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The Relationship Between Creativity Score and Creative Outcome in Popular Songwriting

Robert A. Garfrerick
University of North Alabama

Studies suggest a relationship between test behavior and achievement in life (Torrance 1972a, 1972b, 1981). Russ (1993) and Williams (1979) claimed that affect and emotion play a significant role in creativity. Gardner (1982) proposed that creative individuals are actively engaged in several dominant metaphors. Mednick (1962) discovered that one of the hallmarks of the creative personality was the ability to produce remote associations. Khatena (1977) found that “high creatives” produce complex images in a study of analogy strategies. Interviews with a panel of experts suggest that the statements above could also be said of great songs and songwriters. It logically follows that high creatives, under controlled circumstances where all subjects have the same basic specialist knowledge, should produce the most creative songs.

Music has elements of both left and right brain functions. Some song critics would assert that any good song is a response to being moved aesthetically or emotionally, a right brain function. Conversely, music also has definite structure, and rhythm certainly has a mathematical quality. Many refer to this as the craft aspect of songwriting, which is a function of the left brain. In recent years, particularly with the advent of musical technology, it has become possible to compose in a formulaic manner. Some in the music industry have been critical of songwriters for lack of inspiration. Either by design or omission, it is sometimes said that music lacks feeling.

Creativity is defined in the literature by terms such as unique, novel, and different. The creativity of a composer is ultimately judged by these qualities since they represent a unique artistic voice or imprimatur. The data gathered from this research shows the degree to which there is a link between levels of creativity and composing songs. In some cases it may show a link between brain dominance and successful songwriting. Additionally, the study identifies variables that could be good predictors of successful songwriters.

Methodology

The design required that subject songwriters be given a creativity test. *Thinking Creatively with Sounds and Words* (Khatena & Torrance, 1998) was administered to all subjects. This consists of two tests of originality, *Sounds and Images* (Cunnington & Torrance, 1965) and *Onomatopoeia and Images* (Khatena, 1969, 1971). Both tests operate on the assumption that a creative person will offer responses that are statistically infrequent when supplied with auditory or verbal stimuli. In addition to taking these tests, subject songwriters were asked to submit what they considered to be one of their best songs for review by an expert panel.

Interviews with seven music industry professionals, including songwriters, music publishers, record producers, and executives, were conducted to seek consensus about how creativity in songs can be assessed. Common themes and opinions from interviewees, as well as information from the literature, were synthesized into a content analysis rating instrument for the creativity of the songs. A second panel of three industry professionals, made up of some of the interviewees, was asked to listen to all subject songs and rate them. A correlation r was calculated to determine the relationship between the test scores of the songwriters and the external assessment of the songs.

A Likert-type scale of one to ten was developed with questions relating to various aspects of the song. There were five content areas rated: the use of analogy and/or imagery, originality, emotional aspect, appropriateness, and structural aspect. A sixth content area, commercialism, was included in the instrument as a separate variable to detect what relationship, if any, there was to creativity or other variables. The results will be discussed later. The content analysis instrument was factor analyzed to determine if the instrument was measuring multiple dimensions. The score of the song was the aggregate number of points for all questions.

The data from this study were analyzed by means of both descriptive and inferential statistics. Test scores for *Thinking Creatively with Sounds and Words* were tabulated using the method described above. A subject was defined as “creative” if the standard score on *Sounds and Images* was one or more standard deviation above the mean.

Song judges made their assessments independently and in a different random order. They were instructed to rate the songs relative to one another and not against any given standard. The song scores from the expert panel were tabulated. Interjudge reliability was obtained by a split half product

moment correlation. The correlation coefficient was then calculated to determine the relationship between the creativity test and the song ratings. The factor analysis was used to determine the relationship of commerciality to creativity.

Results and Discussion

Scoring of songwriters is determined by the originality of their responses on two creativity tests. Data from these tests indicated that *Sounds and Images* was the only meaningful instrument for this research application. Raw scores from this instrument were consistent with all norming groups with a mean score of 24.53. Raw scores from *Onomatopoeia and Images* were not consistent with norming groups and, therefore, were not used.

The song rating instrument was subjected to an unrotated, varimax factor analysis to determine internal consistency. Six variables were included: appropriateness, commercialism, emotion, imagery and analogy, originality, and structure. The correlation matrix revealed only one factor with all six variables loading high on that factor. These results suggest commercialism cannot be looked at as an independent variable as originally thought. High correlations were found between all variables as can be seen in the correlation matrix.

Table 1 — Correlation Matrix

	Appropriateness	Commerciality	Emotion	Imagery	Originality	Structure
Appropriateness	1.00000					
Commerciality	0.85194	1.00000				
Emotion	0.88220	0.86450	1.00000			
Imagery	0.73608	0.82006	0.85344	1.00000		
Originality	0.66276	0.77857	0.80190	0.76593	1.00000	
Structure	0.86249	0.90929	0.92419	0.85927	0.82047	1.00000

Interjudge Reliability

Judges were selected from the pool of interviewees. A pretest indicated an outlier, so another judge from the pool was selected as a replacement.

No significant correlation was found between the scores of the songs and the scores of the songwriters on the *Sounds and Images* instrument

with a correlation coefficient of -0.0998 , $P = .600$. The results of this study are inconsistent with Torrance’s findings that there is a positive correlation between test behavior and creative achievement. These data strongly suggest that there may be other variables that could be predictors of creative outcomes when dealing with music. Some of these include domain skill and motivation, which will be addressed later. Other factors may be related to the fact that this study measured only the outcome or creative product. The process was not taken into account since it is difficult to quantify a process.

Factor analysis indicated that the song rating instrument was a unidimensional instrument. This supported the validity of the instrument by confirming that all the variables were measuring the same thing. The study supports the literature in that all the variables tested in the instrument were hallmarks of creativity as defined in standard literature with the exception of commercialism. This suggests that the instrument was a valid measure of creativity in the context of writing songs.

The surprise variable in the study was commercialism. This variable was added to the content analysis instrument originally as an independent variable. It has been implied in some of the literature that large numbers of followers or acceptance of the work by the culture may indicate usefulness, which is considered a trait of creative works. However, there was no hypothesis that commercialism would be an indicator of creativity since it only appears in the literature as a tangentially related item “appropriateness.” The researcher added commercialism in an effort to determine whether judges’ opinions were influenced by the way they felt the song might perform in the popular marketplace.

Table 2 — Factor Matrix

	Factor 1
Appropriateness	0.90111
Commerciality	0.94220
Emotion	0.96063
Imagery	0.90700
Originality	0.86780
Structure	0.96968

The factor analysis indicated that commercialism loaded highly onto the one factor. Out of the six variables measured, the factor loading for commercialism of .94220 ranked third behind structure and emotion. Additionally, the correlation matrix of the variables revealed high positive correlations between commercialism and the other five variables. The lowest correlation coefficient was to originality at .77857 and the highest was to structure at .90929. These data suggest that commercialism cannot be looked at separately from the other variables.

Usefulness and appropriateness appeared across the literature as hallmarks of good creative works. Data from the study indicate that, in this application, commercialism may be a good measure of the two. There was no significant correlation between the songwriters' creativity test score and the songs' aggregate commercialism score. However, since commercialism correlated highly to variables such as emotion, imagery, and analogy, one could assert that perceptions of commercial value are a strong correlate of creativity in the context of writing songs. An argument might be made that a measure of commercialism might measure creativity.

Case Studies

It may be helpful to examine some of the individual subjects' results. Though no relationship was found between songwriters' creativity scores and the scores of their songs, other non-quantifiable anecdotal information could be enlightening.

For example, subject 18 scored 113 on *Sounds and Images*, a somewhat high score, but was ranked fourth among the thirty subjects. However, the score of this subject's song was ranked the highest by a significant margin. Two facts about the subject could be responsible for these results: motivation and domain skill. Subject 18 was a 26-year-old male with a GPA of 3.21, who has had a lifelong dream of becoming a singer-songwriter and who has played guitar since his youth. Subsequent to data gathering, this subject graduated from the University of North Alabama and signed a publishing contract with a Nashville music publisher and has had songs recorded by artists on major labels. The song he submitted for review was a professional recording and was uniformly recognized by judges as the top-ranking song.

It is not so easy to explain the case of the second highest ranking song. Subject 13 scored 61 on *Sounds and Images*, the second lowest score. This subject was a 21-year-old male with a GPA of 2.0. By all measure-

ments he should not have performed well in the song analysis. Additionally, the tape of the song he submitted was a noisy, crude, guitar-vocal recording made on a portable home tape recorder. The only noticeable distinguishing characteristic about this subject was his motivation for the work, which may have been the operational variable in this case. His performance in class and creativity tests were average but, when combined with his passion of writing songs, he rose to the occasion and produced a truly creative product.

Two subjects tied for the highest score on *Sounds and Images*. One, Subject 16, was the classic high creative. She was a 22-year-old female with a GPA of 3.37, smart but not bookish. A real achiever and independent thinker, she obtained a pilot's license at age fifteen. She was a leader on campus and completed dual internships in Nashville her senior year. The recording she submitted for evaluation was self-produced. She played every instrument, sang all vocals, and engineered the recording. By all observations, she was creative, though her song tied for fifth place, not low, but well behind the top finishers. Some researchers say that creativity can be neither a product nor a process exclusively and must be a combination of both. It might be speculated that the method of using expert judge rated products does not take into account the creative process since the judgment is made only on the end result. This subject may reflect that view, as she seems to have shown more creativity during the process than in the measurable result.

Conclusion and Limitations

This study brought to light one of the problems in measurement of creativity. While scores on the *Sounds and Images* instrument were consistent with norming groups, scores on *Onomatopoeia and Images* were inconsistent and, therefore, not used as part of the study. This could be attributed to a number of reasons. Given that scores on *Sounds and Images* were consistent with other data, one might assume that *Onomatopoeia and Images* was not a good measurement for this particular research application. Logic would dictate that the instrument should be appropriate for the subject group being tested. For example, a group of scientists might respond differently from a group of artists to a given set of stimuli.

The literature identified ten different categories of creativity instruments. This study used one of those instruments, *Sounds and Images*, which relied on responses to auditory stimuli since music students have a propen-

sity for aural skills in combination with content analysis instrument constructed by the researcher. Other instruments, such as personality inventories or the study of eminent creators, may have yielded different results.

There were other social variables involved that are related to limitations. Amabile (1982) proposed that creativity is dependent on three classes of factors: domain relevant skills, creativity-relevant skills, and task motivation. Domain relevant skills depend on training, innate abilities, and talent. Creativity-relevant skills include cognitive style and other personality characteristics. Task motivation is a potential limitation in any research that relies upon self-reported data. In this study, the songs were supplied directly by the subjects to the researcher.

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DR. ROBERT GARFRERICK is Associate Professor of Music and Eminent Scholar in Entertainment Industry at the University of North Alabama. He has written songs recorded by Crystal Gayle, Shenandoah, T. G. Sheppard, Marie Osmond, Johnny Lee, Gus Hardin, David Slater, and others. Prior to coming to the University of North Alabama, Dr. Garfrerick was on the faculty at Middle Tennessee State University in the Department of Recording Industry in the College of Mass Communication.

He has a bachelor of music degree from the University of Alabama, a master of arts in music from Middle Tennessee State University and a doctorate in education from Tennessee State University. His research interest is in the area of divergent thinking and songwriting. In addition to his university teaching, Dr. Garfrerick has been a speaker, performer, or clinician for groups such as The Songwriters Guild of America, The Balsam Mountain Songwriter's Camp and Nashville Songwriters Association International. He is a member of The National Academy of Recording Arts & Sciences, The American Society of Composers, Authors, and Publishers, Music and Entertainment Industry Educators Association, and The Nashville Songwriters Association International.

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