

Zeroing in on Heroes: A Prototype Analysis of Hero Characteristics

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## Abstract

Heroes are ubiquitous in literature and popular discourse, yet, little is known about our cognitive representations of heroes. We examine lay conceptions of heroes using a prototype approach, compare heroes with other persons of influence, and examine how individuals use hero characteristics to identify heroes. In Study 1, participants ( $N = 189$ ) generated open-ended descriptions of heroes, which were sorted by independent coders into 26 meaningful categories. In Study 2, participants ( $N = 365$ ) rated the centrality of these features, and subsequently classified each feature as either central (e.g., brave, moral integrity) or peripheral (e.g., humble, proactive). In a reaction time paradigm, participants in Study 3 ( $N = 33$ ) identified central features of heroes faster than peripheral hero features. In Study 4, during a free-recall task participants ( $N = 25$ ) remembered more central (vs. peripheral) features. In Study 5 ( $N = 89$ ), participants most strongly identified a hero when the target was described with central features (vs. peripheral or neutral features). In Studies 6 ( $N = 212$ ) and 7 ( $N = 307$ ), participants' ratings evidenced that the prototypical features of heroes did not fit conceptually as well for role models and leaders. In all, we contribute new ideas to existing knowledge about heroes, and contribute to a shared understanding of what a "hero" means to people. Our research is an important step in refining heroism into a scientific concept. The central features of heroes quickly and consistently activated the concept of heroes among individuals; this facilitates novel priming research and intervention.

*Keywords:* hero, heroism, prototype, person perception

### Zeroing in on Heroes: A Prototype Analysis of Hero Characteristics

Psychology has traditionally focused on the dark side of human behavior — evil, aggression, prejudice (e.g., Miller, 2004) — and in recent years positive psychology focuses on concepts such as altruism, compassion, and empathy (e.g., Gable & Haidt, 2005). Yet, heroism has been a neglected topic in psychology (Becker & Eagly, 2004; Blau, Franco, & Zimbardo, 2009; Sullivan & Venter, 2005) and only recently have empirical efforts in understanding heroes gained traction (Allison & Goethals, 2011, 2013; Franco, Blau, & Zimbardo, 2011; Goethals & Allison, 2012; Kinsella, Ritchie, & Igou, 2014; Sullivan & Venter, 2010; Zimbardo, 2007). There are at least three good reasons to support the increasing scholarly, scientific, and practical interests in the psychology of heroes.

First, the prevalence of the concept of heroes suggests that it is of psychological importance to humankind (Sullivan & Venter, 2005). For instance, Google Trends and Google Books Ngram Viewer each illustrate the enduring (and increasing) attention given to heroes in popular culture and literature respectively. Recently, 66% of adults sampled across 25 countries confirmed having at least one hero (Kinsella, Ritchie, & Igou, 2010). In fact, the pervasiveness of heroes in daily life (Sullivan & Venter, 2005) itself warrants further examination. There is growing evidence that heroes provide psychological resources to individuals — indeed they often enhance the lives of others, promote morals, and protect individuals from threats (Kinsella et al., 2014). As such, it is important to examine and resolve the disagreements about what is meant when people apply the label hero.

Second, the sheer variety of heroes suggests their far-reaching psychological utility. In the aftermath of disasters, those who rescue and rebuild communities are considered heroic. Celebrities and sports stars are often presented as heroes in the media. Privately, people regard family members as heroic. Zimbardo (2007) proposes 12 types of hero: duty-bound hero, civil hero, religious figure, political-religious figure, martyr, political or military

leader, adventurer, scientific hero, Good Samaritan, underdog, bureaucracy hero, and whistleblower. Goethals and Allison (2012) have put forward a taxonomy of ten types of heroes including transitional heroes (who are important for individuals during developmental milestones) and transparent heroes (who behave heroically out of the public spotlight). Despite the diversity of heroes, we expect that most will display prototypical features of heroism. For this reason, the focus of the present research examines lay conceptions about the prototypical features of heroism.

Third, the concept of heroism has changed over generations. Consequently, the question of how to define a hero provokes much debate (Allison & Goethals, 2011; Franco et al., 2011; Sullivan & Venter, 2005). The word derives from the Greek *heros*, meaning *protector* (Harper, 2010). In Greek mythology, heroes enacted extraordinary bravery and were willing to sacrifice themselves for others. Many myths feature heroes who displayed strength, boldness, or cleverness. Hercules is best remembered for serving as a model for human accomplishment. Penelope is revered for symbolizing goodness and morality. The tradition of reveling heroes has continued for generations in the arts, media, and popular culture.

In 1949, Campbell wrote about themes that are reflected in a hero's journey, particularly facing severe challenges and returning with power to improve the world. In popular discourse, modern interpretations of heroes and celebrities are sometimes indistinguishable (North, Bland, & Ellis, 2005). Further, the conceptual boundaries between leaders, role models, and heroes are unclear. Jayawickreme and DiStefano (2012) emphasize that defining a hero is difficult, in part, because a complete definition needs to take the motivation of the hero into account, and also because of the value-laden nature of the term itself. In fact, the term *hero* has been described as "radically ambiguous" in contemporary usage (Gill, 1996, p. 98). In recent psychological literature, heroes have been described as

persons who: a) are willing to risk and sacrifice for others (Becker & Eagly, 2004); b) resist external pressures of conformity (Zimbardo, 2007); c) protect and promote the wellbeing of future generations (McAdams, 2008); d) persist in the face of failure (Ko, 2007); e) demonstrate *moral will*, the desire to do good for others, and *moral skill*, the capacity to do the right thing in a particular situation (Schwartz, 2009). These hugely varied definitions evidence a lack of consistency in conceptualizing heroes within psychology. We argue that these definitions lack sufficient rigor and coverage: two essential requirements for the provision of a theoretical definition (Gregg, Hart, Sedikides, & Kumashiro, 2008).

To be *rigorous*, a good definition should be clear, coherent, lend itself easily to manipulation and measurement, and indicate the conditions necessary or sufficient to qualify something as an instance of a phenomenon (Smith & Medin, 1981). Imagine we define a hero as someone who d) “persists in the face of failure”, or as someone a) who is “willing to risk and sacrifice for others”. Both definitions may have some truth but the latter is somewhat scientifically superior because it features terms that are more concrete and precise than the former; it connects with existing research literatures (risk-taking: Trimpop, 1994; sacrifice or altruism: e.g., Batson, 2012); and it suggests practical ways to pursue empirical investigation (e.g., operationalization of risk-taking behavior).

To provide comprehensive *coverage* of the phenomenon of interest, a definition should reveal rather than conceal its richness (Gregg et al., 2008). For instance, the definition c) to “protect and promote the wellbeing of future generations” leaves much unspecified. It would be useful if this definition were to be expanded to include specific behaviours (e.g., a person who protects others), and domains in which heroism might occur (e.g., in situations where reward or recognition is unlikely). Including these details will increase the richness of the definition but may not fit ambiguous situations. Imagine, for example, a person who risked their personal safety to protect vulnerable children for many years but also misused

charitable donations for personal uses; is this person a hero? Phenomena, such as heroes, are inherently fuzzy, involving many elements that show a family resemblance to one another rather than one single unifying feature (Rosch, 1978; Wittgenstein, 1953). Any particular instance is a more or less representative exemplar of a phenomenon, rather than a clear example or non-example of it. Some individuals exhibit a blend of central and peripheral hero features a good deal of the time and therefore, will be considered better exemplars of heroes — exemplars closer to the prototype.

Our analysis of the literature indicates that there is a need to clarify what is meant when people refer to heroes in the 21<sup>st</sup> century and modernize our understanding of the concept (Blau et al., 2009). Given the evident difficulty of defining heroes, we argue for a new approach to conceptualizing heroes that offers a compromise between rigor and coverage — the prototype approach. Garnering knowledge about lay conceptions at this early stage of hero research is likely to be the most fruitful strategy to comprehensively capture the phenomenon of heroes. In this article, we propose that lay persons' view of heroes will have a prototype structure characterised by a core set of central features. In examining this proposal, we aim to clarify what contemporary scholars have been studying so far and to provide new directions and methods for studying heroes further.

### **A Prototype Approach to Understanding Heroes**

A prototype is a collection of the most representative features of a concept (Cantor & Mischel, 1977). Many concepts in language lack classical definitions, and are best described by their more representative examples (Rosch, 1978). A prototype is activated (to a greater or lesser extent) when an individual encounters an exemplar that (more or less) resembles the construct. It is subsequently used to guide information-processing (e.g., speed of processing, memory, interpretation; Mervis & Rosch, 1981; Rosch, 1978). Prototype methods have been used to offer insight into concepts such as love, commitment (Fehr, 1988), modesty (Gregg et

al., 2008) and nostalgia (Hepper, Ritchie, Sedikides, & Wildschut, 2011). We expect that the construct of hero also has a prototypic structure and that understanding of heroes will profit as a result of revealing its prototype.

An understanding of prototypic structure of heroes will enable researchers to assess and predict how people respond to more or less prototypical heroes. Instead of relying on participants' intuitive or implicit definitions, researchers will be able to describe the concept of heroes in a consistent manner, and also, to understand what participants are thinking when they respond to instructions to 'bring to mind a hero'. The prototypical features of heroes will be useful for activating the concept of heroes in the minds of research participants. For example, one might use the central features of heroes to prime participants with heroes and then employ experimental research paradigms to examine the impact of the hero prime on measurable indicators (e.g., moral decision-making, inspiration). Clarifying lay persons' understanding of the concept enables us to interpret past findings when the term 'hero' has been used but not defined. Understanding *how* an individual conceptualizes heroes will be important when attempting to understand more about the ways heroes influence others (e.g., self-regulation, buffer threats). An understanding of the prototypical features of heroes is likely to have implications for measurement of the construct. It is vital that measurement tools associated with heroism correspond with what comes to mind when a participant thinks of a hero. Also, a greater understanding how people outside of the research community conceptualize and derive benefits from encounters with heroes may help researchers to develop improved psychoeducational and therapeutic techniques featuring heroes to improve psychological wellbeing (e.g., Malgady, Rogler, & Constantino, 1990).

### **Lay Conceptions of Heroes**

To our knowledge, three studies have previously adopted a free-response format to understanding conceptions to heroes. In 1997, Gash and Conway asked 700 children to

identify the features of heroes in Ireland and the USA. Participants named their hero and described their hero's features. The 24 features derived from pilot work were: *active, beautiful, brilliant, brainy, brave, caring, confident, dresses well, famous, friendly, funny, good, gentle, good-looking, helpful, honest, important, kind, loving, loyal, rich, skillful, strong,* and *warrior*. These features that *children* associate with heroes provide a useful source of comparison with the findings from our adult samples.

Sullivan and Venter (2010) asked American college students to identify one hero and provide descriptive words to explain why. Participants were provided with an example: "Hero: George Washington, US President; Reasons: Honest, intelligent, great leader, brave" (p. 475). The features that emerged were as follows: *intelligent, loving, religious, caring, leader, talented, hardworking, motivated, role-model,* and *creative*. Demand features may be reflected in the results due to use of an example prior to free-response elicitation. It is interesting that *religious* emerged as a top indicator of heroism; given that many heroes are not affiliated with religion.

Allison and Goethals (2011) asked American college students to list the traits that they use to describe heroes. Then, another group of students sorted the traits and revealed eight trait clusters; *smart, strong, selfless, caring, charismatic, resilient, reliable,* and *inspiring*. Many of these traits are likely to be highly descriptive of many leaders, and offer limited distinction between heroes and leaders. Some features — *sacrifice, protection, moral integrity* — that have long been associated with heroes were not mentioned in the eight trait clusters.

These previous findings are interesting and are likely to spark the curiosity of persons interested in the topic of heroes. However, each of these stand-alone studies outline different core features of heroism which is likely to leave a budding hero researcher confused about how participants might interpret the term 'hero' and unsure about which core features of



heroes to use in their research. Many features described are commonly used to describe leaders (e.g., charismatic, important, intelligent) and role models (e.g., role-model, good, friendly). We argue that number of important questions remain unanswered by previous studies: What are the most defining features of heroes? Is it possible to activate the concept of hero using the features generated from each of these respective studies in future research? How do these features differentiate heroes from leaders and role models? In the present research, we examine lay conceptions of heroes and together highlight the value of viewing the concept of “hero” as a fuzzy concept with central and peripheral features. We examine the features that set heroes apart from either leaders or role models. Also, we assess how whether the prototypical features of heroes can be used to activate the concept of hero and influence person perception.

### **The Present Research**

The present investigation consists of seven empirical studies with independent samples that identify the prototypical features of heroes and demonstrate their utility in activating the concept of heroism. Multiple methods (free-response, rating scales, reaction time, memory tasks, and priming paradigms) were employed to identify the prototypical structure of heroes and compare these conceptualizations with other persons of influence. First, we attempt to elucidate lay conceptions of heroes using an open-ended response format (Study 1). Second, we examine centrality ratings of the descriptions, obtained in Study 1, and distinguish between central and peripheral hero features (Study 2). Spurred by the predictions of prototype theory, we assess the information processing of central versus peripheral features using reaction time (Study 3) and free recall methods (Study 4), respectively. Next, we tested whether individuals use central, peripheral, or neutral features to identify heroes in person perception (Study 5). Finally, we demonstrate the extent to which participants apply converging and diverging features to describe heroes, role models, and leaders (Study 6 and

7); we draw attention to important conceptual distinctions. It is hypothesized that some features of heroes will be communicated more frequently (central) than others (peripheral), and the central features of heroes will activate the concept of hero more quickly and strongly than peripheral features. The present article responds to the call for further research on heroes (Franco et al., 2011; Zimbardo, 2007) and particularly the call to examine the ambiguous nature of the heroes in the 21<sup>st</sup> century (Blau et al., 2009; Gill, 1996).

### Study 1

Study 1 aimed to generate a pool of prototypical features of heroes. We asked participants to list features of heroes in an open-ended format, coded the features into categories, and used the most frequently categories in subsequent studies. It was hypothesized that some features of heroes would be communicated more frequently (central) than others (peripheral).

### Method

**Participants.** We recruited 189 participants (116 females, 73 males;  $M_{age} = 29.98$  years,  $SD_{age} = 11.88$ , age range: 18–73 years) by snowball sampling via email ( $n = 164$ ), beginning with the researchers' online social networks, and also, in the local city center ( $n = 25$ ). Participants originated from North America ( $n = 90$ ), Europe ( $n = 89$ ), Asia ( $n = 6$ ), Australia ( $n = 2$ ) or Africa ( $n = 2$ ).<sup>1</sup>

**Materials and Procedure.** Informed consent was obtained from all participants (Studies 1–7). Participants completed identical materials either on paper or online. Those who completed the questionnaire online did not receive any compensation for their participation. Those who filled out the questionnaire in the city center received a coffee as a token of our appreciation. Participants were asked: “What are the features that you associate with heroes and their heroic actions?” Responses were not timed. Participants were then thanked and debriefed (Studies 1–7).

### **Results and Discussion**

A verbatim list of exemplars ( $n = 657$ ) was compiled. Exemplars comprised either one item from a list, or one unit of meaning (Joffe & Yardley, 2004) from responses that contained multiple connected statements. Each participant generated on average 3.5 exemplars. Two independent coders sorted the original exemplars into superordinate thematic categories (hereafter referred to as ‘features of heroes’). This was achieved by (a) grouping identical exemplars, (b) grouping semantically related exemplars (“courage” and “courageous”), and (c) grouping meaning-related exemplars into categories (“honest” and “truthful”) in accordance with previous studies (e.g., Hepper et al., 2011). The first coder identified 23 categories, and the second coder identified 20 categories. Inter-rater reliability was good (over 70%) but in order to reach full agreement it was necessary to break 20/23 categories into several new ones. For example, *bravery* and *courage* were divided into distinct categories. Third and fourth coders independently matched one of the 26 categories identified by the first and second coders (category: *selfless*) to each of the original exemplars (exemplar: *someone who’s character and actions are selfless*). There was 87% consistency between the third coder’s ratings and the original coding. There was 76% consistency between the fourth coder’s ratings and the original coding.

**Prototype Analysis of Hero Features.** The coders identified 26 categories of hero features (see Table 1) from the original 657 exemplars. The most frequently mentioned features were *brave, fearless, selfless, self-sacrifice, honest, strong, and moral integrity*. These features are consistent with heroes in Ancient Greek mythology, particularly *bravery* and *self-sacrifice*. These results show that defining heroes only in terms of exceptional talents and ability to inspire others (c.f. Sullivan & Venter, 2005) are not sufficiently comprehensive to reflect lay conceptions. The features are mostly consistent with children's descriptions of heroes collected by Gash and Conway (1997); *active, brilliant, brainy, caring, brave, helpful, honest, strong, skilful, friendly, loyal, kind, loving, important*. However, unlike children, the adults in our study rarely described heroes as *beautiful, dresses well, famous, rich, warrior, gentle* or *funny*. According to this list, children seem to assume some form of bias of "beautiful people are good" (or in this case, heroic). This bias may be a result of fairy tales, cartoons, or movies where good (and perhaps to some degree heroic) persons are often displayed as beautiful (Eco, 2004; Klein & Shiffman, 2006).

As predicted, there was no single feature (i.e., global characteristic) that was listed by every participant. The categories include themes that relate to heroes' exceptional ability (e.g., *talented*), to their core values (e.g., *moral integrity*), and to their positive influence on people (e.g., *inspiration*). Participants completing the questionnaire online or via paper-and-pencil did not differ significantly with regard to the number of exemplars described,  $t(187) < 1.00$ .

**Linguistic Analysis of Hero Features.** We subjected all responses to analysis using the textual analysis software, Linguistic Inquiry and Word Count Version 2007 (LIWC; Pennebaker, Francis, & Booth, 2001). LIWC compares each word from each participant's response against an internal dictionary that contains English words, and then, reports a proportion of words that represent a psychological theme. For example, one participant wrote

“A hero is someone whose actions are selfless and inspiring” and LIWC flagged the word *inspiring* as belonging to the *positive emotion* theme. The analysis revealed that, on average, participants’ descriptions of heroes consisted of 29% affective-process related words (e.g., happy), 28% positive emotion words (e.g., love), 15% cognitive processes (e.g., thought) and 10% social processes (e.g., talk). This analysis reinforces the idea that heroes are considered in overwhelmingly positive ways, which is consistent with ideas from Staats, Hupp, and Hagley (2008). This analytic tool is informative as a descriptive tool and provides a useful triangulation with the other methods.

Overall, lay conceptions present heroes as multi-faceted (consistent with Ko, 2007). Some features were communicated more frequently than others, most likely indicating the centrality of these features to the concept of heroes—supporting the original hypothesis that the concept of hero can be represented as a prototype with more or less representative features. The most commonly mentioned features of heroes were *brave, fearless, selfless, self-sacrifice, honest, strong, and moral integrity*; consistent with early classical definitions of heroism and yet different from more recent analyses of lay conceptions (e.g., Allison & Goethals, 2011; Sullivan & Venter, 2010).

## Study 2

The aim of Study 2 was to ask an independent sample to rate the centrality (or representativeness) of each of the hero features identified in Study 1. Prototype researchers have used this method to define the representative of features (Gregg et al., 2008; Hassebrauck, 1997; Rosch, 1975). It was hypothesized that some features would be consistently rated higher (central) than other features (peripheral).

## Method

**Participants.** Participants ( $N = 365$ ) were recruited in the city center, on the University of Limerick campus, and via a psychological research website (215 female, 150 males;  $M_{age} = 32.64$  years,  $SD_{age} = 12.48$ , age range: 18 to 67 years).

**Materials and Procedure.** People recruited on campus or in the community were offered chocolate for taking part in the study. Participants recruited online were not compensated. Participants rated how closely each of the 26 features related to their personal view of the features of heroes. After each characteristic, some common exemplars were provided in brackets: “Brave (valor, feels fear but acts anyway)”, and “Honest (trustworthy, integrity)”. All ratings were indicated on a Likert scale that ranged from 1 (*not at all related*) to 8 (*extremely related*). Readability statistics were generated for the features of heroes and associated exemplars. The results are as follows: Flesch Reading Ease = 56.4%, Flesch-Kincaid Grade Level 9.6.

## Results and Discussion

The ratings (see Table 1) for features range from 4.82 (personable) to 7.06 (brave). The median score was 6.04. Following previous prototype research (Gregg et al., 2008) we used a median split based on the ratings and labeled the highest 13 features as central (*brave, moral integrity, courageous, protect, conviction, honest, altruistic, self-sacrifice, selfless, determined, saves, inspiration, and helpful*) and the lowest 13 features as peripheral (*proactive, strong, leader, compassionate, risk-taker, exceptional, humble, fearless, caring, powerful, intelligent, talented, and personable*). We used this method to facilitate the use of experimental design in later studies (although essentially we believe that the prototypicality of hero features exists on a continuum).

**Ratings for central and peripheral features in Study 2.** There were significant sex differences on ratings for three hero features. Women ( $M = 5.15$ ,  $SD = 2.12$ ) rated the

characteristic *fearless* lower than men ( $M = 5.64, SD = 2.29$ ),  $t(362) = 2.13, p = .03, d = 0.22$ . Men ( $M = 6.30, SD = 1.74$ ) rated the features *saves* higher than women ( $M = 5.90, SD = 1.89$ ),  $t(362) = 2.13, p = .034, d = 0.22$ . Men ( $M = 5.41, SD = 2.14$ ) rated the characteristic *powerful* higher than women ( $M = 4.85, SD = 1.99$ ),  $t(353) = 2.53, p = .01, d = 0.27$ .

On average, participants who rated the hero features on paper ( $M = 6.19, SD = 0.57$ ) rated all of the hero features significantly higher than those who completed online ( $M = 5.77, SD = 0.73$ ),  $t(50) = 2.34, p = .02, d = 1.37$ . Specifically, participants who completed the scale on paper gave higher ratings than people who completed the scale online for the following features: *Strong, conviction, leader, fearless, proactive, determined, intelligent, risk, and powerful*.

**Elicitation of central and peripheral features in Study 1.** Using this distinction, we examined the frequency of central and peripheral features reported by participants in Study 1. Participants from Study 1 ( $N = 189$ ) reported more central features ( $M = 1.96, SD = 1.29$ ) than peripheral features ( $M = 1.24, SD = 1.26$ ),  $t(188) = 5.83, p < .001$ .<sup>2</sup>

North American participants ( $n = 90$ ) reported more central features ( $M = 2.23, SD = 1.40$ ) than peripheral features ( $M = 1.36, SD = 1.25$ ). European participants ( $n = 89$ ) reported more central features ( $M = 1.73, SD = 1.13$ ) than peripheral features ( $M = 1.16, SD = 1.31$ ). The main effect for prototypicality was significant;  $F(1, 162) = 5.76, p = .02, \eta_p^2 = .04$ . There was no main effect for nationality;  $F(1, 16) = .31, p = .58, \eta_p^2 = .02$ . A two-way mixed ANOVA was conducted to test for differences between American and European participants (continent) regarding the number of central and peripheral features (prototypicality) reported. There was no significant interaction between prototypicality and continent (USA vs. Europe),  $F(16, 162) = .62, p = .87, \eta_p^2 = .06$ .

The results from Study 1 and 2 consistently reveal certain features as more central (*brave, moral integrity, self-sacrifice, protect, honest, courageous*) than others. These central

features make heroes more easily identifiable and are most likely to activate a person's schema of a hero. It is important, however, not to dismiss the peripheral features of heroes as these are likely to capture a more complete spectrum of lay conceptualizations of heroes as well as activating the concept of a hero (albeit to a lesser extent than central features). Peripheral features such as *humble* and *compassionate* provide insight into the character and motivations of prototypical heroes. A hero who displays bravery without opportunity for recognition is quite different from a person who exhibits bravery that s/he knows will result in reward for the self. Interestingly, both the central and peripheral features of heroes consist of features that refer to a hero's exceptional abilities (Campbell, 1949), influence on others (Caughey, 1984; Sullivan & Venter, 2005), and core values (e.g., to do the right thing).

### Study 3

Study 3 aimed to determine whether the speed of classification of hero features is influenced by feature centrality. When a person's prototype for a concept is activated, one should be quicker to recognize and classify features that are central to that prototype (Fehr, Russell, & Ward, 1982). Participants should be *quicker* to verify central (versus peripheral) categories that are related to heroes. The objective of Study 3, then, was to examine whether categories rated *explicitly* as central (Study 2) are also *automatically* verified more often and more quickly than categories rated as peripheral. We hypothesized that participants will *more quickly* verify central than peripheral ones.



## Method

**Participants.** Thirty-three undergraduate students participated in return for course credit. They included 20 females and 14 males whose ages ranged from 18 to 46 years ( $M = 23.13$ ,  $SD = 9.57$ ).

**Materials and Procedure.** The study followed a within-subjects design. The independent variable was the type of feature (central, peripheral, or decoy words). The dependent variable was the reaction time (RT) of each response.

Participants received instructions and followed the on-screen instructions to continue to the RT trials. Participants were asked to classify a series of words on a computer screen as quickly and as accurately as possible. Fifty-two words were presented on the computer screen in random order; including 26 features of heroes identified in Study 1 and 26 decoy words (e.g., *juicy*, *freezing cold*). The decoy stimuli were closely matched in number of letters and variation of word types (nouns, adjectives). Participants were instructed to click 'M' on the keyboard to indicate 'YES' this is a *hero characteristic*, or click 'Z' to indicate 'NO' this is *not a hero characteristic* for all trials.

## Results and Discussion

First, the data were cleaned by removing outliers that were found to be greater than 3 standard deviations above the mean (Ferguson & Bargh, 2004) for central, peripheral, and decoy stimuli. A total of 50 data points were removed from the original 1716 (3%), resulting in a total of 1666 usable data points for analysis. The data were no longer skewed.

**Reaction Time.** A mixed ANOVA was conducted to test if different words had an influence on the RT of participants and to test if there were variances in RT between different participants. The results show a main effect for differences in the way that participants react to central features, peripheral features, and decoy stimuli,  $F(2, 1663) = 6.15$ ,  $p = .05$ .

Participants identified central features more quickly than they did peripheral ones,  $t(1663) = -$

63.41,  $p = .05$ ,  $d = -3.11$ . The mean RT for central features was 1038 milliseconds (ms) ( $SD = 443$ ), whereas the mean RT for peripheral features was 1102 ms ( $SD = 514$ ). The mean RT for decoy words was 1009 ms ( $SD = 393$ ). Participants were slower to identify peripheral features than decoys,  $t(1663) = 92.57$ ,  $p < .001$ ,  $d = 4.54$ .

**Error Rates.** The results indicate that participants responded most accurately for central features (6.1% incorrect). Participants responded least accurately for peripheral features (15.2% incorrect). The error rate for decoy stimuli was 7.1%. A repeated measures ANOVA was conducted to compare the number of incorrect responses for central features ( $M = .79$ ,  $SD = .98$ ), peripheral features ( $M = 1.91$ ,  $SD = 1.44$ ) and decoy words ( $M = 1.76$ ,  $SD = 3.43$ ). There was a significant effect for type of stimulus, Wilks' Lambda = .55,  $F = (2, 32) = 12.92$ ,  $p < .001$ ,  $\eta_p^2 = .45$ . Pairwise comparison reveals a significant difference between the number of errors for central and peripheral features;  $t(33) = -4.85$ ,  $p < .001$ ,  $d = -0.90$ . The difference between the error rates for central features and decoy words was not significant;  $t(33) = -1.56$ ,  $p = .13$ . Overall, participants classified central features on a reaction time task more quickly and accurately than peripheral features.

#### Study 4

The objective of Study 4 was to examine the influence of feature centrality on recall of hero features in memory task. Prototype theory (Cantor & Mischel, 1977) suggests that central exemplar categories of a construct are more readily encoded, and thus are more accessible in memory than peripheral ones. Therefore, it was hypothesized that participants would more accurately recall central features (e.g., *brave*) than peripheral features (e.g., *humble*). Also, we hypothesize that central features will be falsely remembered more often than peripheral words.

## Method

**Participants.** Twenty-five (18 females, 7 males) undergraduate students ( $M_{\text{age}} = 19.83$ ,  $SD = 4.44$ , range 17 to 42 years) in exchange for course credit.

**Materials and Procedure.** Participants were asked to focus on a Microsoft PowerPoint presentation at the front of the laboratory. The instructions on the slides appeared as follows:

“You are about to see some statements about possible features of heroes. Please read each one as it appears on the screen. Please focus on the screen in front of you. You will be asked questions about heroes later on in the study. The statements begin on the next page . . . Heroes are...”.

Each participant viewed six peripheral features; *strong*, *compassionate*, *exceptional*, *fearless*, *powerful*, and *personable*, and six central features; *courageous*, *conviction*, *altruistic*, *selfless*, *saves*, and *helpful* appear on the screen for four seconds (Kearns & Fincham, 2004). Each word was randomly selected from the pool of 26 hero features by an online web tool ([www.random.org](http://www.random.org)). Next, they completed a five-minute distracter task (neutral word-search). Participants were asked to recall (without prompts) as many words as possible in three minutes before the researcher collected their responses.

## Results and Discussion

**Hits.** A chi-squared test indicated a significant association between features of heroes (central or peripheral) and recall (yes or no),  $\chi^2(25, n = 676)$ ,  $p < .001$ , *Cramer's V* = .66. The most frequently correctly recalled features were *strong* (85%), *save* (81%), and *altruistic* (70%). The least frequently recalled features were *conviction* (27%), *powerful* (35%), and *personable* (38%). Other features were recalled as follows: *compassionate* (65%), *courageous* (58%), *exceptional* (42%), *fearless* (50%), *selfless* (46%), and *helpful* (46%). In total, 105 central features and 84 peripheral features were correctly recalled by participants — consistent with the hypothesis that central features would be correctly recalled than peripheral features.

**False Alarms.** The central feature *brave* was recalled 73% of the time by participants despite the feature *not* appearing in the presentation (incorrect recall). The central feature *protection* was incorrectly recalled by 4% of participants. The only peripheral feature that was incorrectly recalled by 8% of participants was *caring*. These results are consistent with the hypothesis that central features would be incorrectly remembered (false memory) than peripheral features. The mean percentage recall for types of features (and whether presented or not) are listed: central features (31%), peripheral features (25%), presented features (54%), not-presented features (6%), central, presented features (55%), central, not-presented features (11%), peripheral, presented features (53%), and peripheral, not-presented features (1.14%).

These results provide support to the view that prototypicality is reflected in information-processing features of heroes, specifically in the memory system. The false recognition might imply that participants are engaging in a creative process of remembering critical non-presented features (Roediger & McDermott, 1995).

In Studies 3 and 4, we demonstrated that central and peripheral features of heroes are processed differently during spontaneous classification and in memory. Next, we tested whether hero characteristics influence the identification of heroes.

### Study 5

The objective of Study 5 was to examine the role of feature centrality in a person perception task, specifically testing whether the features we identified as prototypical for heroes would lead to the impression that a person is considered a hero. We reasoned that exemplars described by features typical for heroes will likely convey heroic status of that person. In Study 5 we used short vignettes that described an exemplar using either central features, peripheral features or positive, non-hero related adjectives. Participants each read two vignettes, a within-subjects design, and then rated both exemplars across a number of hero-related and non-hero related items. We expected that exemplars containing central

features would be perceived as more heroic than those including peripheral or neutral features. We hypothesized that both central and peripheral features of heroes would activate the hero concept. We also hypothesized that participants would evidence a stronger identification of heroes when the central characteristics are used to describe the exemplar than when other items are used.

## **Method**

**Participants.** Eighty-nine (women = 51, men = 38) volunteers ( $M_{\text{age}} = 36$  years,  $SD = 15.64$ , ranging from 18 to 84) participated in this study. No compensation was offered.

**Materials and Procedure.** We recruited volunteers via a public research participation site. Upon access to the study, interested participants first read and then gave their informed consent to participate in this study. On the next page, we prompted each participant to report their sex and age. We varied the hero prototypicality of exemplars across three conditions using the hero features identified in Studies 1–4. Next, they were assigned randomly (via Qualtrics technology) to one of three conditions wherein they compared descriptions of two of the following exemplars:

### ***Heroic, Central Features.***

A person whose name we do not mention here, showed features of bravery, selflessness, moral integrity, and courage throughout his/her life. S/he exerted conviction and determination. S/he also showed a willingness to protect and save others. Many people have described her/him as honest, altruistic, inspiring, and self-sacrificing.

### ***Heroic, Peripheral Features.***

A person whose name we do not mention here, showed features of talent, proactivity, intelligence, and leadership throughout his/her life. S/he exerted risk taking, exceptionality, and power. S/he also showed strength and fearlessness. Many people have described her/him as humble, compassionate, caring, and personable.

### ***Positive but Non-heroic, Control.***

A person whose name we do not mention here, showed features of focus, stability, assurance, and balance throughout his/her life. S/he exerted common sense, rationality, and diligence.

S/he also showed purpose and maturity. Many people have described her/him as talkative, reasonable, gentle, and nice.

Two of these exemplars were presented to the participants. They were asked to read the descriptions of both before rating each of the exemplars. Condition 1 included the central and peripheral exemplars ( $n = 33$ , 37%). Condition 2 included the peripheral and neutral exemplars ( $n = 25$ , 28%). Condition 3 included central and neutral exemplars ( $n = 31$ , 35%). The exemplar was left unidentified and unnamed to eliminate the risk of contamination of prior knowledge about the target in the person perception task. Four hero-related dependent items were included: *The person is a true hero*; *The person is likely to be seen as a hero*; *Most people would agree that this person is a hero*; and *In your personal view, based on the description provided, is this person a hero?* Three positive, non-hero dependent items were included; *The person is likeable*; *The person is physically attractive*; and *The person is someone to have fun with*. These items were chosen to measure non-heroic, positive qualities of exemplars — a pilot study confirmed the suitability of these items. Participants rated each of these items using a seven-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Finally, participants were thanked and provided the researchers' contact information.

## Results

We predicted that exemplars containing hero features would be more readily perceived as heroes than exemplars without hero features. Further, exemplars containing central hero features would be more readily perceived as heroes than peripheral hero features. No differences between conditions were predicted for the items that do not measure hero qualities (i.e., positive, non-hero items). The inferential statistics from each of the seven dependent items are presented in Table 2, Table 3 and Table 4. In the Results section described here, the four hero items are grouped together as one aggregate sum variable, called *the hero scale*, and the three non-hero items are grouped together as one aggregate sum variable, called *non-hero items*.

In the central-peripheral condition, participants ( $n = 33$ ) rated the exemplar significantly higher on the hero scale (Cronbach's  $\alpha = .64$ ) when the exemplar was described with central features ( $M = 15.03$ ,  $SD = 4.27$ ) than peripheral features ( $M = 13.00$ ,  $SD = 4.02$ );  $t(32) = 3.14$ ,  $p < .001$ ,  $d = 0.49$ . Participants' rated the exemplar marginally higher on the non-hero items (Cronbach's  $\alpha = .88$ ) when the exemplar was described with peripheral features ( $M = 10.48$ ,  $SD = 2.48$ ) than central ( $M = 9.82$ ;  $SD = 2.11$ ),  $t(32) = -2.09$ ,  $p = .05$ ,  $d = .29$ . There was a significant interaction between the type of exemplar (central-peripheral) presented and ratings on hero/non-hero items;  $F(1, 32) = 14.69$ ,  $p < .001$ ,  $\eta_p^2 = .31$ .

In the peripheral-neutral condition, participants ( $n = 25$ ) rated the exemplar significantly higher on the hero scale (Cronbach's  $\alpha = .91$ ) when the exemplar was described with peripheral ( $M = 13.96$ ,  $SD = 5.67$ ) than neutral features ( $M = 9.96$ ,  $SD = 3.620$ ;  $t(24) = 5.28$ ,  $p = .00$ ,  $d = 0.85$ ). There was no significant difference between participants ratings of the exemplar described with either peripheral ( $M = 8.92$ ,  $SD = 3.32$ ) or neutral features ( $M = 9.28$ ,  $SD = 3.53$ ) on non-hero items (Cronbach's  $\alpha = .90$ ;  $t < 1$ ). There was a significant interaction between the type of exemplar (peripheral-neutral) presented and ratings on hero/non-hero items;  $F(1, 24) = 20.82$ ,  $p > .001$ ,  $\eta_p^2 = .47$ .

In central-neutral condition, participants ( $n = 31$ ) rated an exemplar significantly higher on the hero scale (Cronbach's  $\alpha = .62$ ) when described with central ( $M = 15.81$ ,  $SD = 4.26$ ) rather than neutral words ( $M = 11.94$ ,  $SD = 3.40$ );  $t(30) = 4.19$ ,  $p < .001$ ,  $d = 1.00$ . Participants rated the exemplar significantly higher on the non-hero items (Cronbach's  $\alpha = .77$ ) when the exemplar was described with neutral features ( $M = 10.58$ ,  $SD = 2.00$ ) rather than central features ( $M = 9.84$ ,  $SD = 1.97$ );  $t(30) = -2.31$ ,  $p = .03$ ,  $d = .37$ . There was a significant interaction between the type of exemplar (peripheral-neutral) presented and ratings on hero/non-hero items;  $F(1, 30) = 24.82$ ,  $p < \eta_p^2 = .45$ . For an overview of all interaction effects see Figure 1.

## Discussion

In Study 5, prototypical hero features used to describe the exemplar subtly and systematically steered participants' judgments about the extent to which the exemplar was perceived as a hero, significantly more than when the exemplar was described positively but non-heroically. The hero features provoked a sense of heroism, whereas the positive but non-hero features did not. Our results imply that both central and peripheral hero characteristics activate the hero concept. Importantly, however, there is a stronger identification of heroes when the characteristics are central – consistent with the classification of central versus peripheral features in the studies above. In the central-peripheral condition, we found a reliable effect that people are more likely to judge non-hero exemplars as more likeable, attractive, and someone to have fun with, than exemplars containing central hero features. This may suggest that heroes are regarded as more distant (e.g., Singer, 1991) and less social than non-hero targets. These findings confirm that these items measure non-hero qualities. This finding has an interesting implication for social life: Heroes are relative. First of all, people seem attuned to identifying heroes based on hero characteristics. Hero characteristics activate the hero concept. Second, in a context in which central characteristics are associated with an exemplar, s/he will be clearly identified as most heroic in comparison to other exemplars. That is, also by presenting characteristics first and measuring hero identification, central characteristics seem to be more strongly associated with the hero concept than other characteristics. This person perception study thus confirms the validity of hero characteristics in identification of heroes and the validity of classifying central versus peripheral hero characteristics (in Studies 1–4). Further, the results of this study have interesting implications for perceptions of heroes in everyday life.



### Study 6

Are heroes different from leaders? To determine distinct hero characteristics, one must consider characteristics that seem related. Some leaders are considered heroic (e.g., Dalai Lama). Indeed, some leadership research may be integral to understanding heroes. For example, a transformational leader looks beyond self-interest and acts for the good of the group (Bass, 1990). This description shares elements with previous definitions of heroes (McAdams, 2008; Schwartz, 2009). Yet, heroes are not necessarily leaders, nor do they have the intention of leading a group of people towards a common goal (e.g., Rosa Parks, Albert Einstein). Leaders, in a traditional sense, have power over others (deWall, Baumeister, Mead, & Vohs, 2010), whereas the link between heroes and power is less clear. Due to such overlap, the present study aims to elucidate the differences between lay conceptions of heroes and leaders.

Are heroes different from role models? In the literature, role models have been defined as influential people who are geographically close, from the same generation, and share similar experiences to the follower (Brownhill, 2010). Singer (1991) suggested that role models who are closer to their follower are observed in detail and mimicked; whereas heroes tend to be perceived as distant figures that have endured tremendous suffering and sacrifice for purposes of great nobility. Given this, it is reasonable to expect that role models will be characterized similarly to one's own family or friends; however, research has not yet explored this. The present research examined the distinguishing features that participants associated with heroes and role models in order to reveal defining features of their respective social influence.

In our research, some of the words that were used to characterize heroes (e.g. *inspiring* or *talented*) are sometimes used to describe other persons of influence, particularly role models and leaders. Research has not investigated if there is, and how much, shared

variance among each type of influential figures. Study 6 is the first, to our knowledge, that examined the features that people associate with heroes, and suggested features that set heroes apart from role models and leaders. Participants were invited to freely select a hero, role model, or leader of their own choosing (whom they rated across 26 features). We hypothesized that heroes would be rated higher on the central hero features—*brave, moral integrity, courageous, protect, conviction, honest, altruistic, self-sacrifice, selfless, determined, saves, inspiration, and helpful*—than leaders or role models.

## Method

**Participants.** Two-hundred twelve postgraduate students (110 females and 102 males) from the University of Limerick voluntarily participated in this study included. Participant ages were not recorded.

**Materials and Procedures.** The study followed a between-group design. Participants completed an online questionnaire which required them to write down the name of either a leader ( $n = 55$ ), a role model ( $n = 93$ ), or a heroic individual ( $n = 64$ ). Participants then rated the person of influence along 26 features outlined in Studies 1–4. All ratings were indicated on a Likert scale that ranged from 1 (*not at all related*) to 8 (*extremely related*).

## Results

The results revealed a multivariate effect for the relation between the type of influential person and the rated features, in general, Wilk's Lambda  $F(52, 368) = 2.48, p < .001, \eta_p^2 = .26$ . Univariate tests (see Table 5) indicated that there were significant relationships between type of individual and ratings for *bravery, selflessness, self-sacrifice, leadership, personable, fearless, saving others, risk-taking, courage, powerfulness, and helpful*.

Also, the results revealed a multivariate effect for the relationship between the type of influential person and feature prototypicality (i.e., central or peripheral feature categorized in

Study 2); Wilk's Lambda  $F(4, 416) = 4.18$ ,  $p < .01$ ,  $\eta_p^2 = .04$ . Univariate tests revealed the features that participants most (vs. least) strongly associated with each of the different types of influential persons. Heroes ( $M = 6.72$ ,  $SD = 1.18$ ) were rated higher for central features than leaders ( $M = 6.26$ ,  $SD = 1.33$ ),  $t(117) = 2.01$ ,  $p = .05$ ,  $d = 0.37$ , and role models ( $M = 5.47$ ,  $SD = 1.26$ );  $t(155) = 3.15$ ,  $p < .01$ ,  $d = 1.02$ . That is, heroes were rated as more *courageous* than role models and higher on *self-sacrifice* and *saving others* than leaders or role models.

On peripheral features, participants rated heroes ( $M = 6.19$ ,  $SD = 1.24$ ) and role models ( $M = 5.93$ ,  $SD = 1.22$ ) approximately equally,  $t(155) = 1.27$ ,  $p = .21$ ,  $d = 0.21$ . Participants rated leaders ( $M = 6.20$ ,  $SD = 1.15$ ) and heroes approximately equally on the peripheral features ( $M = 6.19$ ,  $SD = 1.24$ ;  $t < 1$ ).

## Discussion

The results indicated that heroes, role models, and leaders were not rated equally by participants across the 26 hero features. Heroes were rated the highest on central features suggesting that the prototypical features of heroes do not fit conceptually as well for role models and leaders (see Table 5). Heroes were rated as more *courageous* than role models, and heroes were rated higher on *self-sacrificing* and *saving others* than leaders or role models. Role models were rated as most *personable*. Leaders were rated as more *powerful*. Study 6 probes deeper than earlier research and is particularly interesting because each participant *independently* brought to mind an influential person prior to rating. Most experimentation does not allow for participant-selected stimuli; yet in this study, despite choosing this open-choice method, reliable patterns are evident in the data. In contrast, Study 7 assesses whether participants rate experimenter-selected *images* of popular heroes, leaders, and role models differently across the 26 hero features.

### Study 7

In Study 6, we examined the features that participants associated with heroes, and attempted to elucidate the features that set heroes apart from role models and leaders. In Study 7, we aimed to replicate Study 6 using a different research method. Here, participants rated images of influential individuals that were pre-selected by the experimenters (in contrast to the participant-selected stimuli in Study 6). By representing information with brightly colored, high-contrast images (high stimulus salience; Goldstein, 2008) we intended to attract the participants' attention to the visual cues of heroes, leaders, or role models. Further, by using human faces of popular influential people we activated the participants' schemata of heroes, leaders, or role models. We hypothesized generally that persons of influence would not be rated equally by participants across the 26 hero features (generated in Studies 1–4). We hypothesized that heroes would be rated higher on the central hero features—*brave, moral integrity, courageous, protect, conviction, honest, altruistic, self-sacrifice, selfless, determined, saves, inspiration, and helpful*—than leaders or role models.

### Method

**Participants and Design.** Three-hundred seven (163 female and 144 male) postgraduate students voluntarily participated in this study. They were randomly assigned to three conditions (heroes vs. leaders vs. role models) of a between-participants design. Participant ages were not recorded.

**Materials and Procedures.** Participants responded to an online survey which stated the following:

“Below there is a collage of images of [leaders/heroes/role models] who were recently named in a survey of popular [leaders/heroes/role models]. Keeping these images of popular [leaders/heroes/role models] in mind, please continue to the next stage of the survey where you will find 26 words or phrases. How closely do each of these words or phrases describe [leaders/heroes/role models]?”

The influential people chosen for the survey were based on the most popular heroes, leaders and role models named in Study 6. In the leader condition ( $n = 95$ ), the collage contained images of President Barrack Obama (USA), Nelson Mandela (former president of South Africa), President Mary MacAleese (Ireland), and Michael O'Leary (CEO of Ryanair Ltd.). In the role model ( $n = 104$ ) condition, the images displayed Paul O'Connell (rugby player), symbolic images of parents and grandparents (man and woman with slogan "The Parents"), and Katie Taylor (boxing world champion). In the hero ( $n = 108$ ) condition, the images depicted rescue workers from the attack on September 11<sup>th</sup> 2001 in the USA, Superman (superhero), Mahatma Gandhi (activist), and Mother Teresa (humanitarian). Participants then rated the person of influence along 26 features outlined in Studies 1–4. Participants used a Likert scale that ranged from 1 (*not at all related*) to 8 (*extremely related*).

## Results

A multivariate General Linear Model revealed an association between the type of influential person and the rated features, Wilk's Lambda  $F(52, 558) = 6.21, p < .001, \eta_p^2 = .37$ . Univariate tests (see Table 6) indicated that there were significant relationships between type of individual and ratings for the following central features (in descending order based on Univariate  $F$  test results): *bravery, moral integrity, self-sacrifice, determined, saves, altruistic, selfless, courage, and helpful*. Univariate tests indicated that there were significant relationships between type of individual and ratings for the following peripheral features: *Talented, strong, leadership, personable, fearless, proactive intelligent, compassionate, risk-taking, caring, and powerful*.

A multivariate General Linear Model revealed an association between the type of influential person and prototypicality of characteristic (central vs. peripheral); Wilk's Lambda  $F(4, 606) = 16.97, p < .001, \eta_p^2 = .10$ . Univariate tests revealed significant

relationships between types of influential person and ratings for *central* and *peripheral* features.

Heroes ( $M = 6.52, SD = 0.89$ ) were rated higher on central features than role models ( $M = 6.13, SD = 0.81$ );  $t(201) = 3.81, p < .001, d = 0.46$ . Heroes ( $M = 6.52, SD = 0.89$ ) were rated higher on central features than leaders ( $M = 6.00, SD = 1.08$ );  $t(210) = 3.40, p < .001, d = 0.52$ .

Leaders ( $M = 5.77, SD = 1.00$ ) were rated higher across peripheral features than heroes ( $M = 5.36, SD = 1.16$ );  $t(201) = -2.70, p < .01, d = 0.36$ . Role models ( $M = 5.53, SD = 0.94$ ) were rated higher across peripheral features than heroes ( $M = 5.36, SD = 1.16$ ),  $t(210) = -1.19, p = .24, d = 0.16$ .

## Discussion

Each type of influential person and their rated features differed systematically: Heroes, role models, and leaders were *not* rated equally across the 26 features. Undeniably there are different types of leaders, some of whom are more related to heroes than others. Importantly, heroes were rated the highest on central features when compared to other persons of influence, particularly, on the following features; *brave, moral integrity, saves, willing to sacrifice, altruistic, compassionate, selfless, courageous, and protecting*. Leaders were rated as the most *powerful, strong, fearless, demonstrating conviction, displaying leadership, proactive, determined, intelligent, inspiring, and willing to risk*. Some leadership theories describe specific leadership behaviours and the influence on followers. For instance, servant leadership (Greenleaf, 2002) is characterised by empathy, humility, sense of community, awareness of ethics, and a willingness to take on work that involves sacrifice for others. The missing element may be the heroic characteristics of protecting and saving others. Transformational leadership theory depicts a leader who inspires others and creates a future vision (Bass, 1990); this description could also be applied to many heroes. Full discussion of

these theories and conceptual nuance is beyond the scope of this article. However, it is clear that the conceptual boundaries and theoretical underpinnings of heroes and leaders need further empirical clarification.

Role models were rated as more *talented, honest, personable, exceptional, and humble* than heroes or leaders. Singer (1991) contends that the concept of 'role model' is useful, but should not be confused with heroism where there is evidence of *courage, greatness, and nobility of purpose*. Many role models are proposed as worthy of emulation but few are deserving of heroic status (Zimbardo, 2007). In fact, Neiman (2012) argues that the term role model "doesn't work the way the word heroes does: to inspire, to challenge, to light fires for (and under) people of whatever age who need to be reminded that there is more to their lives than they are taught to be resigned to" (p. 12). Interestingly, although the words heroes and role models are sometimes used interchangeably in everyday dialogue and in the media, in the present research, participants were able to articulate clear conceptual differences between these influential persons.

### **General Discussion**

In Greek mythology, heroes were the skilful warriors who courageously fought for their community. In Homer's *Illiad*, Hector displayed bravery, strength, integrity, and willingness to sacrifice himself throughout the Trojan War. In Victorian literature, heroes succumbed to moments of greatness and to moments of moral failing (Sifaki, 2009). Over the years conceptions of heroes change leading to confusion about modern interpretations of the concept (Gill, 1996). Accordingly, scholars have not yet reached a consensus about how heroes should be defined, which hinders theory development, hypothesis-testing, and communication with different target audiences (Rozin, 2009). There is, however, a general consensus among scholars that the topic of heroism has been devoid of empirical support for too long and that this topic deserves modernization as a psychological concept (Blau et al.,

2009; Becker & Eagly, 2004; Sullivan & Venter, 2005). With growing support for the idea that heroism is prevalent (Sullivan & Venter, 2010) and serves important psychological functions (Kinsella et al., 2014), it is now necessary to resolve conceptual and definitional debates about heroes.

The present investigation contributes to this resolution by examining lay conceptions of heroes and showing its prototypical structure and content. To begin, in Study 1 we prompted participants to describe their own conceptions of heroes and heroic behavior; we identified a representative list of hero features, if at least in the English language. In Study 2 we obtained ratings of these features, in attempt to identify the core central features of heroes. In Studies 3 and 4 we examined information-processing in relation to central versus peripheral hero features via classification speed and memory paradigms. In Study 5 we tested the utility of the identified central and peripheral hero characteristics by assessing the extent that these features influence persons' perceptions when it comes to identifying hero exemplars. Studies 6 and 7 use the featured identified in this research to create a novel investigation into subtle differences in cognitive representations of heroes, leaders, and role models.

As predicted the results showed that there was no single defining feature that distinguishes heroes and heroic behavior, rather, within this social category there are not rigid boundaries but instead fuzzy sets of features organized around prototypical category members (Fiske & Taylor, 2008). In line with past research on prototypes (e.g, Hepper et al., 2011), heroes were not defined by a set of necessary or sufficient attributes. Studies 1–4 consistently supported the idea that heroes were conceptualized diversely. Many psychological concepts begin as everyday concepts, before they are refined into scientific ones. Therefore, as intellectual progress is made on the topic of heroism, such as the work in the present article, everyday conceptions of heroes could feasibly be firmly established as



scientific, operational definitions of heroes. Thus, our systematic revealing of lay conceptions of heroes is an important step in this process.

The main findings suggest that a classical, clear-cut definition does not capture adequately the concept of heroes, and that the concept of hero is best represented by the prototypical features of heroes. In particular, lay conceptions reveal that heroes are perceived as individuals who act for the greater good by protecting others (e.g., willing to self-sacrifice, saving others, helping others, being proactive, and brave), by helping others to feel more positive (e.g., acting altruistically, inspiring others, being exceptional), and by modeling morals and values (e.g., showing moral integrity, being honest). Furthermore, lay conceptions give insight into the other-oriented motivations of heroes, especially when people describe heroes as humble, compassionate, caring, and personable. Heroes, according to lay conceptions, show specific personality attributes, namely, strong, determined, willing to take risks, and show conviction.

Some of these characteristics (e.g., leadership, risk, selfless) are consistent with other analyses of lay conceptions of heroes (Allison & Goethals, 2011; Sullivan & Venter, 2010), adding further validation to these findings. Other features identified in our studies are consistent with Homer's original use of the term (e.g., moral integrity, courage) but surprisingly, these were not identified in other studies of lay conceptions. Moral integrity is a core defining feature of heroes and most heroes, it seems, meet Colby and Damon's (1992) criteria for serving as 'moral exemplars'. Heroes, in our research, were consistently described with positive attributes, as those who exert a positive influence on others (see also Sullivan & Venter, 2011). In fact, heroes exceeded many participants' expectations by bringing joy, because they reminded them of an individual's capacity for exceptionality and goodness.

Philosophers such as Socrates and Aristotle, and psychologists (e.g., Peterson & Seligman, 2004) described similar heroic virtues as highly valuable and desirable. Anderson (1968) posited that sincerity, honesty, trustful, and dependability are the most socially desirable traits; such characteristics are similar to many of those identified as heroic by the lay persons in our research. Our analyses of the prototypical heroic characteristics provided two indications as to why heroes are so positively regarded and important in society (at least at the abstract level). First, by showing compassion and care, providing inspiration, motivating others to fulfil their own potential, and helping others to cope, heroes promote the psychological and physical well-being of others. Second, heroes alleviate pain and suffering by offering their courage and conviction to protect others from harm or rescue from danger. Heroes' willingness to sacrifice their life, risk their own safety, and do what no one else will do is likely to increase perceptions of safety and reduce threats to well-being. Our analysis of lay conceptions of heroes, may help researchers to build a modern interpretation of heroism (as noted by Becker & Eagly, 2004; Blau et al., 2009; Sullivan & Venter, 2005) and develop new theory of heroism.

Viewing the concept of hero as a prototype can help to generate hypotheses about its experience and functions. For instance, a prototype is activated even when a person encounters only some of its features. This process might help to explain how particular individuals become construed as heroic in a particular moment or over time. Future research could examine whether heroes are most likely to be declared and evoked when individuals are experiencing psychological threat. This idea is consistent with findings that persons use metaphors, myths, or symbols to give coherence to their lives (Campbell, 1988; Lakoff & Johnson, 2003) and as tools for dealing with uncertainty (Van den Bos, 2009).

Finally, the findings presented here help to clarify how heroes can be studied (i.e., multiple research methods that produced mostly converging patterns). The limited prior

studies that used the term “hero” to examine this topic also relied on participants and researchers who shared the same interpretation of the word, and as such, posed a risk to research demand characteristics. Our data show that the concept of “hero” can be activated without using the word “hero”, which may provide a relatively unbiased and covert method of prompting thoughts, behaviours, or emotions related to heroes without defining the term hero.

Further, the present research indicates that participants’ view of centrally prototypical features is compatible with previous definitions (Becker & Eagly, 2004; Ko, 2007; McAdams, 2008; Schwartz, 2009; Zimbardo, 2007). And yet, our findings exemplify that previous definitions are too narrow to encapsulate the complexity of heroes. The prototypical features, described here, can be used to activate the concept of heroes and influence the extent that a person is perceived as heroic. Developing measures or experimental manipulations via the prototypical features of heroes may be applicable to research on children, persons who speak different languages, and in cross-cultural contexts. For example, efforts to translate hero features will enable researchers to investigate the prototype of heroes across cultures.

In clinical settings, heroes have been a useful resource in *metaphoric identity mapping* (Ylvisaker, McPherson, Kayes, & Pellett, 2008). During this process, individuals map a sense of personal identity, drawing inspiration from the features that the client associated with their hero (e.g., goals, values). The prototypical features from the present research could facilitate the identification and selection of personal heroes. The hero features could help to identify and clarify their hero’s distinguishing features.

Hero modeling has been used to foster ethnic identity, enhance the self-concept, and promote adaptive coping behavior for teenagers at risk of mental health disorders (Malgady et al., 1990). Heroes have been used to promote altruistic attitudes among young people

(Gash & Conway, 1997). The prototypical features of heroes may be useful for teaching and promoting these constructive behaviors. Also, it may be possible to repeatedly induce thoughts about heroes using the central features to promote everyday heroic behaviours (e.g., proactively intervening in bullying). Encouraging these positive attributes through social discourse may result in positive change at an individual, group, and societal level.

### **Heroes, Leaders, and Role Models: Related but not Synonymous**

Our findings illustrate that leaders were rated as *powerful, strong, fearless, demonstrating conviction, displaying leadership, proactive, determined, intelligent, inspiring, and willing to risk* more than heroes. It is reasonable to suggest that these are attributes of the ideal rather than typical leader, rather than the average (or bad) leader. It is unclear whether an ideal or typical hero exists. Relative to leaders, heroes were rated as *braver, more moral, willing to save others and sacrifice, altruistic, compassionate, selfless, courageous, and protecting*. Although heroes were considered *powerful*, they were not rated as powerful as leaders. This is interesting because it raises questions about the different types and uses of power. For instance, Robertson (2012) argues for two types of power: *p power* that is fuelled by ego and personal goals, and *s power* that is focused on goals for the group or society (and has a neurological basis for this distinction). It could be that heroes evince more *s power* than *p power*. Robertson notes that people with greater levels of *s power* allow their behaviour to be guided by morals, sense of duty, and concern for others (recognisable features of heroism). Also, he stresses that one value of *s power* is to dissolve the potentially harmful influence of people with *p power*. Heroes who display more *s power* and influence through altruistic routes are likely to play a role in diffusing self-centredness and greed that people with higher levels of *p power* display.

Both leaders and heroes are likely to display the ability to *lead* and *guide others*. This is interesting given that many heroes do not occupy formal leadership positions. Formal and

informal leadership theory (Gardner, 1997) may help to elucidate the different ways that persons of influence can lead other human beings. Traditionally, formal leaders guide a group towards a common goal (e.g., doubling company profits within two years). Informal leaders (and heroes) are more likely to guide a new way of thinking or alternative perspective or practice among a particular group, sometimes without a clear common goal. Another interesting distinction is that in any given situation, a hero may act spontaneously (e.g., risking one's life to save a drowning child). Leadership is rarely characterized by such spontaneity, as leadership tends to occur over time. The temporal element of heroism—the duration of heroic encounter, and the post-encounter impact on the individual—has not been researched.

In our research, role models were rated more *talented, honest, personable, exceptional, and humble* than both heroes and leaders. Researchers sometimes describe heroes as people whom others wish to emulate (e.g., Van Vugt & Ahuja, 2011), when most likely they are referring to role models (and not heroes). Kelman (1958) suggests that persons identify with celebrities and role models, their followers “adopt the actions, physical attributes, and behaviour, and attempt to mimic the overall worldview of the admired” (p. 79). Similarly, a hero's stories may be meaningful only to the degree that individuals can identify with the hero's struggles and anxieties (Artiano, 2012). Lockwood and Kunda (1997) described the ideal role model as someone who is older, slightly more advanced in their career, and who displays the type of success that is hoped for by the individual. Further consideration to the notion of perceived closeness (due to internet accessibility) and geographical closeness influence identification with heroes and role models is needed. Role models can impact on others in positive or negative ways (Brownhill, 2010). Van Vugt and Ahuja (2011) suggest that if people fail to gain a sense of belonging and leadership from

family they will seek to satisfy this need to affiliate elsewhere, seeking out role models in religion, gangs, cults, celebrity culture, or other groups.

Role models (and heroes) *enhance* and *inspire* (Kinsella et al., 2014; Lockwood & Kunda, 1997). Yet when role models exhibit unattainable behaviour in a self-relevant domain this results in self-deflation for the observer (Lockwood & Kunda, 1997, p. 61). Heroes, on the other hand, are consistently described as having a positive impact on the lives of others (Kinsella et al., 2014) and are famous for displays of supreme greatness. This suggests that role models influence via a process of social comparison (Festinger, 1954), they serve as reference points for behaviour against which individuals compare the self to be better or worse than. The process by which heroes influence others is remarkably complex and may involve social comparison (Collins, 1996), inspirational processes (Thrash & Elliot, 2010), and marvelling such as when a person encounters natural beauty or work of art (see Bryant & Veroff, 2007).

### **Limitations**

Taken together, our research elucidates lay conceptions of heroes and heroic behavior in a way that is scientific and encompasses the breadth of everyday conceptions. Thus far, we have developed a general prototype of the features of heroes, based on open-ended responses from volunteers in response to the question “What are the features that you associate with heroes and their heroic actions?”. While the current list of features may not be exhaustive, we illustrate important features (*bravery, self-sacrifice, moral integrity, conviction*), which are central to identifying and differentiating heroes. Participants tended to place greater emphasis on specific features (one participant wrote, “most of all bravery”); in all, the core features of heroes described in our studies were consistently communicated by our participants.

Heroes have been described as shaping culture (Hegel, 1975) and providing social control (Klapp, 1954). Due to the small numbers of participants in our sample from Africa,

Australia, and Asia it was not possible to make detailed comparisons across countries or continents. It would be fascinating and useful to explore the differences between representations of heroes in collectivist and individualist cultures using translations of the prototypical features of heroes. For example, it has been suggested that in Japanese culture, generally, people cherish the suffering of their heroes (Benedict, 1946); whereas, in Western Cultures, generally, there is a tendency to savor heroic efforts that result in a happy outcome (Heine, Lehman, Markus, & Kitayama, 1999). The ideal of certain types of heroism may not hold in other cultures, for example, with collectivist cultures possibly viewing heroes, such as whistle-blowers, as threatening the social fabric. Future research may well find that heroes collectively celebrated in a given culture may reveal interesting information about the values and attitudes held by that group.

It has been suggested that the "hero" typically evokes a male rather than female example (Becker & Eagly, 2004); yet, the prototypical features of heroes described here contain stereotypically masculine (e.g., risk-taking) and female (e.g., caring) traits. Similar to Rankin and Eagly (2008) we found in Study 6 that more male than female public heroes were named. However, we found that participants reported more female than male known heroes (i.e., mother, grandmother). In the studies presented here the results women wrote a greater number of words describing heroes than men in response to the open-ended prompts provided in Study 1<sup>2</sup>. It is possible that other gender differences exist but they were not apparent in the present studies. We would suggest that future research needs to examine this issue more closely, taking social norms, contexts, and gender roles into account.

### **Using the Prototypical Features of Heroes: Future Directions**

Armed with a clear understanding of the central and peripheral characteristics of heroes, opportunities for explicit, implicit, or subliminal priming of heroic behaviour are now possible. Using various priming techniques (e.g., Bargh & Pietromonaco, 1982) it is possible

to learn how heroes influence people's physiological, cognitive, motivational, emotional, or behavioural responses. Previous research has shown that goals can be activated without the individual knowing about or intending it—either through subliminal, explicit, or implicit presentation of goal-relevant stimuli (e.g., Bargh, Gollwitzer, & Oettingen, 2010). Future research could assess how priming people with heroic images or characteristics might influence their internal states, goals, and behaviour. In fact, such techniques might also prime people to display their own heroic characteristics (e.g., strength, bravery, integrity, and self-sacrifice), if at least temporarily. Also, future research that is aimed at extending and verifying the current findings should consider the use of methods wherein individuals provide data about their present experience, such as while they view audio, visual, or written accounts of heroic behaviour. For instance, such studies may either be conducted in a laboratory setting or by using Experience Sampling Methods; each would provide useful information about encounters with heroes. Using such methods would open up new opportunities to study the context in which heroic behaviour occurs. For example, researchers could examine whether the central features of heroes are more strongly activated in a crisis situation.

It is likely that heroes who show prototypical features of bravery, sacrifice, conviction, and integrity for an honourable purpose are likely to fulfil psychological and social functions for individuals who encounter (or think about) them. Examining the *functions* that heroes fulfil for individuals may provide another source of evidence about hero features. For example, a hero who shows integrity may fulfil a moral modelling function) thus informing our understanding of the concept. A focus on heroic functions may also offer insights into the processes by which heroes influence individuals and help to discern ways to effectively harness the positive influence of heroes in education, healthcare, communities, or organisations.



Future research may also examine the role of individual differences in using heroes as a psychological resource. For instance, neuroticism is associated with lower tolerance for stress and aversive stimuli (Eysenck, 1967) and neurotic individuals show greater distress following negative life events (e.g., Creed, Muller, & Machin, 2001). If neurotic individuals are hesitant, vigilant, and nervous, it could be that they seek out heroes who show prototypical features of *bravery*, *risk-taking*, and willing to *save* and *help* others, to increase feelings of safety and security. Heroes may buffer these negative threats to well-being; this has not yet been examined in full.

The prototypical attributes of heroes, outlined in this research, can be used to create or enhance hero-related education programmes. For example, learners could debate the extent that heroes (e.g., Anne Frank, Erin Brokovich) display each of the central (e.g., brave, self-sacrificing) and peripheral (e.g., humility, leadership) features — opening a discussion about the prototypical hero features and linking to civic and ethical education programmes. The prototypical features of heroes can be translated into multiple languages and those features that are most prevalent or valued in particular cultures, historical time periods, age groups, and locations can be examined formally by researchers or informally in the classroom. Increasing the prevalence of heroic women in educational contexts may influence perceptions of women's likelihood of behaving heroically (in line with Rankin & Eagly, 2008). The prototypical features of heroes could also be used to form a measurement tool for learners to receive feedback about their own behaviour. A tool of this kind could be used as a motivational tool for encouraging pro-hero (rather than anti-bullying) behaviours in schools or workplaces. This tool may also be useful to organisations such as The Hero Construction Company (<http://www.theherocc.com/>) as a means to evaluate the behavioural impact of their educational programme (taking pre- and post-measures) and to continue the message of their one-off presentation during the school year. Online galleries of heroes (e.g.,

<http://www.thegalleryofheroes.com/> or <http://moralheroes.org/>) provide a wealth of examples of famous and lesser-known heroes. Researchers or educators could gather ratings of those heroes on the prototypical hero features and develop an index of the *most* prototypical heroes.

### **Conclusions**

Heroes have played important roles throughout history and continue to remain prevalent in modern life. Definitions of heroes have been the subject of much debate, but such debate is supported by relatively little empirical research. In the research presented here, we revealed the content and prototypical structure of the concept of hero. As a result, we have facilitated scholars' ability to interpret past findings, create new research, test novel hypotheses, and measure the concept in numerous ways. It is hoped that the theories resulting from this research will contribute to the knowledge of people who can design creative initiatives to make use of the positive impact of heroes. This research has potential to generate debate and inspire a psychology of heroism. Finally, we hope the research has provoked self-reflection among readers, regarding their own potential for heroic behaviour and ability to recognise and rejoice in the heroic behaviour that exists around them: "Wishing for heroism and the spectacle of human nature on the rack, I had never noticed the great fields of heroism lying round about me, I had failed to see it present and alive" (James, 1899).

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## Footnotes

<sup>1</sup> Asian participants ( $n = 6$ ), reported more central features ( $M = 1.00$ ,  $SD = 0.89$ ) than peripheral features ( $M = 0.83$ ,  $SD = 0.75$ ). African participants ( $n = 2$ ) described more central features ( $M = 1.50$ ,  $SD = 2.12$ ) than peripheral features ( $M = 1.00$ ,  $SD = 1.41$ ). Australian participants ( $n = 2$ ) reported more central features ( $M = 3.00$ ,  $SD = 0.00$ ) than peripheral features ( $M = 1.50$ ,  $SD = 0.71$ ).

<sup>2</sup>There were no significant differences between online ( $M = 3.11$ ,  $SD = 1.81$ ) and pen-and-paper participants ( $M = 3.08$ ,  $SD = 1.41$ ) with regard to the number of features described,  $t < 1$ . No significant differences were found between online ( $M = 1.86$ ,  $SD = 1.28$ ) and pen-and-paper participants ( $M = 2.24$ ,  $SD = 1.01$ ) for the number of central features written,  $t < 1$ . There were no significant differences between online ( $M = 1.27$ ,  $SD = 1.40$ ) and pen-and-paper ( $M = 0.76$ ,  $SD = 0.88$ ) participants with regards to the number of peripheral words given,  $t < 1$ .

There were significant differences for men ( $M = 1.67$ ,  $SD = 1.15$ ) and women ( $M = 2.12$ ,  $SD = 1.31$ ) regarding the number of central words described,  $t(187) = -2.47$ ,  $p = .01$ ,  $d = 0.37$ . There were significant differences for women ( $M = 1.41$ ,  $SD = 1.53$ ) and men ( $M = 0.98$  regarding the number of peripheral words described,  $SD = 1.09$ ),  $t(187) = -2.21$ ,  $p = 0.03$ ,  $d = 0.32$ .

Table 1

*Features of Heroes, Sample Exemplars, Ratings in Study 2, and Frequency Generated in Study 1*

Features	Exemplars	<i>n</i>	<i>M</i>	<i>SD</i>	Frequencies
<i>Central</i>					
Brave	Bravery, valor	364	7.06	1.29	63
Moral Integrity	Fair, moral	364	6.94	1.30	38
Courageous	Courage, gall	353	6.90	1.29	34
Protect	Protects, defends weak	352	6.68	1.45	15
Conviction	Dedication, loyal to cause	363	6.48	1.54	26
Honest	Truthful, honor	364	6.44	1.66	32
Altruistic	Acts for greater good	354	6.44	1.46	26
Self-sacrifice	Sacrifices	364	6.43	1.49	14
Selfless	Puts aside self-interest	354	6.38	1.55	61
Determined	Focused, hardworking	364	6.16	1.76	16
Saves	Life-saver, rescue	363	6.07	1.80	12
Inspiration	Admired by others, inspiring	353	6.06	1.69	26
Helpful	Helping others, help	354	6.05	1.64	20
<i>Peripheral</i>					
Proactive	Energy, initiative	363	5.98	1.73	25
Strong	Mental / physical strength	364	5.93	1.88	52
Leader	Leader, charismatic	364	5.91	1.91	9
Compassionate	Compassion, empathy	354	5.83	1.57	27
Risk-taker	Willing to risk	354	5.72	1.84	8
Exceptional	Ability, wisdom, unique	363	5.57	2.03	40
Humble	Not arrogant, modest	353	5.40	1.95	11
Fearless	Feels fear but acts anyway	364	5.35	2.20	8
Caring	Counselor, care	352	5.22	1.92	25
Powerful	Power, powerful	354	5.08	2.07	8
Intelligent	Quick-minded, clever	351	4.95	1.92	16
Talented	Best, great, above and beyond	364	4.93	1.92	6
Personable	Nice, amicable, respectful	364	4.82	2.01	8

*Note.* Features are listed in order of Study 2 centrality ratings, using a scale from 1 (*not at all related to heroes*) to 8 (*extremely related to heroes*). Features rated above the median were classified as central, and those below the median as peripheral. Frequencies refer to the number of instances that participants in Study 1 described an identical exemplar, a semantically-related exemplar, or a meaning-related exemplar for each of the features (i.e. global features) of heroes.

Table 2  
*Results from paired samples t-tests on seven dependent measures for the Central-Peripheral Condition in Study 5*

<i>Item</i>	<i>Central Features</i>		<i>Peripheral Features</i>		<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Hero Items</b>					
The person is a true hero	3.85	1.12	3.30	0.98	$t(32) = 3.95, p < .001^{**}$
The person is likely to be seen as a hero	3.73	1.26	3.21	1.24	$t(32) = 2.19, p = .04^*$
Most people would agree that this person is a hero	3.76	1.30	3.24	1.23	$t(32) = 2.16, p = .04^*$
In your personal view, based on the description provided, is this person a hero?	3.70	1.24	3.24	1.23	$t(32) = 2.27, p = .03^*$
<b>Non-Hero Items</b>					
The person is likeable	3.91	1.13	3.97	1.05	$t(32) = -.39, p = .70$
The person is physically attractive	3.12	0.78	3.03	0.68	$t(32) = 1.0, p = .33$
The person is someone to have fun with.	2.79	0.82	3.48	1.15	$t(32) = -3.63, p < .001^{**}$

*Note.* *M* = mean, *SD* = standard deviation. \* $p < .05$ . \*\* $p < .001$

Table 3

*Results from paired samples t-tests on seven dependent variables for Peripheral-Neutral Condition in Study 5*

	<i>Peripheral Features</i>		<i>Neutral Features</i>		<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Hero Items</b>					
The person is a true hero	3.44	1.39	2.64	1.00	$t(24) = 4.38, p < .00^{**}$
The person is likely to be seen as a hero	3.60	1.56	2.40	1.04	$t(24) = 4.99, p < .00^{**}$
Most people would agree that this person is a hero	3.56	1.56	2.32	1.03	$t(24) = 4.66, p < .00^*$
In your personal view, based on the description provided, is this person a hero?	3.36	1.38	2.60	1.08	$t(24) = 3.48, p < .00^{**}$
<b>Non-Hero Items</b>					
The person is likeable	3.24	1.27	3.44	1.42	$t(24) = -1.05, p = .31$
The person is physically attractive	2.84	1.11	2.76	1.05	$t(24) = .527, p = .60$
The person is someone to have fun with.	2.84	1.25	3.08	1.32	$t(24) = -.92, p = .37$

*Note.* *M* = mean, *SD* = standard deviation. \* $p < .05$ . \*\* $p < .001$

Table 4

*Results from repeated measures t-tests on seven dependent variables for Central-Neutral Condition in Study 5*

	<i>Peripheral Features</i>		<i>Neutral Features</i>		<i>t-test</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<b>Hero Items</b>					
The person is a true hero	3.81	1.35	3.26	1.00	$t(30) = 2.00, p = .05^*$
The person is likely to be seen as a hero	4.13	1.12	2.65	1.08	$t(30) = 5.20, p < .001^{**}$
Most people would agree that this person is a hero	4.06	1.03	2.74	1.18	$t(30) = 4.83, p < .001^{**}$
In your personal view, based on the description provided, is this person a hero?	3.81	1.17	3.29	1.13	$t(30) = 2.23, p = .03^*$
<b>Non-Hero Items</b>					
The person is likeable	3.65	0.95	3.97	0.84	$t(30) = -2.40, p = .02^*$
The person is physically attractive;	3.10	0.70	3.06	0.57	$t(30) = 0.33, p = .75$
The person is someone to have fun with.	3.10	0.94	3.55	0.96	$t(30) = -2.04, p = .05^*$

*Note. M = mean, SD = standard deviation. \*p < .05. \*\*p < .001*

Table 5

*Ratings for Heroes, Leaders, and Role Models across the 26 Hero Features (Study 6)*

Features	Hero <i>M (SD)</i>	Leader <i>M (SD)</i>	Role Model <i>M (SD)</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
<i>Central</i>						
Moral Integrity	6.77 (1.93)	6.35 (2.02)	6.83 (1.50)	1.36	.26	.01
Courageous	7.22 <sup>b</sup> (1.06)	6.65 <sup>c</sup> (1.54)	5.71 <sup>bc</sup> (2.16)	15.14	.00	.13
Protect	6.34 (2.17)	5.98 (1.96)	5.69 (2.12)	1.86	.16	.02
Conviction	7.23 (1.26)	7.05 (1.58)	7.02 (1.30)	0.49	.61	.01
Honest	6.75 (1.95)	6.53(1.75)	6.81 (1.53)	0.47	.63	.00
Altruistic	6.59 (2.05)	6.36 (1.83)	5.99 (1.94)	1.92	.15	.02
Self-sacrifice	6.81 <sup>ab</sup> (1.80)	5.98 <sup>a</sup> (2.08)	5.95 <sup>b</sup> (2.19)	3.88	.02	.04
Selfless	6.41 <sup>b</sup> (2.05)	5.73 (2.10)	5.44 <sup>b</sup> (2.18)	3.98	.02	.04
Determined	7.13 (1.50)	7.22 (1.27)	7.02 (1.40)	0.35	.70	.00
Saves	5.92 <sup>ab</sup> (2.51)	4.67 <sup>a</sup> (2.36)	4.46 <sup>b</sup> (2.51)	7.12	.00	.64
Inspiration	7.06 (1.52)	6.84 (1.58)	6.72 (1.58)	0.91	.40	.01
Helpful	6.25 <sup>a</sup> (2.03)	5.44 <sup>ac</sup> (2.04)	6.17 <sup>c</sup> (1.94)	3.03	.05	.03
<i>Peripheral</i>						
Proactive	6.48 (1.78)	6.78 <sup>c</sup> (1.32)	6.11 <sup>c</sup> (1.99)	2.6	.08	.02
Strong	6.95 (1.55)	6.98 (1.31)	6.49 (1.76)	2.3	.10	.02
Leader	6.48 (1.94)	7.09 <sup>c</sup> (1.34)	6.34 <sup>c</sup> (1.79)	3.35	.02	.04
Compassionate	5.89 (2.39)	6.13(1.78)	6.27 (1.92)	0.66	.52	.01
Risk-taker	6.19 <sup>b</sup> (2.02)	6.18 <sup>c</sup> (1.78)	4.77 <sup>bc</sup> (2.37)	11.52	.00	.13
Exceptional	6.45 (1.66)	6.29 (1.66)	6.68 (1.85)	0.89	.41	.01
Humble	6.39 <sup>a</sup> (1.94)	5.56 <sup>a</sup> (2.28)	5.86 (2.21)	2.31	.10	.02
Fearless	6.50 <sup>b</sup> (1.80)	5.85 <sup>c</sup> (1.60)	5.11 <sup>bc</sup> (2.17)	10.08	.00	.08
Caring	5.31 (2.46)	4.93 (2.14)	5.43 (2.38)	0.82	.44	.01
Powerful	5.31 (2.57)	6.09 <sup>c</sup> (1.72)	4.89 <sup>c</sup> (1.99)	4.80	.01	.04
Intelligent	6.38 (1.87)	6.73 (1.67)	6.20 (1.69)	1.34	.26	.01
Talented	6.25 (1.94)	6.22 (1.63)	6.35 (1.69)	0.13	.88	.00
Personable	5.84 <sup>b</sup> (2.33)	5.82 <sup>b</sup> (2.10)	6.63 <sup>ac</sup> (1.91)	3.93	.02	.04

*Note.* Features are listed in order of Study 2 centrality ratings, using a scale from 1 (*not at all related to heroes*) to 8 (*extremely related to heroes*). <sup>a</sup> Significant differences between hero and leader ratings. <sup>b</sup> Significant differences between hero and role model ratings.

<sup>c</sup> Significant differences between leader and role model ratings



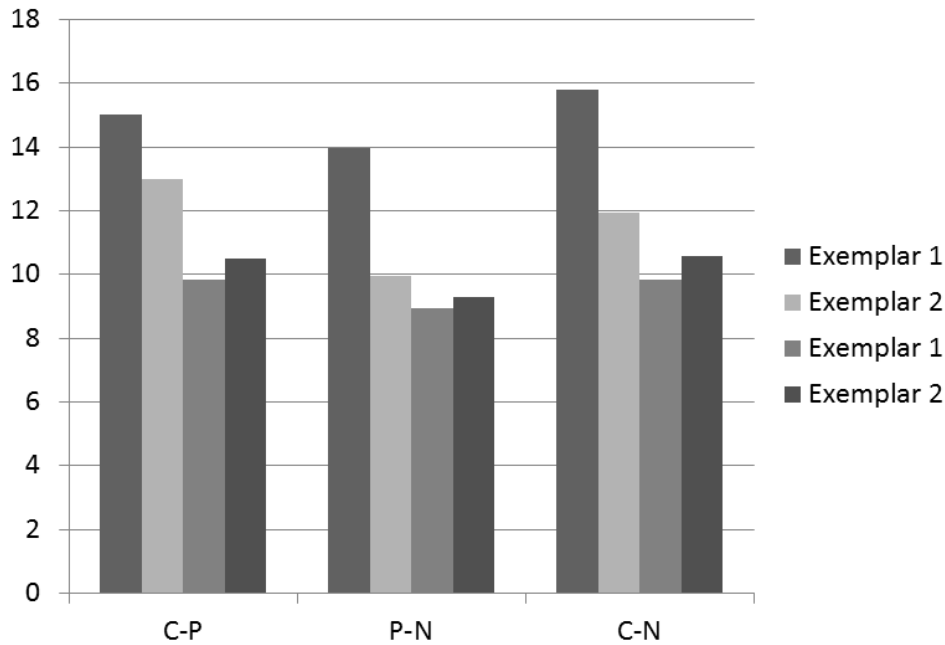
Table 6

*Ratings for Heroes, Leaders, and Role Models across the 26 Hero Features (Study 7)*

Features	Hero <i>M (SD)</i>	Leader <i>M (SD)</i>	Role Model <i>M (SD)</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
<i>Central</i>						
Brave	6.98 <sup>ab</sup> (1.37)	5.79 <sup>a</sup> (1.76)	6.07 <sup>b</sup> (1.66)	15.73	.00	.09
Moral Integrity	6.81 <sup>a</sup> (1.46)	6.21 <sup>ac</sup> (1.83)	6.98 <sup>c</sup> (1.29)	6.82	.00	.04
Courageous	6.61 <sup>ab</sup> (1.33)	5.94 <sup>a</sup> (1.55)	5.79 <sup>b</sup> (1.46)	9.74	.00	.07
Protect	6.48 <sup>ab</sup> (1.51)	5.72 <sup>a</sup> (1.77)	5.81 <sup>b</sup> (1.75)	6.50	.00	.04
Conviction	6.60 <sup>a</sup> (1.41)	6.96 <sup>a</sup> (1.13)	6.78 (1.26)	1.97	.14	.01
Honest	6.38 (1.56)	6.32 <sup>c</sup> (1.82)	6.78 <sup>c</sup> (1.33)	2.27	.11	.02
Altruistic	6.67 <sup>ab</sup> (1.44)	6.13 <sup>a</sup> (1.79)	6.75 <sup>b</sup> (1.63)	6.24	.00	.04
Self-sacrifice	6.56 <sup>ab</sup> (1.49)	5.57 <sup>a</sup> (1.67)	5.90 <sup>b</sup> (1.52)	10.45	.00	.06
Selfless	6.38 <sup>ab</sup> (1.50)	5.34 <sup>a</sup> (1.79)	5.62 <sup>b</sup> (1.74)	10.78	.00	.07
Determined <sup>a</sup>	6.59 (1.35)	7.05 <sup>a</sup> (1.13)	6.89 (1.11)	3.85	.02	.03
Saves	5.90 <sup>ab</sup> (1.75)	4.64 <sup>a</sup> (1.69)	4.65 <sup>b</sup> (1.83)	17.70	.00	.10
Inspiration	6.60 (1.67)	6.65 (1.38)	6.58 (1.45)	.06	.94	.00
Helpful	6.21 <sup>a</sup> (1.53)	5.64 <sup>a</sup> (1.59)	5.86 (1.78)	3.19	.04	.02
<i>Peripheral</i>						
Proactive	6.14 <sup>a</sup> (1.52)	6.72 <sup>a</sup> (1.44)	5.88 (1.54)	7.93	.00	.05
Strong	5.74 <sup>a</sup> (2.00)	6.61 <sup>a</sup> (1.42)	6.18 (1.67)	6.44	.00	.04
Leader	5.88 <sup>a</sup> (1.68)	7.23 <sup>ac</sup> (1.17)	6.23 <sup>c</sup> (1.60)	21.46	.00	.12
Compassionate	6.16 <sup>a</sup> (1.59)	5.26 <sup>a</sup> (1.76)	5.88 (1.57)	7.76	.00	.05
Risk-taker	5.33 <sup>b</sup> (1.81)	5.54 (1.67)	4.47 <sup>b</sup> (1.89)	10.05	.00	.06
Exceptional	5.30 <sup>b</sup> (1.94)	5.65 (1.60)	5.76 <sup>b</sup> (1.56)	2.13	.12	.01
Humble	5.67 (1.90)	5.36 (1.67)	5.72 (1.78)	1.18	.31	.01
Fearless	5.05 (2.16)	5.27 (1.74)	5.16 (1.91)	.34	.71	.00
Caring	5.30 <sup>a</sup> (1.74)	4.34 <sup>a</sup> (1.80)	5.24 (1.85)	8.84	.00	.06
Powerful	4.50 <sup>a</sup> (2.08)	6.05 <sup>a</sup> (1.85)	4.80 (2.02)	17.03	.00	.10
Intelligent	4.59 <sup>a</sup> (1.88)	6.23 <sup>a</sup> (1.34)	4.92 (1.97)	23.91	.00	.14
Talented	4.93 <sup>ab</sup> (1.93)	5.42 <sup>a</sup> (1.63)	5.63 <sup>ab</sup> (1.85)	4.25	.02	.03
Personable	5.06 <sup>b</sup> (1.94)	5.34 <sup>c</sup> (1.85)	6.01 <sup>bc</sup> (1.68)	7.42	.00	.05

*Note.* Features are listed in order of Study 2 centrality ratings, using a scale from 1 (*not at all related to heroes*) to 8 (*extremely related to heroes*). <sup>a</sup> Significant differences between hero and leader ratings. <sup>b</sup> Significant differences between hero and role model ratings.

<sup>c</sup> Significant differences between leader and role model ratings.



*Figure 1.* Overview of total scores for ratings based on comparisons of two exemplars in three conditions (C-P = Central-Peripheral condition, P-N = Peripheral-Neutral condition, C-N = Central-Neutral condition) in Study 5. This figure shows that in the central-peripheral condition, exemplar one (containing central hero features) was rated higher on the hero scale (more hero prototypical) than exemplar two (less hero prototypical). The figure shows that in the peripheral-neutral condition, exemplar one (containing peripheral hero features) was rated higher on the hero scale (more hero prototypical) than exemplar two (less hero prototypical). Also, it shows that in the central-neutral condition, exemplar one (containing central hero features) was rated higher on the hero scale (more hero prototypical) than exemplar two (less hero prototypical). These consistent patterns were not reflected on the non-hero items (the right-hand side of Figure 1).