017). According to The Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5, American Psychiatric Association, 2013), autism is characterized by 1) persistent deficits in social communication and interaction, and 2) restricted, repetitive patterns of behavior, interests, or activities, which also form the two essential diagnostic criteria.

Though its clinical diagnosis is binary or categorical (positive/negative), autism is in fact “quantitative” (Constantino, 2011) as autistic traits are continuously distributed throughout the whole population (Constantino & Todd, 2003; Ruzich et al., 2015). In view of the “normal distribution of traits, rather than a bimodal distribution,” “it does appear that... one can be ‘a bit autistic’” (Happé & Frith, 2020, p. 223), though most individuals only exhibit subclinical levels of autistic traits. As a result, the term “autistic tendency” has been introduced to clearly indicate its nature as a continuous variable related to individual differences, rather than diagnostic status (Jia et al., 2022). And the concept of neurodiversity captures the essence of the normal, natural neurological differences in the human genome at the collective level regarding sociability, learning, attention, mood and other mental functions (Armstrong 2011; Jia et al., 2022). Therefore, this research is not limited to diagnosed individuals, but to explore autistic tendency and neurodiversity in the broader population. Although the term neurodiversity has been broadened to include other neurological conditions (e.g, ADHD, dyslexia; Loiacono & Ren, 2018), this study focuses on the autistic condition.

2.2 Autistic inertia

Newton's "law of inertia" states that an object at rest remains at rest, and an object that is moving will continue to move straight and with constant velocity, if and only if there is no net force acting on that object (Knight, 2008, p. 140). Prior IS studies have applied the concept of inertia in different contexts, such as the lack of divergence in topical themes in verbal discussions among users of a group support system (Dennis, 1997) and continued use of an existing system despite better alternatives by individuals (Han, Park & Oh, 2016; Polites & Karahanna, 2012) and organizations (Furneaux & Wade, 2011; Seddon, Calvert & Yang, 2010). In autism research, inertia is defined as resistance to a change in cognitive state (Murray, 2019). That is, slow to start, and difficult to stop or change direction once started.

To understand why autism leads to such cognitive inertia, it is necessary to explain the information-processing basis for their linkage, called *monotropism* (mono: single; tropism: direction/channel), which describes single attention and single channels for accessing and processing information (Lawson, 2010; Murray, 2019). According to the theory of monotropism, “the difference between autistic and non-autistic is a difference in the strategies employed in the distribution of scarce attention” (Murray et al., 2005, p. 140).

More specifically, while non-autistic people tend to have many interests that are less highly aroused (polytropic), autistic people typically have few interests that are highly aroused (monotropic). Thus, high autistic tendency tends to lead to “tight-focus extreme” of this atypical strategy for distribution of attention (Murray et al., 2005, p. 140). As a result, whatever interest is most aroused tends to occupy most of one’s attentional resources (i.e., cognitive absorption) to the exclusion of other input, which naturally makes it overwhelming when forced to shift attention (i.e., interruption overload). Thus, monotropic attention provides the common underlying information-processing basis through which autism leads to this Janus-faced phenomenon. Some prior work on interruption overload (e.g., Chen & Karahanna, 2018) has built on the conservation of resources theory. We compare and contrast the two theories in Appendix 1.

In the next sections, we discuss in detail how findings in the existing autism and IS literature can help explain the two opposing sides of autistic inertia.

2.3 Autistic tendency → cognitive absorption

Since prior IS research has established autistic tendency as an antecedent of intrinsic interest in IT (Jia et al. 2022), which in turn can predict cognitive absorption (Agarwal & Karahanna, 2000), a mediated relationship between autistic tendency and cognitive absorption can be deduced (Figure 1). Such mediation is likely a partial one in view of evidence linking the autistic condition directly with key features of cognitive absorption (e.g., Poole et al., 2021). However, before we review this literature and examine the autism-absorption relationship in detail, it is necessary to first clarify the conceptualization of the construct of cognitive absorption as it has evolved over time.

In the context of a dual-purpose technology (i.e., the World Wide Web), Agarwal and Karahanna (2000) conceptualize cognitive absorption as having five dimensions: temporal dissociation, focused immersion, heightened enjoyment, control, and curiosity. Subsequent studies conducted in contexts of both hedonic and instrumental use tend to favor narrower conceptualizations for various practical and theoretical reasons. For example, Burton-Jones and Straub (2006) measure cognitive absorption during instrumental IT use (i.e., a spreadsheet tool) with only items for focused immersion as it is the only subscale containing items related to “being absorbed” (p. 237). In a study of hedonic use, Goel et al. (2011) also argue for parsimony, assessing absorption with a single dimension (i.e., temporal dissociation). Rutkowski et al. (2007) opt to use both temporal dissociation and

focused immersion to measure absorption during instrumental use.

Aside from practical considerations of parsimony, theory-based arguments have also been made for a more focused conceptualization of the construct. For example, Wakefield and Whitten (2006) argue that since cognitive theories view affective and cognitive components of attitude as having distinct relationships with behavioral outcomes, the enjoyment dimension (affective) should be examined as a separate construct from the other four dimensions (all cognitive). Lowry et al. (2013) note that the five dimensions do not happen simultaneously as users experience control, joy, and curiosity before temporal dissociation and focused immersion. Santhanam et al. (2016) similarly point out that, “Although control and curiosity ... frequently accompany engaging experiences, they are ... sources leading to such experiences ... rather than directly describing engaging experiences” (p. 457). At the measurement level, Rutkowski et al. (2007) note that the subscale of control consists of items related to “control with the computer interface rather than cognitive characteristic (i.e., external versus internal locus of control)” (p. 102).

In view of the above, we thus adopt Rutkowski et al.’s (2007) two-dimension conceptualization of cognitive absorption (i.e., focused immersion, temporal dissociation) for its theoretical clarity and relative parsimony. We next discuss how the autistic condition is associated with each dimension in turn.

2.3.1. Focused immersion. Since some of the earliest reports of the condition (Kanner, 1943), extensive research has linked autism with heightened intensity and focus of attention (e.g., Liss et al., 2006; Ploog, 2010) in keeping with monotropic patterns of information processing. It has thus been argued that, to the extent that strong interests and passions are by nature repetitive (Murray, 2019), the DSM diagnostic criterion of “restricted, repetitive patterns of behavior, interests, or activities” can be understood through the lens of monotropic attention (Murray et al., 2005) and the related flow state (McDonnell & Milton, 2014). Autistic animal scientist Temple Grandin describes her intense focus from her childhood as follows (Grandin & Scariano, 1986, p. 20):

“Intensely preoccupied with the movement of the spinning coin or lid, I saw nothing or heard nothing. People around me were transparent. And no sound intruded on my fixation. It was as if I were deaf.”

An individual in such intense absorption can be characterized as being in an “attention tunnel”, where

attentional resources are allocated toward a closed and narrow range of preferred activities to the exclusion of other input (Murray et al., 2005; Murray, 2019), hence the hyper-awareness and high task performance within the tunnel, along with hypo-awareness outside the tunnel, potentially leaving large areas of information relevant to other tasks outside the tunnel unregistered and making it hard to perceive the value of anything outside that tunnel (Murray et al., 2005; Murray, 2018).

Though non-autistic individuals can be single-minded at times, they typically can respond to another interest or situation and shift their attention whether interested or not. In other words, they can divide their attention between multiple co-aroused interests and accommodate many channels of information simultaneously with relative ease in comparison to those with autistic tendencies (Lawson, 2010).

2.3.2. Temporal dissociation. Temporal dissociation, as another key feature of the flow state (Califf et al., 2020) or cognitive absorption, is also related to the autistic condition. Research shows that distortion in time perception is associated with several neurodevelopmental conditions, such as attention-deficit/hyperactivity disorder (ADHD, Noreika et al., 2013) and autism (e.g., Allman & Meck, 2012; Poole et al., 2021). In autism, issues with temporal processing are far-reaching, encompassing the perception of duration and the relative timing of sensory signals, as well as problems with temporal cognition (Allman & Falter, 2015; Allman & Meck, 2012; Poole et al., 2021).

Though everyone can experience the flow state, research shows that flow seems to be of special relevance to the autistic condition, and the experience of timelessness associated with the flow state may be “routine” for autistic individuals (Vogel et al., 2019, p. 28). It is then not surprising that the intensity of one’s interest in an activity determines how much one experiences temporal dissociation and flow states (Poole et al., 2021; Vogel et al., 2019). Thus, while everyone can have a “time flies” type of experience, autistic individuals are prone to experience it at higher intensity and frequency.

Though the above studies are based primarily on data from individuals with formal diagnoses, it is useful to be reminded that autism is a quantitative trait (Constantino, 2011), which enables the examination of autistic tendency and its implications in the general population (Jia et al., 2022). We thus propose:

H1: Autistic tendency is positively related to cognitive absorption.

To the extent that those with high autistic tendencies are drawn strongly and persistently by their interests, a passionately interested activity will be exceptionally hard to override without causing acute distress (Murray, 2005). Indeed, if Janus turns 180 degrees on the axis, a different face prevails (Arnold, 2003). We next discuss how the autistic condition can also lead to overload when intense absorption is interrupted.

2.4 Autistic tendency → Interruption overload

One corollary of extreme focus and temporal dissociation is the difficulty in attentional shift unless the interruption happens to be among that person’s few prior interests (Murray et al., 2005), which is oftentimes not the case for most interruptions. In fact, “Problems with shifting cognitive set are one of the most robust findings in autism research” (Murray et al., 2005, p. 143) as “the ability to rapidly and accurately orient and shift attention would appear to require undue effort” (Bryson et al. 1997, p. 254). Murray and colleagues further note:

“Autistic people’s ability to recover from the impact of unanticipated events which seem harmless to others can be so strongly diminished that a return to capable processing is long delayed.” (Murray, 2021, p. 2955).

“To a person in an attention tunnel every unanticipated change is abrupt and is truly, if briefly, catastrophic: a complete disconnection from a previous safe state, a plunge into a meaningless blizzard of sensations, a frightening experience which may occur many times in a single day.” (Murray et al., 2015, p. 147)

In view of these marked difficulties in disengaging and shifting attention related to autism (Landry & Bryson, 2004), it is hypothesized:

H2: Autistic tendency is positively related to difficulty in psychological transition.

H3: Autistic tendency is positively related to interruption overload.

In sum, based on the cumulative evidence in autism research, we use the neurodiversity lens to integrate two disparate streams of IS research and hypothesize that high autistic tendency can, on the one hand, induce deep cognitive absorption when one is so

engaged, contributing to enhanced performance, but on the other hand, lead to increased difficulty in attentional shift, overload, and other negative outcomes when interrupted.

The research model in Figure 2 summarizes the above hypotheses. It also includes the two relationships below related to IT-mediated interruption from Chen and Karahanna (2018), which we hope to replicate. These two hypotheses also provide the technology setting for this research, which is introduced next.

H4: IT-mediated interruption is positively related to difficulty with psychological transition.

H5: IT-mediated interruption is positively related to interruption overload.

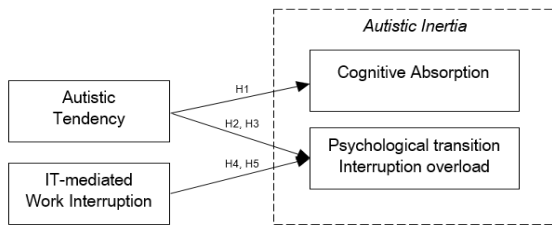


Figure 2. Research model

Definitions for all constructs are presented in Table 1. We next discuss the technology context in which the model is situated.

Table 1. Construct definitions

Construct	Definition
Cognitive absorption	A state of deep involvement (Agarwal & Karahanna, 2000).
Interruption overload	A state in which one has more interruptions than one can adequately handle and experience breakdown (Chen & Karahanna, 2018).
Psychological transition	The psychological movement from engaging in one domain to engaging in another (Ashforth et al., 2000).
Autistic tendency	The degree to which one exhibits characteristics of the autistic spectrum condition (Jia et al., 2022).
Autistic inertia	Resistance to a change in cognitive state, such as difficulty in starting and difficulty in stopping or changing direction once started (Murray, 2019).
IT-mediated interruption	An occurrence via technology that impedes or delays an individual by breaking the continuity of an ongoing task (Chen & Karahanna, 2018).

3. Research setting

There has been much diversity in contexts and participants across these two existing areas of IS literature. While many studies are situated in contexts of one or multiple specific technologies, such as college students’ cognitive absorption during their use of the Web (Agarwal & Karahanna, 2000) and work-related interruptions of knowledge workers’ personal life by phone, email, and messaging (Chen & Karahanna, 2018), other researchers have sometimes taken a more holistic approach to technology use. For example, Rutkowski et al. (2007) obtain two measures of cognitive absorption, including a holistic pretest measure of student participants’ “overall state of cognitive absorption with computers” (p. 109) and a technology-specific posttest measure after their use of an online learning platform, and find the two measures to be highly correlated ($r = .642, p = .001$). We similarly take a holistic approach in view of their finding as well as the timing of this work.

This study is conducted during the COVID-19 pandemic, which has ushered in an “unplanned”, “50-million-person experiment” in the U.S. with a different way of doing knowledge work (Goldberg, 2022). If telecommuters and distributed/virtual workers examined in prior IS research (e.g., Maznevski & Chudoba, 2000) represented only a small percentage of all knowledge workers, this pandemic has, at least for the time being, turned the majority of them into remote workers – while 6% of all white-collar employees in the U.S. worked exclusively from home in 2019, 65% of them were working remotely in May 2020 (Goldberg, 2022), and the percentage is much higher (86%) among those in computing or mathematical fields (Saad & Jones, 2021). For these remote knowledge workers, technology enables their access to work systems from home and mediates their communication with colleagues and clients through a multitude of technologies. Indeed, IT has permeated virtually all aspects of their task environment. Thus, in keeping with Rutkowski et al.’s (2007) holistic approach (i.e., one’s overall cognitive state with computers), we situate the research model in a broader context of remote workers’ interactions with an *ensemble* of technologies throughout their workday and examine the patterns of absorption and interruptions during such pervasive use.

4. Methodology

As a part of a larger study, an ongoing online survey is being conducted with members of Amazon Mechanical Turk (MTurk), which is a crowdsourced platform that offers a large and diverse group of

individuals. Data collection on such crowdsourced platforms has grown significantly in recent years in behavioral fields such as IS (e.g., Steelman, Hammer & Limayem, 2014; Chen & Karahanna, 2018; Jia et al., 2022). MTurk data have been found to be demographically more diverse than standard Internet samples and typical U.S. college student samples, allowing researchers access to a broad spectrum of participants who are knowledge workers and have varied autistic tendencies. See Steelman et al. (2014) and Jia et al. (2017) for further discussions of the advantages and disadvantages of using MTurk data.

We seek MTurk members who closely resemble Chen and Karahanna's (2018) crowd-sourced sample of full-time knowledge workers in the U.S. To this end, in addition to eligibility criteria implemented through the MTurk platform (i.e., U.S. residents with at least a 95% satisfaction rating), the survey has incorporated additional inclusion/exclusion criteria to ensure participant eligibility and data quality (Steelman et al., 2014; Jia et al., 2017).

The survey begins with an initial set of scales (Appendix 1) related to individual traits and general attitudes that are applicable to everyone (e.g., autistic tendency), which is followed by a screening question regarding employment status and an accompanying assurance that all respondents would receive the same payment regardless of employment status, which is designed to remove an incentive for participant misrepresentation though it may increase the cost of data collection (Smith et al., 2015).

Those with full-time employment were presented with questions about their occupation, the percentage of their worktime spent on a computing device (e.g., desktop, laptop, mobile device), and a set of scales related to their cognitive experience during technology use throughout their workday, before they answer the remaining demographic questions (e.g., age, gender, education) at the end of the survey. Those who were not employed full time were routed to the demographic questions at the end of survey while skipping all job-related scales. Only responses from full-time employees are included in the dataset for hypothesis testing.

Data collection is ongoing. As of late May 2022, we have received 353 completed responses from full-time employees that have answered all three attention check questions correctly and met other quality controls. Most respondents are male (60.1%), young or middle-aged (25-34 years: 43.9%, 35-44 years: 30.6%), and have received at least some college education (some college or two-year degree: 5.9%, bachelor's degree: 70.8%, master's degree: 17.8%). Nearly all (98.3%) spend a significant amount of worktime (at least 30%) using a computing device, and

most of them (87.5%) work from home for a significant proportion of their worktime (at least 30%), suggesting that they are knowledge workers.

As shown in Appendix 1, all measures are from prior research. To avoid any potential bias, the study was generally described to participants as one that seeks to examine individual characteristics and workplace implications. Descriptive statistics, scale reliabilities, and construct correlations are presented in Table 2.

Table 2. Descriptive statistics, scale reliability, and construct correlations (N = 353)

	Mean	SD	1	2	3	4	5	6
1 CA-Temporal Dissociation	5.32	0.87	0.789					
2 CA-Focused Immersion	5.28	1.12	0.70	0.693				
3 Interruption Overload	4.89	1.42	0.56	0.36	0.934			
4 Psychological Transition	5.07	1.42	0.58	0.34	0.89	0.853		
5 Autistic Tendency (AQ)	5.42	0.89	0.82	0.52	0.68	0.71	0.720	
6 IT-mediated Interruption	5.20	1.11	0.52	0.30	0.77	0.89	0.63	0.849

Note: Cronbach's alpha on diagonal

5. Results

The CFA loading matrix was examined for evidence of construct validity. Each item loaded primarily on its intended factor and less so on other factors, thus demonstrating convergent and discriminant validity. Cronbach's alphas for all scales are above 0.70, except for focused immersion (0.693), which approaches the threshold.

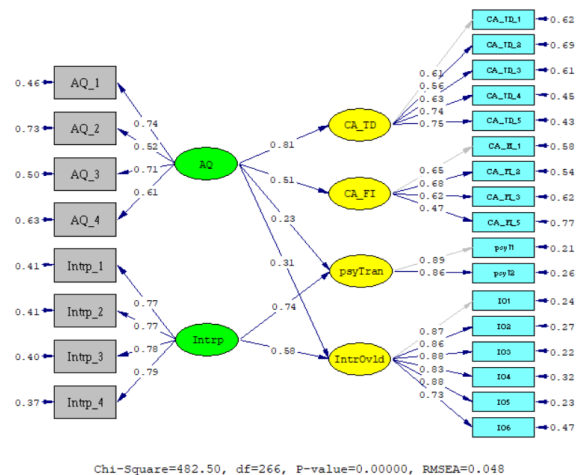


Figure 3. Measurement and structural model results

LISREL8.8 was used to test the research model, which exhibits satisfactory fit ($\chi^2 = 482.50$, $df = 266$, $CFI = 0.99$, $RMSEA = 0.048$). Since the addition of a marker variable into the model ($\chi^2 = 630.69$, $df = 336$, $CFI = 0.98$, $RMSEA = 0.050$) leads to significantly worse fit ($\Delta\chi^2 = 148.19$, $\Delta df = 70$, $p < 0.001$), common method bias is unlikely a major concern.

As shown in Figure 3, autistic tendency is positively related to focused immersion ($t = 6.83$, $p < 0.001$) and temporal dissociation ($t = 10.21$, $p < 0.001$), thus supporting the linkage between autistic tendency and cognitive absorption (H1).

Autistic tendency is also significantly related to psychological transition ($t = 3.50$, $p < 0.01$) and interruption overload ($t = 3.07$, $p < 0.01$), supporting H2 and H3, respectively.

Chen and Karahanna's (2018) results that IT-mediated interruption is associated with psychological transition (H4, $t = 4.21$, $p < 0.001$) and interruption overload (H5, $t = 5.22$, $p < 0.001$), are also replicated.

In sum, all hypotheses are supported by data gathered so far.

6. Conclusion

Before Niels Bohr's principle of complementarity (1928) offered an explanation of the so-called wave-particle duality, classical concepts of "wave" or "particle" could not fully describe the behavior of light. As Albert Einstein noted (Einstein & Infeld, 1938, pp. 262-263):

"But what is light really? Is it a wave or a shower of photons? There seems no likelihood for forming a consistent description of the phenomena of light by a choice of only one of the two languages. It seems as though we must use sometimes the one theory and sometimes the other, while at times we may use either. We are faced with a new kind of difficulty. We have two contradictory pictures of reality; separately neither of them fully explains the phenomena of light, but together they do."

Initial results have provided empirical support for the integration of two disparate streams of IS research on cognitive absorption and interruption overload and a resolution of these Janus-faced effects through the lens of autistic inertia. Following up on earlier work that establishes the autism-IT interest linkage (Jia et al., 2022), this study further demonstrates the relevance of neurodiversity and autism theories to IS research. However, these results need to be replicated in future research using different sampling strategies.

This work also has important implications for practice. Autistic inertia is a double-edged sword: while difficulty in handling attentional shifts and interruptions is obviously undesirable, intense focus can be a major asset to those in technical fields like IT – being in an "attention tunnel" can lead to hyper-awareness and high task performance (Murray et al., 2005; Murray, 2018). IT managers should play a facilitative role and minimize unanticipated interruptions in the work environment to allow employees' deep immersion in their tasks.

Individuals with high autistic tendencies, as monotropic thinkers, are likely to have a narrower set of interested activities, which are often highly charged with affect: they tend to be "either passionately interested or not interested at all" (Murray et al., 2005, p. 142). This means, while they may immerse themselves in their preferred tasks (e.g., technical), they can also be easily frustrated by tasks that they perceive as uninteresting or less meaningful (e.g., administrative), which may in turn cause dissatisfaction, burnout, and turnover. Thus, when IT managers assign work tasks, their assessment of person-task fit should take into account not only competency, but also intrinsic interest, the latter being particularly important for employees with significant autistic traits.

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Appendix 1: Monotropic theory vs. conservation of resources theory

Conservation of resources (COR) theory (Hobfoll, 1989) postulates that individuals have limited attentional resources, and when such resources are exceeded by task demands, negative outcomes such as psychological and behavioral strains arise. It has therefore been argued that attentional shift “becomes consequential... only when it starts eroding one’s resource reserve and thus impairs one’s capacity to meet [other] demands” (Chen & Karahanna, 2018, p. 1027, italics in original).

Thus, COR emphasizes the overall supply and demand of attentional resources and would predict that as long as the set-shifting interruptions do not exceed one’s cognitive capacity, they would be reasonably handled and not result in overload, regardless of one’s cognitive style or interest in the task. Thus, COR assumes that individuals are polytropic thinkers, who can accommodate multiple channels of input simultaneously and shift their attention with relative ease to another task whether interested or not, as long as one’s total attentional resources are not exceeded.

In contrast, though the monotropic theory shares the assumption of limited cognitive capacity, it diverges from the COR and posits that autistic thinkers employ different strategies in allocating cognitive resources and tend to become absorbed in interested activities to the exclusion of other input (i.e., little resource reserve remaining). Thus, interruptions will likely cause overload for those high in autistic tendencies. They may remain derailed and struggle to reengage for an extended period of time.

In sum, though both theories assume limited attentional resources, how one distributes these resources across tasks is the critical point of divergence. Lastly, while the monotropic theory is more relevant in situations where there exist competing channels of input (e.g., interruptions), the COR logic has been used in autism research in contexts without multiple channels of input as well (e.g., Hayward et al., 2020).

Appendix 2. Measurement scales

Autistic Tendency (Jia et al., 2019)

1. I usually notice car number plates or similar strings of information.
2. I tend to notice details that others do not.
3. I am fascinated by numbers.
4. I notice patterns in things all the time.

Cognitive Absorption (Adapted from Agarwal & Karahanna, 2000)

Temporal Dissociation

1. Time appears to go by very quickly when I am working on a task using information technologies.
2. Sometimes I lose track of time when I am working on a task using information technologies.
3. Time flies when I am using information technologies.
4. Most times when I use information technologies, I end up spending more time than I had planned.
5. I often spend more time on information technologies than I had intended.

Focused Immersion

1. While using information technologies, I am able to block out most other distractions.
2. While using information technologies, I am absorbed in what I am doing.
3. While using information technologies, I am immersed in the task I am performing.
4. While using information technologies, I get distracted by other attentions very easily.
5. While using information technologies, my attention does not get diverted very easily.

IT-mediated work interruption (Adapted from Chen & Karahanna, 2018)

1. During my workday, I frequently get interrupted about different matters through communication technologies.
2. I frequently stop what I am doing during my workday to respond to interruptions through communication technologies.
3. During my workday, dealing with interruptions initiated by others through communication technologies is time-consuming.
4. Dealing with interruptions I initiate during my workday via communication technologies is time-consuming.

Psychological transition (Adapted from Chen & Karahanna, 2018)

1. After an interruption during my workday, it typically takes me some time to stop thinking about the interruption.
2. After an interruption during my workday, it typically takes me some time to mentally disengage from the interruption.

Interruption overload (Adapted from Chen & Karahanna, 2018)

1. During my workday, I have more interruptions than I have energy to deal with.
2. During my workday, I have more interruptions than I can handle.
3. During my workday, I have more interruptions than I have time to deal with.
4. During my workday, interruptions take up more energy than I have.
5. During my workday, the number of interruptions I receive exceeds my ability to handle them.
6. During my workday, I don't have enough time to deal with all the interruptions that I receive.

Marker variable for common method bias

1. I really like pasta.
2. If I don't get to have pasta for a while, I would begin to miss it.
3. Pasta is something I eat quite often.