Examining the measurement of epistemic style: The development and validation of the Epistemic Preference Indicator-Revised

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ABSTRACT

The Epistemic Preference Indicator (EPI; Eigenberger, Critchley, & Sealander, 2007) measures a dual-process cognitive model comprising Intellective (IP) and Default (DP) processing. These two habitual thinking styles are defined by complex, effortful thinking (IP) and effortless, expedient thinking (DP). The current study examined the response format and content validity of the EPI. An eight-item alternative (EPI-R) was found to perform similarly to the original measure, displaying adequate explanatory power, reliability and content validity.

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1. Introduction

The current study aims to examine and revise the Epistemic Preference Indicator (EPI; Eigenberger et al., 2007). The EPI measures epistemic style, which is a dual-processing construct comprising two habitual, implicit cognitive processes used in the construction and evaluation of beliefs, judgements and problem solving: Intellective Processing (IP) and Default Processing (DP). IP involves a general preference for complex, elaborative forms of thinking and judgement, whereas DP is a preference for automatic, expedient and effortless processing (Eigenberger et al.). The EPI was shown by Eigenberger et al., to have good psychometric properties, including excellent internal consistency and reliability over time. Criterion validity was demonstrated, by higher IP and lower DP scores amongst college students compared to a general community sample. Construct validity for both IP and DP was demonstrated by significant associations with measures of need for cognition, openness, dogmatism, right-wing authoritarianism and conservatism. Eigenberger et al. suggest that epistemic style is a unifying construct underlying a number of positive outcomes such as academic and problem solving ability, creativity and good democratic citizenship.

1.1. Concerns with the structure of the EPI

The EPI comprises 36 items, presented as 18 paired-stems. Each stem includes two answers; one reflecting IP and one reflecting DP (e.g., the stem '*In discussions...*', is completed by '*I become impatient when people turn simple questions of right and wrong into complicated ethical issues*' (DP); and '*I enjoy exploring ethical and philosophical problems I find in the world around me*' (IP). Participants are prompted to answer both variations of the stem completion providing total scores for IP and DP. Eigenberger et al. (2007) expressed concern with the paired-stem format as it can be difficult to tell whether participants are answering each of the paired items separately (and therefore honestly), or if they are mirroring their responses in the reverse (e.g., 5 on Q1a; 1 on Q1b), thereby inflating the negative correlation between IP and DP. Despite this, Eigenberger et al. decided on retaining the paired-stem structure, suggesting that decisions in life involve alternative, incompatible strategies of IP and DP (e.g., solving a problem by using reason and evidence, or one's preconceived notions). IP and DP however, were found to be highly correlated ($r = -.79$; Eigenberger et al.), suggesting that they may exist as elements of a single dimension rather than separate but related processes.

A further concern is a lack of equivalence across IP and DP within a single stem. For example, the aforementioned IP item assesses how much one enjoys exploring ethical/philosophical issues, whereas the DP item reflects a situation where one may truly believe a question has a simple yes or no answer, and somebody else turns the discussion into a complex ethical issue. Contrary to the rationale of Eigenberger et al. (2007), these responses are not

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measuring two inversely related preferences across a single unifying stimulus. Furthermore, participants may misunderstand the response requirements and answer one rather than both stems, resulting in missing data.

To eliminate possible problems associated with the fixed stems, the current study aims to compare the psychometric properties of the current paired-stem EPI with a version using separate items. Rather than 18 paired-stem items, each stem was combined with each completion sentence to form 36 distinct items (e.g., 'In discussions I enjoy exploring ethical and philosophical problems I find in the world around me' (IP)).

1.2. Concerns with content validity

While modifying the response format, 23 items with questionable content and face validity were identified. Many items reflected an ideological view, attitude or value rather than the underlying thinking process of either IP or DP, or did not translate well to the new format. Epistemic style may be the cognitive means through which individuals gravitate toward, or accept, various ideological views such as conservatism or distaste for philosophy, but it is not conservatism or attitudes towards philosophy per se. A rationale for the removal of items (see Table 1) on theoretical grounds is provided below.

Conservatism (DP4, DP5, DP8, DP15) involves a suspicion or resistance to change with a preference for upholding existing values, traditions and institutions (Heywood, 2007). Cultural con-servatism has been shown to correlate with dogmatism (Crowson, 2009) and low scores on Openness to Experience (McCrae & Sutin, 2009). Similarly, DP has also been found to correlate with lower Openness to Experience scores and greater dogmatism (Eigenberger et al., 2007). Therefore, the effortless, expedient thinking typical of DP is conceptually similar to the conservative desire to adhere to the 'current way of things' with little empha-sises on examining contrary viewpoints. However, while DP may lead to being ideologically conservative, a number of items pertaining to conservatism should not be part of the construct of DP. Similar problems were identified with items about uncertainty or imprecise outcomes, practicality, value judgements about philosophy, science and critical thinking, and the enjoyment or satisfaction obtained by complex thinking (see Table 1).

IP involves elaborative forms of thinking and judgement and "is meant to reference in a general way, thought that is governed by rules of reason, whose aim … is achieving a true, justified belief" (Eigenberger et al., 2007, p. 4). This does not suggest that individuals with a preference for IP also prefer situations with uncertain outcomes (IP1, IP9, IP16); they may simply be more open to them than those who have a preference for DP. Similarly, Self-Determi-nation Theory suggests that Competence, one of three basic psychological needs, involves feeling that can overcome problems in life (Deci & Ryan, 1985). Therefore, all people, regardless of preference for IP or DP, may desire to effectively deal with practical problems (DP2, DP3) should they arise. While it is expected that those with a DP orientation prefer concrete outcomes due to effortless,

Table 1
EPI items removed.

Problem	Item
Conservatism	
DP4	When it comes to deciding what to believe, I usually stick to the basics; the 'tried and true'
DP5	The most valuable for the survival of society is standing firm on our core beliefs and values
DP8	It is best to be a solid, true believer with a firm set of values
DP15	When it comes to developing a philosophy of life, I have always done alright with the basic guidance I received when I was young
Uncertainty/imprecise outcomes	
IP1	In most learning situations I like it better if topics involve theories and open questions that have no sure answers
IP9	I most have a need for exploring theoretical and novel questions, even if there are no definite answers
IP16	If given a choice, I prefer to deal with global, conceptual projects with uncertain outcomes
Practicality	
DP2	I prefer to invest my time in getting the right information to solve my practical problems
DP3	I generally consider myself to be more practical, finding the answer that works for me right now
Value judgments about philosophy, science or critical thinking	
DP7	To be perfectly honest, I have very little interest in subjects like philosophy and world history
DP12	Very often I get tired of hearing scientific or theoretical explanations for everything in the world
IP5	The most valuable for the survival of society is using philosophy and science to question our beliefs
IP8	It is best to be a critical thinker who doubts everything until it's been tested and verified
Enjoyment of thinking	
IP11	In discussions I enjoy exploring the ethical and philosophic problems I find in the world around me
IP14	In general, I am most satisfied when I am working on a challenging intellectual issue
Restriction to academia	
IP17	When it comes to reading, studying and other academic work, I tend to become immersed, following a number of related thoughts
DP17	When it comes to reading, studying and other academic work, I like to finish up quickly and move onto other things
DP1	In most learning situations I like it best if topics are concrete and provide information that is obvious and useful
Vague or poorly worded	
DP18	True knowledge is completely possible; just open your eyes and ears
IP18	True knowledge is basically impossible; nothing is really the way it is
DP10	How much do you agree with this quote; "Just do it"?
IP10	How much do you agree with this quote; "The unexamined life is not worth living"?
DP14	In general I am most satisfied by doing activities or relaxing
Items removed primarily on statistical grounds	
IP3	I generally consider myself to be more philosophical, evaluating many diverse ideas
IP4	When it comes to deciding what to believe, I usually experiment with different theories and beliefs
IP6	When confronting the philosophical issues of life I am more inclined to go into them deeply, constantly looking at different explanations
IP15	When it comes to developing a philosophy of life, I have always tried to consider a wide range of different ideologies
DP13	In the simplest terms, I don't need a deep explanation for why a lot of things happen