Interpretive Filters and Personal Constructs: Are They Uniquely Individual, or Do They Share Common Features?

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Abstract (225)

The term “interpretive filters” was first coined by Reis and Shaver (1988) to describe distortions that occur when communicating information: Other prominent psychologists have addressed similar ideas (Walter Mischel, Kurt Lewin), but George Kelly formed a comprehensive theory based on interpretive filters (he called them “personal constructs”) as that through which we “construe” our world. Because interpretive filters are assumed to be unique to each individual, little research has examined whether they share common characteristics across individuals—the central objective of the present study. With a data set of 1680 individuals, we explored Kelly’s constructs across 26 prominent personal qualities (16 positive 10 negative) and their impact on life satisfaction. Each quality was measured for strength of the quality, permeability (openness to change), clarity, progress toward goals, impact on life, and whether it was perceived as an interpretive filter. Results found that (a) If a quality was strong it was typically used as an interpretive filter, and impacted life satisfaction positively or negatively based on the valence of the quality, (b) the two exceptions were that physical attractiveness and poverty mindset predicted higher life satisfaction but when used as an interpretive filter predicted lower life satisfaction, and (c) for both positive and negative qualities, permeability was associated with lower life satisfaction—to the extent that the participant was unhappy with that quality. Results are discussed and avenues for future studies considered.

Key words. Interpretive filters, personal constructs, construe, life satisfaction, permeability

Interpretive Filters and Personal Constructs: Are They Uniquely Individual, or Do They Share Common Features?

The concept of interpretive filters and the way these filters influence perception and behavior has been a frequently discussed but rarely researched concept. The actual term comes from a proposed model of interaction described by Harry Reis and Phil Shaver (1988) from a chapter in the edited book *Handbook of Personal Relations* (Duck et al., 1988). Reis and Shaver propose that when one person responds to their partner that the partner hears the message through personal schemas termed “interpretive filters”. These schemas invariably distort the message based on the content of those filters. When the partner responds the first person is also listening through their interpretive filters.

Reis and Shaver are not the only ones to have considered these ideas. Kurt Lewin proposes a broader construct that behavior is a product of personal characteristics and environmental factors (Lewin, 1936). More recently, Walter Mischel created a model of behavior in the context of personal relationships as an interaction between personal qualities and situational characteristics (Mischel et al., 2002). However, the psychologist who has most extensively explored the concept of interpretive filters was George Kelly.

Kelly’s proposed cognitive theory of human behavior is so intriguing and logically sound that every personality psychology textbook devotes many pages to Kelly’s theory, and most have a full chapter on Kelly and his Personal Construct Theory. The incongruous element of Kelly’s fame is that he rarely published. He was a popular professor at Ohio State University, and his students were the ones who published many of his theories following his untimely death (Allen, 2006).

Kelly’s work is closest to what Reis and Shaver proposed. Instead of interpretive filters, he named these schemas “personal constructs” as the filter through which we “construe” our world (Note: the terms *interpretive filters* and *personal constructs* are used interchangeably throughout the paper). Kelly developed an entire cognitive theory around these personal

constructs (Kelly, 1963). They may be permeable (subject to change) or impermeable, when two people share the same construct, he calls it “commonality”. “Range of convenience” addresses the issue of how well a particular construct operates in different settings.

The probable reason these models and concepts have rarely been researched is because they exhibit “ideographic power but nomothetic weakness.” In other words, despite their considerable potential for describing individuals, interpretive filters have been regarded as difficult to generalize across larger populations. Whether considering the work of Reis and Shaver, Lewin, Mischel, or Kelly, there is little doubt about the logical foundations of these ideas. However, their application has largely required studying individuals one at a time because each person's interpretive filters are assumed to be unique, resulting in different responses even in similar situations.

We argue that this assumption of uniqueness is overstated. Although interpretive filters undoubtedly vary across individuals, they may also contain recurring characteristics that are shared by many people. This possibility extends the prevailing conceptualization from a purely ideographic perspective toward one that also allows for meaningful nomothetic patterns. Accordingly, the present research investigates whether identifiable characteristics of interpretive filters are sufficiently common across individuals to permit systematic analysis and generalization.

Strength of a Personal Construct and its use as an Interpretive Filter. First, we consider whether the strength of a personal construct would ever differ significantly from its use as an interpretive filter. Here is the logic: If someone defines themself as a research psychologist, it is very likely that their profession will greatly influence the way they view their world. But, if someone is an avid jigsaw puzzle builder, it is unlikely that their puzzle building will have much impact on their world view. There may be instances in which strength and its use as an interpretive filter are highly correlated. But there may be instances in which the two are not strongly related or even reverse the pattern; that is, the strength of the construct is positively correlated with life satisfaction, but when used as an interpretive filter the impact is negative.

Answers to these questions may provide key insights into the difference between strength of a construct and its use as a filter,

Permeability. Kelly viewed permeability as necessary adjustments to personal constructs if a person wished to be successful (or as Kelly might say, “be able to accurately predict future outcomes”). Kelly proposed that people operate as “naïve scientists” (Allen, 2006). People have future objectives and they possess many constructs designed to guide them to a predictable future. If a construct is no longer effective in achieving that future, then personal constructs will be changed (permeability) in order to make them effective. At age 9 months, an infant crying gets the attention of its mother. At age 9 years, crying no longer yields the same result; the construct needs to be altered to attract positive attention.

One criticism of Kelly’s theory is that it operates at a cognitive level—largely ignoring the emotional component (see Allen, 2006). For a therapist counseling clients or for a highly motivated person attempting to achieve an important goal, altering constructs to achieve an objective is axiomatic. But we maintain that in real life few people are that analytic. According to Kelly, permeability (involving an openness to change, a willingness to change, and the ability to make that change) (see Allen, 2006) varies depending on the filter or the situation in question. We argue that permeability may be a generalized disposition that may influence openness, willingness, or the ability to change—across many settings. Supporting this, is research evidence that there is a genetic base to personal constructs rendering permeability more difficult (Ganiban, et al., 2009; Brinley & Tucker-Drob, 2012), and that attachment and conditioning factors may further make personal constructs resistant to change (Barrett & Holmes, 2001).

Brief Literature Overview

The etiology and study of interpretive biases have been addressed peripherally in many studies; That is, cognitive biases and misattributions and the negative consequences of these dysfunctional ways of viewing and interpreting events. Implicit bias has been extensively studied in cognitive psychology and behavioral biology, and the effects of such predispositions range from underlying prejudices in cognitive tasks (e.g. Greenwald et al., 1998) to racial bias in the

criminal justice system (Du, 2021). Additional research has explored these negative orientations in the context of eating disorders (Schuck et al., 2015), social anxiety (Moser, 2008), the impact of prejudice (Albarello, 2022; Benner et al., 2015; Carvacho et al, 2013), reticence to agree to medical treatment (Azarpanah et al., 2021), relationship deterioration (Neimeyer & Neimeyer, 1986), depression and aggression (Reid et al., 2006), flaws in decision making (Das & Teng, 1999; Druckman et al., 2009), and the halo effect and the forked-tail effect (Thorndike, 1920) to mention a few.

There are also many studies that address a cognitive perspective that results in positive outcomes such as the influence of spirituality and mindfulness on resilience (Chavers, 2013), mindfulness, self compassion, and its impact on physical and mental health (Arsensio-Martinez, 2019), congruence of perspective (Kelly's "commonality") is associated with better relational success (Neimeyer & Neimeyer, 1986), greater cognitive and mathematical ability results in decisions more consistent with normative models (Stanovich & West, 2001), the wide range of benefits associated with spirituality (Daaleman et al., 2008), and the benefits (and sometimes liabilities at extreme levels) of optimism (Bouchard et al., 2017). It is from this extensive literature that we selected the 26 constructs used in the present study.

In the present study we propose Life Satisfaction (capitalized throughout the paper) as the primary dependent variable. We further measure characteristics of 26 personal qualities (16 of them positive, 10 of them negative). Kelly proposed that we have thousands of personal constructs that guide behavior and we hope that our limited subset will provide useful insights. For each of the 26 we measure the strength of the quality, its permeability, and whether it operates as an interpretive filter. In addition, for each construct we measure its clarity, whether it assists in progress toward goals, and its impact on life.

Anticipated Outcomes

H1. We anticipate that permeability will be associated with lower Life Satisfaction, that for positive qualities there is little desire to improve, and for negative qualities there may be a high desire to change but the desire does not typically result in effective change.

H2. We anticipate that a strong personal quality (whether positive or negative) will be highly correlated with those same qualities being used as an interpretive filter. We further anticipate that strong positive qualities will be associated with greater Life Satisfaction and strong negative qualities will be associated with lower Life Satisfaction. Finally, if there are qualities where the strength of that quality is positively associated with Life Satisfaction but when used as an interpretive filter is negatively correlated, that contrast will provide unique insights about strength of a quality and use as an interpretive filter.

Method

Participants

A total of 1,680 subjects participated grouped into 840 main participant-informant dyads. Gender breakdown found 33% men, 66% women and 1% non-binary. The ethnic composition of the entire sample included 71% Whites, 15% Blacks, 10% Hispanics, 3% Asians, and 1% DTS or other. Religious preference included 24% Catholic, 58% Protestant, 12% Atheist or Agnostic, and 7% other religions. The mean age of participants was 31.2 years (range 18 - 81); Yearly family income averaged $120K, (range <$20K to > $200K). Participants averaged 2.4 years of college or university (range <HS to doctorate). Participants originated from 40 US states and 5 foreign countries.

This study was approved by the university IRB prior to data collection.

[**place the link to the supplemental material (including data set) here**]

Materials and Procedures

Participants were recruited by undergraduate students in a large public university research-methods class. The students completed CITI ethics training and were certified to collect data in exchange for partial class credit. Initial contacts with potential participants were made in person, by telephone, e-mail, or social media. Questionnaires were administered to all participants through an internet link to a Qualtrics survey. Participants did not receive any compensation other than expression of appreciation for their contribution.

To ensure data quality and integrity, responses were screened prior to analysis. Participants were excluded if the main participant responded but the informant did not, there were indications of invalid responding, including insufficient completion time, excessive missing data, idiosyncratic or inconsistent response patterns, or duplicate IP addresses. All cases failing to meet inclusion criteria were removed from the final data set.

The questionnaire was created with gender-neutral wording, hence, all participants completed the same questionnaire. It was structured as follows: The first screen included instructions that identified the sponsoring organization, briefly described the study, assured anonymity, explained informed consent, and included debriefing information plus additional material required by the IRB. These instructions were followed by nine demographic items, then 46 childhood family patterns, followed by 156 questions that explored strength, permeability, clarity, progress toward goals, impact on life, and operates as a filter for the 26 personal qualities, and finished with 31 questions that assessed intelligence (abstract thinking), self-reflection and Life Satisfaction.

To control for biases and to create more objective responses, the main participant answered questions about themselves, and a friend of the main participant (“informant”) was recruited to answer selected questions about the main participant. Then the mean of the two responses created the variables used in the study. The informant questionnaire included 156 questions that measured characteristics of the 26 personal qualities (of the main participant), plus 19 questions that measured self-reflection and Life Satisfaction. See Cruitt and Oltmanns (2018) for a discussion of the benefits of informant scores for increasing objectivity.

Dependent Variable

Life Satisfaction. Life Satisfaction was measured with a modified version of the Extended Satisfaction with Life Scale (ESWLS; Alfonso et al., 1996) that included 11 specific areas in which most people are highly defined followed by one global question. Participants rated how satisfied or dissatisfied they were (1 = *Very Dissatisfied*; 7 = *Very Satisfied*) within 11 areas of their life: financial, social network of friends, family interactions, intimate relationships,

spiritual/existential, professional/career/academic, interests/passions, health/vitality, mental/emotional health, goal-achievement success, and contributions to society. These were followed by a single global question "*Overall how satisfied are you with your life?*" rated on the same scale. The mean of those 12 questions was used as the Life Satisfaction measure

Independent Variables

The 26 Personal Qualities Measured. The personal qualities (selected from the literature described earlier) included 16 positive qualities and 10 negative qualities. While the positive qualities were uniformly desirable traits, the negative qualities were less clear cut in that moderate levels for some could be desirable. The positive qualities included: empathy, spirituality, optimism, health and vitality, personal-growth mindset, ambition, friendliness, tolerance, return-on-investment mindset, conscientiousness, confidence, patience, curiosity, logical thinking, decisiveness, and resilience. Potentially negative qualities included self-serving, entitlement mindset, social anxiety, worry, shyness, paranoia, sense of inferiority, perception of attractiveness, poverty mindset, risk-taking.

Characteristics of each of the 26 Personal Qualities. For each of the 26 personal qualities six characteristics were measured: Strength of the quality (scale: 7-point scale that measured weak to strong; anchors varied based on which quality), Permeability [scale: *fixed, not open to change* (1) to *open to change* (7)], Clarity [scale: *don't know; haven't thought about it* (1) to *clear understanding* (7)], Progress toward goals [scale: for positive qualities *no effect* (1) to *contributes toward important goals* (7); for negative qualities, *hinders important goals* (1) to *contributes toward important goals* (7)], Impact on life [scale: *little or no impact* (1) to *great impact* (7)], Operates as a filter [scale: *not at all* (1) to *very much so* (7)].

Personal qualities. Two personal qualities were measured as potential covariates. Self-reflection was based on the Snyder and colleagues research (under review) and included seven questions that dealt with the following topics: (a) I take time to reflect on my thoughts, (b) I avoid self-reflection (R), (c) it is important to understand the reason for my behaviors, (d) I don't analyze my own behavior (R), (e) I work toward the best version of myself, (f) I can accept when

I am at fault, (g) I don't believe self-analysis will affect future outcomes (R). Each quality was scored on a 7-point scale; anchors varied based on the quality. The self-reflection score was the mean of the seven items. The abstract thinking (highly correlated with IQ) scale consisted of 12 logical-thinking and analogy types of questions taken from George (2016). The abstract thinking score was the sum of correct answers.

Childhood Family Patterns. We employed 46 childhood family patterns taken from Snyder and colleagues (under review) research. These 46 included 35 specific activities, such as playing outdoors, family discussions, church attendance, visitors in the home, hobbies, criticism, family conflict, and playing video games. These activities were measured on a *never* (1) to *frequent* (7) scale. Then, there were 11 general characteristics of the home environment, such as the quality of the child-parent relationship, parent-parent relationship, effectiveness of discipline, and quality of nutrition. These were measured on a *poor* (1) to *excellent* (7) scale. All 46 family patterns are included in the supplemental material in a correlation matrix of the strength of family patterns with the 26 personal qualities.

Results

Psychometric Soundness and Internal Consistency of Variables.

Skewness and kurtosis of all primary variables and the internal consistency (alpha) and the number of indicators for Life Satisfaction, abstract thinking and self-reflection are displayed on Table 1, below. We also created internal consistency measures (plus skewness and kurtosis) for each of the six dimensions summed across the 16 positive qualities. Then we calculated the sum of five dimensions (excluding permeability) across the 16 qualities to measure the cumulative impact on Life Satisfaction.

We did the same for negative qualities; however, we used only six (of the 10) because only those six were uniformly negative (entitlement mind set, social anxiety, worry, paranoia, shyness, feelings of inferiority). The other four could be neutral (or even positive) based on the setting and the personal quality. For example, *self-serving* is a desirable quality at moderate levels, at extreme levels it morphs into Machiavellianism.

Table 1

Descriptive Statistics and Reliability Coefficients for Study Variables

Variable	α	# of items	Skewness	Kurtosis
Abstract Thinking	—	12	-.13	-.17
Life Satisfaction	.88	11	-.43	.29
Self-Reflection	.84	7	-.35	.44
Positive Qualities (mean of the 16 items)				
Strength	.82	16	-.50	.48
Permeability	.90	16	-.53	.72
Clarity	.87	16	-.48	.38
Progress Toward Goals	.84	16	-.18	-.27
Impact on Life	.83	16	-.16	-.21
Operates as a Filter	.86	16	-.25	.02
Mean of 5 (excluding permeability)	.88	5	-.08	-.30
Negative Qualities (mean of 6 items)				
Strength	.68	6	.15	-.43
Permeability	.78	6	-.27	-.17
Clarity	.74	6	-.05	.05
Progress Toward Goals	.69	6	-.16	.62
Impact on Life	.76	6	-.51	.53
Operates as a Filter	.78	6	-.30	.23
Mean of 4 (excluding permeability and clarity)	.88	4	-.52	.98

Note. α = Cronbach's alpha. Dashes (—) indicate reliability not applicable.

Impact of Primary Variables on Life satisfaction

We begin with the two personal qualities (abstract thinking, self-reflection) and 16 positive qualities and identify bi-variate correlations between these qualities and Life Satisfaction. We also conducted regression analyses using Life Satisfaction as the criterion variables and used strength, permeability, clarity, progress toward goals, impact on life, use as an interpretive filter, and self-reflection as predictors. Combining both positive and negative qualities in one regression: $R(13, 826) = .699$, $R^2 = .49$; $R^2_{adj} = .48$, $p < .001$. We list both r values and beta weights from regression analysis. All significance values are significant at the .001 level unless otherwise noted.

Correlations with Life Satisfaction of Covariates and Composites of Personal Qualities. Greater Life Satisfaction was associated with more self-reflection in correlational analyses but not in the regressions (r = .22, b = -.01*ns*) and was unrelated to abstract thinking (r = .03*ns*, b = -.06*ns*).

Correlations with the Sum of 16 Positive Qualities. Life satisfaction was significantly associated with greater strength of positive qualities (r = .59, b = .25), with lower levels of permeability (r = -.24, b = -.06), with greater clarity (r = .31, b = -.03*ns*), with clearer progress toward goals (r = .59, b = .33), greater impact on life (r = .41, b = .09), and these qualities operating as interpretive filters (r = .40, b = .09).

Correlations with Sum of 6 Negative Qualities. Life satisfaction was diminished by the greater strength of negative qualities (r = -.29, b = -.01*ns*), higher levels of permeability (r = -.31, b = -.07), was positively correlated with clarity (r = .13, b = -.02*ns*) was positively associated with progress toward goals (r = .44, b = .14), negatively associated with impact on life (r = -.24, b = -.09), and negatively impacted if these negative qualities operated as a filter (r = -.20, b = -.02*ns*).

The Negative Impact of Permeability

For both positive and negative qualities, permeability was robustly and negatively associated with Life Satisfaction. The contrast between the strength of each qualities' correlation with Life Satisfaction (r_{LS}) and the strength of the same qualities' correlation with permeability (r_P), provide considerable contrast. We begin with positive qualities.

All positive qualities that follow, produce a strong positive correlation with Life Satisfaction and a strong negative correlations with permeability; all values are significant, p < .001; some examples follow: confidence (r_{LS} = .47; r_P = -.46), decisiveness (r_{LS} = .31; r_P = -.42), resilience (r_{LS} = .35; r_P = -.29), conscientiousness (r_{LS} = .35; r_P = -.26), optimism (r_{LS} = .39; r_P = -.25), empathy (r_{LS} = .17; r_P = -.09;), friendly (r_{LS} = .31; r_P = -.25), ambitious (r_{LS} = .41; r_P = -.24), health and vitality (r_{LS} = .49; r_P = -.20), logical thinking (r_{LS} = .22; r_P = -.19), and patience (r_{LS} = .26; r_P = -.17). We calculated the mean strength of all 16 positive qualities; we also calculated

the mean permeability of all 16 positive qualities. The correlation of the mean strength with Life Satisfaction was r_{LS} = .59; the correlation between mean strength and permeability is r_P = -.09.

Now, notice the parallels with six negative qualities. A strong *negative* correlation with Life Satisfaction and a strong *positive* correlations with permeability; all values are significant, p < .001: entitlement (r_{LS} = -.10: r_P = .51), social anxiety (r_{LS} = -.39; r_P = .68), worry (r_{LS} = -.35; r_P = .60), shyness (r_{LS} = -.24; r_P = .62), paranoia (r_{LS} = -.19; r_P = .51), and sense of inferiority (r_{LS} = -.37; r_P = .50). We calculated the mean strength of all six negative qualities; we also calculated the mean permeability of all six negative qualities. The correlation of the mean strength with Life Satisfaction was r_{LS} = -.41; the correlation between mean strength and permeability was r_{LS} = .61.

Results just presented show that a strong positive quality is associated with less likelihood of desire to change (permeability). That same process indicates that individuals reporting lower levels of positive qualities tended to report greater permeability (willingness to change), whereas individuals reporting higher levels of negative qualities tended to report greater permeability. Both tell the same story: The more unhappy one is with a particular quality, positive or negative, the greater the likelihood of permeability or willingness to change.

The contrasting numbers for the positive qualities (r_{LS} = .59 vs. r_P = -.09) and the six negative qualities (r_{LS} = -.41 vs. r_P = .61) suggest that the permeability of negative qualities is much greater than the permeability of a positive quality—even if one is dissatisfied with strength of that positive quality. Regression analyses provide an answer. Using Permeability as the criterion variable (in two regressions, one for positive qualities, one for negative qualities) we use strength, clarity, progress toward goals, impact on life, and operates as a filter as predictors.

For positive qualities, the overall model was significant, $F(5, 834) = 5.318$, $p < .001$; accounting for 3 percent of the variance in Permeability (R^2 = .03, R^2_{adj} = .03). Only two of the variables significantly impacted permeability: strength (b = -.22, p < .001) and impact on life (b = .23, p < .001). This suggests that if positive qualities are weak and the impact on life is great, permeability (the desire to change) is more likely, however, the effect is small.

For negative qualities, the overall model was significant, F(5, 834) = 123.99, p < .001; accounting for 43 percent of the variance in permeability (R^2 = .43, R^2_{adj} = .42). Four of the qualities were significant predictors, strength (b = .43, p < .001), use as an interpretive filter (b = .17, p < .001), impact on life (b = .13, p = .005), and progress toward goals (b = -.08, p < .027). This suggests that if negative qualities are strong, are used as interpretive filters, have a great impact on life, and hinder progress toward goals then the permeability is high. Clearly, (comparing R^2 values of .03 with .43) the desire to change a negative quality is far greater than the desire to improve on a positive quality that is weak.

The Contrast between Strength of a Quality and Operating as an Interpretive Filter

One of the important questions of this research is whether strength of a quality reflects on that quality operating as an interpretive filter. The two constructs are highly correlated: For the 16 positive qualities, r = .66, p < .001; for six negative qualities, r = .47, p < .001. The Fisher R to z computation finds that these two values differ significantly, z = 5.78, p < .001. Thus, the link between the strength of positive qualities and their use as an interpretive filter is stronger than the parallel link for negative qualities.

In a series of correlations, for only nine of the 26 did the correlation of the strength of a quality with Life Satisfaction (r_S) differ significantly from the correlation between operates as a filter and Life Satisfaction (r_F)—all (except for two that will be addressed later) found the strength of the quality had a greater impact on Life Satisfaction than operating as a filter: physical health (r_S = .49, r_F = .31; z = 4.41, p < .001), growth mindset (r_S = .39, r_F = .29; z = 2.27, p = .012), ambition (r_S = .41, r_F = .32; z = 2.20, p = .014), confidence (r_S = .47, r_F = .24; z = 5.44, p < .001), resilience (r_S = .35, r_F = .23; z = 2.75, p = .003), social anxiety (r_S = -.39, r_F = -.23; z = -3.61, p < .001), and feelings of inferiority (r_S = -.37, r_F = -.18; z = 4.11, p < .001).

Physical Attractiveness and Poverty Mindset. For these two qualities, the strength of the qualities were positively correlated with Life Satisfaction (r_S) but when used as an interpretive filter were correlated negatively with Life Satisfaction (r_F): for Physical attractiveness (r_S = .31, r_F = -.05; z = 7.91, p < .001); for poverty mindset (r_S = .23, r_F = -.17; z = 8.03, p <

.001). These results are both the strongest differences of any of the nine correlations and have significant implications for the understanding of the role of interpretive filters.

Physical attractiveness is highly associated with greater Life Satisfaction, but when one views one's world through an "I'm physically attractive" filter the effect is negative, that is, associated with lower Life Satisfaction. For poverty mindset, a positive term for the same quality might be "frugal". When the quality is strong (live within one's means) the impact on Life Satisfaction is positive; however, when life is viewed through this reductionist filter the impact becomes negative.

The Influence of Demographics

Gender. The data set was large enough that it was possible to compare not only men with women but also with nonbinaries. Post hoc comparisons use the Bonferroni method with an alpha of .001 found that women (M = 5.15) were more self-reflective than men (M = 4.74), F(2, 837) = 21.46, p < .001; Women (M = 4.21) evidenced greater permeability for the 16 positive qualities than men (M = 5.15), F(2, 837) = 13.04, p < .001; Nonbinaries were more characterized (strength) by negative qualities (M = 4.28) than men (M = 3.36) or women (M = 3.75); also women were more negative than men, F(2, 837) = 21.86, p < .001; Nonbinaries (M = 4.40) were more open to change (permeable) on the negative qualities than men (M = 3.67) or women (M = 4.15), F(2, 837) = 20.65, p < .001.

Ethnicity, Religion, Age. There were scattered differences on primary variables based on ethnicity, however there were no discernable patterns and results tended to be weak. For religion we compared Protestants, Catholics, and an Atheist/Agnostic group. Three comparisons yielded F-values > 10 and significance < .001: The Atheist/Agnostic group (M = 4.97) were weaker on strength of the 16 positive qualities than Protestants (M = 5.26) and Catholics (M = 5.30). The Atheist/Agnostic group was also more defined by the six negative qualities (Ms = 3.97 vs. 3.50, 3.61) and were poorer at using negative qualities to progress toward important goals (Ms = 3.90 vs. 3.34, 3.49).

For age, we compute bivariate correlations between age and key variables. All listed results are significant at $p < .001$. Older people were characterized by demonstrating better abstract thinking ($r = .19$), higher Life Satisfaction ($r = .12$), greater strength of the 16 positive qualities ($r = .12$), and using negative qualities to assist in progress toward important goals ($r = .14$). Younger people were characterized by more self-reflection ($r = .19$, $p = .003$), greater permeability for positive qualities ($r = -.16$), greater strength of the six negative qualities ($r = -.19$), greater permeability for negative qualities ($r = -.26$), greater impact of negative qualities ($r = -.23$), and greater likelihood of using negative qualities as an interpretive filter ($r = -.15$). Table 3 (in the supplemental material) includes complete results.

Education and Income. Education and income both had substantive impact on key variables in our study. We list only correlations significant at the $p < .001$ level. We begin with education. More education was associated with higher intelligence ($r = .20$), greater clarity on positive qualities ($r = .12$), higher Life Satisfaction ($r = .17$), greater strength of positive qualities ($r = .23$), greater impact of positive qualities ($r = .20$), greater likelihood of using positive qualities as interpretive filters ($r = .18$), less strength of negative qualities ($r = -.15$), greater likelihood of using negative qualities to progress toward goals ($r = .14$), and lower impact of negative qualities ($r = -.12$).

Income also had a positive impact on key variables, but not nearly so robust as for education. Higher income was associated with greater Life Satisfaction ($r = .28$), greater strength of positive qualities ($r = .16$), greater impact of positive qualities ($r = .12$), and lower strength of negative qualities ($r = -.13$).

The Impact of Family Patterns on Use of Personal Constructs as an Interpretive Filter.

Exhibiting a rare luxury in correlational studies, the causality of family patterns is clear. What happens today cannot impact what happened during the first 18 years of life. That said, present circumstances may have an impact on my *perception* of the past. Since the impact of family patterns was largely exploratory, we focus our attention on correlations between (a) each of the 46 family patterns and (b) use of each of the 26 qualities as an interpretive filter. We

identify the family patterns that maximize the likelihood of positive filters and minimize the likelihood of negative filters; by contrast we also consider family patterns that minimize the likelihood of positive filters and maximize the likelihood of negative filters. The arithmetic is not complex and only provides a rough rank ordering that lends insight for use in future studies. The complete chart (two of them, actually: correlations with *strength* of the 26 qualities, and likelihood of the 26 qualities being *used as an interpretive filter*) are available in supplemental material.

The "arithmetic" we just spoke consists of family patterns (N = 46) that are positively correlated with positive qualities (N = 16) or negatively correlated with negative qualities (N = 6) significant at the $p < .001$ level (an r value of approximately .10). For family patterns that have five or more correlations that meet this criteria, we sum the five or more correlation values to provide a rough rank ordering of family patterns that most encourage formation of positive interpretive filters. For family patterns that encourage the use of negative interpretive filters we follow a reverse process.

Family Patterns Associated with Positive Filters. Fifteen different childhood patterns achieved five or more positive correlations that met the $p < .001$ criteria (that is, positively correlated with a positive quality or negatively correlated with a negative quality). The greatest positive impact was playing outdoors (11, 1.61), followed by enjoyed hobbies (10, 1.34), emotional health of the family (9, 1.28), playing competitive sports (8, 1.20), watching sports on TV or in person (8, 1.18), time spent in nature (such as hiking) (9, 1.17), quality of the parent-child relationship (8, 1.11), effective discipline in the home (8, 1.01), effective conflict resolution demonstrated in the home (7, .97), having visitors in the home (8, .93), quality of the parent-parent relationship (7, .85), doing household chores (6, .78), reading aloud at home (5, .60), family vacations together (5, .56), and having a regular movie night (5, .54).

Family Patterns Associated with Negative Filters. Five family patterns achieved five or more negative correlations (that is, negatively correlated with a positive quality or positively correlated with a negative quality). Using the same formula the childhood patterns that created

greatest likelihood of forming negative filters included criticism in the home (11, -1.61) conflict in the home (6, -.99), use of prescription drugs (7, -.92), playing video games (5, -.65), and smoking (5, -.61).

Discussion

So, the question that arises is, what have we learned about interpretive filters in this nomothetic, correlational, cross-sectional study? There appear to be three primary takeaways, (a) the relationship between strength of a personal quality and it's use as an interpretive filter, (b) the dynamic of a quality that correlates positively with Life Satisfaction but when used as a filter operates negatively, and (c) a greater understanding of the concept of permeability. We begin with permeability.

Permeability. George Kelly's contention that regular people operate as naïve scientists and adapt constructs to achieve the desired result appears to occur in only a limited number of people. Shelley Taylor speaks of "normative models" (Simon, 1957; Fiske & Taylor, 1991) that identify the statistically perfect (but rarely possible) way to respond to any situation given unlimited time and resources. Both concepts seem linked. When one has clear, compelling goals, then working toward normative models for important decisions and adapting personal constructs to maximize desired outcomes is modus operandi. But we argue that most people are neither that clear nor that motivated, and an array of personal factors interfere with altering constructs or considering normative models.

Present results appear to support that contention. First, permeability is correlated negatively with Life Satisfaction for all qualities where valence is clear (22 of the 26). For positive qualities, on the face of it, change is typically undesirable if positive qualities are strong. But looking at the reverse pattern, if a positive quality is weak, then there is motivation to improve that quality. But that motivation is weak based on our results (r = .09, b = .06) suggesting a serious lack of enthusiasm for that quality being permeable. For negative qualities there are two robust relationships: Strong correlation between each negative quality and lower

Life Satisfaction, and equally robust positive correlation with those qualities and permeability—that is, desire to change.

The cross-sectional design does not allow conclusions about causality, but the strength of results suggest a desire to change but an inability to do so. This idea is backed up by an extensive literature on addictions that documents the agonies of unsuccessful attempts to change despite an intense desire to do so (e.g., Brownell et al., 1986; McClellan et al., 2000; Hendershot et al., 2001). This idea is further supported by researchers cited earlier that there is some indication that personal constructs may have genetic underpinnings (Ganiban, et al., 2009; Brinley & Tucker-Drob, 2012), and that our personal constructs are heavily influenced by attachment style and conditioning (Barrett & Holmes, 2001). Both perspectives suggest the difficulty of change.

It seems likely that the naïve scientist idea operates with only a limited number of people who are emotionally healthy, relatively free of addictions, and possess clear goals and are highly motivated to achieve those goals. These are the people who employ normative models when possible, move toward them when not possible, and alter personal constructs to maximize their likelihood of success—more characteristic of an “informed” scientist.

Contrasts between Strength of a Quality and Use as an Interpretive Filter. The hypothesis was confirmed that if a personal quality is strong, it is also likely to be used as an interpretive filter. The correlation between the two for positive qualities (r = .66) suggests congruence between strength and use as an interpretive filter, but certainly not duplication. For negative qualities the correlation is much lower (r = .47) suggesting even less of a connection between the two for negative qualities.

Consistent with Hypotheses 1, when combined across the 16 positive qualities, we found the correlation between *strength of the quality* and *Life Satisfaction* (r = .59, b = .25) was greater than the correlation with *use as a filter* and *Life Satisfaction* (r = .40, b = .10). A similar pattern occurred for the six negative qualities: stronger correlation between the *strength of six qualities*

and *Life Satisfaction* (r = -.41, b = -.11) and weaker correlation between *Life Satisfaction* and *use as an interpretive filter* (r = -.28, b = .05*ns*).

When regressions were conducted for each of the 16 positive qualities, all but four of them demonstrated the same pattern (strength has greater impact than use as a filter). The four that violated that principle included being empathic, friendly, conscientious, and decisive. Only for empathy was the difference between strength and use as a filter significant; but the other three significantly contrasted with the general trend. Perhaps there is a cultural component involved. All four are common admonitions on motivational posters—suggesting useful filters for greater life satisfaction: “Be sure to view things from the other person’s point of view”; “If you want friends you must choose to be friendly”; “When approaching any task, do it with all your heart”; “Once you know you are right, move forward with confidence”.

For negative qualities the results are more nuanced. In general (as noted earlier) the strength of the quality has a greater impact on Life Satisfaction than when that quality is used as an interpretive filter. When breaking down by each of the ten negative qualities, the pattern holds for seven of the ten. The three instances of a reverse pattern are physical attractiveness, poverty mindset, and sense of entitlement. For attractiveness and poverty, in both correlations and regressions, the strength of the quality was associated with greater Life Satisfaction but when used as an interpretive filter, it was associated with lower Life Satisfaction. The contrast was great for both physical attractiveness (*r* = .33, b = .27 vs *r* = -.05, b = -.05) and for poverty mindset (*r* = .23, b = .10 vs. *r* = -.17, b = -.12). Entitlement showed a similar pattern in the regressions (b = .04 vs b = -.04) but did not show the same contrasts in correlational analyses.

As we noted in the introduction, reversals such as these might be instructive in understanding the contrast between strength of a construct and use as an interpretive filter. For physical attractiveness, the quality is good and substantially enhances Life Satisfaction. But it appears that when one views their world through an “I’m really pretty” filter then even minor violations of that perspective (a pimple, a bad hair day) jolts that image. A contrasting principle applies to poverty mindset. At a moderate level it appears to be a good thing: “be frugal”, “live

within your means” generates greater Life Satisfaction, but when I view my world through that reductionist filter (“don’t do it”, “it costs too much”) it is even more strongly associated with poorer Life Satisfaction than physical attractiveness. Even the quality with the more modest contrast (entitlement mindset) is instructive. How often do you hear athletics’ coaches say “this race is yours” “claim the victory as your own” clearly suggesting entitlement. But when life is viewed through an indiscriminate “I deserve it” filter, it diminishes happiness.

It seems that three different perspectives are at play for these three qualities: For physical attractiveness you set up an unrealistic standard and even minor violations are upsetting; for poverty mind set, the issue seems to be an excessively restrictive view of you world; and when dealing with an entitlement mind set, if hard work or ability undergirds your sense of entitlement then others regard results as deserved, but a sense of entitlement in the absence of appropriated effort or ability diminishes your happiness and irritates others (see Weiner, 1985).

Impact of Demographics. There was spotty but significant impact on the overall model for all of the demographics. The only two, however, that demonstrated notable systematic differences were age and education. Older individuals and more highly educated individuals experienced better abstract thinking, greater Life Satisfaction, greater strength of positive qualities and the use of negative qualities to progress toward important goals. More education further painted a positive picture as more educated people experienced greater impact of positive qualities, were more likely to use the positive qualities as interpretive filters and had fewer of the negative qualities which in turn had less impact on their lives.

Younger people provide a gloomier picture as they experience greater strength of negative qualities, greater impact on life of negative qualities, and greater likelihood of using the negative qualities as interpretive filters. These results paint a promising picture both for aging and for acquiring more education. Even though change of personal constructs may be difficult, more education and extending life experience (aging) seems to assist in the process.

Strengths and Weaknesses

A large and diverse sample adds to the generalizability of findings and the authors' willingness to explore interpretive filters and permeability in the context of a nomothetic, correlational and cross-sectional study is noted. The weaknesses were well known from the start. They include the use of only 26 personal qualities when literature suggests thousands of personal constructs. Further these personal qualities tended to be personal characteristics rather than personal orientations. We were able to explore only a small portion of the literature associated with the study of personal constructs, and the cross-sectional correlational characteristics prevented causal judgments.

However, we have made important contributions to the understanding of interpretive filters and their characteristics, including a better understanding of permeability and the concept of people operating as naïve scientists. Also, the useful exploration of the contrast between the strength of a construct and its use as an interpretive filter and beginning to understand when the two are highly correlated, factors that influence the size of the gap between, and when the impact of strength and use as a filter are actually reversed. But perhaps the greatest contribution is that this study extends the prevailing conceptualization of interpretive filters from a purely ideographic perspective toward one that also allows for meaningful nomothetic patterns.

This leaves many directions for future research. One is already underway, that is to explore the construct of physical attractiveness; what factors influence one's judgement of physical attractiveness and consider in more detail the liabilities of the use of physical attractiveness as an interpretive filter. Another is to conduct a similar study with "orientation" characteristics as opposed to the personal constructs used in the present paper. For instance, Kelly typically addressed different orientations that were value-neutral and the issue was match versus non-match (rather than positive vs. negative) in the context of personal relationships. Finally longitudinal studies would be required to understand the dynamics of permeability: does changing filters make a difference? Are there personal factors that make permeability more challenging? Does change of perspective yield a concomitant change in outcome?

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