

Personality Through Metaphor: Optimism, Pessimism, Locus of Control, and Sensation Seeking

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In two experiments, several personality attributes evident in metaphors people use to describe everyday experiences were examined. Subjects either generated (Experiment 1) or endorsed (Experiment 2) a metaphor that represented their views about six facets of their lives (e.g., work, relationships, graduating). In self-generated metaphors, content analyses of the metaphors revealed that attributes of optimism (e.g., looking forward to the future) and pessimism (e.g., cynicism) were significant components of metaphor content. Also, modest relationships were found between the themes of optimism contained within their metaphors and scores on an optimism scale of a questionnaire designed to evaluate the optimistic and pessimistic orientations. In a second study, subjects endorsed how strongly preselected metaphors represented important aspects of their lives. These preferences were significantly related to their scores on an optimism/pessimism instrument and a locus of control inventory. These results support the notion that metaphors, like other creative productions, may prove a useful vehicle for studying personality characteristics. They also provide evidence for the construct validity of the optimism and pessimism questionnaire.

INTRODUCTION

Psychologists use a number of approaches for extracting underlying psychological dimensions from verbal behavior. For example, both psychoanalytical and Gestalt schools of therapy study reports of dreams to investigate aspects of personality and other psychological issues. Using a more structured approach, Murray (1943) devised the Thematic Apperception Test to analyze personality components from stories individuals constructed about ambiguous stimuli. Following Murray's lead, McClelland, Atkinson and their colleagues employed TAT-like methods for measuring human motives (e.g., Atkinson, 1958). And more recently, Peterson, Luborsky, and Seligman (1983) developed the CAVE (content analysis of verbatim explanations) technique as a means of assessing explanatory style, especially when it is not feasible to administer an explanatory-style questionnaire.

A relatively new area of interest is the use of metaphor as a vehicle for understanding the components of personality. To date, the utility of metaphor has been illustrated in its capacity to provide a description of behaviors, as an insightful way to consider various teaching styles (Kloss, 1987; Pollio, 1987), as a qualitative evaluation tool

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(Grasha, 1990), and as a device for helping clients in psychotherapy to understand components of their problems in a nonthreatening manner (Barker, 1985; Shell, Pollio, & Smith, 1987). Furthermore, the usefulness of metaphor would seem to extend beyond this largely descriptive role. Many would argue that metaphors help to guide and direct behavior (Lakoff & Johnson, 1980) and thus probably capture components of the situation being described as well as personality attributes of its author.

If indeed metaphors in part reflect the personality characteristics of their authors, then in many ways they provide a "snapshot" of their personalities. Unlike traditional psychometric measures, the qualities of an individual's metaphors could be reviewed later by individuals interested in understanding components of the author's personality. For example, if people describe their marriage using a "tornado" metaphor, counselors, clinicians, and researchers might see important implications for assessing individuals in that situation. Further, analyses not considered at the time of data collection could be employed without the need for additional subject evaluation and observation. As such, a linkage between figurative language production and personality would provide clinicians and researchers with a powerful tool for assessment, study, and treatment.

The current investigation examined the extent to which certain components of college students' personalities were evident in the types of metaphors they either generated or endorsed. In this study, we examined four psychological dimensions: optimism, pessimism, locus of control, and sensation seeking. These categories were selected because they are considered pervasive psychological phenomena and can be assessed by existing instruments with known psychometric properties. In Experiment 1, our focus was on the constructs of optimism and pessimism contained in the metaphorical language produced by subjects to describe important aspects of their lives. In the second experiment, we expanded this inquiry to include locus of control and sensation seeking.

Overview of Optimism and Pessimism

Optimism and pessimism have been shown to be pervasive and important attributes of human thought and expression. A pessimistic explanatory style, for instance, has been found to be related to poor health (Peterson, Seligman, & Vaillant, 1988), lower immune functioning (Kamen, Seligman, & Rodin, 1987), and decreased athletic performance (Seligman, Nolen-Hoeksema, Thornton, & Thornton, 1990). Additionally, pessimists have been shown not to succumb to self-enhancing biases and often see future outcomes for themselves and others more negatively than optimists (Alloy & Ahrens, 1987). And, unlike defensive pessimists who can utilize their low self-expectations to motivate performance (Norem & Cantor, 1986), truly pessimistic individuals frequently ruminate following failure and dwell on their poor performance (Showers & Ruben, 1990). Finally, of course, pessimism, has also been related to depression (e.g., Beck, 1967).

The implications of an optimistic outlook have also been investigated. Although an overly optimistic perspective may entail not seeing the world "objectively," many

agree that an optimistic orientation leads to better mental health (see Taylor & Brown, 1988) and is not an error or bias in the “cognitive” sense (cf., Funder, 1987). A pervasive finding in the psychological literature is that people generally possess positive views about themselves (see Greenwald, 1980, for a review), their ingroups (e.g., Tajfel & Turner, 1986), and their abilities (e.g., Campbell, 1986; Conway & Ross, 1984) relative to others.

The Pollyanna principle was proposed as a way of summarizing a variety of data revealing a bias toward viewing the world optimistically by giving precedence to pleasant over unpleasant memories and perceptions (Matlin & Stang, 1978). Additional research has detected a correlation between self-reported happiness and extent of conformity to the Pollyanna principle (Dember & Penwell, 1980).

The first experiment was designed primarily to examine the pervasiveness of optimism and pessimism contained within the metaphors generated by college students about six aspects of their lives. Specifically, on the assumption that optimism and pessimism are pervasive personality characteristics, evidence of optimistic and pessimistic attitudes should be present in the metaphors subjects generate. Further, one might expect a correlation between the optimistic and pessimistic quality of the metaphors generated by subjects and their scores on an objective instrument designed to measure optimism and pessimism.

EXPERIMENT ONE: THE CONSTRUCTS OF OPTIMISM AND PESSIMISM

METHOD

Subjects

Eighty-three undergraduates (36 females and 47 males) ranging in age from 16 to 32 ($M=20.14$, $\sigma=2.90$) served as subjects in this experiment. Of the original pool of 91 subjects, eight failed to provide complete data and were eliminated from the study. The subjects were enrolled in introductory psychology classes at the University of Cincinnati and received class credit for their participation.

Instruments

Metaphor Inventory Task. The first instrument, the Metaphor Inventory Task (MIT), asked subjects to write a metaphor about their thoughts and feelings for each of six specific “scenarios” describing everyday aspects of their lives. The MIT scenarios encompassed a broad range of important components of undergraduate life: preparing for midterm exams, family interactions, views of employment and working, college graduation, a close relationship with someone to whom they were attracted, and the teaching/learning process used in most of their classes. Metaphor was defined for the participants as “a figure of speech used to show how one thing is similar to something else,” and four examples of metaphors in areas other than those under investigation

were provided to the subjects. Subjects were given as much time as they needed to complete the MIT, and on average, they spent about 15–20 minutes writing the six metaphors.

O/P Scale. To measure each subject's global optimism and pessimism, a psychometric instrument (the O/P Scale; Dember, Martin, Hummer, Howe, & Melton, 1989) was employed. During the course of developing that instrument, the authors proposed that optimism and pessimism may not be polar opposites, but rather, distinctive though related constructs. Hence, two scales, one measuring optimism, the other pessimism, are extracted from the full O/P instrument. On this inventory, subjects endorse items on a 4-point scale (strongly agree, agree, disagree, or strongly disagree). Eighteen items are worded in an optimistic direction, 18 additional items are worded in a pessimistic direction, and 20 others are filler items designed to mask the intent of the inventory. Optimism scores were derived by assigning four points to strongly agree, three points to agree, two points to disagree, and one point to strongly disagree. The aggregate score of the optimism-related items generated an optimism score with a potential range of 18 to 72. A pessimism score was derived using the same procedure with regard to the pessimism-related items and this scale also has a potential range of 18 to 72.

These optimism and pessimism scales have good internal consistency (Dember et al., 1989) and test-retest reliability (Dember & Brooks, 1989). Moreover, the two scales have been found to correlate moderately with measures such as Rotter's (1966) internal-external locus of control scale. Thus, people with high scores on optimism or low scores on pessimism tend to score high on internal locus of control. Additional relationships have been found with other measures such as defensive style, social desirability, expectations about the likelihood of nuclear war, commitment to religion and philosophy, and happiness (Dember & Brooks, 1989; Dember et al., 1989), Pollyannaism (Hummer, 1990), and coping style (Natali-Aleman, 1991).

Procedure

Subjects required approximately 45 minutes to complete the two tasks. They were assured of anonymity before consenting to participate in the experiment. Subjects completed the MIT first, followed by the O/P instrument.

The MIT was scored by three expert judges trained to score metaphor content in a consistent fashion. The judges were trained to the point where at least two of the three judges agreed with the experimenter's criteria for optimistic and pessimistic content 90% of the time. Metaphors from a pilot study (none of which were part of the present investigation) were used to train the judges.

Over the course of three weeks, each judge examined 498 metaphors created by 83 subjects at an approximate rate of five subjects (30 metaphors) per day. The metaphors were organized into three groups, with each judge receiving one group each week. Each group was randomized before delivery to eliminate order of presentation effects. The judges recorded their responses on a scoring sheet and were given two tasks: (1) determine if the overall theme, in context, was optimistic, pessimistic, or neither; (2)

select which of fourteen descriptors (optimistic and pessimistic) applied to each metaphor.

The descriptors employed in the content analysis were developed from themes prevalent in the psychological literature concerning the correlates of optimism and pessimism. Seven descriptors associated with optimism were used: looking forward to the future, currently happy, success oriented, focusing on challenge and opportunities, excitement and enthusiasm, Pollyanna, and an orientation toward exploration. Likewise, seven descriptors associated with pessimism were employed: apprehension about the future, currently unhappy, fear of failure, focus on problems, anxiety, cynicism, and an orientation toward the status quo. Judges were reminded that they could select descriptors from both groups regardless of the category to which they assigned a particular metaphor (optimistic, pessimistic, or neither).

RESULTS

Metaphor Content: Interjudge Agreement

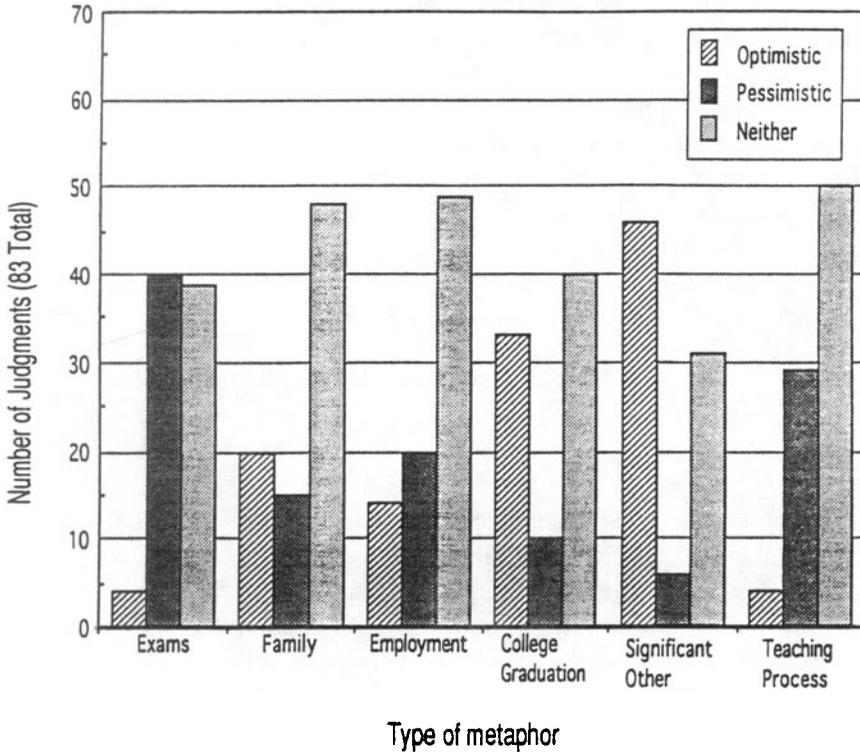
Three judges evaluated the metaphors to determine the dominant theme of each. Out of the 498 total metaphors generated, all three judges agreed on 294 occasions (59.04% of the metaphors) on whether they were optimistic, pessimistic, or neither predominantly optimistic nor pessimistic in content. In 202 instances (40.56% of the metaphors), two judges were in agreement while the third differed. In these cases, the judges disagreed between optimistic/neutral or pessimistic/neutral assessments—in no case was the disagreement between optimistic/pessimistic judgments. In only two cases (0.4% of the metaphors) were the three judges in complete disagreement. Thus 99.6% of the time, at least two judges arrived at the same decision regarding the dominant theme of each metaphor, and disagreements between them concerned whether a metaphor was predominantly neutral, or if it contained significant amounts of optimistic/pessimistic content.

Metaphor Content: Judgments of Optimism and Pessimism

When the distribution of the judges' decisions across specific metaphors was examined, 121 metaphors (24.30%) were determined to be optimistic, 120 (24.09%) were perceived as predominantly pessimistic, while 257 of the metaphors (51.61%) were judged not to depict a dominant theme of either optimism or pessimism. The specific distribution of such judgments varied as a function of the type of metaphor assessed. The number of times two or more judges rated specific metaphors as optimistic, pessimistic, or neutral is shown in Figure 1.

With regard to the optimism and pessimism judgments depicted in Figure 1, perceptions of the teaching process, taking exams, and employment were viewed as more pessimistic endeavors. Subjects' perceptions of family, relationships with significant others, and graduating from college were viewed much more optimistically. Smaller variations appeared between the number of times metaphors generated for family and

FIGURE 1
Breakdown of Optimism, Pessimism, and Neutral Category Judgments
Across Metaphor Scenarios



work were judged as optimistic or pessimistic. Examples of specific metaphors are provided in Table 1.

Relations Among Descriptors and Category Judgments

To further examine the content of the metaphors judged overall as optimistic and pessimistic in content, the specific descriptors associated with such judgments were examined. This analysis involved a correlation between an "optimistic or pessimistic metaphor category score" for each metaphor a subject produced and a corresponding "metaphor descriptor score" for that metaphor. These latter scores were derived in the following manner.

The reader is reminded that each of the three judges determined whether or not each metaphor had a dominant theme (i.e., optimistic, pessimistic, or neither) and then selected from a list of fourteen descriptors (i.e., seven characteristic of optimism and seven of pessimism) those that applied to each metaphor. The judgments of dominant theme yielded an "optimistic," "pessimistic," or "neither" category score with a range from 0 to 3 for each of the six metaphors a subject produced. For example, if all three judges agreed that a given metaphor was optimistic in content, that metaphor was

TABLE 1
Examples of Metaphors Subjects Generated by Category Judgment

Optimistic	Pessimistic	Neutral
<p>Preparing for midterms is like a squirrel who gathers nuts all fall so he has them to eat in the winter.</p>	<p>Preparing for exams is like preparing for the walk to the gas chamber.</p>	<p>Preparing for midterm exams is like a big Broadway production. You study, rehearse for weeks in preparation for the opening, then you're nervous until it's over.</p>
<p>The interactions I have with my family are like favorite old shoes; they're comfortable, they feel good and I never want to give them up.</p>	<p>The interactions I have with my family is a boxing match with one punch after another.</p>	<p>The interactions you have with your family is like riding a roller coaster at an amusement park — there are a lot of ups and downs.</p>
<p>Employment is like bees making honey. Everybody works together and makes something sweet.</p>	<p>Employment is like being in hell and being offered ice water — and at the last second it's taken away.</p>	<p>Employment is like dolphins performing tricks for fish.</p>
<p>Graduating is climbing Mt. Everest, slowly, experiencing every season and stopping to listen, learn and watch all the sights and sounds and taking in the golden opportunity of experiencing the awesomeness of the mountain.</p>	<p>Graduating from college is being released from jail only to find the only door out leads to a path which dead ends at the edge of a cliff.</p>	<p>Graduating from college is like letting a hot air balloon go — it's going up but you don't know where it's going.</p>
<p>A close relationship with someone you are attracted to is like sitting in front of a warm fire on a cold day.</p>	<p>A close relationship with someone you are attracted to is running through a mine field, nine times out of ten you're bound to be blown up.</p>	<p>Relationships are like teeter-totters; they have their ups and downs.</p>
<p>The teaching/learning process used in most of my courses is like getting a gift at Christmas and knowing it's what you want and enjoy.</p>	<p>The teaching/learning process used in most of your courses is like throwing a bunch of stones into the middle of a room and expected to build a castle without cement.</p>	<p>In the teaching/learning process used in most of my courses the instructor scatters pieces of a puzzle onto the floor, then tells me how the puzzle is supposed to look and lets me assemble the puzzle.</p>

assigned a score of 3, a 2 if only two judges agreed, a 1 if only a single judge agreed, and a 0 if none of the judges assigned it to the optimistic category.

In a similar manner, each of the six metaphors was assigned a descriptor score for each one of the fourteen descriptors judges used. Following category assignment, the next task for that judge was to indicate which *of the fourteen descriptors* applied to that metaphor. Thus, if the descriptor "Pollyanna" was selected by all three judges as one of the components of a "graduation from college scenario" metaphor, that descriptor was assigned a score of 3, 2 if only two judges selected it, 1 if only a single judge employed it, and 0 if none of the judges used it. As a result of this process, each metaphor had a metaphor score (for optimistic, pessimistic, and neither categories—each with a possible range of 0 to 3) as well as a score for each of the fourteen descriptors (also with a range of 0 to 3).

The associations among the metaphor category scores and the descriptors scores provide a method for assessing the psychological dimensions reported by the judges to underlie their categorical assignments. Although a bivariate analysis would reveal the dominant trends in such associations, such a procedure can also be driven by item interdependencies. Because we were evaluating the 14 individual descriptors as predictors of overall metaphor categorization (i.e., predominantly optimistic, pessimistic, or neither), we employed multiple regression analyses to minimize the effects of inter-item correlations.

As expected, there were no significant relationships between the fourteen descriptors and the "neither" category, and thus only the data for the optimistic and pessimistic category judgments will be discussed.

Optimism metaphors. Table 2 shows the results of the multivariate analyses of optimism descriptors as predictors of assignment to the optimistic category. The proportion of variance accounted for (R-square) was calculated for each optimism descriptor. This measure provides an index of how strongly each of the seven descriptors predicted how the metaphor, as a whole, would be viewed as espousing an optimistic position. Also, significance testing was carried out for each descriptor's *unique* contribution to prediction. Thus, the asterisks in Table 2 indicate the significance of the individual contributions of each descriptor. In addition to these individual R-squares, an Omnibus F-test was conducted to examine the strength of using all seven descriptors as predictors of categorical (optimism, in the case of Table 2) judgment. A shrunken R-square was computed to estimate the amount of variance accounted for by the Omnibus F-test (labeled "model R-square"). For the sake of brevity, the effect sizes for all 49 correlations will not be reported.

When the overall relationship among descriptors and category judgments was assessed by summing metaphor category and descriptor scores across all six metaphors (i.e., the "across" component of Table 2), the descriptors that showed the strongest overall predictive strength were Pollyanna, excitement/enthusiasm, and looking forward to the future. To provide the reader with a sense of effect sizes in these analyses, the overall model's R-square for optimism metaphors was 0.61 ($F(7,75)=19.25$, $p<.0001$).

TABLE 2
 Variance Accounted for by Optimism Descriptors as Predictors of Assignment of Metaphors to Optimism Category

Descriptors	<u>Metaphor Scenarios</u>							Across
	Exams	Family	Work	Grad	Sig. O.	Teaching		
Looking forward to future	19	08*	24**	27***	09	01	47*	
Currently happy	00	37**	25*	04	47*	27*	27	
Success orientation	38***	16**	30***	09**	01**	21	32	
Seeing situations as challenges	21	10**	24	42**	00	12*	05	
Excitement/enthusiasm	00	38***	45***	42***	39**	16	36***	
Pollyanna	30***	52***	39**	33***	65***	56*	51***	
Orientation toward exploration	39**	02	03	02	00	03	02	
<i>Model R-square†</i>	57***	77***	74***	74***	76***	66***	61***	

Notes:
 Values represent proportion of variance accounted for (R-square) associated with each descriptor in predicting optimism metaphor category assignment (with decimals omitted).
 † — Model R-square is based on a shrunken R-square of using all seven descriptors as predictors of metaphors judged as optimistic in nature.
 Asterisks indicate significance of each descriptor's unique contribution toward prediction.
 * p < .05, ** p < .01, *** p < .001

When the association of descriptors and category judgments was examined for specific scenarios, several consistent patterns emerged. Pollyanna, excitement/enthusiasm, currently happy, and success orientation were important components of optimistic, relationship-oriented metaphors (i.e., family and significant others) whereas Pollyanna, currently happy, and seeing situations as challenges and opportunities were judged to be key components of the teaching/learning process. With optimistic work-oriented metaphors (i.e., preparing for midterm exams and employment), the components of Pollyanna and success orientation were strong elements of these metaphors. Optimistic metaphors of graduating from college were best predicted by excitement/enthusiasm, seeing situations as challenges, Pollyanna, and looking forward to the future. Of all the descriptors utilized by the judges, Pollyanna appeared to be the most robust in terms of appearing as a significant component of judgments of optimism.

Pessimism metaphors. Table 3 reports the multiple regression analyses using pessimism descriptors as predictors of metaphors judged to be predominantly pessimistic. Across all metaphor scenarios (labeled "across" in Table 3), the descriptors that best predicted pessimism judgments were cynicism, focus on problems, currently unhappy, apprehension about the future, and fear of failure. Within the metaphor scenarios, specific patterns also emerged. For instance, with relationship-oriented metaphors (i.e., significant others and family), cynicism, and a focus on problems were the prominent predictors of metaphors judged as pessimistic. On the other hand, pessimistic teaching/learning metaphors featured an emphasis on cynicism, focus on problems, apprehension about the future, and currently unhappy. In the evaluation of the strongest predictors of pessimistic work-related (i.e., employment and preparing for exams) metaphors, cynicism, apprehension about the future, focus on problems, and fear of failure predominated. Finally, metaphors about graduation could best be predicted by the amount of cynicism, focus on problems, and apprehension about the future contained within them. In summary, cynicism and focus on problems were the two strongest predictors of metaphors the judges rated as pessimistic in nature.

Relationship of O/P Scale Data With Previous Findings

The current study's O/P scores closely matched previously reported norms (Hummer, Dember, Melton, & Schefft, 1992; Newman, 1983). The mean optimism score of the present investigation was 53.22 ($\sigma=5.92$), which compared favorably to values reported by Newman ($M=54.18$, $\sigma=5.84$) and Hummer et al. ($M=53.41$, $\sigma=5.56$). For pessimism scores, again the current study ($M=37.45$, $\sigma=6.04$) was in line with Newman ($M=38.03$, $\sigma=7.42$) and Hummer et al. ($M=36.80$, $\sigma=6.48$). The correlation between the optimism and pessimism scale scores in this study ($r= -0.58$) was quite consistent with earlier findings ($r= -0.57$, Newman, 1983; $r= -0.60$, Hummer, et al., 1992).

The O/P Instrument and Category Judgments

Participants' scores on the optimism and pessimism scales were correlated with the number of times judges assessed their metaphors as predominantly optimistic or pessi-

TABLE 3
 Variance Accounted for by Pessimism Descriptors as Predictors of Metaphors Judged Pessimistic in Content

Descriptors	Metaphor Scenarios							Across
	Exams	Family	Work	Grad	Sig. O.	Teaching		
Apprehensive about the future	28**	11	26***	42*	55**	20***	25*	
Currently unhappy	04	38	47**	01*	17***	16***	31***	
Fear of failure	24**	05*	06**	19	30	05	08***	
Focus on problems	48***	71***	44*	49***	49***	49**	53***	
Anxiety	33*	33*	46	28	49	19*	29	
Cynicism	61***	57***	68***	52***	57***	62***	61***	
Orientation toward status quo	01	01	01	04	01	01	00	
<i>Model R-square†</i>	80***	81***	84***	74***	89***	83***	82***	

Notes:
 Values represent proportion of variance accounted for (R-square) associated with each descriptor in predicting pessimism metaphor category assignment (with decimals omitted).
 † — Model R-square is based on a shrunken R-square of using all seven descriptors as predictors of metaphors judged as pessimistic in nature.
 Asterisks indicate significance of each descriptor's unique contribution toward prediction.
 * p < .05, ** p < .01, *** p < .001

mistic. A modest relationship was detected between optimism scale scores, (which were scored such that greater scores reflected more optimistic self-endorsements), and optimistic metaphor category scores when the latter scores were summed across all metaphor scenarios ($r=0.22, p<.05$). No parallel association, however, was detected concerning pessimism scores ($r=0.16, n.s.$). Judgments of neutrality, as expected, were unrelated to the optimism scale ($r= -0.05, n.s.$) and pessimism scale ($r= -0.02, n.s.$). When the corresponding correlations were examined for each of the scenarios individually, there were no statistically significant findings between the optimism and pessimism scale scores and the metaphor category scores.

The O/P Instrument and Metaphor Descriptor Scores

When summed across all metaphors scenarios, the descriptor scores for currently happy ($r=0.23, p<.04$) and orientation toward the status quo ($r= -0.24, p<.03$) were significantly correlated with the optimism scale. The pessimism scale was significantly correlated only with the descriptor scores associated with looking forward to the future ($r= -0.25, p<.02$).

Bipolarity of the Constructs of Optimism and Pessimism

The present study found that optimism and pessimism scale scores were correlated $r= -0.58$, supporting previous findings that optimism and pessimism are not bipolar. The descriptors that judges used could also be examined to provide additional insight into this issue. Of the three most powerful predictor descriptors (Pollyanna, cynicism, and focus on problems), Pollyanna and cynicism would seem to connote opposite outlooks. If this were so, then the scores associated with these two descriptors should be strongly, negatively correlated. Although Pollyanna and cynicism were individually strong predictors of optimism and pessimism category inclusion respectively, no relationship was detected between them ($r= -0.07$). Moreover, no other interrelationships among the adjective descriptors displayed any evidence of bipolarity.

DISCUSSION

The purposes of Experiment 1 were to (a) examine the extent to which optimistic and pessimistic themes might be present and detectable in metaphors generated by students, (b) examine the components of such judgments, and (c) determine the relationship between themes of optimism and pessimism in metaphors and scores on an instrument (the O/P scales) for measuring optimism and pessimism.

It is important to note that without instructions to respond in any particular way to the scenarios, other than to generate a metaphor, nearly half of the metaphors produced could be classified as optimistic or pessimistic. Clearly, optimism and pessimism are reasonably prevalent in the metaphors individuals generate.

Several consistent components were found in the judges' rating of metaphor content. Pollyanna, for example, emerged as the strongest element of the group of optimism

descriptors. The ubiquitousness of Pollyannaism is reminiscent of its pervasiveness in a variety of other activities such as “word spewing” tasks, memory for pleasant and unpleasant events, and perceptual judgments (Matlin & Stang, 1978).

Regarding pessimistic metaphors, cynicism and focus on problems were strong predictors of those judgments. The descriptors of currently unhappy, fear of failure, and apprehension about the future also were statistically significant, albeit weaker, components of metaphors judged as pessimistic.

The present data also support previous research that indicated optimism and pessimism not to be bipolar (Dember, et al., 1989). Thus, though Pollyanna exaggerates the positive features of a situation, and cynicism dwells excessively on its negative aspects, the correlation between these two descriptors was not significant. The strongest relation between any pair of optimism and pessimism descriptors was $r = -0.42$ (for looking forward toward/apprehension about the future), hardly supportive of bipolarity.

The third issue addressed by this study was the relation between scores on the O/P scales to the categorical assessments and descriptor selections made by the judges. Across all metaphors, a weak, but statistically significant, correlation was detected between the optimism scale of the O/P instrument and the optimism category assignments made by the judges. No link was detected between pessimism scale scores and assignment to the pessimism category. There were, however, additional correlations between the optimism and pessimism descriptors when data for individual metaphors were examined. Selecting individual descriptors, compared with making global categorical judgments, may have provided judges with a more sensitive vehicle for identifying optimistic and pessimistic themes in the metaphors. Hence, the relatively more impressive findings with the descriptors than the categorical judgments are not necessarily surprising.

Though the correlations found in this study between the Dember et. al O/P instrument and metaphor content are of weak to moderate strength, it should be noted first that optimism and pessimism scores in previous studies have for the most part shown similarly weak to moderate correlations with conceptually related measures as do scores from other optimism-pessimism instruments such as the Life Orientation Test (Scheier & Carver, 1986) and the Attribution Style Questionnaire (Seligman, Abramson, Semmel, & von Baeyer, 1979). Second, the range of metaphor category scores was highly restricted by virtue of the methodology employed, greatly limiting the extent to which those scores could correlate with the O/P scales. Finally, the O/P items tap enduring attitudes and expectancies, and in that sense are relatively global, timeless, and abstract. By contrast, the metaphor task asked participants to develop specific analogs for concrete situations. The interpersonal relationships and work activities of the subjects may not match attitudes that they may espouse of a more philosophical or idealistic nature. In other words, the two measures may not relate strongly to one another because they tap somewhat different domains.

In order to address some of these issues, a second study was conducted. First, given that optimism and pessimism were not judged to characterize half of the metaphors generated by subjects, those metaphors might be permeated by other personality char-

acteristics. Also, a methodology where subjects endorse how strongly a metaphor relates to themselves (rather than construct metaphors of their own for others to judge) might be more effective in examining the relationship between metaphors and quantitatively derived personality scores. By endorsing the degree to which preselected metaphors represent their feelings and thoughts, subjects can (1) provide a direct interpretation of metaphors free of the additional interpretations of intermediate judges (thus, reducing error variance) and (2) relate these metaphors to themselves on a continuum rather than in a binary fashion (thus, providing additional sensitivity). With these two issues in mind, Experiment 2 was conducted to examine further the relationships of metaphor content and personality attributes.

EXPERIMENT 2: AN EXAMINATION OF FOUR PERSONALITY DIMENSIONS

Although optimism and pessimism are two pervasive personality constructs, other ubiquitous personality characteristics have also been identified in the literature. For example, locus of control (LOC) and sensation seeking have been extensively researched constructs and might be present in many of the metaphors not classified as expressly optimistic or pessimistic.

In addition to broadening the scope of personality constructs to be investigated, Experiment 2 employs a different methodology to examine the relationships between existing personality inventories and metaphor content. In this experiment, metaphors generated in Experiment 1 and selected by judges as representing strong degrees of optimism, pessimism, LOC, and sensation seeking were offered to naive subjects, who indicated the extent to which these selected metaphors represented their view of various aspects of their lives. In addition, these subjects completed three personality inventories: the O/P scale, the Nowicki and Duke (1974) LOC Scale, and the Zuckerman (1980) Sensation-Seeking Scale. The degree to which subjects endorsed preselected metaphors expressing optimistic, pessimistic, internal/external locus, and sensation-seeking orientations was correlated with their personality scale scores.

METHOD

Subjects

One hundred thirteen subjects (49 male, 64 female) participated in this experiment for course credit in introductory psychology courses at the University of Cincinnati; they ranged in age from 18 to 30 years (mean 20.27, $\sigma=2.19$). Before consenting to participate, all subjects were assured of anonymity.

INSTRUMENTS

O/P Inventory. Subjects completed the 56-item O/P inventory that was used in Experiment 1.

Nowicki and Duke Locus of Control Scale. Subjects responded “yes” or “no” to forty statements about themselves. Their responses were scored so as to yield a measure of external locus of control. Nowicki and Duke (1974) have reported this measure to have a test-retest reliability of $r=0.83$ over a six-week period.

Zuckerman Sensation-Seeking Scale. Subjects read 34 pairs of statements and endorsed the member of each pair that best described themselves. Their responses were scored to yield a measure of sensation-seeking (Zuckerman, 1980).

Metaphor Test. This instrument asked subjects to rate each of 40 metaphors on a scale from one to seven, where higher ratings indicated consistency with their perspective. The metaphors for this instrument were selected from the 498 metaphors generated by subjects in Experiment 1. As noted earlier, the metaphors pertained to six aspects of undergraduate life: preparing for midterm exams, interactions with family, views of employment and working, graduating from college, a close relationship with someone to whom the subject is attracted, and the teaching/learning process used in most courses.

The 40 metaphors finally employed were chosen on the basis of ratings made by eight judges trained by the experimenter. A pair of judges rated these metaphors on just one of the following four personality dimensions: optimism, pessimism, sensation seeking, and LOC. Thus, judgments of each personality dimension were made independently by two judges.

Metaphors were created for purposes of training the judges, whose task was to rate each metaphor on a seven-point scale. A rating of one corresponded to a metaphor that was a weak indicator of the personality dimension in question, and a rating of seven corresponded to a metaphor that was a strong indicator of that personality trait. The judges could also rate the metaphor as not applicable to the personality dimension in question. Before rating the metaphors, the judges were given a definition of the personality dimension they were utilizing to rate the metaphors. After the judges completed rating the metaphors used for training, they discussed their ratings and explained their rationale. Each pair of judges was in agreement approximately 90% of the time, with agreement defined as ratings that differed by no more than one point.

Following this training period, the judges were asked to rate the metaphors the experimenter had selected as candidates for the Metaphor Test. The metaphors used for the final Metaphor Test instrument were chosen on the basis of judges' ratings. Only those metaphors that strongly represented a given personality construct (average rating of six or above) were selected for use in the Metaphor Test.

Procedure

Subjects completed the four instruments in approximately 45 minutes. Presentation of the four instruments was randomized to avoid order effects.

RESULTS

Scores from the O/P inventory, the LOC scale, and the Sensation-Seeking Scale

TABLE 4
Correlations Between the Metaphor Subscales and Personality Scales

Metaphor Subscales	Personality Scales			
	Optimism	Pessimism	Sensation Seeking	Locus of Control†
Optimism	36**	-37**	-08	-14
Pessimism	-12	35**	-08	39**
Sensation Seeking	08	-01	-13	16
Internal Locus of Control	26**	-23*	-09	-18
External Locus of Control	-11	30**	-07	37**

Notes:

Decimals are omitted from Pearson product-moment correlations values.

† — Scale was scored in the direction of external locus of control.

* $p < .05$, ** $p < .01$

were correlated with the strength to which subjects endorsed metaphors that had been rated by independent judges as containing strong elements of the four personality dimensions.

Before presenting specific analyses relating to the empirical questions posed by this study, an initial examination of the personality test scores is in order. The findings of these measures were quite comparable to earlier studies. On the O/P inventory, the mean optimism score was 53.4 (compared to Experiment 1, $M=53.2$) and the mean pessimism score was 36.8 (compared to Experiment 1, $M=37.4$). These scores, as previously discussed, are also in accord with values reported by Hummer et al. (1992) and Newman (1983). Additionally, this study's sample means on both LOC and sensation seeking scores, 9.04 and 18.1 respectively, are in line with other reported results (10.5 and 19.1, respectively, reported by Grasha, 1991).

Correlations among subscales formed from each of the metaphors associated with optimism, pessimism, sensation seeking, and LOC and the corresponding personality test scores were examined. The metaphor subscale scores were based on the sum of the ratings assigned by subjects to each metaphor classified as being strong in optimism, pessimism, sensation seeking, or LOC.

Table 4 shows the correlations of the metaphor subscales and personality tests. It was expected that metaphors that were independently judged to be optimistic or pessimistic would correlate with the O/P scale scores. As Table 4 demonstrates, the optimism metaphor subscale was correlated with both the optimism ($r=0.36$, $p<.01$) and pessimism ($r=-0.37$, $p<.01$) personality instruments. For the pessimism metaphor subscale, significant correlations were observed with the pessimism scale score ($r=0.35$, $p<.01$) and the LOC instrument ($r=0.39$, $p<.01$). In addition, the external LOC metaphor subscale correlated significantly ($r=0.37$, $p<.01$) with the LOC inventory. The internal LOC metaphor subscale did not correlate with the LOC inventory, but did with both the optimism ($r=0.26$, $p<.01$) and pessimism ($r=-0.23$, $p<.05$) inventory scales.

One of the correlates of optimism and pessimism in the literature is LOC. In this

TABLE 5
Multiple Regression Analysis of Metaphor Subscales as Criteria and Personality Test Scores as Predictors

Metaphor Test Subscales	Personality Test Regression Coefficients						
	MR	R ²	F	Opp	Pess	SenSeek	Locus of Control
Optimism	.46	.22	7.3***	.47*	-.48***	-.28	.10
Pessimism	.43	.18	6.2***	-.10	.27*	.07	.44***
Sensation-Seeking	.24	.06	1.6	-.14	.10	-.13	.29
LOC Internal	.33	.11	3.2*	-.17	.10	-.13	-.10
LOC External	.39	.16	4.9***	-.03	-.08	.02	.20***

Notes:

Values represent multiple correlations (MR) and the standardized regression coefficients associated with each of the personality test scores as predictors of the metaphor test subscale scores.

Asterisks indicate statistical significance levels associated with each predictor.

* $p < .05$, ** $p < .01$, *** $p < .001$.

sample, the LOC inventory (scored in the external direction) correlated with the optimism ($r = -0.25, p < .01$) and pessimism ($r = 0.53, p < .01$) scores from the O/P instrument (not shown in Table 4).

Finally, though pilot data had indicated that sensation seeking was a component of metaphor content, the Sensation-Seeking Scale showed no statistically significant correlations with any other measures, including the sensation-seeking metaphor subscale (all $p > .05$). Because it was unrelated to metaphor content, those data will receive no further discussion.

A multivariate analysis was employed in order to examine the joint contribution of the four personality tests in predicting metaphor content. Five multiple correlation analyses (one per metaphor subscale) were conducted using each psychometric score as a predictor and each metaphor test subscale as a dependent variable. A summary of that analysis appears in Table 5. With the exception of the sensation-seeking metaphor subscale, the remaining multiple correlations were statistically significant.

To assess which personality test scores were the best predictors for each metaphor subscale, the standardized partial regression coefficients (beta weights, β) associated with each predictor were examined. As is easily seen in Table 5, statistically significant predictors of the optimism metaphor subscale scores were the optimism and pessimism scale scores of the O/P instrument while the only statistically significant predictor of the pessimism metaphor subscale was the pessimism scale of the O/P instrument. None of the personality test scores were independently statistically significant predictors of the internal LOC metaphor subscale. Only the LOC instrument (scored in the external direction) was a statistically significant predictor of the external LOC meta-

phor scale scores. Overall, the O/P instrument and the LOC scale were better predictors of metaphor content than was the Sensation-Seeking Scale.

DISCUSSION

The purpose of Experiment 2 was to determine whether the personality test scores of optimism, pessimism, sensation-seeking, and LOC would be related to metaphors that individuals endorsed as being reflective of their orientations. In addition, the present methodology permitted subjects to endorse metaphors directly on a seven-point scale, rather than having judges infer their orientation in an all-or-nothing fashion. Thus, Experiment 2 offers a link between the quantitative scales of traditional personality measures and the more qualitative evaluation of metaphor content.

As predicted, the data showed that several of the personality test scores correlated with their related metaphor subscales. The highest correlate of the O/P optimism subscale was the optimism metaphor subscale. Because optimism is a correlate of internal LOC, it also was expected that the optimism subscale would correlate with the internal LOC metaphor subscale; this, indeed, was the case. However, the corresponding result was not obtained with the external LOC scale.

The correlations of the O/P pessimism scale with the metaphor subscales were also consistent with predictions. The O/P pessimism scale scores correlated with both the pessimism and the external LOC metaphor scores. In addition, O/P pessimism scores were negatively correlated with the optimism and internal LOC metaphor scores. The Nowicki and Duke LOC Scale (scored in the external direction) scores were positively correlated with the pessimism metaphor and the external LOC metaphor scores.

The relationships between the ratings that participants assigned to metaphors that were optimistic and pessimistic in content and the O/P scale were stronger than corresponding relationships reported in Experiment 1. In that study, the relationship between optimism and the O/P instrument was $r=.22$ ($p<.05$) versus $r=.37$ ($p<.01$) in Experiment 2; the corresponding data for pessimism was $r=.16$ (*n.s.*) versus $r=.35$, ($p<.01$) in Experiment 2.

Generally, the methodology employed in Experiment 2 appeared to be more effective in detecting the personality content of metaphors. One possible reason is that the metaphor and personality measures employed shared similar methodologies (i.e., both used the endorsements of items employing Likert-type scales to suggest the extent to which items applied to the subjects). Moreover, the Likert scale method employed in Experiment 2 allows for a more sensitive response because it evaluates the attributes in question along a continuum from strong to weak, rather than on an all-or-nothing basis.

Furthermore, a relatively more direct assessment of the degree to which various metaphors reflected optimistic and pessimistic content could be determined from the extent to which participants endorsed various metaphors in Experiment 2. In the first experiment, by contrast, the degree to which participants were either optimistic or pessimistic about various scenarios was determined indirectly through the judgments of trained judges. Consequently, subjects' optimism and pessimism scores on the

metaphor task would presumably reflect aspects of participants' metaphors as well as aspects of the whatever biases judges possess in their interpretation of metaphor content. Thus, a potential source of measurement error is likely when the degree of optimism and pessimism in metaphors is estimated from the evaluations of trained judges, and this may have attenuated the relationships between metaphor content and personality scores in Experiment 1.

Optimism, pessimism, and LOC seem to be prevalent and somewhat predictable personality traits in metaphors. Sensation-seeking, in contrast, did not correlate with any of the metaphor subscales. This may indicate that the association of metaphor content to various dimensions of personality is somewhat selective. However, it is also possible that the particular sample of sensation-seeking metaphors used was not conducive to finding such relationships.

GENERAL DISCUSSION

These two studies together provide evidence that metaphors for common, everyday situations do indeed reflect aspects of the author's personality. These data suggest a relationship between existing quantitative measures of personality characteristics and the evolving and expanding field of metaphor research. Furthermore, these findings suggest that metaphor can be a tool in understanding human endeavors and personality. Importantly, unlike traditional measures that investigate only one personality dimension, metaphor provides an opportunity to evaluate numerous personality facets from one relatively unobtrusive observation. Such an advantage can be helpful to researchers and practitioners alike.

Specifically, this investigation suggests that the personality characteristics of optimism, pessimism, and LOC can be found in metaphors generated by individuals who did not receive any specific instructions to construct them in a particular manner. These three personality attributes seem to be so pervasive that they not only are detectable in instruments specifically designed to measure them, but weave their way into the everyday tapestries of speech and expression. Other pervasive characteristics such as anxiety, need for achievement, and introversion/extraversion could potentially be explored in future research using similar methodology.

In addition to examining a wider range of personality dimensions, further studies should investigate the relative importance of these six scenarios to subjects. Although the six scenarios (e.g., family interactions, college graduation) were chosen because they seem significant in the lives of most undergraduate students, further investigations could ask subjects to report on facets they report as important in their lives. Such an approach might make the content of the metaphors more reflective of the important issues and concerns in the lives of participants.

Data from the current study suggest that metaphor content is related to personality characteristics. Metaphors, however, are probably not developed entirely from within and might also reflect important features of the situations and environments they are meant to describe. Thus, another issue for further investigation is whether specific aspects of situations influence the content of metaphors. If such relationships can be

established, then systematic manipulations might extend the present correlational research to experimentally controlled studies.

NOTES

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