



Contents lists available at ScienceDirect

Personality and Individual Differences

journal homepage: www.elsevier.com/locate/paid

Coolness as a trait and its relations to the Big Five, self-esteem, social desirability, and action orientation



Ilan Dar-Nimrod*, Asha Ganesan, Carolyn MacCann

School of Psychology, Faculty of Science, The University of Sydney, New South Wales 2006, Australia

ARTICLE INFO

Keywords:

Coolness
Social desirability
Contrarian
Personality
Big Five
Self-esteem
Rebelliousness

ABSTRACT

As coolness is often associated with status elevation and socially desirable valuation, understanding what entails coolness may prove useful in a myriad of contexts. In this study, we tested the two-factor model of coolness proposed by Dar-Nimrod et al. (2012), where Cachet and Contrarian domains of coolness are comprised of 14 facets (e.g., irony, confidence). Participants ($N = 225$) completed 120 items representing these 14 facets, as well as measures of the Big Five, action orientation, social desirability, and self-esteem. The findings largely replicated the two-factor structure of Cachet and Contrarian Coolness. Cachet and Contrarian Coolness factors incrementally predicted self-perceptions of coolness above and beyond the Big Five personality dimensions, action orientation, implicit self-esteem, age, and sex in a hierarchical regression. Cachet Coolness was the strongest predictor of coolness self-perceptions, with explicit self-esteem and Contrarian Coolness also significantly predicting self-perceived coolness. Findings suggest that the two factors of coolness capture elements of coolness that are not measured by common personality measures. These findings may have implication for studying the role of coolness in group dynamics and social relations across diverse age and ethnic groups.

What makes a person cool varies based on specific criteria associated with the person being evaluated. The content of coolness is also one that seems to change with time (see Dar-Nimrod et al., 2012). Presently for example, coolness is often associated with active social media presence (Hollenbaugh & Ferris, 2014), whereas terms like “nerd” and “geek” that were once considered uncool may actually be viewed as cool (Westcott, 2012).

One empirical approach to the study of coolness focuses primarily on the perception or evaluation of coolness rather than coolness as a trait. Oyserman (2009) characterized coolness as an identity-based construct, where it is both personal and social behavior-oriented. Oyserman suggested that cool behaviors are distinct and can be categorized as prosocial (e.g., volunteering), asocial (e.g., unprotected sex), or neutral (e.g., using the latest iPhone). Similarly, other studies most often concern adolescence peer relations and valuations (e.g., Jamison, Wilson, & Ryan, 2015; Rodkin, Farmer, Pearl, & Van Acker, 2006; Rudolph, Abaied, Flynn, Sugimura, & Agoston, 2011), or consumer attitudes in marketing research (e.g., Sundar, Tamul, & Wu, 2014; Warren & Campbell, 2014). Sundar et al. (2014) proposed a three-factor structure of coolness consisting of originality, attractiveness, and sub-cultural appeal. These factors, do show some parallel to the two factors found by Dar-Nimrod et al. (2012), but primarily address the evaluative component of coolness rather than coolness as a trait.

Another empirical approach to the study of coolness is to examine the term as a trait-based construct. Modern views of coolness seem to be constructed from two distinct amalgamations of personality traits; one of which revolves around social desirability, and the other around rebelliousness (Dar-Nimrod et al., 2012). According to this perspective, coolness is characterized in one of two ways; an individual focused on external valuations (i.e., social desirability) or an individual who is detached from mainstream culture (i.e., rebelliousness).

The first quantified approach to the study of coolness as a trait showed that across two studies, coolness consisted of two factors (Dar-Nimrod et al., 2012). The first (and predominant) factor was *Cachet Coolness*, or the aspect of coolness that entails socially desirable attributes (e.g., friendliness, attractiveness, personal competence) and is status bolstering. The second factor, *Contrarian Coolness*, entails more detached and less socially desirable attributes (e.g., rebelliousness, emotional control, roughness). In accordance to these two factors, athletes are likely perceived as cool because they are socially successful through their competence in a particular sport, whereas eccentric artists may accumulate their cool credentials because they are perceived as contrarian and rebellious.

Coolness and the elevated status afforded to behaviors and traits categorized as “cool” has been studied among children and adolescents, but the little available data shows a complex picture. Peers of same

* Corresponding author at: Brennan MacCallum Building, School of Psychology, Faculty of Science, The University of Sydney, New South Wales 2006, Australia.
E-mail address: ilan.dar-nimrod@sydney.edu.au (I. Dar-Nimrod).

gender and ethnic group are considered cool; among American youngsters, coolness is also strongly associated with disruptive behavior, especially for African American (Jamison et al., 2015). In line with Dar-Nimrod et al.'s (2012) conceptualization of Cachet Coolness, coolness among school-age children largely overlaps with perceived social status (Kiefer & Wang, 2016; Rodkin et al., 2006). For example, elementary schoolers from aggressive groups as more likely to perceive tough peers as cool while non-aggressive groups characterize their socially popular (but not necessarily tough) peers as cool (Rodkin et al., 2006). The question remains as to whether the peers children perceive as being cool share common attributes beyond just elevated social status.

In order to examine the attributes related to coolness beyond the evaluative view, assessing the construct itself requires consideration for a range of relevant traits. Previous studies measuring coolness generally utilize single items that ask how cool a person, behavior, or an object is (Dinh, Sarason, Peterson, & Onstad, 1995; Jamison et al., 2015; Warren & Campbell, 2014) or Likert scale ratings of coolness, ranging from very uncool to very cool (Dar-Nimrod et al., 2012, Study 2; Sundar et al., 2014). In the present study, we seek to evaluate coolness as a broad set of trait domains composed of the 14 relevant facet-level traits identified in Dar-Nimrod et al. In previous research, these 14 facets boiled down to two factors of coolness - *Cachet* and *Contrarian* (Dar-Nimrod et al., 2012). That is, coolness can be reached in multiple ways. Those who are very attractive may need less of the other elements (e.g., drive for success, friendliness) to be considered cool by the cachet criteria. Those who are rebellious may need less roughness or irony to be considered cool by the contrarian criteria.

In addition to the evaluation of coolness as a trait, the present study also examined the relations of coolness with other established personality characteristics. The Big Five personality constructs (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) reflect the most central conceptualization of personality at this time (e.g., John & Srivastava, 1999; McCrae & Costa, 2003) and as such, they are essential for evaluating a potentially new personality construct. In addition, we examined how our measure of coolness-relevant traits correlated with social desirability, action orientation (based on the active vs. passive interpretation of the factors in the studies by Dar-Nimrod et al., 2012), and self-esteem (to capture the positive/negative evaluative component as argued by Ashton & Lee, 2001), as each of these constructs appear particularly relevant.

The main aim of this study is to examine the factor structure of coolness, with the expectation of recovering the two factors of Cachet and Contrarian Coolness found in Dar-Nimrod et al. (2012). The second aim of the study was to determine the correlates of these two factors. We predict that Cachet Coolness would correlate positively with every explicit measure that is construed as positive in our society (e.g., with being action oriented and having high self-esteem, as well as with openness, conscientiousness, extraversion, agreeableness, and emotional stability in the Big Five). Furthermore, we expect it to correlate with an implicit measure of self-esteem (although this was not a strong prediction as the social desirability elements seem to be outward looking rather than reflective) and to be strongly correlated with a measure of exaggerated social desirability. We predict that Contrarian Coolness would correlate with openness to experience, self-esteem, and reduced sensitivity to failure or other external judgment (i.e., conscientiousness, agreeableness). We do not have predictions regarding the relation of Contrarian Coolness with emotional stability, although as far as emotional stability is related to the lack of emotional externalization, we expect the individuals who score high on Contrarian Coolness to score high on emotional stability. Therefore, this study was designed to extend the understanding of coolness and embed it in the context of other personality constructs rather than create and validate a measure of coolness. The last aim of the current study was to test the incremental prediction of the two coolness factors in predicting self-perceived coolness over-and-above the effects of demographic variables

and well-known personality traits. We expect that the two coolness factors will collectively show unique prediction of coolness that is not accounted for by these existing constructs.

1. Method

1.1. Participants

Two hundred and twenty five participants (145 females, 68 males, and 12 who did not indicate their sex) from an urban, North American university took part in the study. Participants were between 17 and 36 years old ($M = 19.91$, $SD = 2.92$), predominantly of East Asian ($n = 115$) or European ($n = 83$) ethnicity with the remainder claiming another ethnicity ($n = 22$) or not mentioning ethnicity ($n = 5$). Participants completed the survey in exchange for course credit.

1.2. Materials and procedure

Participants arrived at the lab to take part in a study that was designed to assess coolness. Upon giving informed consent they received the study package that included the following:

1.2.1. Coolness measure

The coolness measure was based on the 14 coolness facets identified in Dar-Nimrod et al. (2012). In 120 forced choice questions, participants identified the item that best represented them. Each of the items contained a descriptive sentence that reflected a category deemed cool in those studies. For example, participants had a choice between the following descriptive sentences: 1) I often use irony, OR 2) I hardly ever use irony; 1) I'm quite a passionate person, OR 2) I'm quite collected. The number of items per category (see Table 1) ranged from 4 (e.g., irony and roughness) to 12 (e.g., thrill-seeking, and hedonism). Because we expect a multi-factor solution, no internal consistency of the measure was calculated. The internal consistencies of the 14 facets are shown in Table 1.

1.2.2. Big Five

The Big Five personality constructs were measured using the Big Five Inventory (BFI 44: John & Srivastava, 1999), a 44-item measure that contains five subscales that represent each of the constructs. The measure comprises of 44 short-phrase items, rated on 5-point scales from 1 (*disagree strongly*) to 5 (*agree strongly*). All the subscales had acceptable internal consistency (openness - Cronbach's $\alpha = 0.73$, conscientiousness - $\alpha = 0.73$, extraversion - $\alpha = 0.79$, agreeableness -

Table 1
Reliability and factor structure (pattern matrix) of self-reported coolness-relevant traits.

Category (number of items in the measure)	Internal consistency	Factor loadings ^a	
		Factor 1 "Cachet"	Factor 2 "Contrarian"
Rebelliousness (5)	0.44	– 0.061	0.438
Irony (4)	0.61	– 0.069	0.457
Roughness (4)	0.60	0.032	0.369
Emotional control (4)	0.60	– 0.390	0.167
Thrill-seeking (12)	0.86	0.083	0.634
Unconventionality (8)	0.62	– 0.072	0.601
Hedonism (12)	0.78	0.402	0.384
Communal values (4)	0.60	0.058	0.131
Drive for success (12)	0.71	0.495	– 0.183
Friendliness (11)	0.80	0.607	0.159
Personal competence (12)	0.71	0.484	0.337
Attractiveness (12)	0.87	0.608	0.172
Confidence (12)	0.76	0.432	0.326
Trendiness (12)	0.89	0.447	0.027

Substantial loading (> 0.30) are in bold.

^a Extraction method - Principal Axis Factoring, rotation method - Direct Oblimin.

$\alpha = 0.71$, neuroticism - $\alpha = 0.80$).

1.2.3. Action orientation

To assess tendency towards active disposition, we included a measure of action orientation. Individuals with a strong *action orientation* are capable of marshaling their cognitive resources in service of a goal they set for themselves (Kuhl, 1994). In contrast, *state-orientated individuals* are less able to direct their attention towards goal attainment, and are more susceptible to distraction by alternative goals or unfavorable affective states (Kuhl). The Action Control Scale (ACS-90) is a forced-choice self-report measure developed by Kuhl to assess differences in action–state orientation. The ACS-90 consists of 36 items, divided equally into three subscales measuring preoccupation (AOP), decisiveness (AOD), and failure sensitivity (AOF) (Kuhl & Beckmann, 1994). An example item of the latter is: “When I am told that my work has been completely unsatisfactory: (a) I don't let it bother me for too long, or (b) I feel paralyzed.” In this item, choosing “(a)” illustrates action-orientation and choosing “(b)” demonstrates state-orientation. A high score is indicative of stronger disposition towards action orientation. In the present study, two of the subscales had acceptable internal consistency (AOF - Cronbach $\alpha = 0.77$, AOD - $\alpha = 0.72$), while the third one showed less than desirable consistency (AOP - $\alpha = 0.60$).

1.2.4. Social desirability

As judgments of coolness largely reflect judgments of social desirability, we measured the relation of coolness with a validated social desirability scale, and controlled for this relationship in other analyses. The Marlowe-Crowne Social Desirability Scale is a forced-choice self-report measure designed to assess the tendency to present oneself as in a more favorable way than actually is. Participants read a description such as “I never hesitate to go out of my way to help someone in trouble” and indicate if it is true or false for them. In the example above, “true” indicates a socially desirable but unlikely real answer. A short form of the Marlowe-Crowne Social Desirability Scale (Reynolds, 1982) was used to address the research questions. The 10-item measure had low internal consistency ($\alpha = 0.51$) but similar to previous studies (Barger, 2002). Higher scores indicate stronger tendency to portray oneself in a socially desirable light.

1.2.5. Explicit self-esteem

Explicit self-esteem is characterized as favorable evaluations of oneself (Greenwald & Banaji, 1995) as reflected through the widely used The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) in this study. The scale is a 10-item measure of self-reported self-esteem (e.g., “I take a positive attitude toward myself”), which are rated on 5-point scales from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher explicit self-esteem (internal consistency: $\alpha = 0.86$).

1.2.6. Implicit self-esteem

The dimensions (area) of the participants' signature were recorded as indicators of their implicit self-esteem. As a measure of implicit self-esteem, past studies indicate signature size is related to reported self-esteem (Snyder & Fromkin, 1977; Zweigenhaft, 1977) as well as to other measures of implicit self-esteem such as the Implicit Association Test (IAT) self-esteem values (Rudman, Dohn, & Farichild, 2007) and the name-letter task (Hooren, 2014). Other studies have shown that processing more self-focused stimuli elicits larger signatures (Rawal, Harmer, Park, O'Sullivan, & Williams, 2014) and more recent findings (Stieger, Kandler, Tran, Pietschnig, & Voracek, 2017) parallel those of Snyder and Fromkin (1977) in suggesting that signature height is related to measures of explicit self-esteem (although it may also be motivated by the need for uniqueness).

Participants' signature was obtained once to reflect a stable measure of implicit self-esteem (as oppose to Rudman et al., 2007 who looked at difference scores to assess an effect of a manipulation). Specifically, the dimensions of the participants' signatures were calculated from their

signature on their consent forms (Rawal et al., 2014; Zweigenhaft, 1977) just before the consent forms were stored separately from the participants' questionnaires with a larger area indicating higher implicit self-esteem.

1.2.7. Coolness evaluations

Participants reported their estimate of their self-perceived coolness as well as their perception of how cool other perceive them to be using an 11-point scale (1: not at all cool; 11: extremely cool). The evaluations were very highly correlated ($r = 0.77$) and were combined into a single score.

1.2.8. Demographics

Participants indicated their age, sex, and ethnicity.

2. Results

2.1. Factor analysis

The 14 coolness facets' scores were entered into an exploratory factor analysis using a principal axis factoring extraction method and Direct-Oblimin rotation, in order to obtain a non-orthogonal solution by allowing the factors to be correlated. Similar to previous studies (Dar-Nimrod et al., 2012), we constrained the analysis to extract only two factors. The first factor (eigenvalue = 3.53) explained 25.2% of the variance in participants' ratings of the various constructs. The second factor (eigenvalue = 1.80) explained an additional 12.9% of this variance (the third factor [eigenvalue = 1.26] explained < 9% of the variance and based on our conceptual constrain was not extracted). The factor scores (regression based) will be used in later analyses. The correlation between these two factors was $r = 0.36$, $p < 0.001$. Table 1 lists the factor loadings.

The facets that loaded saliently (> 0.30) on Factor 1 were friendliness, drive for success, confidence, attractiveness, personal competence, trendiness, emotional expressiveness, and hedonism. The facets that loaded saliently on Factor 2 were irony, rebelliousness, toughness, hedonism, confidence, unconventionality, adventurousness, and personal competence. In line with previous research (Dar-Nimrod et al., 2012), we labeled factor 1 ‘Cachet Coolness’ and Factor 2 ‘Contrarian Coolness’. This factor structure was similar to the structure identified by Dar-Nimrod et al. (Study 3), in which people rated their friends instead of themselves. Tucker's congruence coefficients were 0.87 for Cachet Coolness and 0.78 for Contrarian Coolness, indicating fair replication of the Cachet Coolness factor, and substantial similarity in Contrarian Coolness factor (e.g., Lorenzo-Seva & Ten Berge, 2006). The major difference in the Contrarian Coolness factor loadings was that the unconventionality facet showed a significant loading in the current study, but not in Dar-Nimrod et al. Study 3. Without this facet, the congruence coefficient for factor 2 would be 0.88. The only other discrepancies were the salient cross-loading of hedonism onto Cachet, and the lack of loading of communal values on the Cachet factor.

2.2. Relations of factors with self-reported coolness

Factor scores were entered into a regression analysis predicting participants' evaluations of their coolness. The factor scores predicted a significant amount of the variance in self-reported coolness $F(2,205) = 52.38$, $p < 0.001$, $R^2 = 0.34$. Each of the factors made an independent contribution to the prediction with Cachet Coolness exhibiting a much stronger relation with coolness evaluations (Pearson's $r = 0.58$; $\beta = 0.52$, $t = 8.46$, $p < 0.001$) than Contrarian Coolness (Pearson's $r = 0.25$; $\beta = 0.14$, $t = 2.29$, $p = 0.02$).

2.3. Relations with other personality measures

The correlations between the factors scores and other personality

constructs were evaluated (Table 2). Cachet Coolness was significantly correlated with each of the Big Five personality dimensions, the three action orientation components, and explicit self-esteem.¹ It was not significantly correlated with social desirability or implicit self-esteem. Those who scored higher on the first factor of coolness were more likely to have higher self-ratings on openness, conscientiousness, extraversion, agreeableness, emotional stability, action orientation, self-esteem, and social desirability. Cachet Coolness was not significantly correlated with sex or age. Contrarian Coolness was significantly, positively correlated with extraversion, emotional stability, openness to experience, lack of sensitivity to failure, and both explicit and implicit self-esteem. Contrarian Coolness was also significantly correlated with sex (males scored higher on this factor). Age was not correlated with Contrarian Coolness.

To evaluate whether these two domains (Cachet Coolness and Contrarian Coolness) showed incremental prediction of coolness above and beyond existing personality traits and demographic variables, we conducted a hierarchical regression predicting coolness from demographic variables at Step 1, the 11 personality traits at Step 2, and the two coolness factors at step 3. In the first step, we entered the demographic variables of sex and age. These variables predicted a significant amount of variance in coolness $F(2,190) = 4.66, p = 0.01, R^2 = 0.05$. Only sex was a significant predictor in this model ($\beta = -0.19, t = -2.75, p < 0.01$). In the second step, we entered all the personality measures included in the study. The prediction of the variance of coolness was significantly improved $\Delta F(11,179) = 6.36, p < 0.001, \Delta R^2 = 0.27$. In this model sex was no longer a significant predictor ($\beta = -0.12, t = -1.73, p = 0.09$), but explicit self-esteem ($\beta = 0.30, t = 3.77, p < 0.001$) and extraversion ($\beta = 0.24, t = 2.98, p = 0.003$) were. Finally, in the third step we entered the two coolness factor scores. The prediction of the variance of coolness was significantly improved $\Delta F(2,177) = 13.01, p < 0.001, \Delta R^2 = 0.09$. In this model, sex was not a significant predictor ($\beta = -0.07, t = -1.06, p = 0.29$), nor was extraversion ($\beta = 0.01, t = 0.14, p = 0.89$). Explicit self-esteem retained its significance ($\beta = 0.19, t = 2.31, p = 0.02$) but was overshadowed as a predictor by Cachet Coolness ($\beta = 0.38, t = 3.99, p < 0.001$). Contrarian Coolness was also a significant predictor ($\beta = 0.16, t = 2.06, p = 0.04$).

3. Discussion

The present findings replicate, to a large extent, the factor structure identified in Dar-Nimrod et al. (2012). Structural analysis of 14 facets of coolness identified a two-factor solution in which the first factor consisted primarily of socially desirable attributes (Cachet Coolness) and the second factor consisted primarily of contrarian attributes (Contrarian Coolness). These two factors collectively predicted unique variance in self-perceptions of coolness above and beyond the effects of Big Five personality dimensions, action orientation, implicit self-esteem, age, and sex, demonstrating that two factors assess elements of coolness that existing constructs are not able to measure. The Cachet Coolness factor was the strongest predictor of self-perceived coolness, and explicit self-esteem and Contrarian Coolness were also significant predictors.

The study also found a positive correlation between Cachet Coolness (i.e., being cool due to socially desirable attributes) and the more desirable pole of all other scales that were measured (e.g., extraverted rather than introverted, action rather than state orientation, high rather than low self-esteem). Interestingly, the Cachet Coolness was not strongly associated with attempting to present oneself in an unrealistically desirable light. The low internal consistency of the social desirability measure may have been the reason for this unexpected

Table 2
Coolness factors' correlations with personality dimensions.

	Factor 1 (Cachet Coolness)	Factor 2 (Contrarian Coolness)
Extraversion	0.620***	0.388***
Conscientiousness	0.340***	0.045
Agreeableness	0.322***	-0.072
Emotional stability	0.280***	0.410***
Openness to experience	0.401***	0.400***
AOD (decisiveness)	0.412***	0.119 [†]
AOF (reduced failure sensitivity)	0.171*	0.306***
AOP (reduced preoccupation)	0.194**	0.084
Social desirability	0.121 [†]	-0.070
Explicit self-esteem	0.581***	0.210**
Implicit self-esteem	0.127 [†]	0.220***
Sex	-0.080	0.279***
Age	-0.095	0.035

[†] $p < 0.1$.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

finding, but it is also possible that people's self-rated coolness judgments are relatively accurate, i.e., that people who say they manifest the most desirable qualities associated with coolness - actually do so.

Subsequent research might test the accuracy of self-rated coolness judgements through participants' ratings of the observed behaviors of individuals varying in self-ratings of coolness. In any case, it appears that those who rate themselves highly on the relevant socially desirable attributes are not only more likely to deem themselves more cool but also to evaluate themselves positively with regard to other commonly-evaluated aspects of personality, such as the Big Five and self-esteem. Moreover, self-deceptive desirable responding does not appear to explain these correlations.

The contrarian factor of coolness was also predictive of positive self-ratings on other dimensions of personality, albeit less than the Cachet factor. Contrarian Coolness correlated positively with extraversion, emotional stability, openness to experience, reduced failure sensitivity, and both implicit and explicit self-esteem. It was not related to agreeableness, conscientiousness, preoccupation, or decisiveness. A sex difference was also found on this factor, with males scoring higher than females. Again, the Marlowe-Crowne measure of self-deceptive desirable responding was unrelated to Contrarian Coolness and did not appear to explain the relations with the other constructs. The attributes that seem to be correlated with Contrarian Coolness indicate that individuals who score higher on it are, on average, more open, outgoing people who are comfortable and secure in their own skin (high self-esteem, low failure sensitivity, emotionally stable) but not necessarily inclined to the more civically-oriented aspects of personality (conscientiousness, agreeableness) nor to a general action orientation (not less preoccupied or more decisive than others). As with the core attributes of Contrarian Coolness, its pattern of correlations with other personality measures fits relatively well with diverse scholarly accounts of coolness (Dar-Nimrod et al., 2012; Heath & Potter, 2004; Majors & Mancini Billson, 1992; Pountain & Robins, 2000).

The present study, however, did not distinguish between coolness as a trait from behavioral coolness. This is particularly important considering the low internal consistency for the rebelliousness items in the present study as well as in Dar-Nimrod et al. (2012). Rebelliousness is often characterized as a heterogeneous construct, where it could be seen as ranging between the innocuous such as lacking in discipline (Gregory & Weinstein, 2008), to the destructive such as delinquency (Hoffmann, Erickson, & Spence, 2013). The rebelliousness - delinquency overlap is primarily based on behavioral evaluations in social situations, which are often influenced by the ethnicity or sex of the "rebel" and the level of tolerance others have for that person's

¹ The correlation between RSE and signature dimensions was not significant ($r = 0.07, p = 0.30$). It is common for implicit and explicit measures of self-esteem to be uncorrelated (e.g., Zeigler-Hill, 2006).

rebellious behavior (Gregory & Weinstein, 2008; Obinyan, 2004). In that vein, in the present study, Contrarian Coolness did not show significant relationships with conformity-related personality constructs such as agreeableness and conscientiousness.

The low internal consistency of some of the coolness facets is a limitation of this study. Low internal consistency is probably due to the dichotomous format of item responses, as well as the low number of items included for some facets. However, we do not believe the low reliability affected the major findings, as all analyses were undertaken on the factor scores rather than at the facet level. Factor scores are composed only of the shared variance among the coolness facets, such that measurement error has effectively been partialled out and will not contribute to results. In addition, all but one of the coolness variables are above the cut-off of 0.60 that is considered acceptable for low-stakes testing purposes (Murphy & Davidshofer, 2005; Wasserman & Bracken, 2003). The only scale that was lower than this cut-off was rebelliousness (Cronbach's $\alpha = 0.43$) discussed above.

One possible avenue for future research lies within the examination of coolness as a construct and societal power structures in the context of the manner in which cultural information is transmitted or even, appropriated from less powerful groups. For example, there are indicators that the cool-evaluated aspects of African American culture such as music and apparel is more profitable when used by European Americans at the expense of African Americans (Thompson, 2015), but there is a lack of empirical examination of which individuals benefit from adopting coolness-related traits. Thus, an ethnicity and socioeconomic-based comparison in responses for Cachet and Contrarian Coolness may prove to be a valuable starting point for such a line of research.

Future studies could also examine the two facets of coolness by converging individual identity and group dynamics. Groups and cultures function best when common identities are emphasized, but also when group members take on differentiated and individualized roles (Baumeister, Ainsworth, & Vohs, 2016; Harton & Bullock, 2007). Any social or cultural system requires both stability and flexibility to maintain social order (Jarman et al., 2015). Stability is derived from conformity and behaving in a socially desirable manner, whereas flexibility is derived from diversity within the population (Harton & Bullock). A recent computer simulation showed that rebellious opinions held by individuals who are conformists can be facilitated further by the existence of a small number of anti-conformists, which ensures that conformists do not entirely succumb to all social pressures or give up their rebellious opinions (Jarman et al.). This is further supported by empirical evidence on the need for both conformity and diversity within groups and cultures (see Harton & Bullock; Kashima, 2014; Smaldino, 2014 for reviews), but has not yet been examined through the lens of the value-laden aspect of Contrarian Coolness.

Several other questions pertaining to coolness as a psychological construct remain open for investigation, such as construct-level differences (e.g., is there a tipping point where Cachet/socially desirable coolness is perceived as Contrarian Coolness and vice versa?) as well as political and social attitudes (e.g., does Contrarian Coolness influence views on political correctness? Does coolness influence partisan and bipartisan political views?). All these avenues could aid in understanding the role of coolness as a trait in the context of identity and attitude formation.

3.1. Conclusions

The present study provides further support for previous studies on coolness as a personality trait. Given the increasingly important role of social media in influencing people's worldviews, identities, and attitudes, it is relevant to know how the social elevation provided by the idea of coolness influences our everyday interactions, whether online or offline. This study also provides the foundation for future researchers to examine other personality factors associated with coolness in diverse

populations and arenas as well as to identify how individual and societal factors play a role in one's own perception of coolness and the evaluation of what is cool.

Funding sources

No funding.

References

- Ashton, M. C., & Lee, K. (2001). A theoretical basis for the major dimensions of personality. *European Journal of Personality*, 15, 327–353. <http://dx.doi.org/10.1002/per.417>.
- Barger, S. D. (2002). The Marlowe-Crowne affair: Short forms, psychometric structure, and social desirability. *Journal of Personality Assessment*, 79, 286–305. <http://dx.doi.org/10.1207/S15327752JPA7902.11>.
- Baumeister, R. F., Ainsworth, S. E., & Vohs, K. D. (2016). Are groups more or less than the sum of their members? The moderating role of individual identification. *Behavioral and Brain Sciences*, 39. <http://dx.doi.org/10.1017/S0140525X15000618>.
- Dar-Nimrod, I., Hansen, I. G., Proulx, T., Lehman, D. R., Chapman, B. P., & Duberstein, P. R. (2012). Coolness: An empirical investigation. *Journal of Individual Differences*, 33, 175–185. <http://dx.doi.org/10.1027/1614-0001/a000088>.
- Dinh, K. T., Sarason, I. G., Peterson, A. V., & Onstad, L. E. (1995). Children's perception of smokers and nonsmokers: A longitudinal study. *Health Psychology*, 14, 32–40. <http://dx.doi.org/10.1037/0278-6133.14.1.32>.
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, 102, 4–27. <http://dx.doi.org/10.1037/0033-295X.102.1.4>.
- Gregory, A., & Weinstein, R. S. (2008). The discipline gap and African Americans: Defiance or cooperation in the high school classroom. *Journal of School Psychology*, 46, 455–475. <http://dx.doi.org/10.1016/j.jsp.2007.09.001>.
- Harton, H. C., & Bullock, M. (2007). Dynamic social impact: A theory of the origins of evolution of culture. *Social and Personality Psychology Compass*, 1, 521–540. <http://dx.doi.org/10.1111/j.1751-9004.2007.00022.x>.
- Heath, J., & Potter, A. (2004). *The rebel sell: Why the culture can't be jammed*. Toronto: Harper Collins.
- Hoffmann, J. P., Erickson, L. D., & Spence, K. R. (2013). Modeling the association between academic achievement and delinquency: An application of interactional theory. *Criminology*, 51, 629–660. <http://dx.doi.org/10.1111/1745-9125.12014>.
- Hollenbaugh, E. E., & Ferris, A. L. (2014). Facebook self-disclosure: Examining the role of traits, social cohesion, and motives. *Computers in Human Behavior*, 30, 50–58. <http://dx.doi.org/10.1016/j.chb.2013.07.055>.
- Hooren, V. (2014). What's really in a name-letter effect? Name-letter preferences as indirect measures of self-esteem. *European Review of Social Psychology*, 25, 228–262. <http://dx.doi.org/10.1080/10463283.2014.980085>.
- Jamison, R. S., Wilson, T., & Ryan, A. (2015). Too cool for school? The relationship between coolness and academic reputation in early adolescence. *Social Development*, 24, 384–403. <http://dx.doi.org/10.1111/sode.12097>.
- Jarman, M., Nowak, A., Borkowski, W., Serfoss, D., Wong, A., & Vallacher, R. (2015). The critical few: Anticonformists at the crossroads of minority opinion survival and collapse. *Journal of Artificial Societies and Social Simulation*, 18(1), 6. <http://dx.doi.org/10.18564/jasss.2663>.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspective. In L. A. Pervin, & O. P. John (Vol. Eds.), *Handbook of personality: Theory and research*. Vol. 2. *Handbook of personality: Theory and research* (pp. 102–138). New York: Guilford Press.
- Kashima, Y. (2014). How can you capture cultural dynamics? *Frontiers in Psychology*, 5, 995. <http://dx.doi.org/10.3389/fpsyg.2014.00995>.
- Kiefer, S. M., & Wang, J. H. (2016). Associations of coolness and social goals with aggression and engagement during adolescence. *Journal of Applied Developmental Psychology*, 44, 52–62. <http://dx.doi.org/10.1016/j.appdev.2016.02.007>.
- Kuhl, J. (1994). A theory of action and state orientation. In J. Kuhl, & J. Beckmann (Eds.), *Volition and personality: Action versus state orientation*. Seattle: Hogrefe & Huber Publishers.
- Kuhl, J., & Beckmann, J. (1994). *Volition and personality: Action versus state orientation*. Seattle: Hogrefe & Huber Publishers.
- Lorenzo-Seva, U., & Ten Berge, J. M. (2006). Tucker's congruence coefficient as a meaningful index of factor similarity. *Methodology*, 2, 57–64.
- Majors, R., & Mancini Billson, J. (1992). *Cool pose: The dilemmas of black manhood in America*. Toronto: Maxwell Macmillan Canada.
- McCrae, R. R., & Costa, P. T., Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed). New York: Guilford Press.
- Murphy, K. R., & Davidshofer, C. O. (2005). *Psychological testing: Principles and applications* (6th ed). Upper Saddle River, NJ: Pearson.
- Obinyan, E. (2004). *Differential adolescent delinquency tolerance and the effect of race and gender* (Unpublished doctoral dissertation)FL: University of South Florida.
- Oyserman, D. (2009). Identity-based motivation and consumer behavior. *Journal of Consumer Psychology*, 19, 276–279. <http://dx.doi.org/10.1016/j.jcps.2009.06.001>.
- Pountain, D., & Robins, D. (2000). *Cool rules: Anatomy of an attitude*. London: Reaktion.
- Rawal, A., Harmer, C. J., Park, R. J., O'Sullivan, U. D., & Williams, J. M. G. (2014). A sense of embodiment is reflected in people's signature size. *PLoS One*, 9, e88438. <http://dx.doi.org/10.1371/journal.pone.0088438>.
- Reynolds, W. M. (1982). Development of reliable and valid short forms of the Marlowe-

- Crowne social desirability scale. *Journal of Clinical Psychology*, 38, 119–125. [http://dx.doi.org/10.1002/1097-4679\(198201\)38:1<119::AID-JCLP2270380118>3.0.CO;2-I](http://dx.doi.org/10.1002/1097-4679(198201)38:1<119::AID-JCLP2270380118>3.0.CO;2-I).
- Rodkin, P. C., Farmer, T. W., Pearl, R., & Van Acker, R. (2006). They're cool: Social status and peer group support for aggressive boys and girls. *Social Development*, 15, 175–204. <http://dx.doi.org/10.1046/j.1467-9507.2006.00336.x>.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rudman, L. A., Dohn, M. C., & Farichild, K. (2007). Implicit self-esteem compensation: Automatic threat defense. *Journal of Personality and Social Psychology*, 93, 798–813. <http://dx.doi.org/10.1037/0022-3514.93.5.798>.
- Rudolph, K. D., Abaied, J. L., Flynn, M., Sugimura, N., & Agoston, A. M. (2011). Developing relationships, being cool, and not looking like a loser: Social goal orientation predicts children's responses to peer aggression. *Child Development*, 82, 1518–1530. <http://dx.doi.org/10.1111/j.1467-8624.2011.01631.x>.
- Smaldino, P. (2014). Group-level traits emerge. *Behavioral and Brain Sciences*, 37, 281–295. <http://dx.doi.org/10.1017/S0140525X13003531>.
- Snyder, C. R., & Fromkin, H. L. (1977). Abnormality as a positive characteristic: The development and validation of a scale measuring need for uniqueness. *Journal of Abnormal Psychology*, 86, 518–527. <http://dx.doi.org/10.1037/0021-843X.86.5.518>.
- Stieger, S., Kandler, C., Tran, U. S., Pietschnig, J., & Voracek, M. (2017). Genetic and environmental sources of implicit and explicit self-esteem and affect: Results from a genetically sensitive multigroup design. *Behavior Genetics*, 47, 175–192. <http://dx.doi.org/10.1007/s10519-016-9829-8>.
- Sundar, S. S., Tamul, D. J., & Wu, M. (2014). Capturing “cool”: Measures for assessing coolness of technological products. *International Journal of Human-Computer Studies*, 72, 169–180. <http://dx.doi.org/10.1016/j.ijhcs.2013.09.008>.
- Thompson, S. (2015). Exploitation, cultural appropriation, and degradation. In J. Stone, R. M. Dennis, P. Rizova, A. D. Smith, & X. Hou (Eds.), *The Wiley Blackwell encyclopedia of race, ethnicity, and nationalism* (pp. 1–3). <http://dx.doi.org/10.1002/9781118663202.wberen694>.
- Warren, C., & Campbell, M. C. (2014). What makes things cool? How autonomy influences perceived coolness. *Journal of Consumer Research*, 41, 534–563. <http://dx.doi.org/10.1086/676680>.
- Wasserman, J. D., & Bracken, B. A. (2003). Psychometric characteristics of assessment procedures. In J. R. Graham, & J. A. Naglieri (Vol. Eds.), *Assessment psychology: Vol. 10. Handbook of psychology* (pp. 43–66). New York: John Wiley & Sons.
- Westcott, K. (2012). Are ‘geek’ and ‘nerd’ now positive terms? BBC News Magazine. Retrieved from <http://www.bbc.com/news/magazine-20325517>.
- Zeigler-Hill, V. (2006). Discrepancies between implicit and explicit self-esteem: Implications for narcissism and self-esteem instability. *Journal of Personality*, 74(1), 119–144. <http://dx.doi.org/10.1111/j.1467-6494.2005.00371.x/full>.
- Zweigenhaft, R. L. (1977). The empirical study of signature size. *Social Behavior and Personality*, 5, 177–185. <http://dx.doi.org/10.2224/sbp.1977.5.1.177>.