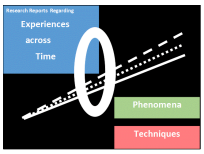

RRREaT-PT

Editorial, 2021, February

Towards a Working Definition of Experiences across Time

Through this editorial, I would like to introduce the coming into existence of *Research Reports Regarding Experiences across Time: Cognitive Psychological Phenomena in Education and the Data-Analytical Techniques* (RRREaT-PT), a scientific repository for the publication of research studies regarding inter-individual differences obtained from person-specific intra-individual data by including experiences across time. RRREaT-PT will be an open-access scientific publication outlet to promote research on obtaining a better understanding of the meaning of person-specific intra-individual differences for generalizations because the basis for homogeneity in individuals in cognitive and educational psychology and research is still for a large part undetected, which means that we may have missed essential explanations (Asendorpf, 1992; Molenaar, 2004; Nesselroade, 1999). Below I will explain why I think that it is timely to offer such a publication outlet.

Currently, several researchers are in search of scientific avenues to counter the possibility of conducting incomplete research studies due to the complexity of cognitive psychological phenomena, the reliance on some combination of information as the basis of inter-individual differences, and the shortcomings of the data-analytical techniques for longitudinal trajectories (e.g., De Ribaupierre & Lecerf, 2018; McArdle, 2012; Uher, 2018). These new scientific avenues are a reaction to, for instance, Molenaar (2004, p. 209), who argued for a more detailed scientific understanding of the relationship between the structures of intra- and inter-individual differences by explaining how the assessments of psychological processes via groups of individuals (i.e., following the structures of inter-individual variation) can "differ from an arbitrary degree, up to being completely unrelated" to an individual (i.e., the structure of intra-individual variation). Then, it is rather complex, data analytically speaking, to obtain an understanding of how an individual's behavioral trajectory (i.e., $N = 1$ in time-series research) can contribute to the defining of inter-individual groups.

Another example is given by Asendorpf (1992), who has questioned the way science establishes the stability of inter-individual differences in behavior across time because personality data have shown both stability and instability, and a variety of explanations can account for these results. Asendorpf has summed up some of the unexplained findings of personality measures, such as (a) longer retest intervals provide for less stable individual differences, (b) personality changes during certain periods of time cancel each other out to a great extent, and (c) younger participants have lower stability of personality measures than older participants have. However, the possible explanations for these findings can range from issues regarding construct validity to the influence of environmental variables. Asendorpf's solution for dealing with instable personality data consists of considering the average stability of personality as a property of the sample, not of the individuals. Nesselroade (1999)

proposed another solution, namely that the construct of personality itself could consist of a combination of components, such as attributes and traits, that explain the patterns of stability and instability witnessed over human life-span developments, and which can lead to visualizing human personality as a Riemannian folded fabric that provides for a much more "organic" perspective of the person and the environment.

The critical questions that these three researchers and other scientists have raised about the scientific study and the obtained explanations regarding human cognition and behavior have led to the idea that a much more complex view of the possible interactions between persons, occasions, and variables (Cattell, 1952) are required. In responding to these critical questions, various methodological solutions for reckoning with the complexity of possible human-environment interactions in research studies are being proposed. For example, Pickering (2013) focuses on the relationship between scientific practice and participant performance, Furr and Funder (2021) study the influence of person-situation interaction, and Tucker-Drob (2017) relates the person in the environment to genetics. In the same vein, Van Velzen (2020) has argued, based on a synthesis of the scientists' critics regarding "struggling" research disciplines (e.g., particle physics, cell biology, and metacognition) that research studies ignore to measure person-specific intra-individual differences as individual realities that involve personal-situational experiences across time. To this end, Van Velzen proposed to study human reality differently from the common scientific views of reality that include objective, subjective, and realistic-pragmatic perspectives (Moshman, 2015; Westphal, 2014), in that human reality has some objective and subjective components that, however, continuously progress or change in different ways as the result of time going by. Consequently, Van Velzen (2020) stated, research studies on cognitive psychological phenomena in education that include experiences across time require mixed methods research designs and multiple and flexible data-collection moments.

As this short overview shows, obtaining inter-individual differences from person-specific intra-individual differences is a relatively new and underdeveloped research area. Additionally, to include the person-specific intra-individual differences via experiences across time will almost certainly give rise to encountering and finding solutions for theoretical and methodological difficulties that will accompany the conducting of this kind of research. For example, the studies might include and critically discuss the detailed measurement of person-specific intra-individual differences, consider the role of emerging variables in the data analysis, and capture behavioral trajectories in relation to relevant background variables. Because it seems reasonable to expect, that the research studies on this subject will be complex and possibly departing from the mainstream academic discourse (e.g., research journals and edited academic books), it is necessary to provide for a research outlet for such new and innovative scientific endeavors until we have a better understanding of whether this kind of research has merits regarding the explaining of human cognitive psychological phenomena. Therefore, the primary aim of RRREaT-PT is to offer a scientific publication outlet for research studies that explore and examine inter-individual differences by including person-specific intra-individual's experiences across time. Needless to say, RRREaT-PT will publish only high quality studies that expressly offer an explanation of the reasoning behind the scientific method applied and that, in a critical manner, uphold scientific rigor and validity in the search of finding truthful evidence about the reality of human cognitive psychological functioning in education.

The Concept of Experiences across Time

Conducting research studies that involve experiences across time regarding the cognitive psychological phenomena in education and the data-analytical techniques raises the question of what the concept of experiences across time encompasses. In other words, how is the concept of experiences across time theoretically substantiated as a preliminary working definition for conducting research studies that are publishable in RRREaT-PT? An experience is defined as a situation that is encountered by a person and that converges for this person (a) the already present thoughts and emotions in the present situation, (b) that what is actually taking place in the situation, (c) the episodic memories that are used to interpret the situation, and (d) the declarative and procedural memories that support the interpretation of the situation in the sense of understanding it. These four components of an experience are highly interconnected and come to the foreground via personal and situational circumstances (see Van Velzen, 2020, for an overview).

Circumstances are the near-present personal and situational influences that affect the interpretation of the present situation, and this will create for a person the idea of having encountered an experience. Personal circumstances are a person's near-present personal identities or belongings as they are provided by present thoughts and emotions regarding health, family, friends, work, culture, hobbies, and etcetera. For example, research on emotion showed that emotions are the interface between a person and his or her environment, in that emotion episodes lie at the basis of and are the result of situational appraisals as well as behavioral tendencies and activities (Lerner et al., 2015; Scherer & Moors, 2019). Similarly, thoughts produced by knowledge are also used by persons to understand certain features in the present situation, in that knowledge lies at the basis of thinking and understanding (Anderson, 2015), which are also both involved in present situation interpretations.

Situational circumstances take place in the present environment (i.e., the surroundings or location and context), where a specific situation consists of certain events and features that are perceived as a coherent whole by a person. For example, when a person is in a certain classroom situation that takes place in a learning environment (i.e., schooling institution and class-climate context), the events can consist of attending to a lecture as well as discussing subject matter, eventful news reports, and yesterday's party with fellow students. A set of events produces a situation or a particular affair. However, a group of persons being present in the same situation does not have to provide for similar situational descriptions and interpretations (cf., Graetz, 2006). For example, when a group of students is in a classroom situation, they all can mention, when being asked, certain features of the location and events that are present and noticed by all (e.g., there is a teacher, who is explaining information on the blackboard), but there also can be the mentioning of certain event and features that are noticed by only one or a few students (e.g., a bird in the schoolyard and two fellow students secretly exchanging a piece of paper). Therefore, circumstances are a person's near-present state and noticing of certain events and features in the present situation by giving it a particular interpretation or meaning to create that person's experience of that situation. Both, the personal and situational circumstances, are interconnected and can affect situational interpretations and behaviors, which are then stored in long-term memory as experiences.

Memories are chunks of information about oneself in the environment in the past by interpreting what has happened and that have been stored in and can be retrieved from long-term memory, which is located in the brain. Episodic memories consist of autobiographic information, declarative memories consist of factual information about the world, and procedural memories consist of information about performing practical and physical skills. Generally, much of the information that humans take up from their environment is forgotten quickly, whereas the information that is stored in long-term memory is often not a reliable reproduction of the information as it has been encountered in the environment. A well-known example about forgetting information is the research of Ebbinghaus (1885), which showed that approximately half of a range of memorized nonsense words were forgotten an hour after studying. A well-known example about the unreliability of memories is the research of Loftus & Palmer (1974) regarding eyewitness testimonies in criminal lawsuits, which showed that the present situation could change memories and trigger false memories (Laney & Loftus, 2014). Therefore, memories are not stored in the brain as accurate and permanent images and experiences, because they are individual images and experiences that can contain imprecise and incorrect information, and that can be rewritten as a consequence of the present situation.

A consequence of the person and the situation being inextricably interconnected via the present circumstances is that it can influence not only the creation of memories, but also the retrieval of memories (Laney & Loftus, 2014). For example, persons can adjust their preferred kind of behavior (e.g., being extravert) to the situation (e.g., extravert behavior is less appropriate in some situations, such as attending a classical music concert), and persons can change and create situational events and features via, for instance, goals, regulation, and avoidance (see Wagner et al., 2020, for an overview). Another consequence of the person-situation interconnection is that situational interpretations are intra-individual interpretations, and these can change when time goes by. For example, the research of Harris et al. (2016) showed that the rating of personality characteristics (i.e., the Big Five) via three kinds of raters (i.e., the teachers at age 14, the persons themselves at age 77, and a significant other, such as a spouse, during the person's age of 77 years), gave low Spearman correlations for teacher versus self and other, and moderate Spearman correlations for self versus other. These low to moderate correlations suggest that each kind of rater is likely to have had either different situations or situational interpretations in mind during the rating. Additionally, the teacher ratings were not, but the other's ratings were statistically significant. This difference in statistical significance suggests either that the selves have changed their personality during their lifetime or the teachers' rating deviated from the true selves. Therefore, the near-present personal and situational circumstances might play an important role in the creation of experiences, and as such, these experiences contain information from all four aforementioned components of experiences, but largely they are connected to the present situation.

Human Reality and Experiences

In the previous section, experiences have been defined as person-specific situational descriptions, but they also involve a specific temporal window frame or period of time because individuals can differ in the period of time they ascribe to a situation. Buehner (2005) has called this temporal window frames because it marks

the beginning and end of a situation as individually established. Generally, a continuum of situations makes up human reality, whereas researchers, philosophers, and historicists of science regard reality as a continuum between objective and subjective reality (Westphal, 2014). It is important in scientific studies to conceptualize human reality because not only is it the background of all human mental phenomena and behavior, but it also influences the conducting of research studies because then the human endeavors are taking place at the background of the research situation (Mund et al., 2017). In other words, human reality consists of a continuum of experiences that contain both objective and subjective situational components in varying degrees in line with person-specific temporal window frames, and it is a challenge for researchers to reckon with these differences in their participants' experiences in order to obtain an understanding of human phenomena.

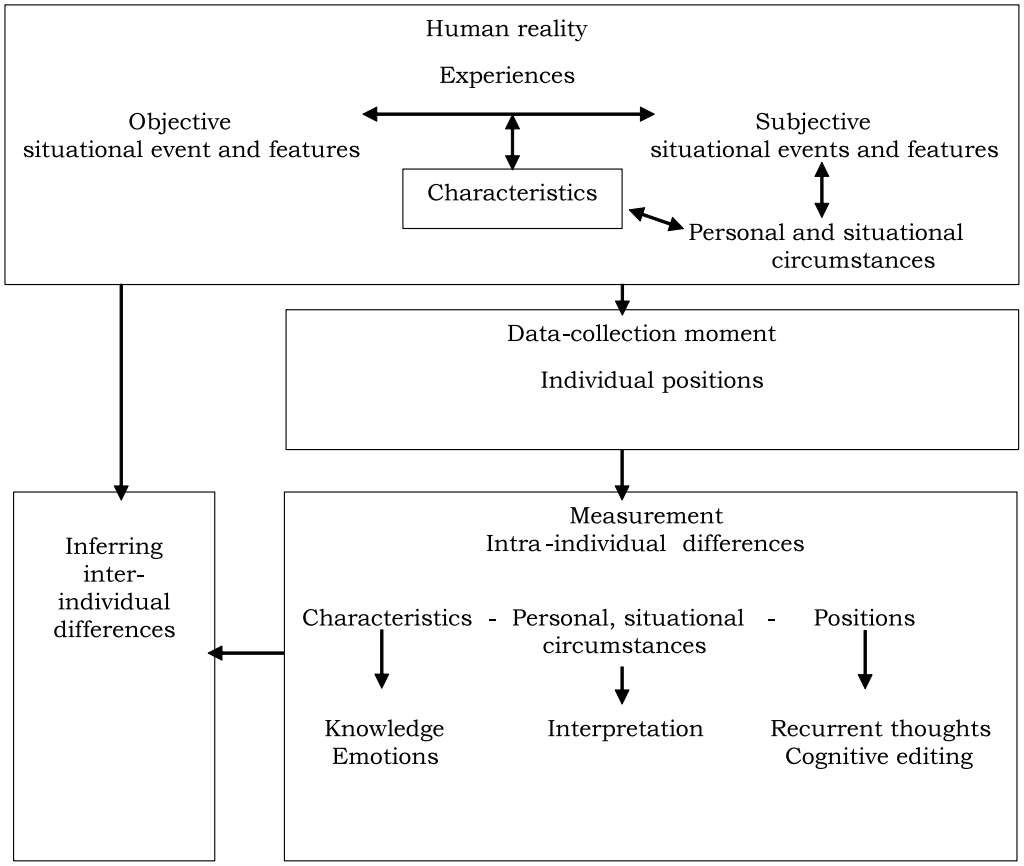

Figure 1. Theoretical working model for measuring person-specific intra-individual differences.

Figure 1 shows that human reality consists of experiences that contain a variety of situational events and features that are relatively objective and subjective. The objective situational events and features are those situational components that a group of individuals could agree on or that is recorded via a camera, but the person-specific descriptions of the situation can vary. For example, a group of people can agree on the comprehensiveness of a schoolbook due to its varied text boxes and

explanatory figures, but they can vary in the thoughts and emotions regarding this schoolbook largely due to present personal and situational circumstances that evoke specific past school-life memories. In a data-collection situation, the schoolbook might not only evoke certain school-life memories in line with personal and situational circumstances, but now there is also the circumstance of being presented with the schoolbook for the purpose of giving an opinion about it on behalf of a research study. Together, the schoolbook and the data-collection situation can provide for situational interpretations that are not only subjective, but that are also created as coherent self-images (Luciano, 2017) of the near-present moment (Harris et al., 2016).

This means that the present-day experiences contain the hustle and bustle of daily life in relation to the thoughts and emotions regarding the near-present personal and situational circumstances and the positions during the data-collection moment. This cluster of different thoughts, emotions, circumstances, and positions can consist of, for instance, (a) feeling disinterested and fatigue, (b) not being in the mood to react comprehensively, (c) being hindered in the degree-of-choice among multiple alternatives through perceived autonomy, (d) being hindered by distracting recurrent thoughts, and (e) cognitive editing to comply to anticipated expectations (Ben-Nun, 2008; Scherer & Moors, 2019; Serences & Kastner, 2014; Zadra & Clore, 2011). Therefore, human reality always represents specific temporal window frames, and it always includes objective and subjective components that to a large extent refer to the near-present circumstances.

The Scientific Research Outlet of RRREaT-PT

The consequences of the aforementioned definition of the concept of experiences across time for the perspective regarding human reality also have implications for conducting research studies. These implications are illustrated via the cover image of RRREaT-PT (see Figure 2), in that it represents two main assumptions about how the person-specific intra-individual differences can meet inter-individual differences.

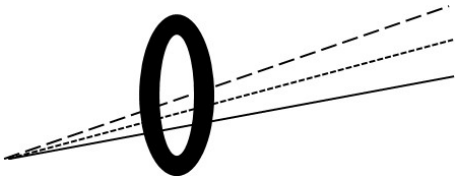

Figure 2. Cover image of RRREaT-PT.

The first assumption is that person-specific intra-individual differences are made up of, at the least, (a) knowledge and emotions, (b) personal and situational circumstances, and (c) positions at the data-collection moment; all three are the result of a person's interpretations of the flow of encountered situations at a specific period of time. These three main components of person-specific intra-individual differences are illustrated in the cover image of RRREaT-PT by the three different kinds of lines, each having a slightly upward slope to indicate their progress (i.e., building upon previous situations) across time. But, the slopes of the three lines also vary because of the different degree in which past memories, near-present circumstances, and future expectations and ambitions can provide for a coherent self-image of the present time. The present time is the data-collection moment, which is expressly included as a

measurement variable because of its possible influence upon the research results, to which end insights into the near-present circumstances are required. That is, it is the task of the researcher to find, discover, or unravel from these three main person-specific components, the person-specific intra-individual state of the near-present time.

The second assumption is that person-specific intra-individual differences are always related to a specific period of time, in that time continuously goes by and thereby continuously creates (slightly) different events, opportunities, and difficulties due to the situational features present at a particular moment. This assumption presumes that a person always has a person-specific state that belongs to a particular moment of time. Hence, research requires multiple data-collection moments to map the near-present person-specific states to understand his or her current way of interpreting situations. A consequence of this view is that research can only measure a person's specific and current way of interpreting situations imprecisely, that is, as an oval rather than a perfect circle, because it refers to the near-present time, which means that future situations can produce different person-specific intra-individual interpretations. For the researcher, the challenge is to find inter-individual differences that can be linked to certain person-specific characteristics and ways of situation interpretation and that coordinate or connect multiple situations across time.

Therefore, research on experiences across time includes the research situation as an influential variable and considers situations as continuously changing variables, but that hold or encapsulates certain major or long-lasting features. Although a person's situational interpretations are driven by uniquely person-specific characteristics, they also create the uniquely person-specific characteristics, and the person makes certain adaptations when time goes by. From a measurement perspective, this means that a person-specific interpretation of one or more situations is, on the one hand, a general account of what has happened in terms of agreeing with or overlapping with other persons' accounts of that situation and, on the other hand, a unique interpretation due to a mix of past memories, the near-present interpretations, and anticipated futures. Overall, this means that research and scientific reasoning have to account for, in a much more explicit manner, their own influential consequences on participant thoughts, emotions, and behavior, and the consequences of a continuation of time that influences human reality. Human reality changes as a result of time going by via developing (i.e., biologically and cognitively), living through situations, and determined reacting to and redirecting of situations. The scientific method then can consist of the detection of patterns that describe part of a person's reality as it overlaps with other situational interpretations and other person's reality.

To conclude, when taking both assumptions together, the multiple mixed methods measures of a person's interpretation of situations can highlight specific trends in interpreting situations, whereas the data-analytical challenge will be to cluster the person-specific situational interpretations appropriately into meaningful inter-individual groups. The measurement and methodological challenges are likely to require innovative research studies and scientific reasoning due to having to reckon with, among other things, (a) the variability of influences of emerging variables, (b) the finiteness of the concrete concept of time or circumstances, and (c) the infiniteness of the abstract concept of time or experiences.

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