

Word knowledge as predictive of linguistic creative behaviors

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The aim of this study was to explore the predictive validity of word knowledge as one of the hypothesized domain-relevant components for linguistic creativity. The study included 99 students of university teacher studies in their fourth and fifth (final) year of study, aged 22 to 24, from one city in the Republic of Croatia. The instruments used in this study included a word knowledge test (VerT) and a questionnaire on general creativity self-assessments, as well as specific, behaviorally operationalized linguistic creativity focusing on productivity (Linguistic Creativity Scale, LCS-15; $\alpha = .84$), and other reading and writing related measures. The results showed that the broad factors of self-assessed Artistic and Everyday Creativity combined with the corresponding tested verbal domain specific knowledge of the infrequent words descriptive of social statuses and processes, significantly predicted the behaviorally operationalized linguistic creativity score (LCS-15). This suggests that not only what one generally believed of oneself and one's creativity, but also what one objectively and specifically knew, significantly predicted the linguistic creative productivity. This study adds to the currently lacking knowledge on the role of domain-relevant processes, such as domain-specific verbal knowledge, in linguistic creative work.

Key words: creativity, linguistic creativity, creative writing, creative-productive giftedness

Without a poem, a short story, a novel, an article, or any other literary product, there is no author – or reader, as Lindauer (2009) stated. Throughout history, writers were the beacons of literacy. Because contemporary societal dissemination of basic literacy is commonly bound to the role of a teacher, a teacher's role may overlap with that of a writer—and may extend beyond literacy into linguistic creative behaviors. This study aims to explore linguistic creative behavior in future teachers and its relationships with the objectively measured word knowledge and creativity self-assessments. This is of importance to psychology of creativity because there has been insufficient research directly examining the role of domain-relevant processes such as word knowledge, in the production of linguistic creative work.

Consuming nonveridical literary representations is a major activity in developed nations. Nettle (2009) estimated that about 8% of all walking life is immersed in the input

and output of creative writing (e.g., reading or watching some kind of drama). Creative linguistic productivity can be observed and measured as the authorship of artistic, scientific, journalistic and other literary products. To be productive and to be creative are not exactly the same, although quality is itself a probabilistic consequence of quantity (Simonton, 2004). The highest levels of creativity must result in a creative product. Inventors who invent nothing or poets who write no poems can hardly be considered creative no matter how high they might score on any so-called “creativity test” (Simonton, 2000), or how creative they consider themselves to be. Because of this, a behaviorally operationalized and product-based approach to self-assessments of linguistic creative behaviors was used in this study. Creativity in general and, more specifically, linguistic creativity as explored in this study, are defined as the: (a) observable, manifest, socially acceptable behavior consensually described as creative in a given social context, (b) result of the interaction of abilities, knowledge, traits, task commitment and social influences, (c) process at the end of which a person can potentially produce an observable original product.

Such contemporary approaches to creativity assessment (e.g., Nusbaum & Silvia, 2011) suggest closer links between intelligence and creative thought, as well as relationships with the acquired knowledge in adults (e.g., Ackerman, 1996; Furnham & Chamorro-Premuzic, 2006). The extensive domain-specific knowledge is a prerequisite for creative functioning (Weisberg, 1999, p. 227); it is necessary

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but not sufficient for creative achievement. Knowledge in the form of crystallized intelligence shows a positive and moderate relationship to the generation of creative inventions (Sligh, Conners, & Roskos-Ewoldsen, 2005). Specific to this study, the vocabulary measures, highly saturated with g factor (e.g., Rimm, Gilman, & Silverman, 2008), commonly represent measures of crystallized intelligence (i.e., G_c in Cattell-Horn-Carroll theory of cognitive abilities; e.g., Schneider & Flanagan, 2015), but also, in line with the componential theory of creativity (Amabile, 1996), they represent the domain-relevant processes in creativity. These include knowledge about linguistic creativity, which in this study refers to linguistic knowledge such as word knowledge, but it may also include spelling, punctuation, or grammar knowledge. Not surprisingly, verbal intelligence, such as wit and the use of puns, is observed in the context of creative writing (Piirto, 2009).

Words as building blocks, already possessing their agreed, consensual meaning that must be learned in order for words to be of communicative value, have qualities of importance for building meaning in creative writing. The extensive knowledge of specific words that have affective, physiognomic, and synesthetic qualities, or the invention of such words that undoubtedly communicate a desired action, quality, or manner, is an activity commonly pursued by the literary masters. Statistical infrequency of words used in writing among literary authors, the idiosyncratic usage of existing words, coinage of neologisms (e.g., *Stonemilker*; Guðmundsdóttir, 2015), or the invention of entirely new words, are common practices in literature, pointing to a relationship between verbal ability and creative productivity.

Staying in the educational realm, children's writers in particular are inclined towards the production of neologisms to which children are naturally drawn. For example, in creating the wizarding world of Harry Potter, J. K. Rowling devises a specialized lexicon of a distinct folk group by drawing on roots of words, especially foreign ones (Lacoss, 2002), and thereby creating previously nonexistent words. Neologistic expressions occasionally expand our understanding of our everyday world and language. For example, *muggle*, a word invented by J. K. Rowling, was added to the Oxford English Dictionary in 2003, and Dr. Seuss' *nerd* from *If I Ran the Zoo* (1950) and *Grinch* from *How the Grinch Stole Christmas!* (1957) have all made their entry into the English language (Nel, 2003). In *The BFG* (1982) Roald Dahl invents not only words but a new language called *Gobblefunk*, featuring words such as *delumptious*, *froboscottle* or *whizzpopping*, which has resulted in many decades of gobblefunking (Hughes, 2011). Successful authors are generally avid readers, and they are oftentimes exposed simultaneously to different languages, as is the case with Dr. Seuss and Roald Dahl, who were both bilingual (Marinić & Nemet, 2008). Therefore, exposure to language (as knowledge) in its etymological and stylistic variety through reading, learning, as well as teaching, can be a con-

tributing factor in the development of linguistic creativity.

Creativity is closely tied to creative-productive giftedness (e.g., Renzulli, 1986) and education (e.g., Baer, 2013; Hattie, 2009; Plucker, Beghetto, & Dow, 2004; Renzulli, 2002; Torrance, 1967). Education provides opportunities for teachers to communicate, model, encourage and teach creative writing as one of its objectives. As stated in Bloom's taxonomy of educational objectives, the production of a unique communication involves sharing ideas, feelings, and experiences with others (Bloom, 1956). Sharing ideas, feelings, and experiences with others spans both the writer's and the educator's roles, broadly conceived as authorship. These social and educational functions of literacy, reading and creative writing are so prominently and explicitly stated as educational objectives that it is worth exploring them in detail in future teachers.

The aim of this study is to explore the predictive validity of word knowledge as one of the hypothesized domain-relevant components for the manifestation of linguistic creativity. In this way, the participants' self-assessments of creativity, as well as their tested word knowledge—as indicative of psychologically complex ability-related and domain-relevant processes—and its use in everyday communication, will be used to predict linguistic creativity as one of the observable domain-specific forms of creative behavior.

METHOD

Participants

The anonymous and voluntary study participants were 99 students of university teacher studies in their fourth and fifth (final) year of study. Among these middle class, educated Caucasian women with $M_{\text{age}} = 22.66$ years ($SD = 0.56$; range: 22–24), 75.8% finished grammar school or gymnasium, one read Braille, four spoke Croatian sign language, and each had a moderate to high grade point average (GPA) during the course of their teacher studies ($M = 4.28$, $SD = 0.27$; possible range 1–5, observed range 3.35–4.86). They listed up to six foreign languages, with most of them reporting a combination of two languages (41.2%; English and German) as Independent users (levels B1 and B2), according to the Common European Framework of Reference for Languages. They represented education generalists—future teachers who will teach all school subjects, covering the arts as well as the sciences (i.e., language, mathematics, natural sciences, physical education, and the arts), to children aged 6–12. At the time that this study was conducted, some were involved in continuous voluntary teaching in their community.

Materials and procedure

The participants gave their written consent and participated in the study over the duration of two hours. They pro-

vided demographics, solved one vocabulary test, reported on the measures of creativity, and were debriefed immediately following the study, in line with the research ethics.

The word knowledge measure. The participants independently solved one untimed vocabulary test (VerT) consisting of 48 target words (internationalisms) with five response options (short word descriptions). Internationalisms (Silić, 2006) belong predominantly to the scientific functional style of expression, as its lexis is abstract rather than concrete. Their task was to mark in each of the 48 word groups the one closest in meaning to the target word. For example, *qualified*, had the following response options: *supreme*, *distinguished*, *recognized*, *certified*, and *rewarded*. Etymologically, out of 48 European internationalisms in the test thirty-two stemmed from Latin, nine from Greek, five from French, one from German, and one from Italian. Test details and the psychometric properties of the VerT can be found in the test manual (Zarevski, Matešić ml., & Matešić, 2014).

The creativity measures. The participants filled in the creativity self-assessments, and the Linguistic Creativity Scale (LCS). The participants completed a questionnaire in which they assessed their own general creativity, as well as creativity across 17 activities, including creativity in writing, on a 1–5 scale (*low to high*), as listed in Table 2.

The behaviors in the LCS were collected and defined within the authors' previous research in view of the act-frequency approach to measuring creativity as a trait (i.e., the act frequency approach by Buss & Craik, 1983). The scale had 21 concrete behaviors, sharing similarities with the existing creativity instruments (e.g., Carson, Peterson, & Higgins, 2005). This group of consensually agreed upon creative behaviors, which had nonzero frequency of occurrence in the student sample and included manipulation of verbal content, is listed in full in Table 1. In the LCS, the participants were asked to indicate whether they have, since the beginning of their university teacher studies, produced a piece of writing outside their study obligations. The study covered the period of the previous four years, with the following instructions:

Here are some writing activities that people may be involved in. Read the examples and check all that do not apply to you as *none*. For those that apply to you, indicate how many items you wrote, for example, *1 – I wrote one, 2 – two, 3 – three to five, and 4 – six or more*, e.g., poems.

For example, approximately 60% of the students indicated that they wrote at least one poem, but only 13.1% wrote six or more. One student wrote two novels. In this way, as a linear combination, LCS pointed to the overall linguistic creative productivity as the extent of the involvement in writing and not the quality of the produced work (possible range: 0–4; i.e., $M = \Sigma/15$). LCS is based on the hypothesis of unidimensionality of general linguistic creativity. In this study the items were not weighted on any of their qualities.

The students also rated their general intelligence and their verbal, quantitative-numeric, and spatial intelligence on a scale of 1–9 (*low to high*), as well as some other reading and writing related measures. These measures included the final grade in Croatian language received at high school graduation ($M = 4.15$, $SD = 0.54$; possible range 2–5, observed range 3–5), and the estimated time in hours spent reading on average per day ($M = 1.74$, $SD = 1.15$; observed range 0–6).

RESULTS

The results include the sections on the participants' structure of ability and creativity self-assessments, the behavioral operationalization of linguistic creativity in line with the partial domain specificity of creativity, the exploration of word knowledge test contents as the predictor, and the prediction of linguistic creativity through its use.

The structure of intelligence and creativity self-assessments

Out of 22 creativity and intelligence self-assessments (see Table 2), six components were initially extracted based on the eigenvalues over 1 with characteristic roots as follows: 5.82, 2.65, 2.01, 1.35, 1.13, and 1.02. With the Kaiser-Meyer-Olkin measure of sampling adequacy at .78, and Bartlett's test of sphericity $\chi^2(231) = 807.56$, $p < .001$, the principal component analysis (PCA) was performed. Based on the scree plot and interpretability, the three-component PCA solution with oblique rotation was retained. These three components accounted for 47.66% of the common variance. Similar to this study, at least three broad dimensions of creativity are already recognized both by scholars and lay people as artistic, scientific, and everyday creativity (e.g., Runco & Bahleda, 1986).

Creativity and intelligence self-assessments loaded on conceptually corresponding factors: Artistic Creativity/Verbal Intelligence, Scientific Creativity/Numeric Intelligence, and Everyday Creativity/Spatial Intelligence. When the participants thought themselves generally creative, they based their self-assessments somewhat more strongly on the Artistic and Everyday Creativity. When the participants thought themselves generally intelligent, their self-assessments loaded somewhat more strongly on the Scientific Creativity. In line with this, the students' GPA correlated significantly only with the Scientific Creativity/Numeric Intelligence factor, $r_s(99) = .40$, $p < .001$. This portrays the implicit theories of general creativity in future teachers as partially domain-specific, skewed towards the arts, as well as communication, entertainment, grooming, and play, and away from mathematics. Silvia, Wigert, Reiter-Palmon, & Kaufman (2012) noted that people's beliefs about their creativity are grounded in real creative abilities and accomplishments. Be-

Table 1
Descriptive statistics for the Linguistic Creativity Scale (LCS) items and their intercorrelations with creativity in writing, general creativity and word knowledge (VerT, $k = 48$)

Functional style	LCS	Observed range	<i>M</i>	<i>SD</i>	<i>C</i>	Creative writing ^a	General creativity ^a	VerT
Literary-artistic	I write literary compositions.	0–4	2.58	1.51	3	.22*	.31**	.17
	I invent new rhymes (I speak in rhyme).	0–4	1.96	1.46	2	.32**	.31**	.11
	I write poems (poetry).	0–4	1.49	1.50	1	.10	.21*	.12
	I write stories.	0–4	1.33	1.37	1	.17	.16	.14
	I write interesting (entertaining) and funny letters or e-mails.	0–4	1.29	1.60	0	.12	.22*	-.02
	I draw and write comic books (cartoon-novels).	0–4	0.71	0.96	0	-.09	.24*	-.04
	I invent new words.	0–4	0.56	1.02	0	.15	.38**	-.00
	I make picture books (I write and draw the text, write the words/ draw and paint images).	0–4	0.39	0.85	0	.04	.15	.14
	I write lyrics, to songs that I sing.	0–4	0.37	1.02	0	.11	.32**	.00
	I write plays (dramatic scripts; skits or sketches).	0–3	0.35	0.69	0	.12	.28**	.02
	I blog. ^b	0–4	0.16	0.71	0	.08	.16	-.06
	I write screenplays (detailed descriptions for films). ^b	0–3	0.11	0.43	0	-.06	.02	-.11
	I invent new language rules. ^b	0–3	0.09	0.38	0	.05	.16	.13
	I write novels. ^b	0–2	0.02	0.20	0	.02	.05	-.01
I write dramas (plays). ^b	0–1	0.01	0.10	0	-.09	.05	.04	
Journalistic	I write critiques.	0–4	0.65	1.17	0	.22*	.22*	.07
	I write newspaper reports (newspaper articles).	0–4	0.45	1.02	0	.21*	.31**	-.04
	I write reports for a magazine or the Internet (a column in a newspaper or on the Internet). ^b	0–4	0.13	0.62	0	.03	-.01	-.06
Scientific	I write essays.	0–4	2.49	1.61	3	.27*	.31**	.17
	I write review reports (reviews).	0–3	0.35	0.73	0	.20*	.21*	.01
Other	I retell/rewrite the stories in my own way.	0–4	2.47	1.41	3	.23*	.19	.17
	LCS ^c	0–2.19	0.86	0.52	0.86	.25*	.43**	.12
	LCS-15 ^{b,d}	0–3.07	1.16	0.69	1.20	.26**	.43**	.13

Note. Potential range 0–4. Spearman’s rho was used.

^a Self-assessed single item. ^b Items excluded from further analyses due to their infrequency of occurrence, and low inter-item correlations. ^c $k = 21$; $\alpha = .83$; $M = \Sigma/21$. ^d $k = 15$; $\alpha = .84$; $M = \Sigma/15$.

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

cause self-assessed single-item general creativity correlated positively and significantly with 14 out of 17 creative activities, including the self-assessed general, $r_s(99) = .24, p = .016$, spatial, $r_s(99) = .37, p < .001$, and verbal intelligence, $r_s(99) = .27, p = .007$, it resembled generalized self-efficacy beliefs (e.g., Bandura, 1995, p. 2), and even more specifically, creative self-efficacy beliefs (e.g., Tierney & Farmer, 2011). These three broad personality assessment domains, spanning intelligence and creativity self-assessments, will be used as predictors of linguistic creativity in the form of regression factor scores.

The behavioral operationalization of LCS

With the exclusion of uncommon products indicative of sustained and dedicated writing practice, such as written novels, dramas, or screenplays, the average LCS-15 inter-item correlations were .27, with Cronbach alpha at .84 and no departure from normality. The LCS behaviors could be categorized into different functional language styles regarding what type of language was used in the production (literary-artistic, scientific, or journalistic), but such subscales had unsatisfactory low reliabilities. Because of this, overall

Table 2

Patterns of creativity and intelligence self-assessments: Factor loadings for exploratory factor analysis with oblique rotation of artistic, scientific, and everyday creativity

Participants' self-assessed creativity in:	Components			<i>h</i> ²
	Artistic	Scientific	Everyday	
Dance	.75	-.00	-.07	.54
Drama/acting/puppetry	.70	.02	.09	.54
Creative writing	.69	.27	-.20	.57
Music	.62	.05	-.02	.40
Verbal intelligence	.57	-.03	-.02	.32
Cooking/culinary	.56	-.15	.09	.33
Design/fashion	.45	-.04	.43	.49
Photography	.43	.12	.25	.35
Mathematics	-.31	.86	-.03	.73
Quantitative-numeric intelligence	-.41	.81	-.05	.69
Computer science	.28	.66	-.01	.58
Inventions/techn. modeling	.22	.58	.20	.53
Research	.21	.52	.11	.40
Robotics	.15	.48	.17	.35
General intelligence	.11	.43	.29	.36
Physical activities/sports	.35	.37	-.21	.29
Drawing/painting	-.16	-.07	.88	.71
Modeling/sculpting	-.05	-.00	.87	.73
Spatial intelligence	-.05	.25	.54	.38
Humor	.42	.02	.47	.52
General creativity	.41	-.11	.45	.56
Play/play-like/games	.09	.18	.35	.21
Eigenvalues	5.82	2.65	2.01	-
% of explained variance	26.47	12.03	9.16	-

Note. Factor loadings $\geq .35$ are in boldface. Intelligence self-assessments are in boxes.

LCS that included 15 behaviors was used for further analyses (see Table 1). In all functional styles' behavior groups at least two behaviors correlated positively and significantly with the self-assessed creativity in writing and general creativity (last two columns in Table 1). Of linguistic importance, this means that the study participants included in their implicit theories on creativity in writing, as well as general creativity, the examples of linguistic creative behaviors that spanned across different functional language styles.

The qualitative pattern of word knowledge test item responses

The participants correctly defined from nine to 30 words in the VerT test, with 19 words on average, $M = 18.75$, $SD = 4.22$. The distribution of test results showed no departure from normality. The repeating pattern of participant responses to word test items was observed. Based on the hierarchical cluster analysis with Ward's method and squared Euclidean distances, 48 words fell into three clusters of 16

words. The analyses showed that these clusters represented difficulty levels, with on average 3.12, 4.58, and 11.05 words out of 16 correctly solved in each of the clusters. The objective difficulty level of words was defined as the proportion of the participants correctly solving that word.

In order to explore the hypothesis that word knowledge may be informative of participants' exposure to or interests in different cultural contents, 48 words were independently categorized as thematically belonging to the humanities (H; 16), the natural sciences (NS; 11), or the social sciences (SS; 21). No test items are listed here, but for illustration purposes and in line with the test copyright issues, the words *epigraph* (H), *longitude* (NS), or *calumniate* (SS), serve as examples of these thematic differences. Only the first word cluster correlated significantly with the LCS-15, $r(99) = .26$, $p = .010$, and was used in further analysis. For future reference, this first word cluster included the following VerT test items: 1, 3, 11, 12, 13, 18, 26, 27, 30, 33, 37, 38, 40, 41, 44, 48. Ten out of 16 words in this first word cluster were grouped thematically into the SS, with the correct answers given on any of the words in the first cluster by 6.1 to 34.3% of the participants, representing a cluster of difficult words, $M = 3.12$, $SD = 1.91$ (observed range: 0–9), with low to very low correlations with other test items. These results may be in line with the interests and high school achievements according to which students were selected to be enrolled in university teacher studies (i.e., higher level of proficiency in language (H), and lower in mathematics, with no SS required), as well as test authors' preferences. The final grade in Croatian language received at high school graduation, $r_s(98) = .29$, $p = .003$, the self-assessed verbal intelligence, $r_s(99) = .24$, $p = .017$, and the estimated average time spent reading per day, $r_s(99) = .21$, $p = .037$, all correlated positively and significantly with this first word cluster (the number of correctly solved words in the first cluster), reflecting in it a mixture of ability, cultural habit and manifested achievement in one's educational background.

Predicting linguistic creativity with word knowledge, ability and creativity self-assessments

With the multiple regression analysis used, the highest percentage of the LCS-15 explained variance (19%) resulted from the combined use of three predictors: the self-assessed Artistic Creativity/Verbal Intelligence and the self-assessed Everyday Creativity/Spatial Intelligence in the form of regression factor scores (as listed in Table 3), and the first cluster word knowledge (with improved skewness through square root transformation). Given a value of R^2 at .19, the effect size for this multiple regression study (i.e., Cohen's f^2) is .24, indicating medium effect size. With diagnostics pointing to no collinearity issues and standardized residuals within the expected limits, the reported regression model proved robust. It suggested that not only what one generally believed of oneself, but also what one objectively and spe-

Table 3

Results of the multiple regression analysis with the self-assessments of creativity and intelligence, and the word knowledge of difficult infrequent words, as predictors of the self-assessed linguistic creative productivity on Linguistic Creativity Scale (LCS-15)

LCS-15	<i>b</i>	<i>SE b</i>	β	95% CI of <i>b</i>
Constant	0.82	0.18		[0.47, 1.18]
Self-assessed Artistic Creativity/ Verbal Intelligence	0.16	0.07	.23*	[0.03, 0.30]
Self-assessed Everyday Creativity/ Spatial Intelligence	0.15	0.07	.22*	[0.02, 0.28]
Measured word knowledge (1. word cluster in VerT)	0.21	0.10	.19*	[0.00, 0.41]

Note. $R = .44$; $R^2 = .19$; Adj. $R^2 = .17$; 95% CI [.05-.33]; $N = 99$. Steiger & Fouladi (1992) R2 computer program was used to calculate CI for R^2 . CI = confidence interval.

* $p < .05$.

cifically knew (word knowledge), contributed in a significant way, but to a limited amount, to the linguistic creative productivity measured by the LCS-15 scale (Table 3).

DISCUSSION

This study demonstrated that linguistic creativity—when taken as the breadth and the number of written literary products (i.e., linguistic creative productivity as the extent of the involvement in writing—can be predicted with statistical significance by word knowledge and intelligence and creativity self-assessments in this selected group of young women studying to become teachers.

Students' self-assessed Artistic Creativity/Verbal Intelligence, and Everyday Creativity/Spatial Intelligence, and objectively measured word knowledge, explained one fifth of the linguistic creativity variance, which is possibly due to the generalized and complex nature of linguistic creativity and its span across different areas of personality functioning. These areas of personality functioning included creativity and ability beliefs, as well as objectively measured vocabulary—proxy for general intellectual ability. Self-assessments in the Artistic and Everyday Creativity domains, of high conceptual breadth, combined with the acquired advanced vocabulary, such as the knowledge of the infrequent, abstract words used in this study, with a portion of words used to describe social statuses and social processes, predicted productivity in linguistic creativity. This points to the general and domain-specific ability related differences as explanatory for creative behavior, as well as the existence of open possibilities for word knowledge transfer beyond only provision of literacy to students.

Generalized artistic and everyday creativity self-assessments resembling the self-efficacy beliefs, domain-specific knowledge and skills in language (i.e., infrequent word

knowledge, mainly from the social domain), and deliberate practice in consuming and producing linguistic products, emerged in this study as somewhat overlapping constructs. These results suggest that some interesting concepts that seem to be used daily by creative writers emerge at the intersection of artistic and everyday creativity and verbal and spatial intelligence. These may include the richness of imagery and vividness of verbal descriptions, drawing and painting images with words as well as playing with their depictions, with wit and humor used in creative writing, and finding, or even sometimes inventing, the proper words to express the images that one has in one's mind.

As Lohman (2000) stated, vocabulary knowledge allows for comprehension and expression of a broader array of ideas and, therefore, facilitates the task of learning new words and concepts. Thus, language functions as a vehicle for the expression, refinement, and acquisition of thought. Broader word knowledge including the social domain, as represented through the first word cluster predictive importance, may be indicative of a possibly broader participants' outlook and higher interests, insights, concerns for, or knowledge on social affairs. This is in line with the well documented writers' keenness on social activism or being socially engaged. Knowing the correct meanings of infrequent, abstract words mostly covering the domain of the social sciences, including words on group communication and status change, law, finances, religion and civics, seems useful for both scientific, journalistic, and literary-artistic creative linguistic productivity. After all, intense socially-embedded interactions between protagonists, such as love and war, are common literary themes.

What must be stressed is the fact that both general creativity and linguistic creativity were not monolithic in nature but broadly conceptualized in the participants' minds. Single-item general creativity self-assessment positively included almost all study areas of creativity self-assessments, excluding creativity in mathematics, and loaded more strongly on the Arts factor. This finding concurs with the existing research on teachers' views on creativity (i.e., the art bias; e.g., Glăveanu, 2014; Kaufman & Baer, 2004). In fact, creativity in mathematics loaded negatively on the overall Arts creativity factor, on which creative writing loaded positively and substantially. This indicates some divergence, either in abilities or expressed creative interests, or both. This is of highest importance to education generalists because teachers exert significant influence on children (e.g., Hattie, 2009) and also seem to more highly value verbal ability than mathematical ability (Pretzlik, Olsson, Nabuco, & Cruz, 2003). Future teachers' views on creativity inform us to take care and keep in mind the necessarily biased and participant group bound creativity interpretations.

There are limitations inherent in this study that caution to over-generalize the results: the relatively small number of participants and the reliance on self-assessments in the measurement of linguistic creativity. The data collected

within this study were based on only one word knowledge test, the self-assessments of a limited set of creative activities, and the proposed construct of behaviorally operationalized linguistic creativity, which may raise concerns regarding word knowledge construct validity, as well as the structural properties of the proposed linguistic creativity indicators. By means of the provision of the applied LCS in this study in its entirety, all of the materials are made available for future research. This study also has implications for educational practice because it specified in behavioral terms the construct of linguistic creativity. These linguistic creative behaviors can be didactically prepared as hands-on activities, lessons, projects, or programs in creative writing, readily available for classroom use (e.g., in order to teach how to write a poem, a short story, or a research paper, for example).

In conclusion, tested word knowledge is predictive, to a degree, of self-assessed linguistic creative behaviors. This may be so because the word knowledge can be considered a vehicle for the acquisition, refinement, and expression of thought. Building the specific knowledge in the verbal domain, such as a rich vocabulary, to its fullest, combined with the proclivity to actively use it in communication (i.e., writing), and continuously supported with the belief in one's creativity (i.e., despite publicists' rejection), may turn out to be of significant importance to developing and sustaining linguistic creativity in future teachers in order for them to both write – and to teach how to write – creatively.

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