Maren Rawlings* and Bruce Findlay

The development and validation of the Humor at Work (HAW) scale

DOI 10.1515/humor-2015-0097

Abstract: Two studies report the development and validation of the *Humor At Work* (HAW) questionnaire, developed specifically for the measurement of humor within workplace settings. Using an empirical approach to item selection, 150 items were administered over the internet to an international (largely Australian) sample of 339 individuals in a range of occupations. Exploratory factor analysis produced an initial questionnaire comprising eight scales. Study 2 administered the questionnaire, and several other self-report instruments, to a second sample of 377 working Australians. The eight confirmed scales were validated. Also using confirmatory factor analysis, the initial questionnaire was reduced to a final 13-item instrument comprising two scales: Pleasant Climate and Unpleasant Climate. These scales were independent of age, gender, education, and position. They were also independent of the factors of the Big Five, mood measures of positive and negative affect, social desirability, and altruism. Since Unpleasant Climate was positively correlated with the *Climate of Fear* measure of Ashkanasy and Nicholson (2003), and Pleasant Climate with the Affiliative and Self-Enhancing humor styles from Martin et al.'s (2003) *Humor Styles Questionnaire*, the HAW provides a useful measure of humor within the workplace environment.

Keywords: humor, work, fear, resistance, organizational culture

1 Introduction

A number of self-report instruments have been developed to measure humor-related constructs, such as the sense of humor (Booth-Butterfield and Booth-Butterfield 1991; Ruch and Kohler 1998; Svebak 1996; Thorson and Powell 1993; Ziv 1984). The various scales conceptualize sense of humor as either unidimensional or multidimensional, and come from a range of methodological and

***Corresponding author: Maren Rawlings,** Department of Psychology, Swinburne University of Technology, Hawthorn, Victoria Australia, E-mail: marawlings@swin.edu.au
Bruce Findlay, Department of Psychology, Swinburne University of Technology, Hawthorn, Victoria Australia

theoretical perspectives. Alternatively, as with the popular measure of humor "styles" developed by Martin et al. (2003), and the measure of how people use humor as a coping strategy (Martin and Lefcourt 1984), some scales explore individual differences.

Taken together, the above measures have produced an extensive array of worthwhile studies that have facilitated a fuller understanding of the humor construct. However, specific items within each questionnaire typically refer to a range of different environments, making the assumption that people behave somewhat similarly across situations. No measure focuses on humor within a particular context, such as the workplace; an environment in which most people spend a large amount of their waking hours, and in which they typically share in or are confronted with humorous communications. The present study describes the development of an instrument specifically constructed to gauge a person's use of and reaction to humor in the workplace, with the aim of providing a dynamic indicator of humor relationships between workers.

However, a large number of observational studies of humor in workplace environments have been carried out. Early in the twentieth century, the term "soldiering" was coined by Taylor (1947) to describe worker resistance and was illustrated by Homans (1975), who recorded the humorous remarks used by some workers to control others' rates of production; that is, to resist what workers perceived was a violation of a "fair day's work for a fair day's pay" by management. Working in a London department store, Bradney (1957) observed the use of humor for expressing frustration, solidarity with other employees, and mild rebuke, generally to cope with "difficult" conditions imposed by management practices. Argyle (1989) and Linstead (1985) both recorded humor use as "fooling around" by workers to reduce boredom. More recent anecdotal evidence from companies such as the innovators, IDEO, and the writers of Academy Award feature films, Bass & Co. (Kelley and Littman 2001), and descriptions of "communities of practice" (Franke and Shah 2003), have suggested that humor and play in the workplace lead to improved creativity. Martin (2007) noted the general assumption that humor improves rapport, teamwork and creativity, making for a more enjoyable work environment that should translate into "greater productivity and a better bottom line for the company" (p. 360). Patterson et al. (2004) developed a comprehensive array of work place measures and validated them against real productivity levels, but they did not include humorous interactions in their items. It was the intention of the present research to develop an instrument that would provide a measure of the role of humor at work in predicting such a better bottom line.

A resource of workplace observations was collected in New Zealand as part of the Victoria University Language in the Workplace Project. Using critical

discourse analysis, Holmes and Marra (2002a) explored the use of subversive humor between colleagues and friends. They noted that humor generally was more prevalent in informal contexts, but that subversive humor was proportionally much more frequent in workplace meetings. Holmes (2006) related several conversational scripts that involve more that one person contributing to the "joke" in what she termed "conjoint humor."

A number of studies investigated what happens when "fun cultures" are imposed on workers; they tend to respond less positively to invitations for play and humor. Case studies (Fleming 2005; Warren and Fineman 2007) described worker dissatisfaction and resistance to management attempts to manipulate the environment to produce enjoyment and communion. Alferoff and Knights (2002) documented employee responses to imposed "theme days" requiring "dressing up" and games in three call centers, and concluded that the workers perceived the strategies as attempts to induce conformity and to reduce the workers' sense of their own personality. Call centers require workers to use protocols or scripts (a form of strategic self-presentation) rather that natural conversations as part of their work. This form of "impression management" was clearly resisted by some workers. Tyler and Feldman (2004) found, experimentally, that "self-presentation" efforts (untruthful statements) increased and the number of unrecalled untruthful statements increased in high importance situations where there was a goal to make a competent impression. Humor is considered to be an unofficial means of communication (Martin 2007) and it also might be used to resist "self-presentation" through impression management.

As indicated by the above literature, the type of humor used in the workplace is influenced, at least in part, by the context of the humor, that is, the common workplace culture, as well as individual differences in sense of humor or in humor styles. Furthermore, a measure of workplace humor must account for an individual's perceptions of the types of humor used by other employees as well as the types of humor elicited from the individual by the workplace culture. It was the aim of the present study to produce scales which sampled other employees' humor as experienced by the individual, in addition to the individual's own use of humor in the workplace.

1.1 Aims and objectives of the present studies

Two studies are reported. Study 1 aimed to produce a questionnaire, the *Humor at Work* (HAW) questionnaire. Initial selection of items was substantially empirical, although partially based on statements from the observational studies described previously and there were no hypotheses about the underlying

structure of the variation in responses to the items. Study 2 reported a confirmatory factor analysis of the scales produced in the first study, validated the HAW questionnaire against an existing well-established measure of humor, the *Humor Styles Questionnaire* (HSQ; Martin et al. 2003), and explored the relationship between the HAW scales and several other relevant constructs.

2 Study 1: Development of the HAW questionnaire

The empirical approach taken here contrasts with the approach taken in the development of most questionnaires in this area. For example, in selecting items for the *Humor Styles Questionnaire*, Martin et al. (2003) assumed one major dimension that differentiated humor that enhances the self from humor that enhances others, in addition to a "benign or detrimental" dimension. Similarly, Thorson and Powell (1993) assumed six "elements" of humor, prior to the production through factor analysis of their four-factor *Multi-dimensional Sense of Humor Scale*. Booth-Butterfield and Booth-Butterfield's (1991) *Humor Orientation Scale* was developed within the framework of Communication Theory. Ruch and Kohler's (1998) model was related to the *Five Factor Model* of personality (Costa and McCrae 1992a). This well-regarded and well-used NEO-Personality Inventory (Costa and McCrae 1992b) was itself developed empirically and deliberately without theory.

The focus of the present study was specific workplace humorous *behavior*, rather than generalized broad behavior patterns of the type typically found in personality questionnaires. No humor dimensions were assumed, an atheoretical approach was adopted, and items were constructed by perusing references to humorous behaviors in the following diverse fields: Linguistics (Holmes et al. 2002b), developmental theory (Ruch et al. 1990), evolutionary theory (Weisfeld 2006), personality theory (Costa and McCrae 1992b), social psychology (Lefcourt 2001), and organizational psychology (Meisiek and Yao 2005).

2.1 Method

2.1.1 Materials and procedure

Positive and negative items were constructed on the following themes (with researchers typical of each area reported): Physiological and developmental aspects of humor (Provine 1996); emotional labor (Hochschild 2003); gender/class (Lampert and Ervin-Tripp 1998), discourse management (Glenn 2003),

irony and extreme case formulations (Norrick 2004), discourse as a cooperative effort (Veale 2004), teasing, nipping and biting (Archakis and Tsakona 2005), humor and perceived personality (Cann and Calhoun 2001), ethnic differences (Jordan and Carter 2004), workplace exchanges, politeness and social discourse (Mullany 2004), and management, leadership and workplace humor (Holmes 2006).

An initial pool of 230 items was reduced by inspection to 150 items, to eliminate redundancies and items that appeared to be particularly culture bound. The pool then consisted of 75 items about humor used by the individual in the workplace and 75 items about the humor used by others in the workplace. Response categories for the items were presented as a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". These items, together with a letter of explanation, were given ethics approval and placed on the web-site of Swinburne University of Technology. The e-mails contained a request to forward the survey to others who might be interested. The on-line presentation facilitated world-wide access.

2.1.2 Participants

Participants were an opportunity sample of 339 people. In light of the simulation studies by Guadagnoli and Velicer (1988), a sample size of over 300 was considered more than adequate. Those invited to take part were the members of the International Society of Humor Scholars, and the International Congress on Creativity (the Golitsin-2007 conference), teachers in a number of secondary schools in Victoria, Australia, members of a community choir (over 100 members), and undergraduate students of Swinburne University of Technology, if employed. The Swinburne undergraduate university students who completed the questionnaire were given course credit and were asked to encourage parents and older friends to participate.

There were respondents from 22 countries, primarily Australia, the United Kingdom, and the United States. The data was examined for missing cases and twenty respondents were deleted because they failed to respond to any question in the survey. This reduced the number of respondents to 319. Two hundred and seventeen respondents were from Australia, 62 were from the United States of America, 7 from Canada, 4 from the United Kingdom, 3 respondents were from Germany, 3 from Norway, 3 from Portugal, 3 from Switzerland. Two respondents were from Greece and 2 were from New Zealand. One respondent only came from each of the following 13 countries: Brazil, China, Cyprus, Finland, Israel, Italy, Japan, Malaysia, Mexico, Romania, South Korea, Tunisia, and Ukraine.

Ages ranged from 18 years to 81 years ($M = 38.8$ years, $SD = 16.8$). There were 187 (58.6%) women and 132 (41.4%) men. The level of education was high, 69 respondents gave their level of education as secondary (21.7%) and 249 gave their level of education as tertiary (78.3%). Two hundred and sixty-two (82.6%) respondents were currently in work and 55 (17.4%) were not in work. Sixty-one participants responded to a question about how many years it was since they were in work of 20 hours a week or more. The range for that demographic was 0–35 years and the mean was 3.1 years ($SD = 5.5$). The minimum number of contacts made each day was one and the maximum was 500, with a mean of 23.9 ($SD = 46.2$). The number of men that respondents met at work each day ranged from 0 to 130 with a mean of 8.8 ($SD = 12.1$). The number of women that respondents met at work each day ranged from 0 to 400 with a mean of 13.0 ($SD = 27.8$).

Type of employment included education (35.7%), retail sales (17.1%), hospitality (8.8%), information technology (5.0%), government (4.4%) other (17.1%) and not recorded (12.4%). Half the sample (153 participants or 50.2%) who responded considered that they were "general employees". The next largest category was middle management with 42 respondents (13.8%) compared with 30 in lower management (9.8%) and 27 in upper management (8.9%). Nineteen respondents were self-employed (6.2%) whereas the "other" category accounted for 34 respondents or 11.1%. The organizations that employed the respondents were categorized as having more than 100 employees by 155 (48.7%) compared with 20–100 employees by 86 (27.0%) or fewer than 20 employees by 77 or 24.2%.

2.2 Results

On the basis of Monte Carlo studies, Guadagnoli and Velicer (1988) argued that component saturation and absolute sample size are the most important factors to provide a stable sample component pattern relative to the population pattern. Our sample size was large and the Kaiser-Meyer-Olkin measure of sampling adequacy of 0.89 was greater than 0.88 (Norusis 2005). Missing values were imputed using the Missing Values Analysis (EM) option in *SPSS 16*. Factor analysis using a maximum likelihood extraction method and a rotation method of oblimin with Kaiser normalization was carried out using *SPSS 16.0*. The decision on the number of factors to accept was based on the parallel analysis method of Horn (1965). This method generates a large number of random correlation matrices with the same number of variables and the same sample size as the sample data. Then the eigenvalues in the observed matrix are compared with the eigenvalues in the random matrices. The parallel analysis technique for deciding the number of factors (Horn 1965) supported a ten-factor

solution, so the first ten factors of Study 1 could be assumed to be influenced by contingencies other than chance, based on the model of Zwick and Velicer (1986). Simulation studies, such as those by Finch and West (1997) have found this method to be consistently accurate for deciding the number of factors. In addition to parallel analysis, the scree plot of the eigen values also was examined. The eigen values for the first fifteen factors were 20.52, 17.19, 5.75, 4.12, 3.19, 3.03, 2.70, 2.46, 2.33, 2.22, 2.11, 1.94, 1.87, 1.85, 1.83.

The Maximum Likelihood method of factor extraction was employed since the SPSS output provided a goodness-of-fit test (Finch and West 1997). Velicer et al. (1982) concluded from their simulation studies that this method provides results that are similar for all practical purposes with Principle Component Analysis. Oblique rotations were employed because the independence of factors was not assumed. Oblimin was employed as a popular method of oblique rotation.The rotation specifying ten factors converged in 54 iterations. The ten factors explained 42.3% of the variance in scores on the survey for Study 1. The Eigenvalues were 20.52, 17.12, 5.75, 4.11, 3.19, 3.03, 2.70, 2.46, 2.33 and 2.22.

These factors were examined and the first eight items were selected from all but two (which had six and four items in total). The 74 chosen items were factor analysed again and a nine-factor solution was optimum, using the same criteria as above. The four items from the factor with lowest reliability ($\alpha = 0.54$) were deleted and another factor analysis was undertaken. The optimum solution was 8 factors for 62 items. Eigen values for these eight factors were 9.80, 7.70, 3.50, 2.46, 2.26, 2.11, 1.95 and 1.68. The eight factors explained 49.9% of the variance. Briefly, the first factor was labelled Sharing humor (items such as "when a man is being funny at work, I usually laugh" or "most women around here appreciate the humorous remarks I make"). The second factor referred to a Nasty Workplace (items such as "people use humor in this workplace for nasty reasons" or "the humor in this workplace is really hostile"). The third factor referred to Gossip, in the direction of disapproval of gossip (items such as "I don't like people who make jokes about other people who are not around" or "I do not like people who make negative humorous comments about others"). The fourth factor referred to a Nice Workplace (items such as "I think this is a really good humored place to work in" or the negative "there is not much kidding around or fun happening in this place"). The fifth factor referred to Humor Suppression, in the sense of the individual limiting humor in the presence of others (items such as "I pretend to join in humor with others in case they think I am not part of the team" or "I am annoyed by people who gesture or dramatize their conversations to be humorous"). The sixth factor referred to Stirring or challenging others with humor (items such as "I like to stir things up

by using humor." "I like to say things deadpan (with a blank face) to make them funnier."). The seventh factor referred to Teasing (items such as "I use humor to tease my supervisor" or "I tease people by calling them 'pet names' which are opposites like 'Shorty' or 'Slim' when they are tall or heavy."). The eighth factor referred to Supporting (items such as "the ones who are humorous in this workplace are the ones who can help you if you need it" or "in our workplace we use humor to put people at ease"). The lowest reliability of all of the scales was Humour Suppression ($\alpha = 0.69$) with eight items, which was comparable to the HSQ aggressive humor scale ($\alpha = 0.68$) with eight items (Martin et al. 2003). The standard deviation of the Nasty Workplace scale was largest with nine items, but its reliability was comparable to other scales ($\alpha = 0.85$). This set of scales makes up the long form of the *Humour at Work* questionnaire, which deals with behaviours as well as underlying emotions.

Table 1 shows the number of items, ranges, means, standard deviations and Cronbach alphas for the eight scales of the *Humour at Work* (HAW) questionnaire. The eight scales correlated with each other and the correlation matrix is found in Table 2.

Table 1: Means, standard deviations and reliabilities for the eight scales in the long form of the HAW before confirmatory factor analysis.

Scale	Number of items	Range (theoretical)	Mean	Standard deviation	Cronbach alpha
Sharing	8	8–56	42.46	7.64	0.85
Nasty workplace	9	9–63	25.91	10.06	0.85
Gossip	8	8–56	35.79	8.31	0.80
Nice workplace	7	7–49	34.88	7.87	0.78
Humor suppression	8	8–56	26.20	7.44	0.69
Stirring	8	8–56	23.08	7.38	0.76
Teasing	7	7–49	32.90	7.27	0.73
Supporting	7	7–49	33.41	7.53	0.81

Owing to the observations of considerable practical correlations between the eight scales as seen in Table 2, it was decided to factor analyze the eight factors and two second order factors emerged, the first representing a Pleasant Climate (at work), incorporating the factors Supporting, Stirring, Sharing, Teasing (negative), Gossip and Nice Workplace and the second representing an Unpleasant Climate, incorporating factors Nasty workplace and Humor Suppression.

Table 2: Correlation matrix for the eight scales of the long form of Humor at Work.

	Sharing	Stirring	Gossip	Humor suppress	Nice work-place	Supporting	Nasty work-place	Teasing
Sharing		0.32**		−0.46**	0.54**	0.53**	−0.32**	0.15**
Stirring			−0.35**		0.26**	0.51**	0.14**	0.52**
Gossip				0.27**				−0.29**
Humor suppress					−0.34**	−0.18**	0.45**	
Nice work-place						0.50**	−0.28**	0.16**
Supporting							−0.12*	0.28**
Nasty Work-place								0.25**
Teasing								

Notes: $N = 339$, *$p = 0.05$, **$p = 0.0$, correlations that were not significant are omitted.

3 Study 2: Construct validation of the HAW questionnaire

Having produced the original questionnaire, Study 2 attempted to establish the factor structure obtained in the initial study using a more rigorous statistical tool, confirmatory factor analysis. Confirmatory Factor Analysis of the HAW and establishing reliability of the resulting scales was the first aim of Study 2. The second aim was the validation of the HAW against an established humour scale (HSQ – Martin et al. 2003). Third, the effects of mood, personality, altruism, impression management and the possibility of common method variance were to be established. Fourth, after confirmatory factor analysis of the relevant scales, the relationships between the HAW and workplace measures of apprehension, job satisfaction and productivity were to be investigated to facilitate the development of a Multiple Inputs Multiple Causes model. Finally, the effects of demographic variables such as gender, level of management and educational level on that model were to be gauged.

The first aim of Study 2 was to confirm the eight scales. Whereas Exploratory Factor Analysis uses an inductive mode of data analysis, Confirmatory Factor Analysis (CFA) is a deductive analysis that can be used to confirm and validate the underlying factor structure (Wang and Wang 2012). Simply put, the purpose of CFA is to eliminate duplication of items that effectively have the same meaning as each other. Such duplication contributes

spurious reliability to scales. All items in a scale should share more variance with the latent factor than with each other.

The second aim of Study 2 was to validate the confirmed scale. Among the more well researched measures in the area of humor is Martin et al.'s (2003) HSQ, representing the various ways in which individuals generally use humor: Self-enhancing, Affiliative, Aggressive, and Self-defeating. These four reliable scales have been correlated with a number of measures, including the five factors of the Five Factor Model of personality, as represented in the NEO Personality Inventory (NEO-PI-R; Costa and McCrae 1992b). Affiliative humor correlated positively with Extraversion and Openness; Self Enhancing humor positively with Extraversion, Openness, negatively with Neuroticism; Aggressive humor negatively with both Agreeableness and Conscientiousness; and Self-defeating humor positively with Neuroticism and negatively with both Agreeableness and Conscientiousness. Males scored higher on Aggressive and Self-defeating humor. More recently, Yip and Martin (2006) correlated the questionnaire with several other measures, including measures of cheerfulness, emotional intelligence, and interpersonal competence. These writers conclude that the judicious use of humor may contribute to other social competencies to initiate social interactions, provide emotional support and manage conflict. In addition, humor may be used to cope with stress and maintain a cheerful perspective in adversity; findings which have obvious relevance to the workplace. In the present study, the final HAW scales were correlated with each of the measures of the HSQ.

An area of particular interest concerned possible connections of the scales of the HAW with an established contemporary model of personality, such as the Big Five (Goldberg 1993). Numerous studies have established correlations between personality measures and humor scales in addition to the HSQ. However, as noted above, the HAW items were developed on the basis of specific work-related behaviors rather than broad generalized traits, suggesting that the relationships with personality dimensions might be somewhat weaker than those found for the HSQ, for example. Owing to time constraints, a short adjective checklist measure of the Big Five was employed in the present study. The M-37 (Rawlings 2001) is a 37-item checklist with its five reliable scales developed on the basis of several large-scale exploratory factor analyses and a confirmatory factor analysis. It is published in Boldero et al. (2007).

As noted by Ruch and Kohler (1998) in their description of the State-Trait Cheerfulness Inventory, traits refer to relatively permanent individual characteristics, while states refer to relatively short term changes in feelings, moods, and emotions. This distinction is measured, more generally, in the popular Positive Affect-Negative Affect (PANAS) scale developed by Watson et al. (1988), an

adjective-checklist measure that enables the two relatively unrelated constructs of positive affect and negative affect to be measured either as long term traits or short term states, simply by changing the instructions concerning which particular time-frame the individual is to consider. The present study indicated that participants should indicate how they felt 'right now.' Given this very short time frame, it was thought that substantial correlations with our humor scales were unlikely.

An initial concern with self-report questionnaires is the tendency of some participants to make socially desirable replies rather than to express their true feelings or behaviors. These tendencies have been labeled "self-deceptive positivity" and "impression management" by Paulhus and Reid (1991). The first label describes those who tend to "distort self-perception to be consistent with self-attitudes" (the participants think that they are telling the truth) and the second describes behaviors that are "intended to provide an instrumental bias for a specific audience" (p. 307), changing the truth for a specific reason (usually to give a favorable impression to others). This second factor seemed particularly relevant to the possible strategic use of humor. Paulhus (1986) investigated different scales and found that the lie-scale from the *Eysenck Personality Inventory* (EPI; Eysenck and Eysenck 1964) loaded 0.50 on the "impression management factor". The lie-scale from the later *Eysenck Personality Questionnaire-Revised* (EPQ-R; Eysenck et al. 1985) was chosen as a measure of impression management for Study 2.

Using participants from a wide variety of employment situations, Bowling et al. (2005) found that the "altruistic" behavior of giving positive job-related support was strongly related to the receiving of positive job-related support, while giving negative job-related support was related to receiving such support. However, these relationships did not hold outside the workplace situation. The study suggested the possible usefulness of a measure of "altruism" in the present study, for discriminant validity. We employed the Altruism facet scale from the *International Personality Item Pool* (IPIP, A3:NEO; Goldberg 1999).

Finally, it was important to include within the test battery measures that had been developed with particular reference to the workplace. Warr et al. (1979) defined job satisfaction as "satisfaction with the job as a whole" (p. 133). Using participants from the United Kingdom (UK), they developed a global job satisfaction scale of 15 items (with responses obtained on a seven-point Likert-type scale). Cronbach alpha reliability has been reported at 0.85 and above (Warr et al. 1979). While the scale met with general acceptance (e.g., Fields 2002), finding a connection between job satisfaction and productivity measures appeared more elusive, with most studies reporting subjective

approximations of productivity through performance appraisal (e.g., Hosie et al. 2006), raising concerns about validity.

Patterson et al. (2004) studied 42 manufacturing companies in the UK using an objective measure of productivity, "indexed as the logarithm of the financial value of net sales per employee" (p. 11). Profitability was measured as profits before tax, after controlling for company size. They also used the scale by Warr et al. (1979) to measure job satisfaction. Average job satisfaction in a company was found to predict later company productivity and the significance of the association remained after controlling for previous productivity, company size and industrial sector. Patterson et al. concluded that the influence of organizational climate is likely to operate through variations in employee affect (job satisfaction), generating "variations in active work behaviour, enhanced commitment and mutual helpfulness, and responsiveness to group affective tone" (p. 19). Patterson et al. also found a significant difference between the mean response of managers and the mean response of employees in Job Satisfaction, with managers on average scoring higher than employees. The goal of the research by Patterson et al. (2004) was to develop scales of organizational climate that could be used to predict productivity. They found that the indices of organizational climate measure (OCM), productivity and company profitability were highly inter-correlated. Of the seventeen scales in their OCM, eight were found to be significantly related to productivity in the following year, after controlling for previous company performance and variations in size and industry sector. These scales were supervisor support, concern for employee welfare, skill development or training, effort, innovation and flexibility, quality, performance feedback, and formalization. The authors reported Cronbach alpha reliabilities ranging from 0.77 to 0.91 for these scales. The eight scales related to productivity were used as a validating instrument for the HAW as a workplace scale.

Ashkanasy and Nicholson (2003) maintained that an emotional climate requires a shared perception of the emotion in question, and define fear as "a generalized experience of apprehension in the work-place" (p. 24). The lack of humor in the workplace, or the existence of humor intended to hurt or belittle might convey the shared perception of "fear". In the study by Ashkanasy and Nicholson, their *Climate of Fear* measure (CF) correlated negatively with both innovative leadership and communication culture, from the organizational culture profiles of Broadfoot and Ashkanasy (1994: cited in Ashkanasy and Nicholson 2003). The CF results varied between worksites, but there were no significant organization effects. In Study 2, the productivity scales of the OCM and the CF were used to validate the scales of the HAW as workplace measures.

3.1 Method

3.1.1 Materials

Ethics approval for use of the 62 items in the HAW scale (that resulted from Study 1) was granted, together with approval for the use of other relevant measures. These were loaded onto *Opinio* on the Swinburne University of Technology Website, listed in the following order: First mood (PA/NA; Watson et al. 1988), followed by the HAW; then altruism (IPIP, A3:NEO; Goldberg, 1999) and impression management (EPQ-R lie scale; Eysenck et al. 1985) the latter two scales being randomly mixed; next listed was personality (M37; Boldero et al. 2007), followed by humor styles; (HSQ; Martin et al. 2003), and the Occupational Climate Measure productivity scales (Patterson et al. 2004) and climate of fear (CF; Ashkanasy and Nicholson 2003).

3.1.2 Participants and procedure

A snowball sample ($N = 460$) of people in work in Australia was obtained by approaching 42 Australian companies and organizations and the third year undergraduate students (who received course credit) from Swinburne University of Technology. Cases with more than 5% missing observation were deleted reducing the sample to 377. Missing values were imputed using the Missing Values Analysis (EM) option in *SPSS 16*.

There were 234 women (mean age of = 31.28 years, $SD = 12.39$) and 143 men (mean age = 36.93 years, $SD = 14.93$). Fifty percent of the sample was aged between 20 and 29 years, and 47.2% of the sample was aged between 30 and 70 years. There were 108 respondents who gave their level of education as secondary (28.5%) and 271 gave their level of education as tertiary (71.5%). Two hundred and thirty four participants (61.7%) categorized themselves as general employees and 100 participants (26.4%) categorized themselves as in management. Twenty respondents were self-employed and 20 used the "other" category to describe their position in work. Five cases (1.3%) did not report an employment level. Employment categories reported included retail sales (17.3%), education (16.5%), health (11.0%), hospitality (8.1%), government (7.3%) and manufacturing (5.2%).

3.2 Results

Confirmatory factor analysis was carried out using *Amos 16*. The results indicated which items in each scale were redundant, contributing spurious

reliability (Kline 2005). Briefly Sharing was reduced to 5 items ($\alpha = 0.77$), Nasty Workplace to 8 items ($\alpha = 0.83$), Gossip was reduced to 5 items ($\alpha = 0.72$), Nice Workplace became 4 items ($\alpha = 0.76$), Humor Suppression had 6 items ($\alpha = 0.64$), Stirring retained 7 items, ($\alpha = 0.72$), Teasing became 5 items ($\alpha = 0.69$), and Supporting retained 6 items ($\alpha = 0.68$). For comparison, the lowest reliability of the validating scales was for the HSQ – aggressive humor ($\alpha = 0.68$).

Table 3 shows chi-squares, degrees of freedom, probability and model fit indices for the eight scales of the HAW after Confirmatory Factor Analysis using *Amos 16*.

Table 3: Chi-square values, degrees of freedom, probability and model fit indices for the confirmatory factor analyses of the HAW scales.

	Sharing	Stirring	Gossip	Humour suppress	Nice workplace	Supporting	Nasty workplace	Teasing
Chi-square	8.776	23.211	11.452	14.962	2.249	15.249	32.742	8.127
Degrees of freedom	5	14	9	9	2	9	20	5
Probability	0.118	0.057	0.246	0.092	0.044	0.084	0.036	0.149
GFI	0.991	0.980	0.990	0.987	0.992	0.986	0.979	0.992
AGFI	0.972	0.967	0.977	0.969	0.960	0.968	0.961	0.976
TLI	0.983	0.964	0.989	0.955	0.967	0.967	0.979	0.981
CFI	0.992	0.976	0.994	0.973	0.989	0.980	0.985	0.991
RMSEA	0.045	0.042	0.027	0.042	0.075	0.043	0.041	0.041
SRMR	0.022	0.034	0.028	0.035	0.021	0.031	0.030	0.028

Both the scales Nice Workplace and Nasty Workplace yielded significant Chi-squares, although their normed Chi-squares were less than 3 (1.13 for Nice Workplace and 1.63 for Nasty Workplace, see Kline 2005: 136 for arguments about normed Chi-square, where differences between observed and predicted covariances are slight). Nice Workplace, however, had an unusually high root mean square error of approximation (RMSEA) of 0.075. All other scales had acceptable indices of model fit. These eight scales comprised the confirmed scales of the long form of the *Humor at Work* questionnaire.

The long form of the HAW was validated as a humor questionnaire by correlating its scales with the four established scales of the *Humor Styles Questionnaire* (Martin et al. 2003). Edwards (2008) commented on the dangers of accepting low but significant correlations when the sample size (N) is large

(see also Royall 1986 on the distinction between statistical and "practical" significance in large samples). In a sample size of over 300, only correlations over 0.30 might be considered to evade a Type I error. A criterion of r = 0.3 was adopted as a standard of practical significance considering the large sample size ($N = 379$). The practically significant correlations are shown in Table 5. It can be seen that all scales except nasty workplace correlate significantly with the scales of the HSQ.

The confirmed scales of the HAW were correlated with *Job Satisfaction* (Warr et al. 1979) and with *Climate of Fear* (Ashkanasy and Nicholson 2003). Both Nice workplace ($r = 0.33$, $p < 0.01$) and Nasty workplace ($r = -0.44$, $p < 0.01$) correlated to a practical level of significance with *Job Satisfaction*. Sharing correlated to a practical level of significance with *Climate of Fear* ($r = -0.35$, $p < 0.01$) together with Humour Suppression ($r = 0.37$, $p < 0.01$), Nice Workplace ($r = -0.33$, $p < 0.01$) and Nasty Workplace ($r = 0.57$, $p < 0.01$).

The HAW scales were correlated with those scales of the *Occupational Climate Measure* (Patterson et al. 2004) that predicted productivity. It was found that nice workplace correlated to a practical level of significance with Supervisory ($r = 0.35$, $p < 0.01$), Training ($r = 0.32$, $p < 0.01$) and Effort ($r = 0.30$, $p < 0.01$). Nasty workplace correlated to a practical level of significance with Supervisory ($r = -0.45$, $p < 0.01$), Training ($r = -0.47$, $p < 0.01$), Welfare ($r = -0.48$, $p < 0.01$), Innovation ($r = -0.45$, $p < 0.01$), Effort ($r = -0.48$, $p < 0.01$), Performance ($r = -0.38$, $p < 0.01$) and Quality, ($r = -0.40$, $p < 0.01$).

The eight HAW scales were then analyzed in a model using *Amos 16* to examine the discrimination between them. It was evident from the implied correlations for all variables that there were two groups of factors, the first (Pleasant Climate) comprising the scales Sharing, Stirring, Nice Workplace, Supporting, and Teasing and the second (Unpleasant Climate) comprising Gossip, Humour Suppression and Nasty Workplace. This distinction closely paralleled the differentiation obtained in the second-order factor analysis of the factors in Study 1. The two "Climate" scales were represented in a model to analyze whether they discriminated against each other. In this final model, Pleasant Climate was reduced to 8 items ($\alpha = 0.78$) and Unpleasant Climate was reduced to five items ($\alpha = 0.78$). Within each group, the items for each scale were tested again in a confirmatory model. Indices of fit for these two scales are shown in Figure 1.

It can be seen that the model was significant. The normed Chi-square was 1.46, supporting adoption of the model, if taken together with the satisfactory RMSEA measure that represents "reasonable error of approximation" (Kline 2005: 139). The scales were only moderately negatively correlated ($r = -0.33$) and the model revealed: Chi-square $(64) = 93.51$, $p = 0.009$, CMIN/DF = 1.46,

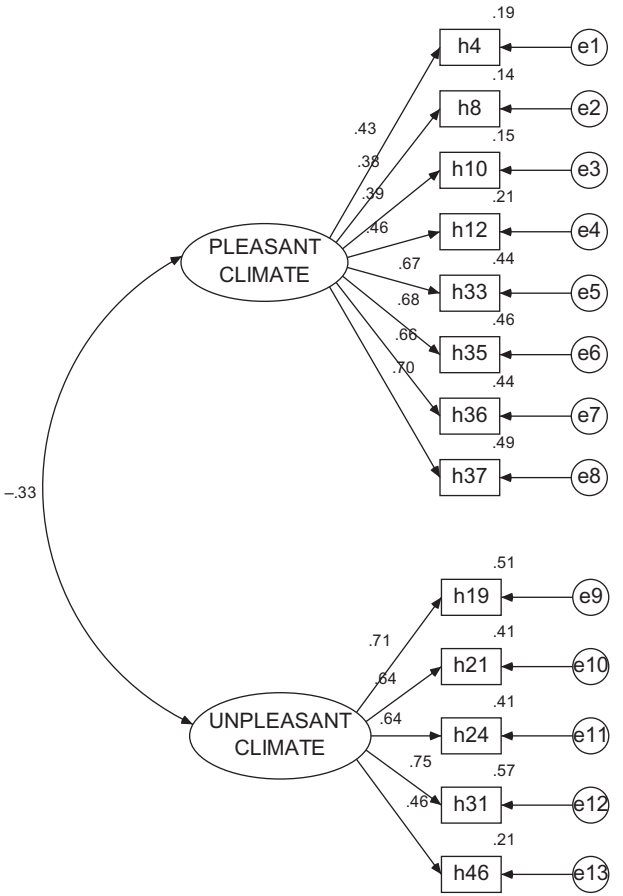

Figure 1: Confirmatory factor analysis for the short form of the *Humour at Work* scale. Chi-square (64) = 93.5, $p = 0.009$, TFI = 0.97, CFI = 0.97, RMSEA = 0.035, SRMR = 0.042 Bollen-Stine Bootstrap $p = 0.141$ (TLI Tucker Lewis Index; CFI Comparative Fit Index; RMSEA Root Mean Square Error of Approximation; SRMR Standardized Root Mean Square Residual).

GFI = 0.964, AGFI = 0.948, TLI = 0.974, CFI = 0.973, RMSEA = 0.035 and SRMR = 0.042. A Bollen-Stine Bootstrap ($p = 0.141$) was performed (Bollen and Stine 1992), indicating that the model was a good fit to the data.

The final *Humor at Work* questionnaire, showing standardized total effects and implied correlations, is shown in Table 4. Pleasant Climate is only marginally negatively correlated with Unpleasant Climate and discrimination between the scales has been achieved.

These confirmed scales of the short form of the HAW were then correlated with demographic variables. In Study 2, 45.1% of the respondents worked in

Table 4: Standardised total effects and implied correlations for the items in the short for of the Humor at Work scale.

Humor at Work	Standardised total effects		Implied correlations	
Item	**Unpleasant climate**	**Pleasant climate**	**Unpleasant climate**	**Pleasant climate**
People use humour in this workplace for nasty reasons.	0.75	0.00	0.75	−0.25
In this workplace people are always putting other people down.	0.71	0.00	0.71	−0.24
People like to make aggressive remarks in a humorous way in this workplace.	0.64	0.00	0.64	−0.21
In this workplace the humor from supervisors is really condescending.	0.64	0.00	0.64	−0.21
If people are upset in this workplace they use more sick humor.	0.45	0.00	0.45	−0.15
I like to share funny things that happen to me with the men I work with.	0.00	0.70	−0.23	0.71
I just like to do the job without humorous distractions.[a]	0.00	−0.68	0.23	−0.68
Most men around here appreciate the humorous remarks I make.	0.00	0.67	−0.22	0.67
Usually I am able to contribute when I have to join with people having a humorous conversation.	0.00	0.64	−0.21	0.64
In our workplace we use humor to put people at ease.	0.00	0.48	−0.16	0.48
There is not much kidding around or fun happening in this place.[a]	0.00	−0.45	0.15	−0.45
When a woman is being funny at work, I usually laugh.	0.00	0.44	−0.15	0.44
People who are being humorous with each other seem to get on more in this place than other people.	0.00	0.39	−0.13	0.39

Note: [a]Items to be reverse scored.

organizations that employed 10 people or less and 48.5% of respondents worked in organizations of between 11 and 50 people. There were no significant correlations with number of people in the organization, number of men contacted each day or number of women contacted each day. There was no correlation between age and Pleasant or Unpleasant Climate. On the final model of the HAW, those who were educated to the tertiary level were compared with those who were

Table 5: Correlations between the scales of the Humor Styles Questionnaire and the confirmed Humour at Work subscales.

	Affiliative	Self-enhancing	Aggressive	Self-defeating
Sharing	0.59**	0.38**		
Stirring			0.46**	0.39**
Gossip (disapproving)			−0.46**	
Humour suppression	−0.40**			
Nice workplace	0.35**			
Supporting	0.32**	0.37**		
Nasty workplace teasing			0.33**	0.30**

Note: **Correlation is significant at the 0.01 level (2-tailed).

educated to the secondary level. The results (CHIDIST(12) = 11.00, $p = 0.53$) indicated no significant difference in the pattern of response attributable to education level. When the model was compared using female and male samples, the results (CHIDIST (12) = 14.60, $p = 0.26$) indicated that there were no significant gender differences. Similarly when those in management were compared with general employees on the model, the results (CHIDIST (12) = 7.00, $p = 0.86$) indicated that there were no significant differences in the way these two groups responded to the HAW.

Pleasant Climate correlated positively with positive mood (PA, $r = 0.21$, $p < 0.01$) and Unpleasant Climate correlated positively with negative mood (NA, $r = 0.15$, $p < 0.01$), but neither of these results reached the criterion level of $r = 0.30$. The correlates of the HAW scales with Big Five factors in the M-37 (Rawlings 2001), were investigated. There were no significant correlations above the 0.3 criterion level, though Unpleasant Climate correlated significantly and negatively with extraversion ($r = -0.14$, $p < 0.01$) and agreeableness ($r = -0.23$, $p < 0.01$) and Pleasant Climate correlated significantly positively with extraversion ($r = 0.16$, $p < 0.01$) and openness ($r = 0.19$, $p < 0.01$).

When the scales of the HAW were correlated with those of the *Humor Styles Questionnaire* (HSQ; Martin et al. 2003), Pleasant Climate of the *Humor at Work* scales correlated to criterion level with the HSQ Affiliative scale ($r = 0.36$, $p < 0.01$) and the HSQ Self-enhancing scale ($r = 0.34$, $p < 0.01$). There was a significant (but not practical) correlation between Pleasant Climate and the Self-defeating scale. The pattern of correlations between the HAW and the HSQ is shown in Table 6.

From Table 6, it can be seen that Unpleasant Climate has a significant (but not practical) negative correlation with the HSQ Affiliative and Self-enhancing

Table 6: Correlations of the HAW scales with those of the HSQ (Martin et al. 2003).

HAW scale	Affiliative HSQ	Self-enhancing HSQ	Aggressive HSQ	Self-defeating HSQ
Pleasant climate	0.36**	0.34**	–0.03	0.13*
Unpleasant climate	–0.25**	–0.19**	0.19**	0.07

Notes: **Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

scales and a significant (but not practical) positive correlation with the HSQ Aggressive scale.

After Confirmatory Factor Analysis on the *Climate of Fear* (CF), *Job Satisfaction* (JS) and OCM *Productivity* scales, these three workplace scales were correlated with the *Humour at Work* scales, *Pleasant Climate* and *Unpleasant Climate*. The bivariate correlations for *Climate of Fear*, *Job Satisfaction* and OCM *Productivity* with the HAW scales are shown in Table 7. Although HAW *Pleasant Climate* had significant correlations with the three work scales used for validation, the size of the correlations was not considered practically significant. *Unpleasant Climate*, however, demonstrated a moderate positive correlation with CF and moderate negative correlations with JS and OCM *Productivity*.

Table 7: Bivariate correlations between HAW pleasant climate and unpleasant climate scales and climate of fear, job satisfaction and OCM productivity.

	Pleasant climate	Unpleasant climate
Climate of fear	–0.16**	0.51**
Job satisfaction	0.20**	–0.43**
OCM productivity	0.14**	–0.52**

Note: **$p < 0.01$ (2-tailed)

Altruism (IPIP, Goldberg 1999) correlated negatively with Unpleasant Climate ($r = -0.25$, $p < 0.01$) and positively with Pleasant Climate ($r = 0.27$, $p < 0.01$). Neither of these findings, however, were of practical significance, considering the criterion correlation of $r = 0.30$. Thus Altruism (as a personality characteristic, indicating support) appears to be a discriminatory variable for *Humor at*

Work. By way of contrast, Altruism correlated significantly positively with the Affiliative humor score of the HSQ ($r = 0.30$, $p < 0.01$) and significantly negatively with the Aggressive humor score of the HSQ ($r = -0.37$, $p < 0.01$), to the criterion level. The Self-enhancing humor score correlated with Altruism ($r = 0.26$, $p < 0.01$), but not to criterion level.

In the current research, the lie scale of the Eysenck Personality Questionnaire-Revised (EPQ-R; Eysenck et al. 1985) was used to measure impression management. Responses to this scale had no significant correlations with Pleasant Climate or with Unpleasant Climate.

4 Discussion

Previously developed humor scales do not define a specific context for the enactment and appreciation of humor. The current research aimed to produce a questionnaire that would be useful, both in identifying the different ways that individuals prefer to use humor in the workplace, and in identifying how they perceive the humor of others in the workplace. The approach was empirical, and items were generated from references to humorous behavior in a number of psychological theories and from transcripts of actual humorous conversations held in natural workplace situations or social groupings in experimental settings, or reported anecdotally.

The 150 original items were presented on-line to an international (though substantially Australian) sample of 319 participants. Exploratory factor analysis yielded eight scales, six of which involved types of humorous behavior (labeled Sharing, Supporting, Stirring, Teasing, Gossip, and No Humor) and two of which involved perceptions of the humorous behavior of others in the workplace (Nice Workplace and Nasty Workplace), each with at least moderate reliability.

A second sample of 377 people in work in Australia was recruited on-line to validate the HAW questionnaire. The eight factors of the HAW were confirmed and validated against the HSQ (Martin et al. 2003) and the CF (Ashkanasy and Nicholson 2003), and the JS (Warr et al. 1979). Using confirmatory factor analysis on this sample, the initial eight factors were reduced to two factors labeled Pleasant Climate and Unpleasant Climate and comprising respectively eight and five items. This 13-item questionnaire became the short version of the HAW. There were no significant differences on either scale of this questionnaire with respect to gender, education level, or employment status.

Given the large sample size, a correlation of 0.3 was adopted as the criterion for "practical" significance. Using this criterion, there was no significant correlation of either scale with age or with several self-report measures administered

with the HAW in Study 2. Specifically, scales did not correlate with measures of positive and negative affect, or with the factors of a Big Five personality measure. Nor did they correlate at the criterion level with a measure of impression management, or with a measure of altruism.

When the HAW scales were correlated with an established humor instrument, the HSQ (Martin et al. 2003), Pleasant Climate correlated to criterion with both of the "positive" scales of the HSQ, Affiliative humor and Self-enhancing humor, though the correlations were not strong. None of the correlations with Unpleasant Climate reached the criterion level. A clear positive correlation was found between the workplace-related Climate of Fear measure of Ashkanasy and Nicholson (2003) and the HAW Unpleasant Climate scale. Similarly moderate negative correlations between Job Satisfaction (Warr et al. 1979) and Unpleasant Climate and between OCM Productivity (Patterson et al. 2004) and Unpleasant Climate were found, validating it as a workplace scale.

A possible criticism of the samples was that 78% in Study 1 and 71.5% in Study 2 described their education as "tertiary", a bias which was difficult to counter given the need to be fluent in English and to be familiar with the internet. Over half the participants in both studies considered themselves to be "general employees" of their organizations, with around a quarter in "management"; over 80% were currently in work in Study 1 while all Study 2 participants were working; and almost half in both studies worked in organizations that employed more than 100 people and over a quarter in organizations with between 20 and 100 employees. It appeared that the samples reasonably represented general working conditions in the developed world, though further replication would clearly provide further support to the obtained model.

Several other areas are suggested for further research. Although the HAW scale was validated on a sample involving employees from a wide variety of occupations, its value in differentiating the work humor operating at different work sites within one organization is yet to be established. The HAW scale might also be used to predict job satisfaction. Fisher (2000) suggested that frequency of net positive emotion is a stronger predictor of overall job satisfaction than intensity of positive emotion. Items in the Pleasant Climate scale imply frequency of humorous interaction with others. The items in the Unpleasant Climate scale only involve the behavior of other people and could be used to predict personal job satisfaction in a manner that did not involve disclosure of personal behaviors and feelings. Furthermore, the concept of organizational citizenship might be tested using the HAW as a measure of the perceived behaviors of others within an organization as an adjunct to attitudes about shared values and ideals.

In summary, we have reported two studies that use rigorous methodology to produce two scales measuring pleasant and unpleasant humor in workplace environments. While there is clearly some overlap between our two scales and other constructs in the literature, the scales are substantially unrelated to established measures. This, we would argue, is due to our emphasis on the measurement of specific behaviors rather than broad dimensions, and of a specific form of behavior (humor) rather than a wide range of behaviors. The HAW provides a useful short measure for researchers interested in the further investigation of humor in the workplace.

References

Alferoff, Catarina & David Knights. 2002. We're all partying here: Target and games, or targets as games in call centre management. In Adrian Carr & Philip Hancock (eds.), *Art and aesthetics at work*, 70–92. London: Palgrave Macmillan.

Archakis, Argiris & Villy Tsakona. 2005. Analyzing conversational data in GTVH terms: A new approach to the issue of identity construction via humor. *Humor* 18(1). 41–68.

Argyle, Michael. 1989 [1979]. *The social psychology of work*, 2nd edn. London: Penguin Group.

Ashkanasy, Neal M. & Gavin J. Nicholson. 2003. Climate of fear in organisational settings: Construct definition, measurement and a test of theory. *Australian Journal of Psychology* 55(1). 24–29. doi:10.1080/00049530412331312834

Boldero, Jennifer M., David Rawlings & Nick Haslam. 2007. Convergence between GNAT-assessed implicit and explicit personality. *European Journal of Personality* 21. 341–358. doi: 10.1002/per.622.

Bollen, Kenneth A. & Robert A. Stine. 1992. Bootstrapping goodness-of-fit measures in structural equation models. *Sociological Methods and Research* 21. 205–229.

Booth-Butterfield, Steven & Melanie Booth-Butterfield. 1991. Individual differences in the communication of humorous messages. *The Southern Communication Journal* 56(3). 205–218.

Bowling, Nathan A., Terry R. Beehr & William M. Swader. 2005. Giving and receiving social support at work: The roles of personality and reciprocity. *Journal of Vocational Behaviour* 67. 476–489. doi:10.1016/j.jvb.2004.08.004

Bradney, Pamela. 1957. The joking relationship in industry. *Human Relations* 10. 179–187.

Cann, Arnie & Lawrence G. Calhoun. 2001. Perceived personality associations with differences in sense of humor: Stereotypes of hypothetical others with high or low senses of humor. *Humor* 14(2). 117–130.

Costa, Paul T. & Robert R. McCrae. 1992a. Four ways five factors are basic. *Personality and Individual Differences* 13(6). 653–665.

Costa, Paul T. & Robert R. McCrae. 1992b. *Revised NEO Personality Inventory (NEO PI_R) and NEO Five-Factor Inventory (NEO_FFI). Professional manual*. Odessa, FL: PAR.

Edwards, Jeffrey R. 2008. To prosper, organizational psychology should … overcome methodological barriers to progress. *Journal of Organizational Behavior* 29. 469–491. doi:10.1002/job.529.

Eysenck, H. J. & S. B. G. Eysenck. 1964. *Manual of the Eysenck personality inventory*. London: University of London Press.

Eysenck, S. B. G., H. J. Eysenck & Paul Barrett. 1985. A revised version of the psychoticism scale. *Personality and Individual Differences* 6(1). 21–29.
Fields, Dail L. 2002. *Taking the measure of work*. Thousand Oaks, CA: Sage Publications.
Finch, John F. & Stephen G. West. 1997. The investigation of personality structure: Statistical models. *Journal of Research in Personality* 31. 439–485.
Fisher, Cynthia D. 2000. Mood and emotions while working; Missing pieces of job satisfaction? *Journal of Organizational Behavior* 21. 185–202.
Fleming, Peter. 2005. Workers' Playtime? Boundaries and cynicism in a "Culture of Fun" program. *The Journal of Applied Behavioral Science* 41(3). 285–303. doi:10.1177/0021886305277033
Franke, Nikolaus & Sonali Shah. 2003. How communities support innovative activities: An exploration of assistance and sharing among end-users. *Research Policy* 32. 157–178.
Glenn, Phillip. 2003. *Laughter in interaction*. Cambridge: Cambridge University Press.
Goldberg, Lewis R. 1993. The structure of phenotypic personality traits. *American Psychologist* 48(1). 26–43.
Guadagnoli, Edward & Wayne F. Velicer. 1988. Relation of sample size to the stability of component patterns. *Psychological Bulletin* 103(2). 265–275.
Hochschild, Arlie Russell 2003. *The managed heart: The commercialization of human feeling*. Berkeley, CA: University of California Press.
Holmes, Janet. 2006. Sharing a laugh: Pragmatic aspects of humor and gender in the workplace. *Journal of Pragmatics* 38. 26–50. doi:10.1016/j.pragma.2005.06.007
Holmes, Janet & Meredith Marra. 2002a. Humour as a discursive boundary marker in social interaction. In A. Duszak (ed.), *Us and others: Social identities across languages, discourses and cultures*, 377–400. Amsterdam & Philadelphia, PA: John Benjamins Associates.
Holmes, Janet & Meredith Marra. 2002b. Over the edge? Subversive humor between colleagues and friends. *Humor* 15(1). 65–87.
Homans, George C. 1975 [1951]. *The human group*. London: Routledge & Kegan Paul.
Horn, John L. 1965. A rationale and test for the number of factors in factor analysis. *Psychometrika* 30(2). 179–185.
Hosie, Peter, Peter P. Sevastos & Cary L. Cooper. 2006. *Happy-performing managers*. Cheltenham, UK: Edward Elgar.
Jordan, Michelle & David J. Carter. 2004. The relationship between stress and humor with Asian college students. *The New Jersey Journal of Professional Counseling* 56. http://www.angelfire.com/journal2/njca/JordanCarter.html (accessed 24 September 2015).
Kelley, Tom & Jonathan Littman. 2001. *The art of innovation: Lessons in creativity from IDEO, America's leading design firm*. New York: Doubleday.
Kline, Rex B. 2005. *Principles and practice of structural equation modeling*, 2nd edn. New York: The Guilford Press.
Lampert, Martin D. & Susan M. Ervin-Tripp. 1998. Exploring paradigms: The study of gender and sense of humor near the end of the 20th century. In Willibald Ruch (ed.), *The sense of humor: Explorations of a personality characteristic*, vol. 3, 231–270. Berlin: Mouton de Gruyter.
Lefcourt, Herbert M. 2001. *Humor: The psychology of living buoyantly*. New York: Kluwer Academic & Plenum Publishers.
Linstead, Stephen. 1985. Jokers wild: The importance of humour in the maintenance of organizational culture. *Sociological Review* 33. 741–767. doi: 10.1111/1467-954X.ep5473624

Martin, Rod A. 2007. *The psychology of humor: An integrative approach*. San Diego: Elsevier.
Martin, Rod A. & Herbert M. Lefcourt. 1984. The situational Humor Response Questionnaire: Quantitative measure of the sense of humor. *Journal of Personality and Social Psychology* 47. 145–155.
Martin, Rod A., Patricia Puhlik-Doris, Gwen Larsen, Jeanette Gray & Kelly Weir. 2003. Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality* 37. 48–75.
Meisiek, Stefan & Xin Yao. 2005. Nonsense makes sense: Humor in social sharing of emotion at the workplace. In Charmine E. J. Härtel, Wilfred J. Zerbe & Neal M. Ashkanasy (eds.), *Emotions in organizational behavior*. Mahwah, NJ: Lawrence Erlbaum Associates.
Mullany, Louise. 2004. Gender, politeness and institutional power roles: Humor as a tactic to gain compliance in workplace business meetings. *Multilingua* 23. 13–37. doi:http://dx.doi.org/10.1515/mult.2004.002
Norrick, Neal R. 2004. Hyperbole, extreme case formulation. *Journal of Pragmatics* 36. 1727–1739. doi:10.1016/j.pragma.2004.06.006
Norusis, Marija J. 2005. *SPSS 14.0 Statistical procedures companion*. Upper Saddle River, NJ: Prentice Hall.
Patterson, Malcolm, Peter Warr & Michael West. 2004. Organizational climate and company productivity: The role of employee affect and employee level. *Journal of Occupational and Organizational Psychology* 77. 193–216.
Paulhus, Delroy L. 1986. Self-deception and impression management in test responses. In Alois Angleitner & Jerry S. Wiggins (eds.), *Personality assessment via questionnaires*, 143–165. Berlin: Springer-Verlag.
Paulhus, Delroy L. & Douglas B. Reid. 1991. Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology* 60(2). 307–317.
Provine, Robert R. 1996, Jan–Feb. Laughter. *American Scientist* 84, 38–45.
Rawlings, D. 2001. *A short adjective checklist for measuring the five factors of personality*. Unpublished study, University of Melbourne.
Royall, Richard M. 1986. The effect of sample size on the meaning of significance tests. *The American Statistician* 40(4). 313–315. doi: 10.2307/2684616
Ruch, Willibald & Gabriele Köhler. 1998. A temperament approach to humor. In Willibald Ruch (ed.), *The sense of humor: Explorations of a personality characteristic*, 203–228. Berlin: Mouton de Gruyter.
Ruch, Willibald, Paul E. McGhee & Franz-Josef Hehl. 1990. Age-differences in the enjoyment of incongruity-resolution and nonsense humor during adulthood. *Psychology and Aging* 5(3). 348–355.
Svebak, Sven. 1996. The development of the sense of Humor Questionnaire: From SHQ to SHQ-6. *Humor* 9(3–4). 341–361.
Taylor, Frederick Winslow. 1947 [1911]. *Scientific management*. New York: Harper Row.
Thorson, James A. & F. C. Powell. 1993. Development and validation of a multidimensional sense of humor scale. *Journal of Clinical Psychology* 49(1). 13–23.
Tyler, James & Robert Feldman. 2004. Cognitive demand and self-presentation efforts: The influence of situational importance and interaction goal. *Self and Identity* 3. 364–377. doi:10.1080/13576500444000137
Veale, Tony. 2004. Incongruity in humor: Root cause or epiphenomenon? *Humor* 17(4). 419–428.

Velicer, Wayne F., Andrew C. Peacock & Douglas N. Jackson. 1982. A comparison of component and factor patterns: A Monte Carlo approach. *Multivariate Behavioural Research* 17(3). 371–388.
Wang, J. & X. Wang. 2012. *Structural equation modelling: Applications using Mplus*. Chichester, West Sussex: John Wiley & Sons.
Warr, P., J. Cook & T. Wall. 1979. Scales of measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology* 52, 129–148.
Warren, S. & S. Fineman. 2007. 'Don't get me wrong, it's fun here, but …: Ambivalence and paradox in a 'fun' work environment. In R. Westwood & C. Rhodes (eds.), *Humour, work and organization*, 92–112. Oxford: Routledge.
Watson, David, Lee A. Clark & Auke Tellegen. 1988. Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology* 54(6). 1063–1070.
Weisfeld, Glenn E. 2006. Humor appreciation as an adaptive esthetic emotion. *Humor* 19(1). 1–26. doi:http://dx.doi.org/10.1515/HUMOR.2006.001
Yip, Jeremy A. & Rod A. Martin. 2006. Sense of humor, emotional intelligence, and social competence. *Journal of Research in Personality* 40. 1202–1208. doi:10.1016/j.jrp.2005.08.005
Ziv, Avner. 1984. *Personality and sense of humor*. New York: Springer.
Zwick, William R. & Wayne F. Velicer. 1986. Comparison of five rules for determining the number of components to retain. *Psychological Bulletin* 99(3). 432–442.

Appendix 1

The Items of the confirmed Humour at Work scale – Long Form and Subscale Reliabilities.

Sharing (Cronbach alpha = 0.76)
When a woman is being funny at work I usually laugh.
Most men around here appreciate the humorous remarks I make.
I am usually able to contribute when I have to join people having a humorous conversation.
I just like to do the job without humorous distractions.[a]
I like to share funny things that happen to me with the men I work with.

Stirring (Cronbach alpha = 0.72)
I try to make up something humorous when people are taking about their troubles at work.
I like to say things 'dead pan' (with a blank face) to make them funnier.
I like to stir things up by using humour.
I use humour when I have offended someone to minimize or neutralize what I said.
I use humour to show people what I am capable of.
I like to say something nonsensical in a good way to make humour.
I like to fool people when I tease.

Gossip (Cronbach alpha = 0.71)
Friendly put-downs are always negative in my opinion.
I do not like people who make negative humorous comments about others.
People who pass on rumours are just being gossips.

(*continued*)

(*continued*)

I don't like people who make jokes about other people who are not around.
There is no harm in a little humorous gossip in this workplace.
I do not like put-downs.

Humour Suppression (Cronbach alpha = 0.63)
I pretend to join in when others are being humorous in case they think I am not part of the team.
I find a neutral expression is safer at work then letting my humour show.
I don't like my conversation made funny by someone else picking up puns or word plays.
I am annoyed by people who gesture and dramatize their conversation to be humorous.
I am careful not to make humorous remarks in case they offend.
I feel uncomfortable when people are being witty.

Nice workplace (Cronbach alpha = 0.75)
There is not much kidding around or fun happening in this workplace.[a]
We like to do silly humour that relates to nothing in particular, in this workplace.
At this workplace people generally have an 'above average' sense of humour.
I think this is a really good humoured place to work in.

Supporting (Cronbach alpha = 0.68)
People who are humorous with each other seem to get on more in this place than other people.
In our workplace we use humour to put people at their ease.
The ones who are humorous in this workplace are the ones who can help you if you need it.
I like to approach work problems by telling humorous stories.
The people who make humorous remarks in this workplace are usually more open to the ideas of others.
The people who make humorous comments about work seem to be more 'in the know'.

Nasty workplace (Cronbach alpha = 0.83)
In this workplace people are always putting down other people.
People like to make aggressive remarks in a humorous way in this workplace.
In this workplace the humour from supervisors is really condescending.
People never find anything funny in this workplace.
People use humour in this workplace for nasty reasons.
If people are upset in this workplace then they use more sick humour.
The humour in this workplace is really hostile.
Around this workplace people think that they can act like children and call it humour.

Teasing (Cronbach alpha = 0.69)
I like being teased.
I use humour to tease my supervisor.
I use humour to give the boss a hint if necessary.
I know that the supervisor likes some people because s/he is always teasing them.
I tease people by calling them pet names that are opposites, like 'Shorty' or 'Slim' when they are tall or heavy.

Note: [a]Items to be reverse scored.

Bionotes

Maren Rawlings

Maren Rawlings is currently retired but is a tutor at Swinburne University, where she graduated PhD in Psychology in 2011. She was awarded the International Society for Humor Studies Certificate of Merit in 2008, and has a particular interest in humor in the workplace. Maren has a Masters of Education and a Bachelor of Science from The University of Melbourne and a Special Diploma in Education from the University of Oxford. Previously she jointly wrote the pre-degree Psychology Curriculum for Victorian schools, co-authored several pre-degree psychology textbooks, and taught at Methodist Ladies' College, Melbourne for over twenty years.

Bruce Findlay

Bruce Findlay is an Adjunct Teaching Fellow in the Faculty of Health, Arts and Design at Swinburne University. He graduated PhD from The University of Melbourne in 1999. He is a social psychologist with research interests in humor and in interpersonal relationships, such as marriage and friendship.