EXAMINING CREATIVITY AS AN INDIVIDUAL DIFFERENCE IN SECOND LANGUAGE PRODUCTION

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ABSTRACT

As our understanding of individual differences in second language acquisition continues to develop and expand, cognitive creativity is emerging as a promising area of research (Dörnyei & Ryan, 2015). Previous studies have exhibited evidence of relationships between creativity and various second language measures, e.g. course grades (Ottó, 1998), narrative structure (Albert & Kormos, 2004, 2011), and use of questions and coordination (McDonough, Crawford, & Mackey, 2015). This dissertation makes a novel contribution to such research by investigating whether communication strategies are associated with learners’ cognitive creativity.

Seventy-eight university students in Turkey completed the Torrance Test of Creative Thinking as well as interactive and narrative speaking tasks in L2 English. The interactive speaking task prompted use of communication strategies by requiring each learner to elicit from their partner the name of a common object, person, or place by describing the item without using five prohibited words. For the narrative speaking task, participants used a comic strip to tell a simple story. Analyses revealed relationships between overall creativity, use of direct communication strategies, and use of indirect communication strategies in the interactive task. Several relationships between creativity and communication strategy use in the narrative task emerged as well, i.e. overall creativity and indirect appeals for help. Multiple regression analysis confirmed that creativity accounted for 13.6% of direct and indirect strategy use in the interactive speaking task, and that English proficiency was not a predictor of communication strategy use. Also of interest, in contrast to the findings of previous studies, the current research
revealed no evidence of relationships between creativity and narrative structure or creativity and course grades.

Results indicate that creative potential is primarily realized in interactive rather than monologic tasks, suggesting that further research should be careful to separate creativity from linguistic outcome measures. Findings from this research underscore the evidence that creativity is an important individual difference in second language acquisition. It will also be useful to language instructors as they consider how to manage the creative demands placed on students by activities and assessments in the currently popular and research-supported communicative and task-based approaches to L2 instruction.
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**Introduction**

Creativity is a concept often discussed, admired, and valued in everyday life. Museums exhibit artists’ expressions of creativity, craft stores promise us they have the products we need to unlock our own creative potential, and newsstand magazines offer to teach us the science behind creative genius past and present (e.g., Felsenthal, 2018). Long before the retail world became interested, psychologists began studying creativity and attempting to understand this complex construct. J. P. Guilford initiated the systematic investigation of creativity with his 1949 address to the American Psychological Association. He is credited with distinguishing convergent thinking, which focuses on a single correct answer, from divergent thinking, which values the generation of numerous ideas or solutions to a problem. Today, the study of creativity is firmly recognized within the field of psychology and has been examined in relation to education, health, and politics, among many other fields (Runco, 2014).

Other individual differences of interest to psychologists such as working memory, motivation, and personality have been widely studied and shown to influence second language (L2) acquisition (Dörnyei & Ryan, 2015). A few studies have investigated various perspectives on the role of creativity in L2 processes (e.g., Albert & Kormos, 2004, 2011; McDonough, Crawford, & Mackey, 2015; Ottó, 1998). Collectively, these studies have suggested that there are indeed relationships between an individual’s creativity and second language production. Ottó (1998) found an association between creativity and L2 English students’ course grades. Albert and Kormos (2004, 2011) identified a relationship between originality and narrative structure in a storytelling task. McDonough, Crawford, and Mackey (2015) established links between creativity and participants’ use of questions and coordination using a group problem-solving
task. However, it is important to recognize that these studies were mostly exploratory in nature, and that their measurements of production associated with creativity have been varied.

This dissertation adds to this emerging line of research by exploring the role of creativity in L2 communication strategy use in addition to expanding previous findings on narrative structure and course grades. The well-established field of communication strategy is a sensible variable to study in conjunction with cognitive creativity due to its strong grounding in the second language acquisition literature and its applicability to various L2 production processes such as writing (Hubert, 2015), translation (Rabab’ah, 2008), and speaking (Nakatani, 2010). Communication strategy has also been studied in relation to proficiency, with varying results. Some studies suggest that there is no relation at all (Dörnyei, 1995), whereas others suggest that use of communication strategies changes as proficiency develops (Rossiter, 2005). Given these findings, proficiency was examined together with creativity as an additional possible influence on communication strategy use in this study.

Participants were 78 first-year L2 English university students in Turkey. They completed the Torrance Test of Creative Thinking (TTCT) Figural version; an oral interactive elicitation task based on the game Taboo; an oral monologic narrative task based on a comic strip; and a biodata survey. Communication strategy use was examined in terms of Dörnyei and Scott’s (1997) taxonomy that includes direct, indirect, and interactional categories. Results suggested a modest but clear relationship between creativity and direct and indirect communication strategy use in the interactive task. Relationships between creativity and other outcomes were limited, which is consistent with findings from psychology that interaction and creativity are linked (Katz & Hussey, 2011; Torrance, 1970).
As communicative and task-based language teaching approaches remain prominent, creativity will continue to play a part in L2 learning. This dissertation drew upon the rich research traditions of psychology and second language acquisition to address the need to better understand the dynamics between creativity and second language use (Dörnyei & Ryan, 2015) and provides new insights into L2 communication strategy use. It helps establish creativity as an important individual difference in second language acquisition and lays the groundwork for continued study of this intriguing concept.
I. Literature Review

Investigating creativity as an individual difference in second language acquisition (SLA) draws upon information, methods, and insights from myriad related fields. I will begin by exploring the background of creativity as a field of study in psychology. Although scholars of creativity have not settled on a single definition, I will present the basic elements of most definitions and the definition that guides this study. A single guiding theory has been even more elusive than a definition, but a pluralistic approach is useful, so I will also explain the psychometric and cognitive theories that are most relevant to this dissertation. Several frameworks—magnitude of creativity and the “4 Ps” of person, process, product, press—provide additional perspectives on creativity that help guide this study and help to understand creativity’s interaction with language. Approaches to assessing creativity are presented as background to the methodological choices discussed later in Chapter 2.

Following the background on creativity from the psychological perspective, I will discuss areas in which the study of creativity and linguistics have already intersected. First, linguistic creativity and language play consider how language itself can become a creative product, expressed anywhere from everyday banter to classic literature. Second, previous research has shown creativity to be associated with bilingualism. Third, I present the studies to date that have treated creativity as an individual difference in second language acquisition, and which form the basis for this study.

In the last section of this chapter, I review the role of communication strategies in second language acquisition. The field of research has developed from the effort of creating taxonomies and categories of strategies to discovering how they can most productively be used in speaking, writing, and even translating. Both cognitive and interactionist views are considered, along with
a look at the nuanced relationship between proficiency and communication strategy use. Finally, the research questions that guide this dissertation are presented at the conclusion of the review of literature.

**Studying Creativity: Definitions, Theories, and Frameworks**

**Definitions.** The lack of an agreed-upon definition of creativity is much-bemoaned by the field of creativity researchers (e.g., Cropley, 2011; Fishkin, 1999; Plucker & Makel, 2010). Even in 1961, barely a decade after the modern study of creativity began, Rhodes (1961) stated that he had found 40 published definitions of creativity. The focus of these definitions, along with the study of creativity itself, has shifted over time from emphasis on fine arts, to technology, and more recently to organizational culture. Discussions of a definition also stray into the distinction between creativity and intelligence, the scope of creativity considered, and the malicious use of creative thought (Cropley, 2011). Many studies simply avoid defining the construct altogether, as Plucker, Beghetto, and Dow (2004) discovered in a meta-analysis of how definitions are presented—and omitted—in the field. In their words, “It is almost as if creativity researchers are afraid that, in pinning themselves down to a concrete, operational definition, they will somehow destroy the complexity and fascination that the complex generates” (p. 87). Of 90 articles in a selection of peer-reviewed journals that used *creativity* in the title, only 38% included an explicit definition, 41% provided only an implicit definition, and 21% provided no definition at all (Plucker, Beghetto, & Dow, 2004)

Despite the widespread inconsistencies and omissions, two basic tenets are fairly consistent across most attempts at defining the construct: novelty and utility (Clapham, 2011). Novelty seems fairly clear, in that it implies some idea, product, or act that has not been previously conceived or expressed. The complication is in determining to whom it is new—the
person, the society, all of human history? The concept of utility, the other consistent element of definitions of creativity, is also frequently referred to as appropriateness, purpose, or effectiveness (Clapham, 2011; Cropley, 2011), but the basic idea is that utility distinguishes the creative act from a useless, random idea more typical of expressive creativity (Taylor, 1975) or pseudocreativity (Cropley, 2011). The definition proposed by Plucker, Beghetto, and Dow (2004) based on their meta-analysis addresses the issue of the context of a novel idea, and it also more fully elaborates the tenet of utility: “Creativity is the interaction among aptitude, process, and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context” (p. 90, original emphasis). This definition is well-grounded in previous research and encompasses all relevant facets of creativity as an individual difference in second language acquisition, and therefore it will be used in this dissertation.

**Theories.** With at least general agreement that creativity involves novelty and utility, and with the more elaborated definition provided by Plucker, Beghetto, and Dow (2004), some exploration of theory is possible. Theories of creativity are so numerous that the most recent comprehensive reviews identify not just ten major theories, but ten major categories of theories: developmental, psychometric, economic, stage and componential process, cognitive, problem solving and expertise-based, problem finding, evolutionary, typological, and systems (Kozbelt, 2011; Kozbelt, Beghetto, & Runco, 2010). While there is some overlap between the categories, they do help distinguish the many perspectives and approaches. The most relevant categories for the current study are psychometric theories and cognitive theories.

**Psychometric theories.** The primary focus of psychometric theories is the reliable and valid measurement of the creativity construct. The aim of many early studies of creativity—to
distinguish it from intelligence—spawned such theories. It was variously believed that creativity was a subset of intelligence, intelligence was a subset of creativity, and eventually that the constructs are distinct only past a certain threshold of intelligence (Runco, 2011). The threshold theory, based on the work of Wallach and Kogan (1965), holds that individuals with low IQ do not exhibit high creativity. Individuals with high IQ may or may not exhibit strong creative potential as assessed with divergent thinking tests. In other words, a person’s IQ must pass a threshold of around 120 before they exhibit creative potential (Runco, 2014). This theory has been upheld by the more recent research of Jauck, Benedek, Dunst, and Neubauer (2013), with the additional insights that other personality factors may play a role in whether or not creativity is realized above the threshold, and that the threshold appears to apply only to creative potential, not actual creative achievement.

J. P. Guilford, credited with starting the modern study of creativity following his 1949 keynote address on the topic to the American Psychological Association, also pursued a psychometric line of inquiry resulting in his Structure of Intellect theory (Runco, 2014). Instead of focusing on the distinction between intellect and creativity, however, he elucidated the distinction between convergent and divergent thinking. Convergent thinking is that which results in one preferred or correct answer, and it is typically the construct captured by intelligence tests or graded school assignments. Divergent thinking, on the other hand, results in a unique or unexpected idea (Guilford, 1968). Guilford’s original Structure of Intellect theory included 180 cells that were conceived as unique aspects of intellect and laid the groundwork for the continued study of divergent thinking.

Traditionally, fluency, originality, and flexibility have guided the study of divergent thinking, with elaboration also considered on some assessments. Fluency considers the number
of ideas a person generates in regard to a particular problem or situation. Originality is the novelty or uniqueness of those ideas, often in relation to other people's ideas. Flexibility concerns the degree of variation within one person's solutions or ideas, or the number of different categories of responses they provide. Elaboration is the persistence in providing details on a topic or idea. These four facets of divergent thinking are distinct yet complementary elements of creativity that help us understand its complexity more clearly (Runco, 2011).

**Cognitive theories.** Unlike psychometric theories, cognitive theories focus on the mental processes and individual differences that underlie creativity. Mednick’s (1962) associative theory, for example, proposed that creative thought is generated when disparate ideas or memories are linked together, usually after more obvious links are generated (Runco, 2014). As the ideas that are linked are increasingly remote, the insight seems more original. The links may be made by “serendipity, similarity, or mediation” (Mednick, 1962, p. 220). Serendipitous links are made when two ideas are unexpectedly or even accidentally joined. Similarity helps an individual make links in many contexts, but they are often verbal or visual, such as rhyme or shape. Mediation facilitates the generation of an original idea through links made across stimuli with common elements (Mednick, 1962). The heightened ability of creative individuals to make original links or insights can be thought of as a flattened hierarchy in this theory. Each mental concept has more associations, as opposed to a more vertical hierarchy with fewer associations linked to each segment of memory (Kozbelt, 2011; Kozbelt, Beghetto, & Runco, 2010). Other cognitive theories take similar approaches. For example, the disparate ideas referenced in Mednick’s (1962) original work have been more precisely identified as “concepts” in metaphoric logical approaches. Additionally, the creative cognition approach suggests that ideas are first generated and then explored in the process of idea formation, known as the geneplore model to
emphasize the process of generation and exploration (Kozbelt, Beghetto, & Runco, 2010). These cognitive theories, with their emphasis on processes and individual abilities, complement the measurement-driven approaches of the psychometric theories discussed above.

**Frameworks.** Despite the difficulty of a precise definition and the plethora of theories, there are several widely-used and useful schemas for studying and understanding creativity. One simple approach is to consider the magnitude of a creative act. The so-called “Big C” creativity typically applies to individuals who have made major contributions to some aspect of society, such as arts or science (Cropley, 2011). For example, the historical contributions of Mozart, da Vinci, or Einstein would be considered historical, sublime Big C creativity. On the other end of this spectrum is “little C” creativity. This is the more commonplace creativity evident in the work, school, or leisure lives of everyday people. This could be as simple as a new twist on a familiar recipe or a new format for an executive report (Cropley, 2011). Additional “mini-c” and “Pro-C” levels have been proposed to account for more personal and specifically professional instances of creativity (Kozbelt, 2011), but these are not widely embraced in the creativity literature. Acts of any magnitude of creativity may also be distinguished by Taylor’s (1975) “levels” of creativity. These include expressive creativity, which is like brainstorming in that ideas are numerous but not necessarily useful; technical creativity, which involves skill such as that of mathematicians or musicians; inventive creativity, which utilizes something that already exists in a new way; and emergent creativity, which produces something new that is not based on an existing concept or model.

**The 3, 4, or 6 Ps.** The many approaches to creativity are perhaps most clearly delineated by Rhodes’s (1961) “Four Ps” framework of person, process, product, and press. He loosely equated the establishment of the framework to the way the study of biology is organized by
binomial nomenclature, or how astronomy classifies types of heavenly bodies. In his view, *person* focuses on the influence of personality on creativity. Guilford first distinguished creativity from intelligence, as described above, and Rhodes (1961) suggested investigating other possible personal factors such as physiology, habits, and values that may promote or be associated with creativity. Research over time has shown “intrinsic motivation, wide interests, curiosity, autonomy and independence, and flexibility” (Runco & Kim, 2011, p. 534) to be consistent characteristics of creative people across domains. Other characteristics are more particular to creative individuals in certain fields such as art, science, or math. *Process* is concerned with the stages of idea generation and how it may be similar to or differ from routine cognitive processing, as apparent in cognitive theories such as the geneplore model (Kozbelt, Beghetto, & Runco, 2010). In other words, how does creative thought occur? The phases of preparation, incubation, inspiration, and verification were proposed by Wallas (1926/2014) as the progression of the creative process—an approach that has remained influential (Runco & Kim, 2011). Rhodes (1961) elaborated that this process can be taught, and he emphasized that there might be long periods of time from incubation to the actual creation of a product. *Products* have been proposed as another approach to researching creativity. Rather than potentially ambiguous personality traits, mental processes, or myriad environmental factors, examining actual products generated by a person allows for objective, tangible, and quantifiable investigation. This could involve counting pieces of artwork, publications, or inventions generated by people deemed to be creative, or by evaluating the quality of a product to determine if it exhibits creativity (Kozbelt, Beghetto, & Runco, 2010; Runco & Kim, 2011). *Press*, the “P” term that was not included in the earliest version of the cleverly alliterative framework (Cropley, 2011), refers to the environmental pressures that may influence a person’s experience or actions. Highly relevant in
educational and organizational settings, press factors may include time or the degree of autonomy available in a school or work context (Kozbelt, Beghetto, & Runco, 2010; Runco & Kim, 2011).

In addition to the Four Ps of person, process, press, and product, *persuasion* and *potential* have been suggested as additions to the framework for studying creativity. The notion of *persuasion*, proposed to relate to creativity by Simonton (1990), contends that a person with a creative idea must actually convince others that it is creative by influencing others’ thoughts. The effort necessary will vary widely depending on context of time and place, but gaining recognition is an essential aspect of creativity in this view. Considering *potential* was Runco’s (2007) suggestion that there is a need for something aside from all of the other factors to recognize a creative spark that might not ever be realized as a product or even a process. He went on to propose that the study of creativity should be divided into categories of *creative potential*, which would incorporate person, process, and press, and *creative performance*, which would include products and persuasion (Runco & Kim, 2011).

To summarize the discussion of definitions, theory, and frameworks as it relates to this dissertation, I will be using Plucker, Beghetto, and Dow’s (2004) research-based definition of creativity that expands the essential elements of novelty and utility to include social context. Psychometric theories and cognitive theories, which focus on assessment, divergent thinking, and associations, are the most applicable of the ten categories of theories as they address the testing and mental processes necessary for applying the study of creativity to second language acquisition. Within the framework of magnitude, this dissertation focuses on the “little c” creativity of everyday people, not historic acts of creative language use. In terms of the Ps, Murdock and Puccio (1993) recommended studying at least two of the Ps simultaneously in
order to understand their interactions and make results more generalizable. The person and process are important to this study because it considers the differences in the creative process of individuals. Along with defining, theorizing, and describing creativity, figuring out how to capture and quantify the process through which it occurs has also been the goal of considerable effort.

Assessing Creativity

Researchers of creativity have proposed numerous ways of assessing the construct. Many of the assessments themselves exhibit the very traits of divergent thinking they are often trying to capture—they are numerous, varied, and unique, and in some cases quite detailed. Keeping in mind that creativity can be studied from the perspective of the person, as a product, or as a cognitive process—all related to the environmental conditions (press)—assessments of creativity take myriad approaches to the general goal of measuring “characteristics related to creative production irrespective of specific outcomes” (Clapham, 2011, p. 458). When studying Big C eminently creative people, case studies and historical methods are most often used for assessment. When looking at the more common creativity that emerges in everyday life, however, a broader array of measures is used in an effort to include the full array of people, processes, products, and environments that exhibit creativity (Plucker & Makel, 2010).

Types of creativity tests. Although divergent thinking tests are by far the most commonly used, Hocevar and Bachelor (1989) categorized measurements of everyday creativity into six additional categories beyond divergent thinking and historical methods. Attitude and interest assessments allow respondents to select choices that describe themselves and their interests, such as “I have to learn things in my own way rather than accepting ideas or relationships suggested in textbooks, etc.” from the Holland and Baird (1968) Preconscious
Activity Scale (Hocevar & Bachelor, 1989, p. 54). Inventories such as the Neuroticism-Extraversion-Openness (NEO) Personality Inventory, which measures the “Big 5” characteristics of extraversion, emotional stability, openness to experience, conscientiousness, and agreeableness (Dörnyei & Ryan, 2015), have been used in creativity work, sometimes focusing on creativity as an independent trait and sometimes in investigating relationships between creativity and other personality traits. For example, Feist (1998) found that self-acceptance, openness, and impulsivity were common traits of creative people. Biographical inventories can be useful in determining the activities, hobbies, education, and other experiences that influence eventual creative outcomes for general or specific populations, such as inventories specific to science or other fields (Clapham, 2011).

Evaluations by people who know an individual well are also used as a form of creativity assessment. Teachers or peers may provide information about characteristics or activities commonly related to creativity, but these are often used as a validation method or as a secondary means of assessment. For example, Ottó (1998) had both teachers and students rate members of an English class on idea generation, which he used in conjunction with a more traditional divergent thinking test in a study of creativity and second language learning. Individuals may also be asked to rate themselves on creativity. Rather than focusing on contextual factors or experiences, like biographical inventories, these assessments typically try to capture a person’s actual output of products, as in the Creative Achievement Questionnaire (Clapham, 2011). However, most quantifiable measures of creative output can vary widely over professions and occupations, so self-reports are best used in conjunction with other assessments in many research situations. This is addressed to some extent by the Runco Ideational Behavior Scale, which is a self-report scale that asks respondents about their generation of ideas, as opposed to ideas that
become actual creative products. It has exhibited sufficient reliability and validity to be used as a criterion measure in studies of divergent thinking (Plucker & Makel, 2010).

Rounding out Hocevar and Bachelor’s (1989) categories of creativity assessment, judgments of products are used when experts in a particular domain rate artwork, writing, scientific discoveries, or other types of output on a scale. Some creativity researchers consider the production of a creative product to be a more legitimate way of identifying creative ability than any sort of test (Plucker & Makel, 2010). The Consensual Assessment Technique proposed by Amabile (1983, 1996), in which multiple raters assess a product, has been successful in demonstrating consistency across raters and reliably distinguishing creativity from other traits such as the aesthetics of a product (Clapham, 2011). This technique can also be applied to children’s school work and expanded to integrate processes and resources used into an evaluation of a finished product (Johnson & Fishkin, 1999). However, there is continued debate concerning the level of expertise necessary for external raters. Some contend that non-expert peers may be able to provide valid ratings, while others hold that expertise is required to achieve anything more than simple face validity (Plucker & Makel, 2010).

Whereas the assessments included in Hocevar and Bachelor’s (1989) taxonomy focused on the person, product, or process, more recent work has considered the environments (press) that might promote creativity. Measures such as the Team Climate Inventory and KEYS: Assessing Climate for Creativity focus on organizational factors that inspire creative production in the workplace. Both use a survey format and can be administered across a wide range of industries and contexts (Clapham, 2011). An additional assessment, Nemiro’s (2001) Virtual Team Creative Climate measure, focuses specifically on factors that may influence the creativity
of individuals working on a virtual team, such as freedom, collaboration, and trust (Plucker & Makel, 2010).

**Divergent thinking tests.** Despite all of these options, divergent thinking tests that focus on the creative process are still the most frequently used in many areas of creativity research. Divergent thinking and creativity tests are often referred to interchangeably, but Runco (2010) points out that they should be more accurately thought of as “useful estimates of the potential for creative problem solving and for the ideation that is so useful in the natural environment” (p. 439). There are several of these tests that focus on specific professions, such as the Creative Engineering Design Assessment, but most are designed to be used with broad populations. Guilford’s Structure of Intellect test, along with similar tests by Wallach and Kogan (1965) and Getzels and Jackson (1962), have been consistently used and have remained largely unchanged since their development in the 1960’s (Plucker & Makel, 2010). The Torrance Tests of Creative Thinking, often considered the “gold standard of divergent thinking tests” (Clapham, 2011, p. 460), exhibit strong reliability and include scores for several facets of creativity. Despite frequent reference in conversation and literature to the “Torrance Test,” it is actually a group of tests (Cramond, 1999). They include figural versions, in which most responses are drawn, verbal versions, an abbreviated version, an abstract sound version, and a physical version for preschool-age children (Johnson & Fishkin, 1999).

The group of Torrance Tests was originally developed by Paul Torrance in an effort to ground his work in creativity development with an appropriate assessment. They focus on the abilities that people use in the process of creative production of ideas, with the intent to “study the qualities of the person who would engage in that process” (Fishkin, 1999, p. 6). Torrance was clear, however, that people’s environments, socioeconomic situations, and other factors would
influence their potential to utilize the abilities the tests measured. These abilities are divided into scoring subsections that reflect the basic dimensions of divergent thinking: fluency, flexibility, originality, and elaboration. Although it is recognized that the subscores of fluency, originality, flexibility, elaboration, abstractness of titles, and resistance to premature closure are less reliable than the overall creativity index in the figural and verbal versions (Clapham, 2011; Cramond, 1999), they provide an increased level of detail that Torrance believed to be valuable in the ultimate goal of developing an individual’s creativity. Continued research has also found that divergent thinking as exhibited in children’s Torrance Test scores does relate to adult creative achievement (Plucker & Makel, 2010).

**Creativity and Language**

Perhaps rooted in the time when the study of creativity focused on fine arts and literature (Carter, 2004; Cropley, 2011), there is a strong tradition of considering creativity as it relates to language. The bulk of language and creativity work uses a paradigm of “locating creativity in words and how they are used to create texts” (Jones, 2010, p. 467) in a speaker’s first language, which is consistent with the product approach in the 4Ps framework. Beyond the traditional, formal study of English literature, *literary stylistics* is an approach that applies linguistic tools to the study of literature. Literary stylistics analyzes creativity through patterns or deviations from typical patterns of language. Likewise, scholars of *discourse stylistics* such as Cook (1994) have used conversation analysis and speech act theory tools to study literary texts (Jones, 2010).

In an effort more consistent with traditional discourse analysis but still focused on creativity, Carter (2004) argued that creative use of language can be found in everyday spoken conversations of normal people, not just in great literary works by exceptional authors. This perspective closely reflects the distinction of magnitude made between Big C and little c
creativity (Cropley, 2011). In a seminal work that marked a shift away from looking at creativity primarily in terms of literature, Cook analyzed the Cambridge and Nottingham Corpus of Discourse in English (CANCODE) and found that everyday language contains many characteristics associated with literature, i.e. repetition, metaphor, and simile. This study echoes earlier qualitative linguistic research by Tannen (2007) demonstrating the ubiquity in conversation of features typically thought of as literary. These features, Cook argued, manifest themselves frequently in interaction and are used to achieve social functions such as solidarity (Carter, 2004, see also Tannen, 2007). Furthermore, Carter was particularly interested in social contexts, and how what might be considered creative use of language could vary contextually. He did consider psychological and sociocultural explanations of creativity consistent with Rhodes’s (1961) treatment of press, but he argued that ultimately creative language use is situational, emerging from dialogue in a given context, and commonly evident amongst all people.

It seems sensible to focus on novel deviations from typical language use when considering creativity, as in literary stylistics. Like Carter (2004), Tannen conceptualized repetition from a creative perspective, stating: “Repetition…is the central linguistic meaning-making strategy, a limitless resource for individual creativity and interpersonal involvement” (2007, p. 101). As stated previously, the most basic characteristics of creativity are novelty and utility (Clapham, 2011). Literary stylistics and other approaches focus on the novelty criterion, but considering repetition allows us to include utility in the study of creativity and language. Tannen identified several functions of repetition: production, comprehension, connection, and interaction. Using variations in patterns of speech can occur as repetition of oneself or another person, and can occur immediately within an exchange or over time. In whatever form, repetition
serves these four functions but most importantly allows for involvement between conversation partners, often allowing the individual to do so creatively.

Carter’s (2004) work was, along with Crystal (1998, 2001), among the earliest to delve into the study of “language play” specifically in relation to creativity. Crystal looked at how people play with language in many genres and across ages. He drew a distinction between professional language play, such as that by advertisers and comedians, and amateur language play, such as puns and banter by adults at a dinner party. Children’s play with language is also considered. Crystal points out that much language play comes quite naturally to children, as evidenced by the progression from babbling babies to rhyming and eventually increasingly sophisticated manipulations of language. However playful children may be with their own language though, books and other reading materials that adults provide to them rarely include creativity in the language itself. Creativity is typically just conveyed through situations and supporting images, although Crystal suggests that there are many missed opportunities for intentionally exposing children to language play, and that doing so might be beneficial to their overall creative capacities.

After Carter (2004) and Crystal (1998, 2001) carried the study of creativity from written to spoken language and introduced language play, scholars have increasingly moved towards a focus on language play. Quite consistent with the utility aspect of definitions of creativity found in psychology, Jones (2010) proposed that there should be some value in a linguistic form or strategy for it to be considered in terms of its creativity. Pure aesthetic value is insufficient for his discourse and creativity approach; the creativity in discourse must have some objective in terms of life or relationships. Jones’s work in discourse and creativity “locates creativity in the concrete social actions that people use these words and texts to perform” (Jones, 2010, p. 467).
Jones (2012) expanded upon this work in his edited volume *Discourse and Creativity*. While previous work in language, discourse, and creativity had largely focused on the linguistic product, his stance was that “creativity is seen as residing not just in language itself but in the actions people take with language” (p. 7). Calling upon work in creativity from diverse fields such as literature, marketing, music, and technology, the chapters comprising the volume presented myriad ways that discourse analysis can help understand creativity in society from both cognitive and social perspectives. This view took into account social influences on the development of messages and the process of using discourse for action. Furthermore, Jones noted the fact that the studies themselves exhibited creativity, with discourse analysts drawing on a range of other disciplines, understanding and then rearranging norms in novel ways of looking at diverse means of discourse.

In one such study, Thurlow (2012) focused on “new” media discourse such as text messaging. He emphasized the point that in order to have creative discourse, there must be a standard or unmarked norm from which the creative text or message departs. These departures are often scorned by those in society who control language, especially when they are presented by youth, although these very departures are the essence of a vibrant, evolving language. This sort of language play in everyday life through everyday media is, he claimed, much more likely to have lasting impact on the development of language and society than the work of members of society thought to be great authors, artists, or other sorts of creative prodigies.

Additional studies of creativity and language from a discourse perspective range from humor to other “innovative language practices” (Bell, 2017, p. 2), sometimes in regard to second language users. Bell conceived these concepts as three spectra, which vary culturally and over time: language as formulaic versus creative; language as humorless versus humorous; and
language as serious versus playful. After Crystal’s (1998) and Cook’s (1994) proposal that evidence of creativity is abundant in the daily discourse of regular people, language play has been conceived as playing with language, a language itself, play in language, language games, humor, playing with the structure of conversation, functions of laughter, play for the purpose of affiliation, norm reinforcement, and sarcasm (Bell, 2017). Bell’s (2017) volume *Multiple Perspectives on Language Play* also extended the scope of language play to several considerations of L2 use. For example, business-oriented English language learners demonstrated the ability to develop cohesiveness through use of humor even at very low proficiency (Hann, 2017), while Van Dam and Bannink (2017) explored how a teacher can cultivate an atmosphere of play to facilitate the expansion of middle school students’ use of a second language. Otsuji and Pennycook (2017) identified maintaining racial separation as a function of multilingual language play. Similarly, Bailey (2001) provided an account of how American high school students with Dominican-born parents used Spanish language interactions to establish and maintain their ethnolinguistic identity.

One investigation of creativity specifically focused on second language use has emerged from the language play perspective. Taking a usage-based approach, Eskildsen (2017) used traceback methodology, which looks at a language learner’s utterances in reverse chronological order to find evidence of L2 development, to follow one adult English language learner’s acquisition of constructions across 10 months of language learning. This study examined the learner Carlos’s use and combinations of constructions. As opposed to assuming each utterance of a language is completely new, it viewed language use as a continuous cycle of reusing and rearranging pieces of language previously encountered, referred to as “recurring multi-word expressions” (p. 284) and treated extensively in Tannen’s (2007) work on repetition. A detailed
analysis of the participant’s utterances revealed frequent use of substitution within individual utterance schemas, along with embedding of multiple schemas within previously used schemas in order to create more complex utterances. By the end of the study period, the participant’s embedding of multiple utterance schemas within a single utterance multiplied fourfold. Eskildsen also used conversation analysis to explore the participant’s acquisition of the construction “need to VERB.” Although it was not the focus of a particular lesson that was in progress, Carlos made a note of the construction and almost immediately attempted to use it during an interaction with the instructor and a classmate. His use of “need” to elicit laughter from a classmate exhibited language play and thus a sort of novel use of the word, which Eskildsen would consider creative on account of its novelty compared to Carlos’s previous speech.

Although situated within the discourse analysis-based literature on language play, Eskildsen’s (2017) work provides an important bridge to examining creativity as an individual difference in second language use in that he identified creativity in terms of both the individual and the language, or the person and product to state it in terms of creativity research. Noting that “L2 users combine existing constructions in novel ways” (p. 281), he referred to creativity as “a person’s ability to expand existing L2 patterns in and through talk” (p. 282). In addition to bringing the individual’s skill into the definition, and while promoting a usage-based approach and traceback methodology as a means of looking at substitution and embedding of utterances in developing L2 English, Eskildsen focused on one of the two key elements of creativity: novelty.

Eskildsen’s (2017) work in some ways echoes Becker’s (1994) essay on the pervasiveness of repetition in all of our language, not just creative language play. Becker used a Malaysian narrative as an example of how recycling bits and pieces of language, in this case within a text written down for the purpose of reading aloud, cannot be easily translated without
losing meaning. The repetition helps establish intratextuality within the text as well as intertextuality through linguistic and cultural cues (Tannen, 2007). In this way repetition serves as utility, the other key element of creativity, and complements Eskildsen’s (2017) attention towards novelty.

So, combining repetition and new uses of L2 English is another way to perceive the link between language play, creativity, and second language production. Before moving on to creativity as an individual difference in language acquisition though, it is will be helpful to consider bilingualism as another perspective on individuals, language, and creativity.

Creativity and Bilingualism

Some scholars have considered various angles of creativity specifically in relation to bilingualism (Bialystok, 2001; Kachru, 1985; Kharkurin, 2018; Lasagabaster, 2000). Preceded by few other than Cummins (1976), Kachru (1985) proposed the notion of “bilinguals’ creativity.” Unlike the discourse and language studies that situate creativity solely in the linguistic product, he identified two main facets of bilingual creativity. First, he identified a bilingual person’s creativity as apparent within “the designing of a text which uses linguistic resources from two or more—related or unrelated—languages” (p. 20). Second, Kachru identified “the use of verbal strategies in which subtle linguistic adjustments are made for psychological, sociological, and attitudinal reasons” (p. 20). In other words, bilingual speakers draw on all of their available languages to manipulate their communication for a variety of reasons. This explanation is significant in that it places some value on the product and also acknowledges the intentional manipulation of a text on the part of a bilingual speaker or writer.

Kachru (1985) explored linguistic, literary, and pedagogical approaches in order to elucidate the two facets of bilingual creativity. Within the linguistic approach, he highlighted
contrastive discourse, an interactional approach, and contrastive stylistics as means of looking at creativity in non-native texts. Taking a literary approach, which was also prevalent among early studies of creativity and language in the field of discourse (Jones, 2010), Kachru demonstrated that “non-native” varieties of English had become standard in many parts of the world, which created space for authors to intentionally mix lexicon and shift styles from one language to another. For example, author Chinua Achebe used a distinctly Nigerian style in writing the English novel *Things Fall Apart* (1959). Kachru expressed skepticism of the pedagogical approach to studying bilingual creativity. Whereas from his point of view the study of second language acquisition until that point had focused on deviations from a native speaker standard, Kachru valued speech or writing that deviates from standards for its own sake in the same positive way as literary and discourse scholars viewed intentional manipulation of language for literary, humorous, or other effects. He further contended that second language acquisition approaches were ethnocentric and ignorant to context of communication. What some scholars saw as errors due to fossilization, he saw as a local speech norm appropriately and creatively used in particular sociolinguistic contexts. This led to his characterization of bilinguals’ creativity as differences—not deficiencies—intentionally manifested in texts of both individuals and communities.

Taking a more empirical approach, Kessler and Quinn (1987) also considered the creativity of bilingual participants from both linguistic and cognitive views. They evaluated middle school students’ hypotheses about a science problem on quality, syntax, and semantic factors. The Spanish-English bilingual students provided more scientifically insightful hypotheses and also used more metaphor in their responses, which were all given in their L2 English. Even though this study used student scientific hypotheses instead of more conventional
assessments of creativity rooted in psychology, it paved the way for additional studies that looked at the complex bilingualism-creativity relationship with increasing rigor. Work quickly flourished, with a review of 24 studies of bilingualism and creativity by Ricciardelli (1992) indicating fairly consistent results. At that point, all but four studies reviewed showed that creativity was higher among bilinguals than monolinguals.

Using extensive evidence from multiple studies, Bialystok (2001) explained how various cognitive behaviors, including problem-solving, control, and creativity, could have advantages resulting from bilingualism. In the studies presented, bilingual and monolingual children were asked to complete problem-solving tasks such as sorting cards by color and shape. The bilingual children consistently exhibited behaviors that indicated higher levels of inhibitory control, similar to the control they would have to exert in order to switch between two languages in different environments. They did not, however, show any advantage over monolingual children in a task that required analytical ability. Across Bialystok’s own studies and others that Ricciardelli (1992) considered, the strength of bilingualism had a consistent influence. When there was any difference between bilingual and monolingual performance on nonverbal tasks, the more balanced bilinguals performed better. When one language was less proficient, the cognitive advantages of bilingualism were not apparent.

Studies of bilingualism and creativity have continued to explore increasingly detailed aspects of the relationship. Leiken (2013) looked at performances of bilingual Russian-Hebrew children on both general and mathematical creativity tests along with the type of bilingual or multilingual educational program in which they were enrolled. He administered mathematical and pictorial tasks to assess the creativity of monolingual preschoolers in a monolingual school, bilingual preschoolers in a monolingual school, and bilingual preschoolers in a bilingual school.
The mathematical task asked participants to find multiple ways to divide a set of bottle caps into equal groupings. The pictorial task asked participants to suggest ways a kitten could use objects in a room to get a cap off a high shelf. Both of these tasks were scored for fluency, flexibility, and originality, as well as an overall creativity score. Despite great variation amongst children’s scores, the results did demonstrate that bilingual children had greater creativity as measured by pictorial and mathematical problem solving, with older, more balanced bilinguals having the greatest advantage. Additionally, there were differences in creativity measures and type of school, with bilingual children attending a bilingual school showing the most advantage over monolingual children at the monolingual school.

In a similar study, Leikin and Tovli (2014) focused on the differences in types of creativity strength exhibited by bilingual and monolingual children. Using the same mathematical creating equal number and pictorial multiple solution tasks as well as a verbal fluency test and a working memory test, they demonstrated differences in bilingual and monolingual performance, with bilingual preschoolers exhibiting higher levels of creativity on the verbal fluency and mathematical tasks, but not the pictorial problem-solving task. Interestingly, the results varied in more detailed analysis of sub-measures of creativity. The bilinguals’ fluency scores did not vary from the monolinguals’ fluency scores, but the bilinguals scored consistently higher in flexibility and originality. This supports the overall positive relationship between bilingualism and creativity, but demonstrates that there can be variation amongst sub-measures of creativity as well as types of creativity measured.

In the most recent evaluation of bilingualism and creativity, Kharkhurin (2018) lauded recent advances but still identified a shortage of empirical work on bilingualism and creativity, especially with adult populations. He attributed this to the difficulty in adequately defining both
creativity and bilingualism as well as the difficulty in accounting for simultaneous influences of bicultural experience. Nevertheless, he carefully summarized the studies that have found bilingualism to have an effect on creativity. Higher proficiency in both or additional languages, age of acquisition, sociocultural context, and code-switching are named as factors that influence the relationship. In addition to detailing empirical findings and methodological challenges, Kharkhurin made the first attempt since Cummins (1976) at explaining why there seems to be a link between bilingualism and creativity, and why there does not seem to be a link between bilingual populations and the creative endeavors and outcomes of these populations. Cummins had proposed that bilinguals’ wider range of life experiences beyond language use could account for their creativity. He also suggested that switching between languages fostered flexibility, or that it helped develop metacognitive abilities that also fostered creativity.

Kharkhurin (2018), building on the work of Cummins (1976) and the accumulation of research findings over several decades, proposed a two-tier theoretical platform to guide continued study of the intersection of bilingualism and creativity. First, he suggested a language mediated concept activation, meaning the brain activates in a similar manner when a person accesses multiple languages and/or when a person processes multiple concepts simultaneously, which lends itself to divergent thinking. In other words, disparate ideas may mentally connect in the same way semantic representations from different languages are connected. In a similar manner, a bilingual’s experience at selecting words to use from the correct language for a specific situation builds capacity for selective attention, which is also necessary to filter out competing ideas and present solutions for the type of divergent thinking task typically used in creativity tests. Second, Kharkhurin suggested that the personality traits engendered by bilingualism tend to have a positive effect on creativity. Switching between languages and
developing the idea that objects can have multiple names roughly equates to cognitive flexibility. Exposure to multiple cultures, as is often the experience of bilinguals, supports the development of tolerance of ambiguity and open-mindedness, both of which also can be manifested in measures of creativity. Motivation also has an association with creative behavior in favorable conditions, which Kharkhurin (2010) cautiously linked with the motivation that might be necessary for immigrants or others moving from a country where one language is spoken to another.

The evidence from Kharkhurin (2010, 2018) and others (e.g., Bialystok, 2001; Leiken & Tovli, 2014) consistently demonstrates an advantage in terms of problem solving and creativity for balanced bilinguals, in particular children, but evidence does not suggest an advantage for those who are still developing skills in a second language. Overall, most of the work on any aspect of the intersection of creativity and language has focused on the creative use of first languages, or the creativity resulting from already knowing a second language, but it has rarely focused on the intersection of creativity and the acquisition of language. I will now turn to looking at how language learners might manipulate a second language not because of their existing skill with the L2, but how they might use the skills associated with creativity to manipulate the language *despite* their lack of skill in the L2.

**Creativity as an Individual Difference in Second Language Acquisition**

As noted above, the study of creativity in relation to discourse, language play, and bilingualism has spawned books, special journal issues, book chapters, at least one conference, and numerous empirical studies, yet the study of creativity specifically as an individual difference in second language acquisition has yielded only a sporadic handful of journal articles, one encyclopedia entry, and an occasional conference presentation. This is surprising
considering the strong tradition of studying creativity in differential psychology, and the robust study of individual differences in SLA. In psychology, the study of individual differences encompasses “affect, behavior, cognition, and motivation as they are affected by biological causes and environmental events” (Revelle, Wilt, & Condon, 2011, p. 3). This spans a broad range of inquiry into how and why people are different with the hope of being able to predict how these differences will impact one’s life or success in a chosen endeavor. For many years, linguists studying second language acquisition primarily focused on aptitude and motivation as differences that would influence success in language learning. More recently, though, researchers in psychology and linguistics alike are regarding the influences attributed to individual differences as less distinct, less stable, more contextual, and more flexible (Dörnyei & Ryan, 2015). Modern researchers generally consider context, personality, cognition, affect, and other factors as part of the dynamic reality that influences the characteristics previously viewed as discrete. However, studying them individually or in small groups remains the most promising way of understanding their impact and how it might be harnessed for the overall good of improving language learning results. So, operating in the reality that creativity is just one influence in the midst of many others, but that no one study can harness the full spectrum of factors that work together, I will embrace a more traditional approach by focusing exclusively on creativity for this dissertation, with the hope that its interconnectedness with other influences may be further explored in future studies.

One of the earliest of the studies considering creativity as an individual difference in second language acquisition examined 34 Hungarian secondary school students' performance on a series of creativity tasks along with their English class grades (Ottó, 1998). The creativity tasks focused on idea generation as measured by five sub-tasks. Ottó asked the students to generate
ideas about consequences for unlikely situations, unusual uses for common objects, problems that could result from daily situations, items that belong to a designated category, and word pair associations. Of the four common means of scoring creativity (fluency, flexibility, originality, and elaboration), Ottó used fluency and elaboration. He noted, though, that greater elaboration could reduce fluency scores because the creativity tasks were timed. As such, he controlled for the elaboration scores when performing the correlations to analyze that data. Although the exact correlation test used is not named, results indicated a statistically significant relationship between English grades and total creativity test score (correlation coefficient = .63, p < .001), as well as between English grades and each sub-measure. Analysis of creativity scores and the teachers' assessment of the students' English skills (separate from their grades) further supported the results. This preliminary study set the stage for further investigation into cognitive creativity and language learning. However, the issue was not revisited in the literature until 2004.

Also in Hungary, Albert and Kormos (2004, 2011) refined Ottó’s (1998) original effort by focusing on the relationship between creativity and production in an oral task. In their study, 35 students were tested for English proficiency, completed two narrative tasks, and took a creativity test in their native Hungarian. The creativity test consisted of an unscored warm-up sentence completion exercise; unusual uses for objects; distant word association tasks conducted orally; and two drawing tasks. The narrative tasks required students to tell a story to a partner based on a picture provided by the researchers, with 5 minutes of planning time allowed. While the speaker was planning, the partner tried to guess what words the speaker would be using. Roles were then reversed. Linguistic measures of quantity of talk, complexity, accuracy, and lexical variety were scored, as well as creativity measures of originality, flexibility, and fluency. Normal data distributions allowed use of parametric correlational tests, which revealed a
negative relationship between quantity of talk and originality ($r = -.34, p < .05$), and positive relationships between quantity of talk and creative fluency ($r = .33, p < .05$) and narrative structure and originality ($r = .34, p < .05$). These results, along with the absence of statistically significant correlations among other measures, suggest that students with higher originality scores produced shorter narratives, but that creatively fluent students tended to produce greater quantities of talk. The positive relationship between narrative structure and originality lent further preliminary support to the possibility of an association between creativity and L2 production.

Creativity appeared to be gaining some foothold as a construct of interest in SLA as Dörnyei (2005) identified it as an individual difference area in need of additional research. He named three primary reasons for awareness of this individual difference. Based on studies in other areas such as psychology and education, he stated that creativity's "theoretical significance is indisputable" (p. 207) even though definitions and categories related to the construct varied. Dörnyei, like Ottó (1998), also pointed out the need for skills associated with creativity in order for students to thrive in the increasingly communicative-based classrooms that were emerging at the time. Finally, the nascent studies that had been conducted did indicate a connection between creativity and L2 processes. Detailed understanding about which aspects of creativity relate to which aspects of language learning were still lacking, so the interaction between creativity and other individual differences was also noted as a departure point for further investigation. In revisiting the topic 10 years later, Dörnyei and Ryan (2015) pointed out that creativity research in SLA had not flourished, despite the continued emphasis on student-centered language teaching that consistently places demand on students’ creative resources.
At nearly the same time though, McDonough, Crawford, and Mackey (2015) had undertaken this endeavor again by investigating the role of creativity in the context of a group oral production task through a corpus-based analysis. Their study asked groups of four Thai students of English to select one member of their group who would not be allowed on a hypothetical lifeboat, based on character information assigned to each participant. The students' scores on a figural Torrance Test of Creative Thinking (TTCT) were tested for relationships with measures including interactivity, reasoning, conditionals, and stance. Researchers demonstrated that for their 55 participants, questions and coordination had significant relationships with creativity through Spearman's rho ($r_s$) correlations supported by 90% confidence intervals that did not pass through zero.

Similar to McDonough et al.'s (2015) study, Mackey, Park, Akiyama, and Pipes (2014) investigated the relationship between creativity and oral production in a group decision-making task, but with the addition of other individual differences. Collegiate L2 Japanese language learners ($N = 20$) were assessed on linguistic production during the lifeboat task, as described above; a figural Torrance Test of Creative Thinking; an alternative uses creativity test; and working memory, anxiety, and personality indicators. Correlation analysis indicated some relationships between creativity and measures of linguistic output, most notably out-of-the-box ideas and conjunctions produced during the interaction task.

One additional recent study has examined creativity, along with learning style and metacognition, in relation to language learning. Using a sample of 122 students at English language institutes in Iran, Khodabakhshzadeh, Hosseinnia, and Rahimian (2017) demonstrated a relationship between creativity and language learning achievement as well as learning style and metacognition using structural equation modeling. Metacognition was the strongest influence on
achievement, followed by learning style and then creativity. Interestingly, there was a gender
difference in many of the measures, with females showing higher creativity scores. However, the
gender difference is inconsistent with most creativity research (Pagnani, 2011), and the creativity
assessment Khodabakhshzadeh, Hosseinnia, and Rahimian used (Abedi, 2002) is uncommon and
appeared to be based solely on multiple choice questions. Their measure of language learning
achievement was vaguely identified as “participants’ academic record” (p. 379). Despite these
shortcomings, it is notable that interest in the topic gradually continues to expand, and
researchers are recognizing the complexities amongst creativity and other influences on second
language acquisition.

While operationalization of creativity as an independent variable has been somewhat
consistent, with the most recent notable studies both using the TTCT (Mackey et al., 2014;
McDonough et al., 2015), creativity studies until this point have been largely exploratory and
have had little consistency in the output measures considered (see Table 1.1). Ottó (1998) looked
examined creativity in relation to quantity of talk, complexity, accuracy, lexical variety, and
narrative structure. Mackey et al. (2014) and McDonough et al. (2015), on the other hand,
focused on measures such as interactivity, reasoning, conditionals, and stance.
Table 1.1

Variables exhibiting relationships with creativity in previous studies

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Variable(s)</th>
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<tbody>
<tr>
<td>Ottó (1998)</td>
<td>Course grades</td>
</tr>
<tr>
<td>Albert and Kormos (2004, 2011)</td>
<td>Quantity of output</td>
</tr>
<tr>
<td></td>
<td>Narrative structure</td>
</tr>
<tr>
<td>Mackey, Park, Akiyama, and Pipes (2014)</td>
<td>Out-of-box ideas</td>
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<tr>
<td></td>
<td>Conjunctions</td>
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<td></td>
<td>Good conversant</td>
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<td></td>
<td>Interactivity</td>
</tr>
<tr>
<td>McDonough, Crawford, and Mackey (2015)</td>
<td>Questions</td>
</tr>
<tr>
<td></td>
<td>Coordination</td>
</tr>
<tr>
<td>Khodabakhshzadeh, Hosseinnia, and Rahimian (2017)</td>
<td>Academic record</td>
</tr>
</tbody>
</table>

With the exception of Ottó (1998), the most prominent studies have also included some measures of creativity in the analysis of the oral production. For example, creative fluency and quantity of talk (Albert & Kormos, 2004, 2011) are essentially the same construct measured once on the creativity test and once in the narrative task, so a statistical relationship does not necessarily reveal any difference in L2 use. Likewise, creative originality and out-of-box ideas (Mackey et al., 2014) are also capturing similar concepts as both independent and dependent variables. So, while the existing studies have shown promising evidence of relationships, the output variables that have been considered are inconsistent and, in some cases, redundant. One alternative to the previous approaches is to consider the relationship between learners’ creativity and a different influence on production that captures many of the same ideas in a more cohesive construct: communication strategy use.
Communication Strategy

The study of communication strategy has played a role in second language acquisition research for more than 40 years. The first mention of the term emerged in Selinker's (1972) work about interlanguage, but a definition, formal study, and preliminary taxonomy did not appear until a few years later (Tarone, Cohen, & Dumas, 1976). Enthusiastic work flourished through the 1980s. The focus became the development of taxonomies, with additional attention paid to the prospect of teaching communication strategies and their role in resolving difficulties in L2 interaction (Nakatani, 2010). Analysis continued through the 1990s, following a seminal work by Bialystok (1990) that synthesized the work of a number of scholars who had been working on the construct (Oweis, 2013).

Dörnyei and Scott (1997) completed the first significant meta-analysis of communication strategy research. They looked at the differing historical approaches to communication strategy, including traditional, interactional, extended, psychological, and speech-production views. In defining the construct, they suggested that learners must be attempting to solve a communication problem and must be consciously using a tactic to solve the problem in order to meet the usual parameters for consideration in the field of communication strategy study. Problems are not limited to those of linguistic deficiency, though; they might also arise from realizing one's own mistake, a comprehension or misunderstanding problem associated with an interlocutor's production, or the need to manipulate time in some way. Consciousness, which they viewed as a problematic term, implies that a person recognizes a problem at hand, uses a communication strategy intentionally, and realizes the utterance produced is less than ideal.

After examining definitions of communication strategies, Dörnyei and Scott (1997) provided an exhaustive "Inventory of Strategic Language Devices with
Descriptions/Definitions…and Indications Whether They Were Included in Any Other Taxonomies" (p. 187-194). Their table encompassed all of the disparate approaches to communication strategy, with information listed for 33 strategies that had appeared in the literature. Additionally, they provided a table that chronologically outlined nine of the taxonomies presented in research through 1997. The categories varied greatly, from Tarone's (1977) proposal of avoidance; paraphrase; conscious transfer; appeal for assistance; and mime to Dörnyei and Scott's (1995a, 1995b) categorizations of direct strategies; interactional strategies; and indirect strategies, each with many sub-categories. The various taxonomies demonstrate a key divergence in thought about communication strategy research. On one side, the interactional view interprets communication strategy as a means of solving problems in communication as well as enhancing it. On the other side, the psycholinguistic view focuses on the resolution of lexical problems (Nakatani, 2010).

**Developing perspectives in communication strategy.** Despite the myriad definitions and categories available, researchers have sometimes used a framework of just two main categories: achievement and reduction strategies (Nakatani, 2010). Achievement strategies help a speaker convey a message when there is some lexical, grammatical, or other challenge. For example, achievement strategies include means of engaging in an interaction such as paraphrase, word coinage (Faerch & Kasper, 1983), approximation, or code switching (Willems, 1987). Reduction strategies include avoiding a topic and abandoning the attempted message (Faerch & Kasper, 1983).

Hubert (2015) focused specifically on avoidance as a reduction strategy used by U.S. university students studying Spanish. Participants in the study were asked to respond to two writing prompts, both of which sought to elicit particular grammatical forms: either
preterit/imperfect or present subjunctive tenses. The writing samples were analyzed for proper or improper use of these verb tenses as well as length and complexity. Researchers also interviewed each participant after the writing task was complete as a means of directly acquiring additional information about strategy use. Hubert was not attempting to establish evidence of any particular relationship, but the study did successfully highlight the extensive use of avoidance as well as message reduction, message abandonment, approximation, and circumlocution by U.S. university foreign language students.

Whereas Hubert (2015) examined written production data, Rabab'ah (2008) looked at use of communication strategies in L1 to L2 translation. Although much less frequently used as a measure of production, the use of communication strategy for translation meets Dörnyei and Scott's (1997) criteria that specify presence of a communication problem and a conscious attempt to solve it. Rabab'ah had L1 Arabic students of English translate an Arabic text into English. The 36 participants produced 459 tokens of communication strategies, with the highest frequency of communication strategy being approximation, followed by circumlocution, message abandonment/reduction, and literal translation. Participants used achievement strategies more than they resorted to reduction strategies.

Recent work on communication strategy has also broadened the view to include ideas such as looking at communication strategy through a conversation analysis framework, which is more in line with the broader interactionist view of strategy as a means of enhancing communication. Building on a qualitative analysis of communication strategy in Iran by Jamshidnejad (2011), Burch (2014) shifted focus from deficiencies to abilities. He drew attention away from the internal psycholinguistic processes that traditional communication strategy studies attempt to capture by micro-analyzing interaction with conversation analysis.
methodology. His focus was on the use of planning, compensation, and non-verbal resources, and he even suggested that "a priori taxonomical categorization is not necessary" (p. 675), although "from a quantitative perspective, the use of such taxonomies as coding schemes is a necessity" (p. 660). The micro-analysis he presents of an L1 English speaker having an L2 Japanese conversation with a native Japanese speaker demonstrates the value of conversation analysis for communication strategy study, while still recognizing the value of more traditional taxonomies.

**Individual differences and communication strategy.** Communication strategy research has also considered the influence of individual differences. Some studies have investigated factors such as a learner’s goals and backgrounds (see Kasper & Kellerman, 1997) or first language (L1) (Guénette, Kennedy, Allard, & Murphy, 2015), but by far the individual difference most commonly paired with communication strategy use is proficiency. One consistent finding is that use of communication strategies may change along a continuum in conjunction with proficiency (Rossiter, 2005). In a story narration task, Rossiter tracked adult English learners’ use of code-switching, all-purpose words, word coinage, approximation, and circumlocution over a 15-week period. Examination of the frequency of use of each strategy among the four learners whose production improved (based on points awarded for inclusion of essential elements and gist) revealed that for this sample, their use of circumlocution increased over the course of the study, but total communication strategy use decreased. This finding supports work by Jourdain (2000) on circumlocution, which pointed out that circumlocution is one of the standards of higher proficiency. This fact is also detailed by the American Council on the Teaching of Foreign Languages (ACTFL). ACTFL "Advanced High" level speakers, for
example, exhibit "confident use of communicative strategies, such as paraphrasing, circumlocution, and illustration" (ACTFL, 2012, p. 5).

This nuanced relationship between communication strategy use and proficiency has also revealed itself when students are given explicit training. Japanese university EFL students with higher proficiency exhibited understanding of how to use various strategies to jointly create meaning in conversation after just 12 weeks of training in a study by Nakatani (2010). He pointed out, however, that because higher proficiency students were more aware of strategy use, communication strategy was more useful to them. She called for more explicit training to meet the needs of lower proficiency learners. This echoes Vandergrift’s (1997) earlier study that showed novice learners relying more on non-verbal strategies in listening activities, whereas intermediate learners used more verbal strategies such as backchanneling when listening in L2 French. Use of questions as a strategy has also been associated with proficiency (Ross & Ross, 1991), although of course some studies have shown no relationship between communication strategy use and proficiency at all (Dörnyei, 1995; Poulisse, 1990). Despite the varied findings over the years, it does seem clear that communication strategy use is not static over the course of a learner’s acquisition of a new language. Different levels of proficiency call for and allow different strategies in diverse contexts and situations.

In a unique look at another individual difference, Littlemore (2001) investigated the relationship between an individual's holistic or analytic style and use of communication strategy, as detailed in Poulisse's (1990) Nijmegen Taxonomy. Cognitive style was measured with an electronic Cognitive Styles Analysis. Communication strategy preference was evaluated by having participants describe a series of pictures in L2 English. Those who used more comparison-based language fit into the holistic communication strategy category, whereas those
who used more description-based language fit into the analytic communication strategy category. The study found results indicating a difference between analytic/holistic cognitive styles and communication strategy use \( t = 2.52, df = 43.38, p = .016; t = -2.55, df = 43.52, p = .014 \). Littlemore concluded that "individual differences in patterns of communication strategy usage can be attributed, at least in part, to cognitive style" (p. 241).

Cognitive style is typically researched separately from creativity, but studies have established links between the two constructs, and some theories of creativity do incorporate cognitive style (Martinsen, Kaufman, & Furnham, 2011), making Littlemore’s (2001) finding particularly interesting for this study.

Amongst the many available choices and perspectives, I am drawing from both cognitive/psycholinguistic and interactional approaches to communication strategy for this dissertation. On the one hand, communication between speakers of a second language is undeniably interactional, with learners of constantly co-constructing meaning and using numerous strategies to reach shared understanding (Firth, 1990; Firth & Wagner, 1997). On the other hand, as Burch (2014) pointed out, categorization and labeling is necessary in terms of coding and analysis. Examining distinct strategies is also a way to help students discern which strategies might work best in specific communication situations, thus supporting the overall effort towards meaningful interaction (Kennedy & Trofimovich, 2016). Furthermore, incorporating a cognitive approach will allow analysis to be more consistent with a cognitive process approach to creativity. As Dörnyei and Scott’s (1997) inventory remains the most comprehensive account of relevant strategies, and because it integrates both cognitive and interactional approaches through its distinction between direct, indirect, and interactional strategy categories, it will guide the analysis of communication strategy use for this dissertation.
Summary and Research Questions

To summarize the main concepts relevant to this dissertation, the study of creativity usually encompasses ideas that are novel and useful (Clapham, 2011) from the perspective of a person, product, process, or press (Rhodes, 1961). Psychometric creativity theories based on the work of Guilford (1968) focus on divergent thinking, while cognitive creativity theories focus on processes of association (Mednick, 1962). Assessments of creativity vary widely depending on the purpose, but many, most notably the Torrance Tests of Creative Thinking, focus on fluency, originality, flexibility, and elaboration (Clapham, 2011; Cramond, 1999). Creativity and language have been linked in many contexts, from literature to everyday language play (Carter, 2004). Creativity has also been identified as a common characteristic of individuals who know more than one language (Bialystok, 2001).

Preliminary research on creativity as an individual difference in second language acquisition has started to show evidence of relationships, even though these relationships are thus far inconsistent. Combining the existing findings on creativity and narrative structure (Albert & Kormos, 2004, 2011), course grades (Ottó, 1998), and other variables (Mackey et al., 2014; McDonough et al., 2015;) with the well-established research into communication strategies in second language use will allow this new investigation to answer the following research questions and further consider the role proficiency may play in outcomes, as well.

1. What is the relationship between creativity and communication strategy use in oral production amongst English learners?

2. What is the relationship between creativity and use of narrative structure in oral production amongst English learners?
3. What is the relationship between creativity and course grades in English language skills courses?

4. What role does the proficiency level of English learners play in any relationship(s) amongst creativity and communication strategy use in oral production tasks, narrative structure in an oral task, and language skills course grades?
II. Methodology

Participants and Context

Based on a conservative estimated effect size of $R^2=.10$, for 80% power with the two predictor variables of creativity and proficiency, a sample size of at least $N=74$ was necessary for this study (Larson-Hall, 2010). A total of 104 participants started the study. Although attrition due to scheduling difficulties reduced the number of participants who completed the entire study, and some data was unusable due to missing information, complete data was available for 78 participants.

Participants were all students enrolled in their second semester of study in the Foreign Language Education department at a large university in Turkey. The university’s four-year teacher preparation curriculum includes courses in English language, English literature, Linguistics, and Education. Prior to enrollment in the university, the students had competed in a rigorous examination-based university entrance process. Their scores were amongst the highest in the nation. The exam was multiple-choice, including many challenging questions on detailed points of English grammar and reading, but it did not include listening, speaking, or writing. Because of the emphasis on preparing for the entrance exam throughout high school, the participants had limited or no opportunity to practice speaking in English prior to enrolling in the university. However, because the university uses English as its medium of instruction, students must pass an additional university-administered English proficiency exam prior to commencing their course of study in the Foreign Language Education department.

Of the participants in this study, 47 had attended a one-year English language preparatory course at the university that did not count towards their GPAs but helped them pass the proficiency exam, while 30 passed the proficiency exam upon initial matriculation and were exempted from the English preparatory year (one unreported). The proficiency exam required to
graduate or exempt the preparatory course did not require speaking, so many participants still had particularly limited experience in speaking after the one-year preparatory course despite strong lexical and grammatical knowledge.

As noted previously, research results have varied considering the use of communication strategies and proficiency, but the overall trend suggests that low proficiency L2 users have limited command of communication strategy use, and advanced users might eventually shift away from the need for communication strategies as they encounter fewer lexical and other problems in production. Therefore, the intermediate speaking level of this group of L2 users was well suited for investigating communication strategy use in their oral production.

There were 59 female participants and 18 male participants (1 unreported), which reflects the gender composition of the department as a whole. As noted in You, Dörnyei, and Csizér (2016), gender imbalance is typical in similar studies. Furthermore, major studies of creativity have consistently failed to find differences in creative potential between genders (Pagnani, 2011), so the gender imbalance should not affect results. See Appendix A for the approval letters from the host university’s Ethics Committee and the Georgetown Institutional Review Board.

**Instruments**

Research included four stages of data collection (see Figure 2.1): survey, narrative task, interaction task, and creativity test. After completing informed consent forms (see Appendix B), the participants completed a questionnaire to collect minimal necessary biographical information (see Appendix C) and a willingness to communicate survey for use in another study. The survey was conducted using Qualtrics online survey software. Students were given time to complete the survey in a computer lab or on their smart phones during a weekly grammar class.
Narrative task. The narrative task was the first of two oral production tasks participants completed during a weekly speaking class. One of the problems with creativity research in SLA to date has been the challenge of separating the potentially creative content and quantity of what participants say in a task from how creativity specifically affects their use of their linguistic resources. In this case, answering the research question effectively required a simple task: a task that did not require participants to use cognitive resources to devise a story line or determine the content of what they would say, but only required them to decide how to say it. Based on the work of Préfontaine and Kormos (2015) that explored narrative task difficulty, I created a modified version of a simple comic strip they used for its clear, predictable story line and minimal demands on speakers’ creativity in message formulation (see Appendix D). In the comic, a tired businessman receives advice from a psychiatrist to go live simply in the country. When the man moves to a farm, he does not know what to do at first, but then his farm grows to become so successful that he is once again in an office managing the business of the farm, living similarly to his stressful life in the city. The simple story did contain a few linguistic challenges. For example, “psychiatrist” is difficult to remember and pronounce but necessary to tell the story, which created a possibility that communication strategies would be necessary.
The comic strip was also appropriate because it integrated two distinct environments that might be familiar to the students. Many of them grew up in rural areas with limited international exposure, but others grew up in cosmopolitan cities such as Istanbul. The blend of urban and rural scenes gave participants from all backgrounds the opportunity to speak on more familiar terms, while also presenting some potentially less familiar items that would create challenges and prompt the need for using communication strategies. Overall, the comic allowed pure analysis of narrative structure and ample opportunity to examine how learners use communication strategies to “tailor the message to their existing linguistic resources” (Préfontaine & Kormos, 2015, p. 100). In other words, with all participants asked to tell the exact same story, it is possible to more accurately examine the differences in how they use language and strategy to tell it.

**Interactive task.** Second, participants completed an interactive speaking task. Based on the circumlocution work of Jourdain (2000) and Littlemore (2001), participants described a series of objects to an interlocutor. This type of activity has also been used to study links between communication strategy use and proficiency (Paribakht, 1985). However, rather than using obscure objects (Jourdain, 2000) that might be completely unfamiliar to and frustrate participants, this study provided participants with names of familiar objects, people, or places. Each participant was required to elicit from a partner the names of up to 20 well-known items by describing the series of items one at a time. They were given five minutes to describe as many of the target words as possible. In order to stimulate use of communication strategies, they were prohibited from using the word itself and five common words that most readily described the item (see Appendix E for participant instructions and sample item card). After each participant completed the five-minute round of describing words, she became the guesser for the next participant, who described a different but equivalent group of words (see Appendix F for word
lists). So that the success of the task would not be dependent on the guessing interlocutor’s L2 lexical resources, the guesser was allowed to name the object being described in Turkish if she could not think of the name in English. This task created a context of authentic interaction because it was a variation of the party game Taboo, which is typically familiar to college-age participants. The Turkish version of the game, “Tabu,” was popular at the time of data collection.

While the list of five prohibited words pushed participants into a more demanding lexical gap situation that prompted communication strategy use, participants were also allowed to "pass" on any item and move on to the next. The option to pass provided a choice between achievement and reduction strategies, as per Nakatani (2010). Furthermore, this task allowed each participant to engage in an interactive task in addition to the more monologic narrative task, which allowed for use of strategies in the interactional category as per Dörnyei and Scott’s (1997) inventory. Both the narrative and interactive tasks were attended and recorded by me and/or trained research assistants. See Appendix G for the complete written instructions given to research assistants prior to their training session.

Creativity test. At a separate time near the end of the semester in an introductory Linguistics course, participants completed the Torrance Test of Creative Thinking (TTCT) Figural Version A, which provides an overall creativity index as well as sub-scores for distinct elements of creativity: fluency, originality, elaboration, abstractness of titles, and resistance to premature closure. The figural TTCT was particularly suitable for this study because it required minimal use of L2 English or L1 Turkish, and it is criterion-referenced with well-established reliability and validity. It is also norm-referenced, but the norms were not used in this study because they were developed with American participants and therefore would not be applicable to the Turkish population. The minimal use of language on the test allowed for measurement
strictly of creativity without linguistic demands. Furthermore, it allows for consistent comparison with the other recent studies of cognitive creativity in SLA that have used the TTCT (e.g., Mackey et al., 2014; McDonough, Crawford, & Mackey, 2015).

The TTCT figural version consists of three figural forms tasks: picture construction, picture completion, and lines (Torrance, 2011). For these tasks, participants are given a test booklet and asked to draw a picture starting from a shape on the paper; to complete 10 figures presented as incomplete shapes; and to create pictures from sets of parallel lines. Participants are allowed 10 minutes per section, for a total of 30 minutes for the entire test. Participants were allowed to ask the Turkish research assistant for help with any vocabulary words they needed to label their pictures in English. Although participants did write titles for their drawings, the titles were used only to help understand what the drawings represented during scoring and were not included in analysis.

**Logistics.** Following completion of all four research tasks, participants received a short debriefing presentation and a handout further explaining the study (see Appendix H). This was usually conducted at the end of the last day of the semester in Linguistics classes, following the creativity test. Depending on absences, research assistant availability, and scheduling, some participants completed the tasks in different orders, but informed consent was always obtained first, and the debriefing was always provided after completion of all four required tasks. Participants were provided the opportunity to ask questions or further discuss the project following the presentation and receipt of the handout, but there were few to no questions about the study. Students who completed all of the tasks and were students in my Linguistics classes were given extra credit. The extra credit was the main focus of students’ questions during the debriefing time. Students who opted not to participate in the research project were given
alternate extra credit opportunities, as were students in Linguistics sections taught by another instructor. The transcripts necessary to address the third research question concerning creativity and grades were collected through a university database after final grades for the semester were available. Georgetown University Linguistics Research Apprenticeship Program (GULRAP) undergraduate participants entered the TTCT scores and relevant transcript information into a database.

**Pilot Study Results**

One year prior to the primary data collection, a group of 34 students with the same characteristics participated in a pilot study. In the pilot study, they completed the interactive item description task, a 30-minute written narrative task based on the original Sempé (1962) cartoon strip, and the TTCT. Results were analyzed and revealed complex patterns. Most notably, the creativity characteristic “elaboration” showed associations with use of the communication strategies exemplification, fillers, and questions (see Table 2.1) in the interaction task. Use of questions as a communication strategy also showed an association with originality ($r = .45$, $p = .01$, CI: .13 -.68). Finally, the creativity trait “resistance to premature closure” was associated negatively with use of circumlocution ($r = -.36$, $p = .04$, CI: .13 -.68), also in the interaction task. Other correlations of creativity traits and communication strategy use did not yield relationships in the oral task. No relationships emerged between creativity and communication strategy use in the written task. Narrative structure, grades, and proficiency were not analyzed in the pilot study.
Based on the pilot study and pre-pilot testing, several minor modifications were made to the original interactive task. In the pre-pilot test, the words on the cards were presented as small drawings in an attempt to simplify the task for the speakers. However, the pre-pilot participants suggested that it seemed childish and would not be too difficult with words, so words were used in the pilot study and primary data collection. Some of the target words selected for the pilot study were eventually modified, though. For example, the word “igloo” was removed because some pilot study participants did not know its meaning. The cards with the item names and prohibited words were also numbered for the primary data collection, and research assistants were instructed to place them back in numerical order for each participant so that the word choices would be more consistent across participants.

The most notable change between the pilot and primary data collection was changing the narrative task from written to oral mode. The participants were given 30 minutes to complete the written narrative in the pilot study, but they were not allowed to leave if they finished early. Despite the 30-minute requirement and being encouraged to include detail, the pilot study written narratives were short (M = 263.82 words, SD = 106.11) and yielded no apparent relationships between creativity and communication strategy use. However, the participants had completed almost an entire academic year of writing and literature instruction at the time they completed
the written narrative, so it seemed to be insufficiently challenging to cause them to need communication strategies.

The cartoon strip itself was also modified for the primary data collection. Participants were uninterested in the cartoons used in the pre-pilot test, so I continued searching until I found the more suitable Sempé (1962) cartoon used by Préfontaine and Kormos (2015). Instead of the original two-page, 11-frame, black-and-white rendition I used in the pilot study, I created an updated version using the online software Pixton.com for the primary data collection. The software allowed for the creation of more modern-looking characters and scenery, as well as color. The story was simplified from 11 frames on two pages to 9 frames on just one page to reduce repetition. The final version was also enlarged and printed on an 11.69” x 16.53” (A3 size) paper to allow participants to see the details more easily. Finally, the target number of participants for the primary data collection was set at 74 in order to allow for more advanced statistical analyses that could account for proficiency as a possible intervening variable.
III. Analysis and Results

Transcription and Scoring

Data was transcribed with help from undergraduate research apprentices. The three apprentices transcribed 8-10 interactive tasks and 8-10 narrative tasks each after being trained and provided with transcription guidelines (see Appendices J and K), and I checked the transcriptions for accuracy. I attended training in the administration and scoring of the TTCT at the Torrance Center for Creativity and Talent Development at the University of Georgia with funding from a Georgetown University GradGov Research Project Award in March 2018. Through several days of training and follow-up assignments, I was certified as a reliable scorer of the test (see Appendix I). Therefore, I was able to score the tests independently without needing funds to pay for professional scoring from Scholastic, Inc. Coding of communication strategies is described below, along with descriptive statistics presented by variable. Further results presented by research question follow.

Descriptive Statistics

Creativity. The TTCT Figural scoring system consists of an overall creativity score as well as sub-measures for fluency, originality, elaboration, resistance to premature closure, abstractness of titles, and a checklist of creative strengths. For this study, I eliminated the abstractness of titles and the checklist of creative strengths from the scoring because they required use of language. I did not want L2 lexical knowledge to act as an intervening variable on the creativity score (Mackey & Gass, 2016), so the sections I scored were strictly figural. I did not use the TTCT norms manual to compute percentile scores because I eliminated those two sections, but also because the norms are based on U.S. participants and therefore would not be accurate to apply to a Turkish participant group. The overall creativity score I computed
The overall creativity scores ranged from 28 to 91 (M = 57.58, SD = 14.37, N = 78). Based on visual examination of a histogram overlaid with a normal distribution curve, the overall creativity scores initially appeared to be slightly negatively skewed (see Figure 3.1). However, the skewness level for overall creativity is .22, which is less than one and therefore considered to indicate a sufficiently normal distribution by standards in the field (Larson-Hall, 2010).

![Figure 3.1. Raw overall creativity score histogram with overlaid normal distribution.](image)

Each sub-measure of creativity: fluency, originality, elaboration, and resistance to premature closure, had adequately normal distributions to continue with parametric statistical assumptions, as determined by visual examination of histograms and skewness levels. See Table 3.1 for means and standard deviations of creativity sub-measures.
Table 3.1

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>19.21</td>
<td>5.81</td>
</tr>
<tr>
<td>Originality</td>
<td>13.36</td>
<td>4.62</td>
</tr>
<tr>
<td>Elaboration</td>
<td>12.31</td>
<td>3.35</td>
</tr>
<tr>
<td>Resistance to Premature Closure</td>
<td>12.71</td>
<td>4.04</td>
</tr>
<tr>
<td>Overall Creativity Score</td>
<td>57.58</td>
<td>14.37</td>
</tr>
</tbody>
</table>

N=78

Torrance, Ball, and Safter (2008) acknowledged that the TTCT scoring system is weighted in favor of participants with high fluency scores, stating in relation to the resistance to premature closure sub-measure, “Unfortunately, those who complete only a few responses are penalized and this gives an untrue picture of the subject’s ability to delay closure” (p. 13). For example, if a participant only scored a total of 10 points for fluency, but all 10 of the ideas were original, the originality score would appear to be below average, although the percentage of given responses that were original was above average. Cramond (1999) notes that there have been arguments that a greater quantity of ideas generated is connected to higher performance in the sub-measures, but scholars and educators have remained concerned about the computation of scores. The TTCT scoring system was streamlined in 1983 to address the emphasis on fluency, but this weakness in the TTCT and other creativity assessments remains and has been handled in various ways in SLA research. Ottó (1998) partialled out elaboration from fluency scores when conducting correlations between fluency and course grades. Albert and Kormos (2004, 2011) created ratios of relative flexibility and average originality relative to total flexibility. McDonough, Crawford, and Mackey (2015) used the professionally scored TTCT overall creativity index but no sub-measures for analysis.
In keeping with Cramond’s (1999) suggestion that a ratio can address the issue, I computed ratio scores for originality, elaboration, and resistance to premature closure scores by dividing the number of points in each measure by the number of relevant fluency points. Originality and elaboration are scored for all three sections of the TTCT, so using the total fluency score as the denominator was appropriate for those ratios. For the resistance to premature closure ratio, the resistance to premature closure score was divided only by the fluency score for Section 2 of the TTCT, because only that section is used in calculating the resistance to premature closure score. This ratio is greater than 1 because it is possible to score up to two points per item in this measure. See Table 3.2 for ratio means.

Table 3.2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Ratio-based Mean</th>
<th>Ratio-based SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency (not modified)</td>
<td>19.21</td>
<td>5.81</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Originality (ratio)</td>
<td>.70</td>
<td>.14</td>
<td>13.40</td>
<td>2.72</td>
</tr>
<tr>
<td>Elaboration (ratio)</td>
<td>.68</td>
<td>.19</td>
<td>13.05</td>
<td>3.66</td>
</tr>
<tr>
<td>Resistance to Premature Closure (ratio)</td>
<td>1.67</td>
<td>.24</td>
<td>12.70</td>
<td>1.84</td>
</tr>
<tr>
<td>Overall Creativity (using ratios)</td>
<td>22.26*</td>
<td>58.36</td>
<td>7.10</td>
<td></td>
</tr>
</tbody>
</table>

N=78
*This measure was not used in analysis because of the confounding influence of the fluency score. It is included here to demonstrate the dilemma of using ratios to create a composite score without multiplying by average fluency.

The ratios are effective for analysis of individual sub-measures of creativity. However, if they are added together with the raw fluency score to create a composite creativity score, the fluency score once again dominates the overall score (see Table 3.2). To calculate an overall creativity score that used the ratios to control for fluency but more closely balanced the sub-
measures of creativity, I multiplied the originality, elaboration, and resistance to premature closure by the mean fluency scores for each of those measures (using total mean fluency for originality and elaboration, and only the resistance to premature closure mean fluency for the resistance to premature closure ratio). The resulting ratio-based mean scores did not differ substantially from the raw creativity scores aside from a lower standard deviation on the standardized overall creativity score, but they do provide additional valuable information by eliminating the “fluency penalty” for the three other measures of creativity used in this study. Using both raw and ratio scores can enable a broader understanding of an individual’s creative capacity independent of an individual’s particular strength in the category of fluency (Cramond, 1999), so I made use of both sets of scores.

**Communication strategy: Interactive task.** I developed a communication strategy coding protocol for the interactive and narrative tasks using Dörnyei and Scott’s (1997) taxonomy. For each strategy, I provided examples from the data and additional notes to make coding more consistent (see Appendix L). After the undergraduate research apprentice and I had each coded 10% of the data using MAXQDA software, we checked interrater reliability. Using a 90% agreement standard, initial interrater reliability was 67.06% (Brennan and Prediger’s Kappa = .65). Close examination of discrepancies by both coders revealed that many were inconsequential, based on minor inconsistencies such as including a verbal filler uttered immediately before or after an instance of a strategy, or including more or less of an utterance than the other coder had included when highlighting segments to mark certain codes. For example, “No” and “No.” were indicated as a disagreement because the inclusion of the period by only one coder resulted in only a 66% intersection of coding. The coding protocol was amended to include more detail on which portions of strategies to highlight, and the minimum
code intersection rate at the segment level was lowered to 75% to account for remaining highlighting inconsistencies. Using the revised protocol and reduced standard resulted in agreement of 91.56%, Kappa = .91. The revised protocol was used for the remainder of the coding.

After all 78 interactive tasks were coded, I grouped the strategies each participant used into Dörnyei and Scott’s (1997) categories of Direct, Indirect, and Interactional Strategies (see Appendix L for a complete list of strategies and categories). Direct strategies “provide an alternative, manageable, and self-contained means of getting the (sometimes modified) meaning across” (Dörnyei & Scott, 1997, p. 198) and include strategies such as circumlocution and code-switching. Indirect strategies “do not provide alternative meaning structures, but rather facilitate the conveyance of meaning indirectly by creating the conditions for achieving mutual understanding” (Dörnyei & Scott, 1997, p. 198), often by maintaining the flow of communication despite a performance problem or processing time delay. They include strategies such as verbal fillers and strategy markers, i.e., “I don’t know the English word, but…” The distinction between direct and indirect strategies is slight and, as noted below in the results of Research Question 4, not necessary in every analysis. However, in order to maintain consistency with the original taxonomy and to ensure any differences in creativity and types of strategy use were evident, I began analysis by treating direct and indirect strategies separately. Interactional strategies use a cooperative approach with the interlocutor to co-construct meaning and include confirmation responses, rejection responses, and directly asking for help. Strategies that were indistinguishable from disfluencies caused by interruptions by the guesser (retrieval, self-repair, self-rephrasing, fillers, and self-repetition) were excluded from the interactive task coding.
The participants used an average of 21 direct strategies, three indirect strategies, and 45 interactional Strategies (see Table 3.3) during the five minutes of the task. The most commonly used strategies in the interactive task based on total tokens in the data set were response: expand (1116 tokens); circumlocution (936 tokens); and response: confirm (915 tokens). Distributions for this data were normal.

Table 3.3

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min, Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
<td>20.96</td>
<td>4.74</td>
<td>10, 36</td>
</tr>
<tr>
<td>Indirect</td>
<td>3.36</td>
<td>2.90</td>
<td>0, 14</td>
</tr>
<tr>
<td>Interactional</td>
<td>44.82</td>
<td>14.57</td>
<td>16, 80</td>
</tr>
</tbody>
</table>

N=78

Communication strategy: Narrative task. Direct and indirect communication strategies were considered for the narrative task; interactional strategies were excluded because the task was monologic. The only exceptions were indirect appeals for help, which were instances of asking the research assistant a question about the task; response: confirm; and response: reject, which were affirmative and negative utterances related to understanding the content of the story. Interrater reliability was computed using the same procedure as the interactive task. Initial interrater reliability using 90% standard was 82.35% (kappa = .81). This is considered good (Mackey & Gass, 2016), and investigation of the discrepancies revealed that they were inconsequential items similar to the highlighting inconsistencies in the interactive task. Coding proceeded using the revised protocol guidelines that were developed to address the inconsistencies in the interactive task coding.
The most commonly used strategies in the narrative task were fillers (2160 total tokens); self-repair (488 total tokens); and self-repetition (321 total tokens). As detailed in Table 3.4, each participant used an average of approximately nine direct strategies and 32 indirect strategies in the narrative task. The standard deviations of the strategy categories were large, and initial visual examination of histograms for this data revealed that these were severely positively skewed. This was due to the wide variance in the length of the narratives (99 to 1300 words), which resulted from the intentional lack of a time limit for that task. I calculated density ratios of strategies per word and strategies per AS unit to account for this variance. (See next section for an explanation of AS units.) Distributions of the ratios of direct strategies per word and indirect strategies per word were normal. Distribution of the direct strategies per AS Unit was positively skewed just below the acceptable level of 1 (skewness = .98). Distribution of indirect strategies per AS Unit was positively skewed (skewness = 1.67), so I only used the strategies per word ratio for analysis of the research questions.

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min, Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct</td>
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<td>7.09</td>
<td>1, 43</td>
</tr>
<tr>
<td>Direct per word</td>
<td>.03</td>
<td>.01</td>
<td>.01, .07</td>
</tr>
<tr>
<td>Direct per AS unit</td>
<td>.28</td>
<td>.14</td>
<td>.05, .72</td>
</tr>
<tr>
<td>Indirect</td>
<td>32.33</td>
<td>24.46</td>
<td>5, 172</td>
</tr>
<tr>
<td>Indirect per word</td>
<td>.10</td>
<td>.05</td>
<td>.02, .24</td>
</tr>
<tr>
<td>Indirect per AS unit</td>
<td>1.04</td>
<td>.64</td>
<td>.15, 4.04</td>
</tr>
</tbody>
</table>

| N=78 |

**Narrative structure.** In addition to counting instances of communication strategy use in the narrative task, I was interested in narrative structure, based on Albert and Kormos’s (2004, 2011) finding of an association between originality and narrative structure. The participants’
narratives ranged from 99 to 1300 words (M = 348.22, SD = 218.80). Using Foster, Tonkyn, and Wigglesworth’s (2000) definition of an Analysis of Speech unit as a “single speaker’s utterance consisting of an independent clause or sub-clausal unit, together with any subordinate clauses associated with either” (p. 365), I counted AS units in each narrative. AS units were the best choice for this analysis because they were specifically designed for use with spoken production. Although an AS unit frequently is the same as a sentence, they account for repetitions and self-corrections that are common in emergent L2 speech. They also allow for inclusion of independent sub-clausal units (sentence fragments) that might not be counted with more common units of analysis, especially those based on written communication. Choosing AS units also allowed for more consistent comparison with the results of Albert and Kormos’s similar study.

As suggested by Mackey and Gass (2016), because I was the only coder, I computed intra-rater reliability for number of AS units by re-scoring 12.8% of the data after an interval of a week. The agreement was 95.33%, which is above the 90% standard considered ideal (Mackey & Gass, 2016), so I proceeded with coding. The mean number of AS units was 34.41, SD = 22.64, ranging from 10 to 131. The distributions for AS units and word count were both positively skewed due to a few participants’ lengthy narratives. However, when I created a ratio of average words per AS unit, the distribution was closer to normal (M = 10.43, SD = 1.90) and better for analysis despite some remaining positive skewness (1.14).

Albert and Kormos (2004, 2011) divided the number of narrative clauses by the number of Analysis of Speech (AS) units in each narrative to quantify narrative structure. For this data, I used a standard numerator of nine in lieu of counting narrative clauses, because the nine frames of the comic strip dictated the story line. Also, the frames of the comic strip were numbered, so many participants used phrases such as “And for the fifth picture” (Participant #18) in cases
where others used a more typical narrative clause with a temporal juncture such as “And then he moved…” (Participant #3). Using the number of frames instead of narrative clauses was also more appropriate because Albert and Kormos (2004, 2011) asked participants to construct a narrative based on only one picture, so the participants had greater latitude in developing the narrative independently. As a final modification to their approach, I created a ratio of AS units per frame. While it is essentially the same information as their frames per AS unit ratio, it seems more meaningful and intuitive to think of AS units as whole parts instead of fractions of AS units since there are more AS units than frames (See Table 3.5).

For the ratio of frames per AS unit (9/AS), the distribution was slightly positively skewed but still normal (skewness = .93). For the ratio of AS units per frame (AS/9), a histogram revealed positive skewness (2.18), indicating that the frames per AS unit, based on Albert and Kormos (2004, 2011), might be more appropriate for further analysis.

Table 3.5
Descriptive statistics for narrative structure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Min, Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of words</td>
<td>348.22</td>
<td>218.80</td>
<td>99, 1300</td>
</tr>
<tr>
<td>Number of AS units</td>
<td>34.41</td>
<td>22.64</td>
<td>10, 131</td>
</tr>
<tr>
<td>Words per AS unit</td>
<td>10.43</td>
<td>1.90</td>
<td>7.33, 17.04</td>
</tr>
<tr>
<td>Frames per AS unit</td>
<td>.35</td>
<td>.18</td>
<td>.07, .90</td>
</tr>
<tr>
<td>AS units per frame</td>
<td>3.82</td>
<td>2.52</td>
<td>1.11, 14.56</td>
</tr>
</tbody>
</table>

N=78

Course grades. The participants’ Cumulative Grade Point Averages (GPAs) included all courses they took in their first year of university study, which was typically 14 courses totaling 40 credits. The university uses English as the medium of instruction, but the Cumulative GPA also included two foreign language courses (French, German, or Italian) and two courses in
Turkish oral communication and written expression. Because of the potential confounding influence of the additional foreign language and Turkish courses, I computed an English Skills GPA based on six courses that focused on English language reading, writing, listening, pronunciation, oral communication, and grammar.

Both the Cumulative GPA and the English Skills GPA were examined for normal distributions. The cumulative GPA appeared to have a bimodal distribution, with two peaks in the histogram. (See Figure 3.2.) However, the two peaks were approximately equally spaced from the mean, and the skewness level was -.17, so the distribution should not affect results of comparison of means tests.

![Figure 3.2. Distribution of Cumulative GPA.](image)

The English Skills GPA appeared to be slightly positively skewed, with a -.42 skewness level. (See Figure 3.3.) The skewness level was below 1 and still within commonly accepted ranges (Larson-Hall, 2010). However, to be sure the apparent skewness based on visual
examination would not interfere with any comparisons of means in this case, I also computed the skewness ratio (1.53), which was below 2 and therefore not likely to indicate a violation of normal distribution. The mean English Skills GPA (M = 2.91, SD = .50) was slightly below the Cumulative GPA (M = 3.04, SD = .48).

![Figure 3.3. Distribution of English Skills GPA.](image)

**Proficiency.** Proficiency scores were collected as part of the biodata survey conducted at the beginning of the study, and by follow-up e-mail for missing scores. The university’s English proficiency test included sections on listening, reading, note taking, writing, a cloze task, and dialogue and situation. Only the composite score was collected. The mean score of participants in this study was 81.93, SD = 6.48, and the distribution was normal. For proficiency, two cases were missing, so N = 76 for all further tests involving proficiency.

**Research Question Results**

In keeping with efforts in second language acquisition to use statistical analysis responsibly and transparently (Norris, 2015; Plonsky, 2014), I obtained a sample size appropriate
for the research context and tests I planned to use (Larson-Hall, 2010) and have included thorough information about the tests used and all of their results. In keeping with recent debate and calls for moving away from reliance on null hypothesis significance testing (Plonsky, 2015), I examined Pearson’s correlations with significance levels of $\alpha = .05$ merely as a piece of information that was part of broader analysis. I also computed effect sizes and 95% confidence intervals where initial analysis suggested evidence of a relationship to provide a more comprehensive picture of the data, as suggested by Plonsky (2014). I generally expected relationships to be positive, and univariate tests may have revealed more relationships between variables. However, because some of the pilot study relationships were negative, I used bivariate tests for all of the research questions. As noted above, I have included both raw and ratio-based creativity scores in order to provide absolute and relative measures of creativity.

**RQ1: What is the relationship between creativity and communication strategy use in oral production amongst English learners?** Pearson’s correlations of raw overall creativity, ratio-based overall creativity, and sub-measures of creativity with direct, indirect, and interactional categories of communication strategy revealed several notable relationships. For the interactive task, there was evidence of relationships with small-medium effect sizes (as per Plonsky & Oswald’s 2014 suggestion) between raw fluency, raw originality, and both direct and indirect strategy use, as well as raw resistance to premature closure scores and indirect strategy use. However, ratio-based creativity scores revealed relationships only with indirect strategy use, and there were no relationships between creativity and interactional strategies. See Table 3.6 for results by category.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Direct Strategies</th>
<th>Indirect Strategies</th>
<th>Interactional Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td>$r = .26$</td>
<td>$r = .34$</td>
<td>$r = .09$</td>
</tr>
<tr>
<td></td>
<td>$p = .02$</td>
<td>$p = .00$</td>
<td>$p = .44$</td>
</tr>
<tr>
<td></td>
<td>$r^2 = .07$</td>
<td>$r^2 = .12$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CI (.04, .46)</td>
<td>CI (.13, .52)</td>
<td></td>
</tr>
<tr>
<td>Originality (raw)</td>
<td>$r = .27$</td>
<td>$r = .26$</td>
<td>$r = .04$</td>
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<tr>
<td></td>
<td>$p = .02$</td>
<td>$p = .02$</td>
<td>$p = .73$</td>
</tr>
<tr>
<td></td>
<td>$r^2 = .07$</td>
<td>$r^2 = .07$</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CI (.05, .46)</td>
<td>CI (.04, .46)</td>
<td></td>
</tr>
<tr>
<td>Originality (ratio)</td>
<td>$r = .03$</td>
<td>$r = -.00$</td>
<td>$r = -.09$</td>
</tr>
<tr>
<td></td>
<td>$p = .81$</td>
<td>$p = .98$</td>
<td>$p = .44$</td>
</tr>
<tr>
<td>Elaboration (raw)</td>
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<td>$r = .16$</td>
<td>$r = .10$</td>
</tr>
<tr>
<td></td>
<td>$p = .43$</td>
<td>$p = .17$</td>
<td>$p = .34$</td>
</tr>
<tr>
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<td>$r = -.06$</td>
<td>$r = -.10$</td>
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<tr>
<td></td>
<td>$p = .10$</td>
<td>$p = .63$</td>
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</tr>
<tr>
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<td>$r = .08$</td>
<td>$r = .25$</td>
<td>$r = .00$</td>
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<tr>
<td></td>
<td>$p = .47$</td>
<td>$p = .03$</td>
<td>$p = .97$</td>
</tr>
<tr>
<td></td>
<td>$r^2 = .06$</td>
<td></td>
<td></td>
</tr>
<tr>
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<td>CI (.03, .45)</td>
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<td></td>
</tr>
<tr>
<td>Resistance to premature closure (ratio)</td>
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<td>$r = .02$</td>
<td>$r = .06$</td>
</tr>
<tr>
<td></td>
<td>$p = .37$</td>
<td>$p = .90$</td>
<td>$p = .60$</td>
</tr>
<tr>
<td>Overall creativity score (raw)</td>
<td>$r = .24$</td>
<td>$r = .33$</td>
<td>$r = .08$</td>
</tr>
<tr>
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</tr>
<tr>
<td></td>
<td>$r^2 = .04$</td>
<td>$r^2 = .12$</td>
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</tr>
<tr>
<td></td>
<td>CI (.02, .44)</td>
<td>CI (.12, .51)</td>
<td></td>
</tr>
<tr>
<td>Overall creativity score (ratio)</td>
<td>$r = .10$</td>
<td>$r = .25$</td>
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</tr>
<tr>
<td></td>
<td>$p = .37$</td>
<td>$p = .03$</td>
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<td>$r^2 = .06$</td>
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<td></td>
<td>CI (.03, .45)</td>
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<td></td>
</tr>
</tbody>
</table>

CI = 95% Confidence Interval
N = 78
More detailed examination did not reveal associations between creativity and any individual communication strategies (i.e., approximation, mumbling) in the interactive task.

There were no relationships evident between creativity and communication strategy use in the narrative task. Unlike the interactive task, there was evidence of relationships between creativity and several individual strategies used in the narratives. Raw fluency, raw originality, raw resistance to premature closure, and raw overall creativity showed a relationship with indirect appeals for help (appeals directed towards the research assistant). Raw originality also showed a relationship with response: confirm. Using ratio-based scores, statistical relationships were evident between resistance to premature closure and response: reject; overall creativity ratio with indirect appeal for help; and resistance to premature closure ratio with retrieval. See Table 3.7 for details.
Table 3.7

Creativity and communication strategy use in narrative task: selected results

<table>
<thead>
<tr>
<th>Measure</th>
<th>Indirect Appeal for Help</th>
<th>Response: confirm</th>
<th>Response: reject</th>
<th>Word coinage</th>
<th>Retrieval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluency</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</tr>
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</tr>
<tr>
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<td>CI (-.45, -.03)</td>
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<td>$r = .18$</td>
<td>$r = -.23$</td>
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<td></td>
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</tr>
<tr>
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<td>$p = .00$</td>
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<td>$p = .07$</td>
<td>$p = .71$</td>
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<tr>
<td></td>
<td>CI (.08, .49)</td>
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<tr>
<td>Overall creativity score (ratio)</td>
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<td></td>
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</tr>
<tr>
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<td>$r = .23$</td>
<td>$r = -.21$</td>
<td>$r = -.12$</td>
<td>$r = .17$</td>
<td>$r = .11$</td>
</tr>
<tr>
<td></td>
<td>$p = .04$</td>
<td>$p = .06$</td>
<td>$p = .27$</td>
<td>$p = .14$</td>
<td>$p = .32$</td>
</tr>
<tr>
<td></td>
<td>$r^2 = .05$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CI (.01, .43)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CI = 95% Confidence Interval
N = 78
I also considered the relationship between each measure of creativity and communication strategy use in the narrative using the strategy density per word measure to account for the variation in length of narratives. This revealed a negative association between raw elaboration and direct strategy use ($r = -.32, p = .00, r^2 = .10$, CI: -.51, -.10). When the direct strategies used in both the interactive and narrative tasks were combined, and when indirect strategies used in both the interactive and narrative tasks were combined across the two tasks, no relationships emerged.

**RQ2: What is the relationship between creativity and use of narrative structure in oral production amongst English learners?** Correlations of creativity scores and the elements of narrative structure yielded little evidence of relationships. There were no relationships between raw creativity scores and any measure of narrative structure, including word count, number of AS units, words per AS unit, frames per AS unit ($9/AS$), or AS units per frame ($AS/9$). Using the ratio-based creativity scores, the only evidence of any relationship between creativity and narrative structure was the number of words per AS unit and resistance to premature closure ratio ($r = .39, p = .00, r^2 = .15$, CI: .18, .56).

**RQ3: What is the relationship between creativity and course grades in English language skills courses?** There were no relationships significant at the .05 level between creativity and English Skills GPA or Cumulative GPA. Examination of individual classes with raw creativity scores revealed only one modest negative correlation ($p = -.22, r = .05, r^2 = .05$, CI: -.42, 0) between the Contextual Grammar I course and raw elaboration. Additionally, there were no relationships between individual classes and creativity ratio scores.
RQ4: What role does the proficiency level of English learners play in any relationship(s) amongst creativity and communication strategy use in oral production tasks, narrative structure in an oral task, and language skills course grades? Regression analysis allowed controlling for proficiency while looking at these relationships. In particular for communication strategy use, previous research (e.g., Rossiter, 2005) suggests that proficiency could either enable or necessitate the use of strategy, so it was important to consider it as an additional explanatory variable along with creativity.

The relationship between the overall creativity score and direct strategy use was only evident with raw creativity scores, whereas the relationship between overall creativity and indirect strategy use was evident for both raw and ratio creativity scores. Due to the absence of strong linear relationships between creativity and direct strategy use when using the ratio-based creativity score, and in order to maintain consistency across regression analysis of direct and indirect strategy use, I used the raw scores to answer this research question.

I chose sequential multiple regression for its ability to indicate the influence of individual predictor variables on a criterion variable in one operation. Preliminary investigation revealed that the data met the considerations and assumptions necessary for starting a multiple regression as suggested by Larson-Hall (2010) and Plonsky and Ghanbar (2018). The sample size of 76 was above the most conservative recommendation of 74 for a model using two predictor variables with 80% power and a modest anticipated effect size ($R^2 = .10$), and well above other recommendations ranging from 10 to 66 participants (Larson-Hall, 2010). For overall raw creativity and direct strategy use, there were no notable outliers based on standard residuals between -3.0 and 3.0 (minimum = -2.44, maximum = 2.76). The absence of influential outliers was confirmed by Cook’s distance values less than one (M = .01) and Mahalanobis distances less
than 15 (M = 1.97). Although scatterplots did not reveal strong linear relationships (see Figures 3.4 and 3.5), in the plot of creativity and direct strategy use the Loess line did show a general upward trend, which was supported by the previously reported modest correlation ($r = .24$, $p = .04$) (see Table 3.8). The plot of proficiency and direct strategy use did not reveal a distinct linear relationship, nor did it reveal any other pattern of concern, so I continued the analysis with the available data.

Figure 3.4. Scatterplot with Loess line of raw overall creativity and direct strategy use in interactive task.
Figure 3.5. Scatterplot with Loess line of proficiency and direct strategy use in interactive task.

Table 3.8

Interactive task correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall Creativity (raw)</th>
<th>Proficiency</th>
<th>Direct Strategy Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Creativity (raw)</td>
<td>1.0</td>
<td>$r = -0.09$</td>
<td>$r = 0.23$</td>
</tr>
<tr>
<td>Proficiency</td>
<td>$r = -0.09$</td>
<td>1.0</td>
<td>$r = 0.06$</td>
</tr>
<tr>
<td>Direct Strategy Use</td>
<td>$r = 0.23$</td>
<td>$r = 0.06$</td>
<td>1.0</td>
</tr>
<tr>
<td>Indirect Strategy Use</td>
<td>$r = 0.33$</td>
<td>$r = -0.08$</td>
<td>n/a</td>
</tr>
<tr>
<td>Combined Direct and Indirect</td>
<td>$r = 0.37$</td>
<td>$r = 0.11$</td>
<td>n/a</td>
</tr>
<tr>
<td>Strategy Use</td>
<td>$p = 0.00$</td>
<td>$p = 0.26$</td>
<td>$p = 0.47$</td>
</tr>
</tbody>
</table>

N=76
The model indicated that creativity is a predictor of direct communication strategy use ($R^2 = .056$), accounting for 5.6% of the variance in participants’ communication strategy use.

Considering proficiency as an additional predictor variable showed a minimal increase ($R^2 = .060$) in the combined influence of creativity and proficiency on communication strategy use ($t = 2.09, p = .04$). This change in the effect size ($\Delta R^2 = .003$) suggests that proficiency has practically no effect on direct strategy use in the interactive task used in this study in relation to creativity. Additional indicators are in Table 3.9.

Table 3.9

| Sequential multiple regression for direct strategy use in interactive task with creativity and proficiency as predictor variables |
|---|---|---|---|---|
| | Unstandardized | Standardized | $95\%$ Confidence Interval | t |
| Constant | 11.83 | n/a | -2.63, 26.30 | t = 1.63 |
| Creativity | .08 | .24 | .00, .16 | $t = 2.09$ |
| Proficiency | .06 | .08 | -.11, .22 | $t = .69$ |

Following the generation of the model with both creativity and proficiency as predictor variables, I checked the remainder of the assumptions required for multiple regression as suggested by Larson-Hall (2010) and Plonsky and Ghanbar (2018). Variables were not multicollinear, as indicated by absence of correlation between the two predictor values (see Table 3.8). A P-P plot of standardized residuals confirmed that the distribution of the data was normal (Figure 3.6). A scatterplot of studentized residuals and predicted values of standardized residuals showed the data met the assumption of homogeneity of variances (Figure 3.7).
Following the same procedures, I performed a sequential regression to examine the relationship between raw creativity and indirect strategy use in the interactive task. The model indicated that creativity had a small influence on indirect communication strategy use ($R^2 =$
accounting for 10.5% of the variance in participants’ communication strategy use. Considering proficiency as a predictor variable showed a minimal increase ($R^2 = .111$) in the combined influence of creativity and proficiency on indirect communication strategy use ($t = 2.93, p = .00$). This change in the effect size ($\Delta R^2 = .006$) suggests that proficiency has practically no effect on indirect strategy use in the interactive task used in this study in relation to creativity, and that any trace effect is negative (see Table 3.10).

**Table 3.10**

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>95% Confidence Interval</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>1.14</td>
<td>n/a</td>
<td>-7.71, 9.99</td>
<td>t = -0.41</td>
</tr>
<tr>
<td>Creativity</td>
<td>0.07</td>
<td>0.33</td>
<td>0.02, 0.11</td>
<td>t = 2.93</td>
</tr>
<tr>
<td>Proficiency</td>
<td>-0.02</td>
<td>-0.05</td>
<td>-0.12, 0.08</td>
<td>t = -0.41</td>
</tr>
</tbody>
</table>

Following the generation of the model for indirect strategy use in the interactive task with creativity and proficiency as predictor variables, I checked the remainder of the assumptions required for multiple regression. Variables were not multicollinear, as indicated by absence of correlation between the two predictor values (see Table 3.8). A P-P plot of standardized residuals confirmed that the distribution of the data was normal (Figure 3.8). A scatterplot of studentized residuals and predicted values of standardized residuals showed the data met the assumption of homogeneity of variances (see Figure 3.9).
**Figure 3.8.** P-P plot of standardized residuals demonstrating normal distribution.

**Figure 3.9.** Scatterplot of studentized residuals and predicted values of standardized residuals showing homogeneity of variances.
Given the limited yet clear role of creativity in predicting direct and indirect strategy use when considered separately in the interactive task, and the lack of relationship between the third category of communication strategy (interactional), I used an additional sequential regression to examine the relationship between raw overall creativity and the combination of direct and indirect strategy use in the interactive task. As with the previous analyses using the same data, the initial assumptions necessary for using multiple regression were met, including sample size, absence of outliers, and linear relationships exhibited by scatterplots (see Table 3.6). The plot of proficiency and combined direct and indirect strategy use was not distinctly linear, but also did not reveal other patterns of concern.

The model revealed that creativity can account for 13.6% of the variance in combined direct and indirect communication strategy use ($R^2 = .136, p = .00$) when controlling for proficiency ($R^2 = .00, p = .00$), with $\Delta R^2 = .136$ because of the absence of effect of proficiency in this model ($t = 3.39, p = .00$). See Table 3.11 for additional indicators. As with the previous regressions examining direct and indirect strategy use in the interactive task separately, this analysis suggests even more clearly that creativity can positively influence the quantity of these two types of strategies used in the interactive task. The data met the remainder of assumptions for using multiple regression. Variables were not multicollinear, the distribution of the data was normal, and the data met the assumption of homogeneity of variances.
Table 3.11

Sequential multiple regression results for combined direct and indirect strategy use in interactive task with creativity and proficiency as predictor variables

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized B</th>
<th>Standardized β</th>
<th>95% Confidence Interval</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>12.96</td>
<td>n/a</td>
<td>-3.63, 29.57</td>
<td>1.56</td>
<td>.12</td>
</tr>
<tr>
<td>Creativity</td>
<td>.15</td>
<td>.37</td>
<td>.06, .23</td>
<td>3.39</td>
<td>.00</td>
</tr>
<tr>
<td>Proficiency</td>
<td>.04</td>
<td>.04</td>
<td>-.15, .22</td>
<td>.38</td>
<td>.70</td>
</tr>
</tbody>
</table>

N=76

Correlation analysis of creativity and narrative structure indicated one moderately strong relationship between the resistance to premature closure ratio score and the number of words produced per AS unit in the narrative task. Sequential regression analysis did confirm that resistance to premature closure and proficiency jointly accounted for 3.9% of the variance in words per AS unit, and the role of proficiency in this was negligible ($R^2 = .007$). However, the overall model was not significant at the established .05 level ($t = 1.55$, $p = .13$), so it is does not appear that resistance to premature closure is a predictor of words produced per AS unit in the narrative task.

The fourth research question also asked about the effect of proficiency on any relationships between creativity and narrative structure and creativity and English course grades. The correlation analyses did not reveal relationships between overall creativity and course grades. Because linear relationships are an assumption of multiple regression that was not met for this portion of the research question, I did not proceed with regression analysis for course grades.

In sum, there were relationships of small to medium effect size between raw overall creativity and direct and indirect communication strategy use in the interactive task, but no
relationship between creativity and interactional strategies. There were not notable relationships between overall creativity and any category of communication strategy use in the narrative task. However, there were miscellaneous relationships between sub-measures of creativity and individual strategies, such as ratio-based resistance to premature closure and retrieval. There was little evidence of any associations between creativity and narrative structure or creativity and course grades. Finally, proficiency was considered as a possible additional factor that could interact with creativity, but regression analysis demonstrated that proficiency did not influence communication strategy use; creativity, on the other hand, was responsible for 13.6% of the variance in combined direct and indirect strategy use in the interactive task. Possible trends in the results and their relationship to the results of previous studies are addressed in the following discussion.
IV. Discussion

The results of this dissertation research revealed several interesting trends, particularly with communication strategy use. In some cases, the results were consistent with prior research and in some cases contradictory, but they all have added to the understanding of how creativity might be an individual difference worthy of further consideration in second language acquisition. The results are discussed here in turn by the focus of each research question, followed by comments about trends and patterns across the entire study.

Communication Strategy

The first research question asked about the relationship between creativity and communication strategy use in oral production amongst English learners. Using interactive and narrative speaking tasks, I considered potential relationships using raw and ratio-based overall creativity scores in relation to groups of direct, indirect, and interactional communication strategies. Although cumbersome, looking at both the raw and ratio-based creativity scores provided a more nuanced and thorough understanding of the relationships that emerged (Cramond, 1999). I also examined potential relationships between sub-measures of creativity and individual communication strategies for both tasks. The most striking results across all of the measures for both tasks were the relationships between overall creativity and direct and indirect strategy use in the interactive task, and the nearly total absence of relationships between creativity and categories of strategy use in the narrative task.

Interactive task. Results varied across the raw and ratio-based creativity scores and across the direct, indirect, and interactional categories of communication strategy. I will discuss the results by category and task, followed by comments on the lack of relationships between creativity and individual strategies.
**Direct strategy use in interactive task.** The raw creativity scores indicated associations between fluency, originality, and overall creativity with direct strategy use in the interactive task. Using the ratio-based scores suggested that fluency was the only measure of creativity that had a link with direct strategy use. In practical terms, these associations indicate that a language learner who is inclined to generate numerous ideas, many of which are original, would be more likely in an interactive task to use direct communication strategies. The most frequently used direct strategy was circumlocution, which is consistent with the design of the task. Participant #68, who had a high raw overall creativity score of 77 (M = 57.58), demonstrated especially strong use of circumlocution as a direct strategy in the instances marked in bold below. The interlocutor (guesser) is indicated as “G.”

68: Alright, so, first of all, **the thing you hang on the wall and wear on your wrists.**
G: It’s a watch. It’s a clock.
68: Yes.
G: Alright.
68: So, **the thing uh you eat while you are watching something excitable.**
G: Popcorn!
68: Yes.
...
68: And um… **the um magical animal on Harry Potter that uh,**
G: Oh it’s a unicorn.
68: Yes.

These circumlocutions were generated in response to the prohibited words for each target word. For *clock*, the speaker could not say *time, numbers, face, hours,* or *watch*; for *popcorn,* she could not say *kernels, puffed, Orville Redenbacher, movies,* or *butter,* and for *unicorn* the words *horse,* *mythical, one, horn,* and *fairy tale* were prohibited. This emulates how a language learner might deal with the dilemma of a lexical deficiency in an authentic communication situation.
Indirect strategy use in interactive task. For the creative language learners in this study, their use of other-repetition responses and verbal strategy markers was particularly apparent. The raw creativity scores indicated associations between fluency, originality, resistance to premature closure, and overall creativity with indirect strategy use in the interactive task. Although there were not any significant correlations with the ratio-based sub-measures of creativity, the ratio-based overall creativity score also exhibited an association with indirect strategy use. This category is the smallest of Dörnyei and Scott’s (1997) groupings of strategies, and several strategies were eliminated from analysis because they did not apply to this task (i.e., feigning understanding) and/or because the nature of the task made it unclear which utterances were communication strategies and which were task-generated compensation for interruptions by enthusiastic guessers (i.e., self-repetition). The indirect strategies that were included in this analysis were only response: repeat other person (parroting something the guesser said) and verbal strategy markers. The 78 participants produced 173 total instances of response: repeat other person and 83 instances of verbal strategy markers in the data set for this task. Participant #4 made especially effective use of repeating the guesser (G):

4: Um, um okay, I am putting uh some uh thing uh into my water or my tea to make it more, you know, um, to burn calories maybe, I put some um
G: Lemon.
4: Yeah, **lemon**. Um, okay then. Uh this is mm about a place um that we go for having some culture, getting some culture
G: Cinema, theater, mov-
4: Uh Yeah, **cinema, theater**, and
G: Co- conventional center or something
4: No, there there is a somewhere you can see uh so many things that is uh showed by someone to us, for example from the past history, they put something, and we go and see them.
G: Uh, muze *(museum)*[Turkish]

4: **Muze,** yeah. This is hm, uh this is something very cool. You know, uh, *(laughter)* okay, you have a helmet, you have to have a helmet when you’re uh on it.

G: Riding motorcycle, motorcycle

4: **Motorcycle.**

As demonstrated here, these repetitions keep the communication flowing, keep the guesser involved, and help the participant gain processing time to avoid a stall in the exchange, which are consistent with the connection and interaction functions of repetition identified by Tannen (2007). Participant #4 also uses rejection and confirmation responses to support the repetitions, so there appears to be overlap between indirect and interactive strategy functions in these cases. It is also interesting that she repeats the Turkish word for museum, even though she knows only the guesser is allowed to use Turkish. The benefit of code switching to enact her strategy appears to outweigh any potential penalty for breaking the rule of the task. The other indirect strategy, verbal strategy marker, is a meta-discourse tool that focuses more on the speaker’s attempt at an utterance than the guesser’s success, as in these excerpts from Participant #74’s attempts to elicit the words museum and cowboy.

74: Yes. Now uh it’s read the, how can I say- historical things. It’s include historical things. When uh you go to that to see historical things

G: Library

74: Historical things

G: Museum

74: Yeah

...  

74: Then uh **I don’t know,** uh it’s uh about uh you saw this uh movies in mostly TRT, in uh in the mornings, early morning

G: Sabak [Turkish]

74: No no no it’s about uh the- **how can I say?**
G: Barisa [Turkish]

74: No. No, actually in ge-gentlemans have also liked this uh movie…

In this exchange, the participant, who had a creativity score of 88 (M = 57.58), is explicit about his linguistic difficulties. These verbal strategy markers may have helped to build rapport with the guesser, who was also an L2 English learner, or to indicate that he is going to have to use another strategy to convey his intended meaning without using one of the prohibited words.

Based on these relationships between creativity scores and direct and indirect strategy use, it appears that an individual who is a skilled divergent thinker can make use of a variety of techniques to achieve understanding in an interaction in their second language, instead of relying on just a few simple strategies or their most readily accessible knowledge. This is consistent with cognitive theories of creativity, which focus on the linking of disparate ideas across a flattened hierarchy of knowledge. By the geneplpore model of the cognitive approach, individuals participating in the interactive task would be generating ideas about how to communicate without using the prohibited words, exploring their ideas, and then choosing the best option (Kozbelt, Beghetto, & Runco, 2010). More creative individuals would generate more ideas to explore, thus giving them more communication strategies to choose from and more capacity to link choices that will help them complete the task effectively.

**Interactional strategy use in interactive task.** A curious aspect of the results for the first research question was the complete lack of relationships between creativity and interactional strategy use in the interactive task. The following interaction demonstrates how Participant #23 with a below-average creativity score of 35 (M = 57.58) makes extensive use of interactional strategies, which are indicated in bold:

23: Turkish airlines, **what is this?**

G: Plane.
23: Yes, it’s like plane, but the other thing
G: Plane, helicopter.
23: Yes. Uh, PASS. In dormitory there is a big white thing
G: Refrigerator.
23: Yes. Oh uh, um, who is Jack Sparrow?
G: Uh, korsan, pirate.
23: Yes.
G: Pirate
23: It’s okay? Um, in the mart, what will- what we do to rest?
G: Sleep.
23: Yes, we use it uh, while sleeping.
G: Uh, while sleeping. Uh, pillow.
23: Yes. Um, um, what will, what we use uh while buying something?
G: Money.
23: Yes, where we take money?
G: A bank
23: No, we take it with, with us.
G: Uh, wallet.
23: Yes. Uh, PASS. Um, when we go uh Gratis for example, what we buy?
G: Uh, cosmetic.
23: Yes this a cosmetic product, and women use while um doing their
G: Makeup
23: Yes, we use it while makeup
G: Uh fa-
23: Not eyeliner, not fontocrem
G: Cream
23: No
G: Brush
23: No

This participant made extensive use of direct appeals for help from the guesser, confirmatory responses, and rejection responses. Unlike in the previous example that demonstrates Participant
#4’s frequent repetitions of the guesser’s utterances, Participant #23’s responses are generally a simple “yes” or “no” that require less effort and less engagement with the interlocutor. The simple interactional strategies are effective in playing the game of the task, but they do not require the unique or unexpected ideas that are characteristic of divergent thinking (Guilford, 1968), which may explain the lack of a relationship between creativity and this type of strategy in this task.

**Individual strategy use in interactive task.** There were no relationships evident between any measures of creativity and any individual communication strategies in the interactive task. This is surprising, since a few such particular relationships were evident in the pilot study results and also in McDonough, Crawford, and Mackey’s (2015) study that used a similar methodology. The pilot study for this dissertation found relationships between elaboration and exemplification (a sub-strategy of circumlocution), use of questions (similar to direct appeal for help), and use of fillers. McDonough et al. considered six categories of words based on frequency in their data: Interactivity: questions; Interactivity: subject/object you pronouns; Reasoning: subordinate clauses with because or so; Reasoning: coordinated phrases, clauses, or sentences with and; Stance: verbs and modals including think, can, can’t; and Predicting: conditionals. Of those categories, they found a relationship between creativity and use of questions and coordination. Based on the pilot study and their results, I expected at least some measure of creativity to demonstrate a relationship with direct appeals for help, which was the communication strategy that included asking the interlocutor a question, as exhibited in the sample of Participant #23’s task above. The difference between the current results and McDonough et al.’s results might be attributable to the difference in the tasks. They used the “Shipwreck” task, which requires participants to solve a problem as a group, whereas my “Taboo” task put the onus of
communication and problem solving on one primary speaker. However, consolidation of particular strategies into categories suggests that the general skill of using direct and indirect communication strategies—which may be bolstered by an inclination towards creative thought—helps a language learner communicate. So, the findings are not necessarily outright contradictory, they just reveal different aspects of the phenomenon in different ways.

**Narrative task.** McDonough, Crawford and Mackey (2015) pointed out that “noninteractive tasks that elicit speech from a single speaker may also be investigated in terms of whether creativity accounts for differences in individual language use” (p. 194), which was part of the incentive for including a narrative task in the current study. There were no relationships between any measure of creativity and any category of communication strategy in the narrative task. However, unlike in the interactive task, there was a smattering of relationships between creativity and particular communication strategies (see Table 3.5).

It is interesting that four of the nine miscellaneous relationships were with the creativity sub-measure resistance to premature closure. A speaker with a strong resistance to premature closure does not stop at the quickest, most direct path to solve a communication problem. Instead they are equipped and willing to ask the research assistant for help, reject their own utterance, coin a new word, or work hard to retrieve a difficult word. This was the case with Participant #83, who had the highest possible resistance to premature closure score (2.0) and ten tokens of retrieval. The three examples in bold from the first and second frames of the comic strip illustrate uses of retrieval:

And like uh and uh he comes out of his office and uh, *a-and* unfortunately *th-there* was much and much traffic and, uh, it seemed that the *cong-congestion* uh is underway.
It is difficult to tell in some cases what necessitates the retrieval. In the case of “a-and unfortunately,” it could be that the speaker is actually working on retrieving “unfortunately,” even though the hesitation comes early on the “and” just before it is retrieved. Some other instances such as “th-there was much and much traffic” could signal an unsuccessful attempt to retrieve a collocation such as “heavy traffic.” Some are clearer instances of retrieval of more difficult lexical items such as “cong-congestion.” No matter at what point the retrieval is evidenced, it appears that language learners who have high resistance to premature closure are willing to put more effort into recalling stronger vocabulary words. This is supported by the Four Ps framework (Rhodes, 1961), which outlines a creative person’s progression from the process of idea generation to the generation of a product. In this case, the high resistance to premature closure enables the lexical recall process to continue and conclude with the desired linguistic product or an alternative.

Another intriguing trend in these relationships, even though they were based on limited tokens in the data, was that the communication strategies that showed evidence of a relationship with creativity were generally interactive in nature. The strategies involved communication with the research assistant (indirect appeal for help) or rejection and confirmation directed at oneself. Considering that the task was monologic, it is curious that these strategies stood out. This could be an effect of the inauthentic nature of the research assistants’ limited interaction with the participants. The assistants were instructed to give positive, non-verbal feedback to the speakers, but they were advised to stay quiet to ensure the clarity of audio recording. Erickson (1985) pointed out that “varying types of oral discourse appear to be influenced, during the course of their production, by the behavior of listeners” (p. 294). Given the intricate collaboration that occurs between speakers and hearers in natural conversation, the assistants’ behavior could have
created an odd environmental pressure, which is one of the later additions to the Four Ps framework (Cropley, 2011) and might have had some influence on the choice of strategies by the speakers.

One final point of interest in the narrative data was the negative relationship between raw elaboration and direct strategy density use in the narrative \((r = -.32, p = .00)\). Using the strategy density per word measure accounted for the variation in length of narratives. So, participants who were more inclined to elaborate their ideas with detail actually used fewer direct strategies when controlling for length of narrative. This could be a function of proficiency, which is explored in more detail below in the discussion of research question four.

**Combined task results.** Combining the strategies used in both tasks by category seemed like it would yield results similar to the separate tasks, perhaps even demonstrating additional relationships since there was more data. However, no such relationships emerged. Although the same coding protocol was used for both tasks, there were some slight differences in which strategies were coded. In the interactive task, a few strategies such as restructuring, self-repair, and use of fillers were eliminated from coding because the time and processing pressure, combined with varying levels of interruption from the interlocutor guessers, caused substantial disfluencies that may not have been present in authentic speech outside the research setting. Because the narrative task was supposed to be monologic, most interactional strategies were not included, which contributed to more inconsistency in the combination of strategy counts across the tasks. This highlights the very different nature of the two tasks, and further emphasizes the apparent greater role of creativity in communication strategy use in the interactive task. For future studies, it might be more productive to focus exclusively on interaction or narrative rather than trying to combine the same strategy protocol across two distinct task types.
All of these connections between creativity and communication strategy use should be interpreted with caution because although they are significant at the level designated for this study and the 95% confidence intervals do not cross zero, the effect sizes are generally small or medium, ranging from $r^2 = .04$ to $r^2 = .12$. Even with the small effect sizes, it is interesting that fluency, which does not have a ratio score, repeatedly demonstrated relationships across several task and strategy types. This underscores the importance of fluency as a sub-measure of creativity. Torrance (as cited in Cramond, 1999) and Simonton (1988) argued that generating many ideas is a prerequisite to generating ideas that meet other criteria such as originality and flexibility, so the strong influence of the fluency score is acceptable from that perspective. In fact, it is encouraging that the single measure of creativity that individually showed results with communication strategy is fluency, because it is the quickest, easiest, and cheapest to measure, and could be the focus of continued research.

**Narrative Structure**

Analysis of creativity and narrative structure (word count, number of AS units, words per AS unit, frames per AS unit, and AS units per frame) yielded only one relationship: ratio-based resistance to premature closure and words per AS unit. The lack of evidence of relationships between creativity and the selected measures of narrative structure was initially surprising in relation to the results of Albert and Kormos (2004, 2011). Their study found a positive relationship between originality and the number of narrative clauses per AS unit, as well as a positive relationship between fluency and the number of words, and a negative relationship between originality and number of words. The difference in results between the current study and Albert and Kormos’s results is most likely explained by two key differences in the narrative task methodology. Albert and Kormos gave participants one picture, and it was up to them to
create a story to go with the single picture. Their measurement of narrative structure then took into account the number of narrative clauses they used to tell their story—a measurement similar to the elaboration aspect of creativity. In other words, their operationalization of narrative structure as a criterion variable included a dose of creativity, which makes it less notable that narrative structure exhibited a modest correlation with participants’ creativity scores.

Another key difference is that their participants were given five minutes of planning time before starting the narrative. Albert (2008) included planning time in her original dissertation research in an effort to boost performance on the narrative task. However, subsequent publications (Albert & Kormos, 2004, 2011) pointed out that the planning time could have reduced the effect of creativity on the narrative task and suggested other planning conditions as an opportunity for future research. I chose not to include planning time based on this recommendation and because of my focus on communication strategy. Providing planning time would have reduced the need for participants to use any communication strategies. A few students did take a moment to look over the pictures before they started talking, but that was unusual. On the other hand, the unfortunate consequence of not providing planning time was that some participants did not grasp the story line of the comic strip until they were well into their narratives, or in a few cases did not realize the pictures were connected at all even though the instructions stated “tell the story of the comic strip.” Future studies will need to find the right balance between too much planning time and none at all, perhaps through more explicit instructions or by providing sample text for the first frame of the comic strip.

Another finding in the Albert and Kormos (2004, 2011) study—a positive relationship between fluency and number of words produced in the narrative—could also be viewed as somewhat circular. Counting the number of words produced is similar to measuring creative
fluency, so the relationship is in one way just between two different methods of measuring fluency. Following that logic, it would be expected that there would be a relationship between fluency and word count in the narratives in this research. The absence of relationship is perplexing. As noted previously, there was no time limit or guideline given to the participants for the narrative task. Some participants may have taken cues from the amount of time other participants spent with the research assistants, or they may have noticed that students were scheduled for the task in five minute increments, but there was still a wide range of words produced (99 to 1300 words, M = 348.22, SD = 218.80). The creativity test did have strict time limits, so the measure of creative fluency was much more consistent than the measure of words produced in the narrative, which may explain the lack of relationship. A repeat of the task with a specific time guideline would yield more consistent results in total word count that could then be tested against a creativity test with a time limit. As this study was not meant to be a replication, but instead a further exploration of one of the few previous studies on creativity and second language acquisition, these differences in results are not cause for serious concern.

The sole relationship between creativity and narrative structure in this study’s data was the number of words per AS unit and the resistance to premature closure ratio ($r = .39, p = .00$). A high number of words per AS unit could indicate a greater use of complex sentences and subordinate clauses. Resistance to premature closure indicates an “ability to keep an open mind” and the ability to “resist the pressure to jump to conclusions” (Torrance, 2011, p. 17). This relationship suggests that an L2 speaker who can resist the urge to make quick visual closures might be less likely to end a phrase or sentence in the quickest or easiest way when speaking the L2, as well. This is particularly apparent when using AS units for analysis, because AS units include subordinate clauses. For example, Participant # 6, who had 12.31 words per AS unit (M
= 10.43) and a 1.71 resistance to premature closure ratio (M = 1.67), used several subordinate clauses and complex sentences to describe frames three and four of the comic strip:

And I think uh the man came uh, came to his doctor uh, to be uh relaxed, I think.
Uh and um in the other picture the man uh listens to his doctor.
Uh, his doctor uh gave him a suggestion which is, which is that uh he should leave the city and live a simple life.
I think uh the man um will listen to him and will li-live a simple life far from the business and city life.

For the same two frames of the comic, Participant #32 used a series of shorter independent clauses:

And he ca-uh went to a psychologist maybe.
And then he talked to him,
And he said I am sick of this uh traffic,
And I am sick of this city life.
And he said then leave the city and live a simple life.
But he don’t know,
He doesn’t have any idea what he can do.
And, but he uh chose to listen his doctor
And he went to a farmer, uh a farm.

 Participant #32 had below-average scores for both resistance to premature closure ratio (1.0) and number of words per AS unit (7.74). The statistical relationship between these two variables is not large, with an effect size of $r^2 = .15$, but it is slightly above the $r^2 = .09$ level typically considered medium (Larson-Hall, 2010). Of course proficiency is a potential factor in these differences as well, which is addressed below in the discussion of Research Question 4.

Finally, it is important to point out that this approach to quantifying “narrative structure” is essentially a measure of complexity. Future studies may consider linguistic fluency and
accuracy along with complexity in relation to creativity, even though a thorough investigation of all of those measures was beyond the scope of this dissertation. Future studies might also approach analysis of narrative structure using Labov and Waletzky’s (1967/1997) traditional elements of orientation, complication, evaluation, and coda. However, since many of the participants in this study approached the activity as more of a description task than story-telling task, a thorough analysis using that approach would not be consistent across individual participants. Tannen (1993) described a similar situation in a study of Greek and American participants retelling a story from a film they had watched. Some told it as a narrative from a “storytelling frame” (p. 24), while others told it from a “film viewer frame” (p. 29) that acknowledged their own perspective and thoughts about it. More detailed instructions might help yield a more consistent approach by the participants.

**Course Grades**

Results indicated that there was no relationship between participants’ overall creativity scores and their English Skills GPA or Cumulative GPA after their first year of university study. There also were not relationships between any sub-measure of creativity or any individual English language skills course, with the single exception of a negative association between raw elaboration and the course Contextual Grammar I. These findings contrast Ottó’s (1998) finding of a positive relationship between students’ creativity and their English class grades. There were numerous differences in the two studies that could account for this difference. The participants in Ottó’s study were secondary school students, and the grades that were used as the criterion variable appear to be from just one class with one teacher. The participants in this dissertation study were university students, and the English grades used as the criterion variable were based on six courses with up to six different instructors. The teacher’s speculation about performance
on a standardized English exam as well as her speculation on her students’ creative idea
generation were also taken into account in Ottó’s study, so it is possible that her ideas influenced
the outcome as well, although Ottó did point out the limited reliability of including this
information.

In addition to these differences, the English classes on which Ottó’s (1998) study was
based were considered communicative, with grades based mainly on realistic speaking and
writing tasks. This is a critical point in relation to the findings of both the first research question
concerning communication strategies and the third research question concerning course grades.
The relationships between creativity and communication strategy use in this study were only
apparent in the interactive task that required interaction with another person. Ottó’s results that
indicated higher creativity was related to higher course grades were based on communicative
classes that required interaction between students and the teacher, so the results between the two
studies are consistent in that way. However, the course grades used in the current study included
grammar, reading, and listening in addition to speaking and writing. The lack of a relationship
between creativity and grades on a broader spectrum of skills further suggests that the emerging
relationship between creativity and second language use is more relevant for interactive skills
than for other L2 skills. Furthermore, Ottó indicated that the activities on which the participants’
grades were based required creative skills such as generating novel ideas. He concluded that
highly creative students had an advantage in L2 learning in the context he studied. Perhaps a
more precise summary of his findings would be that highly creative students have an advantage
in L2 assessments that require creative thought. While intuitive, it is still an important finding
because so many schools and institutions in the world still teach English with traditional methods
that do not require creative thought by the students. Many students in my study had come from
years of grammar translation method English instruction, and some of the courses on which their GPAs were based indeed did not require much or any creative thought. In other words, the relationship between creativity and language learning appears to be dependent on the language learning context and the amount of creativity it requires. For communicative classrooms emphasizing interactive skills such as Ottó’s, creativity was useful; for my study’s broader variety of classrooms spanning more L2 skills, creativity did not appear to be useful in terms of grades.

The one exception to the general findings concerning creativity and grades was a negative association between raw elaboration and the course Contextual Grammar I. This indicates that students who had a tendency to elaborate on their ideas actually had lower grades in their first-semester grammar course. Grammar assessments in their context typically did not require much elaboration on responses, so it is possible that the students had a tendency to provide too much information, or that their tendency to elaborate caused them to make more mistakes and get lower grades. The relationship was small ($r = -.22, p = .05, r^2 = .05, 95\% CI: -.42, 0$), and the participants were in several different sections with different teachers, so there is not enough evidence here to make any generalizations or draw conclusions about this very specific statistical result.

There are certainly many individual differences that could influence language learning grades, i.e. anxiety, motivation, or aptitude (Dörnyei & Ryan, 2015), and these factors of course vary by context. It just happens that in the case of this study, creativity is not one of them. From a pedagogical perspective, it would be advantageous if there is not a relationship between creativity and grades. Calling back upon Rhodes’s (1961) Four Ps framework which holds that personality and intelligence are related to creativity, an absence of a relationship between
creativity and grades might indicate that instructors are providing equal opportunities for students with all levels of creativity to exhibit their mastery of English language. This should be carefully considered as language instruction continues to focus on communicative tasks that often require creativity on the part of the students. One approach to using the results of this research could be to design classroom tasks that allow students to use creativity to solve communication problems in developmental activities. This way students who have creative strengths could capitalize on their ability to provide themselves more opportunities for output, as suggested by Albert and Kormos (2004, 2011). Assessments that result in grades could be designed intentionally not to require creativity, much like the narrative task in this study. This would provide opportunities for all students who enjoy or could benefit from creative communication activities to improve their language skills, but would prevent students who have less creative inclination or potential from being penalized academically.

**Proficiency**

The role of proficiency was difficult to address in this study because all of the participants were required to meet a standard minimum English proficiency score in order to begin their first-year university studies. Therefore, there were not low-proficiency students in the study, but there was adequate variance in their scores (range 70-97; M = 81.93, SD = 6.48) for analysis. Proficiency accounted for only scant amounts of variance when direct ($R^2 = .003$) and indirect ($R^2 = .006$) strategy use in the interactive task were considered separately, and proficiency did not account for any variance in direct and indirect communication strategy use in the interactive task when they were considered jointly. This was good because it provided strong support that differences in strategy use were indeed attributable to creativity, not proficiency.
An additional concern with attempting to control for proficiency was the dynamic influence of proficiency on communication strategy use as language learners develop their skills. For example, Vandergrift (1997) found that beginner language learners use more non-verbal strategies, whereas intermediate learners use more verbal strategies in listening tasks. Rossiter (2005) tracked changes in how often learners used several strategies over just 15 weeks. Total strategy use decreased, but use of circumlocution increased in his study. The proficiency score used in the current study was from tests taken more than 15 weeks prior to when the participants completed the study tasks, so they could have developed their English skills at different rates in the semester between taking the proficiency exam and participating in the study. If low-proficiency learners had been included in this study, they might have used more direct strategies such as message abandonment, code-switching, or mumbling, and the influence of proficiency could possibly be seen in addition to or even instead of creativity. It could also be the case that the higher and lower proficiency participants used similar quantities of strategies but that they used different types of strategies, which would preclude seeing any apparent difference in their quantity of strategy use. For example, reduction (i.e., omission) and achievement (i.e., approximation) strategies were combined in Dörnyei and Scott’s (1997) direct strategy category. Examining the communication strategies the participants used in this study in categories and also as individual strategies should have addressed this possibility, although categories of strategies generally revealed more results, and a detailed analysis of the relationship between proficiency and strategy use was outside the creativity focus of this study.

Even when controlling for the minimal/absent influence of proficiency, the variance in communication strategy use in the interactive task explained by creativity was relatively small. The median $R^2$ value of other studies in the field is .32, based on Plonsky and Ghanbar’s (2018)
synthesis of 541 studies in the field of L2 research, with a value of .10 at the tenth percentile, .18 at the 25th percentile, and .51 at the 75th percentile of the results they analyzed. Although the 13.6% variance explained by combined direct and indirect strategy sits between the tenth and 25th percentiles of findings of roughly similar studies, this is to be expected. Creativity is not proposed here as a sole or even primary factor in second language production, but instead as one of many contributing factors. Another way to view these results is as an answer to part of the unexplained variances in studies of other individual differences. The interesting point is that creativity, at least in the case of this study, explained more variance in communication strategy use than proficiency explained. Proficiency has previously been understood to be associated with communication strategy use (e.g., Nakatani, 2010; Rossiter, 2005), so the current findings demonstrate that creativity should be considered as another relevant individual difference in second language production.
V. Limitations

As with any research, there are numerous limitations to this study. Logistical, analytical, statistical, and cultural constraints and choices were addressed throughout the project to minimize the effects of these limitations. However, there are still many improvements that could be made in future studies.

Logistical Limitations

There were several logistical issues that may have affected the results. One area of concern was the large number of research assistants that was necessary to collect the data. Collecting data during regular class meeting times helped increase the sample size, but in some cases it was necessary for an entire class of 40 students to complete the oral tasks within just 60-180 minutes. Up to five research assistants were collecting data concurrently on a few occasions; having so many research assistants may have created minor variations in the conditions. All of the assistants received detailed instructions prior to their data collection sessions (see Appendix G) and were also trained in person by me in order to minimize variation. The research assistants who were undergraduates had also completed the Advanced Writing and Research course I taught the prior semester, so they were familiar with standard research procedures and guidelines.

A logistical concern particular to the communication strategy of code switching was the native language of the data collector. All of the research assistants and participants were L1 Turkish speakers. However, there were not enough L1 Turkish research assistants available to collect all of the data, and it was not possible for me to collect all of the data myself due to the short timelines described above. Furthermore, the participants all knew I had limited L2 Turkish ability. I suspected that they may have done more code switching when a Turkish assistant was
conducting the tasks, which could have affected the frequency of that particular communication strategy. An independent samples t-test with equal variances assumed showed that there was not a difference in the use of code switching based on the native language of the data collector \( t = -.87, p = .39, \text{df} = 76 \), but future studies should still consider data collector L1 when planning data collection.

Research has shown that testing conditions can affect an individual’s creative processes or performance on the TTCT (Clapham, 2011; Plucker & Makel, 2010). Torrance (1987) provided recommendations to mitigate the inevitable influence of standardized testing administration, as summarized by Cramond (1999). Every effort was made to make the experience as relaxed and comfortable as possible for the participants despite the somewhat austere academic environment. An L1 Turkish assistant was always available to answer any questions and provide additional support in creating a non-threatening atmosphere. The participants were accustomed to rigorous standardized testing from their university entrance exams though, so they did not seem uncomfortable. The conditions of data collection may have also affected outcomes in terms of participant fatigue. Both the TTCT and oral production tasks were generally conducted at the end of three-hour lessons in linguistics or oral communication courses. As data collection activities neared the end of the semester, the participants may have had external pressures or distractions that limited their engagement in the tasks.

**Analytical Limitations**

Using audio recordings to code for communication strategy use has several inherent weaknesses, especially with nonverbal strategies. Vandergrift (1997) observed that lower proficiency learners use more physical strategies such as tilting their heads when listening, which could not be captured with audio recordings. I did not take field notes on any nonverbal communication, but it
would have been a helpful supplement to the audio data to keep a record of gestures used by participants. Gestures were not allowed in the interactive task, but video recordings are another option that would have allowed for more comprehensive analysis of the non-verbal strategies participants may have used in both tasks. Despite the lack of notes or video, audible non-verbal strategies such as laughter, sighs, and snaps were included and coded as the mime strategy (although a misnomer for this study) as defined by Dörnyei and Scott (1997). For example, Participant #107’s use of laughter and a sigh when describing the first and last frames of the narrative comic strip were coded to the nonverbal strategy: “And, he, suffers from ((laugh)) um, I don’t know…And, he ((exasperated sigh)), he becomes successful at-at it, and starts his own uh work job.” On the interactive task, it was unclear whether breaks in speech were the speaker using a pause as a communication strategy, or if the speaker was allowing the guesser time to produce a response, but silence was not a strategy in the taxonomy I used (Dörnyei & Scott, 1997), so this did not affect the results.

Excluding the guessers’ utterances in analysis of the interactive task was another potential limitation to this study. Certainly the guessing interlocutor plays a role in the participant’s output (Erickson, 1985)—some were highly interactive while others were more reserved. The guesser’s quantity of talk could have prompted more or less output and therefore more or less communication strategy use by the speaker. However, the guessers were allowed to use Turkish so that their potential lack of lexical recall on more challenging words would not stall the communication. I decided it was more important for this study to let the guessers use Turkish than to analyze their output, but in the future I could restrict the guessers to using their L2 and expand the analysis to them, as well. Additionally, a few guessers were research assistants who were not participants in the study but willingly stepped in when there was only
one participant available, so their production would not have been viable data. I look forward to ensuring that including both interlocutors in analysis is logistically possible in future studies.

The nature of the tasks made it difficult to account for message reduction strategies. In the narrative task, any time a participant omitted a frame of the comic strip it was coded as message reduction, but this did not account well for details left out within frames. For example, very few participants mentioned the silo and greenhouse in frames seven, eight, and nine, but these omissions were not coded because it was unclear if these omissions were intentional or not. In the interactive task, any instance when a participant chose to pass a target item was coded as message abandonment, but this was a fairly rudimentary approach to counting this communication strategy. Using stimulated recall would be a more effective way to account for reduction strategies. For example, Participant #23 switches to the approximation “doctor” after a successful use of the word “psychiatrist” in the third frame of the narrative:

And, mm, the third picture. Um, He is in the psychiatrist’s office I guess.

Uh He has some problems because he tells her, have, has s-have tell something to doc-to the doctor.

With audio or video prompting, this participant could explain why she used doctor instead of psychiatrist, why she hesitated before using it, and what other strategies she may have been considering before choosing approximation. With stimulated recall, participants could also elaborate on why they left out details, skipped frames of the narrative, or passed items in the interactive task, which would better inform the coding of these strategies.

The grouping of strategies presented another analytical limitation. Dörnyei and Scott’s (1997) taxonomy that presented direct, indirect, and interactional strategy categories was useful in revealing relationships with creativity. However, it includes both reduction and achievement strategies in the same categories, and the division between direct and indirect strategies in
particular was difficult to distinguish. Willems’s (1987) taxonomy divides all communication strategies into just the two categories of reduction and achievement. That approach, coupled with stimulated recall, might help distinguish other trends in the relationships between creativity and second language production. Including willingness to communicate as another relevant individual difference might lend additional predictive value to a regression-based model.

Analysis of narrative structure presented several challenges. Many participants told the story in present tense (but not narrative present tense) or had linguistic challenges using the past tense. Others did not realize that the nine frames were a connected story, or they named frame numbers as transitions instead of using temporal junctures. This use of tense and lack of narrative clauses made it ineffective to analyze structure using narrative structure per Labov and Waltezky’s (1967/1997) guidelines for narrative analysis, which were designed for more proficient speakers. Using a standard of nine frames instead of trying to count narrative clauses provided a work-around, but future studies should continue to find new ways to encourage participants to use a storytelling frame, as opposed to the more descriptive stance described by Tannen (1993) as a film-viewer frame. One way to do this might be to allow more interaction between the research assistant and participant, so they could establish clearer footings (Goffman, 1981), which allows interlocutors to align their expectations for an exchange (Gordon, 2015) or in the case of the narrative activity, might help participants understand the preferred frame for the task. The research assistants were instructed to give consistent instructions but to minimize their feedback otherwise, which made it difficult to quickly establish movement into a storytelling frame. Future studies should also hide numbers on comic strip frames to encourage more use of narrative clauses. A small amount of planning time so that participants could grasp the story before they begin—but without having enough time to reduce their need for
communication strategy use—would also be helpful.

Analysis of Speech (AS) units were designed specifically for spoken language (Foster, Tonkyn, & Wigglesworth, 2000), which made them effective to use for the narrative data despite some drawbacks. I did not include tone in transcription, which is a factor in the most highly detailed analyses of AS units and could have affected my accuracy. Instead, I listened to the recordings for clarification when necessary. Additionally, because AS units include subordinate clauses and complex sentences, both a large and small number of units could be indicative of high or low complexity. A small number of AS units in a narrative could be produced by a skilled participant who used many complex sentences, or a small number could be from a reticent participant who had limited linguistic resources and wanted to end the task quickly. Calculating words per AS unit and frames per AS unit helped to address this issue. Even with the limitations, they were a preferable choice over more commonly used minimally terminable units (T-units), which were designed for written communication, or communication units (c-units), which still lack the detailed guidelines that were necessary to account for the frequent use of self-rephrasing and retrieval strategies present in this data (Foster & Wigglesworth, 2016). Using AS units also allowed for appropriate comparison with the results of Albert and Kormos (2004, 2011). Fluency and accuracy were not included in this study, but they could also be fruitful areas for analysis of creativity and L2 production.

**Statistical Limitations**

The choice of statistical procedures and weaknesses of null hypothesis significance testing limit the generalizability of the results of this study. As noted by Plonsky (2014) and Norris (2015), applied linguists tend to be over-reliant on this type of analysis to draw conclusions about data. By choosing an *a priori* significance level of $\alpha = .05$, there is a 5%
chance that any individual result was due to chance. With so many variables, I conducted at least 100 correlation tests, so it follows that at least one of my results may have been a Type I or Type II error. Looking for patterns in the data helped reduce that chance for identifying a relationship that did not exist. For example, of all the tests of creativity, sub-measures of creativity, and course grades that comprised GPA, only raw elaboration and the Contextual Grammar I course exhibited a relationship by the established standard. This result seems likely due to chance and is not used to make any generalizations or further speculation of a link between the broad constructs of creativity and English skills course grades. As additional steps to address concerns about null hypothesis significance testing, I carefully checked assumptions for all tests, evaluated effect sizes by standards specific to applied linguistics research (Plonsky & Oswald, 2014), and included 95% confidence intervals in the analysis as suggested by Norris (2015).

In regression analyses, such as those I used to consider proficiency as a factor in the associations between creativity and communication strategy use, there is persistent “risk of entering irrelevant PVs [predictor variables] and/or ignoring other potentially relevant ones” (Plonsky & Ghanbar, 2018, p. 716). The scatterplot of proficiency and direct strategy use was not clearly linear and suggests that proficiency may have been irrelevant. This was to be expected given inconsistent findings on the relationship between proficiency and communication strategy use, but it is still important in that the analysis clarified the role of creativity. Certainly there are factors other than creativity and proficiency that influence a language learner’s use of communication strategy, so future research may focus on additional potentially relevant predictor variables.

Also concerning proficiency, all of the students had achieved a test score high enough to merit enrollment in English-medium university classes. The test was specific to the university
and did not include speaking, so its construct validity this study was limited. It was the best choice available for the sample, but future studies should find other ways to control for proficiency or, given its limited role based on the regression results, exclude it altogether. If any future studies do opt to include proficiency, finding a sample with both low- and high-proficiency groups, then using an ANCOVA to determine the role of creativity as an influence on criterion variables like communication strategy would be another possible approach. Using statistical programs such as R, which provides robust statistics that do not require normal distribution of data (Larson-Hall, 2010), would also help account for the statistical limitations of this study.

**Cultural Limitations**

Culture was another possible limiting influence on outcomes of this study. In the narrative activity, the original comic strip was French (Sempé, 1962). I updated and adapted it for a Turkish participant group, but unavoidably from my American perspective. The story line was not culturally bound, but cultural nuances could have influenced the resulting narratives. For example, Participant #86 commented on the cars on the road in frame two of the comic strip: “Uh all of them are like very neatly aligned, so it must be very um, some conscious and respectful drivers.” Traffic norms in Turkey, especially large cities, are less stringent than in some other countries, so what was noteworthy about the pictures to this group may be different than what would stand out to a different group. My adaptations were based on feedback from the pilot study, which should have minimized any unanticipated cultural influence. More importantly, narrative structure and purpose is culturally bound (e.g., Kiesling, 2015; Tannen, 1993). There is little English-language research of Turkish narrative structure and how it might differ from Labov and Waletzky’s (1967/1997) prototypical American narrative, other than
studies focusing on Turkish bilingual children’s narrative development (e.g., Mavis, Tunçer, & Gagarina, 2016), which was further reason for using number of frames as an alternative to counting participants’ narrative clauses.

In the interactive activity as well, items that caused confusion due to cultural influences were removed following the pilot study. In a few cases, though, cognates made it easier to elicit a word than it would have been for the American audience for which the Taboo cards were designed. The card for “popcorn” listed movies as a prohibited word. Many of the participants used the word cinema instead, which is certainly an English word, but it is also the word for movies in Turkish. A few small quirks like this may have reduced the need for communication strategy use on a few target items. However, all of the participants were Turkish speakers and lived in the same large city at the time of the data collection, so their experiences as they related to both the narrative and interactive activities were at least similar and consistent.

Culture may have influenced scores on the TTCT. As explained by Carter (2004), notions of creativity vary greatly across cultures. While proposing novel ideas or generating unusual perspectives is valuable to some populations, in other places creativity is perceived more as the process of replicating something that already exists, perhaps with just some slight variation. For example, in some East Asian cultures where conformity is valued, the act of bringing a new sculpture into existence could be prized, even if it is not different than previous sculptures. The ability to create it without differences may be equally prized. The participants in this study had largely come from secondary educational contexts in which conformity was expected. Thus, they may have had less experience with the kind of activity required by the TTCT as compared to the American population for which it was originally created. However, the study sample was homogeneous, so it is relatively safe to look at results within the study.
Furthermore, TTCT scoring criteria for originality were developed for American participants of all ages. The Torrance Center for Creativity and Talent Development creates a list of statistically frequent responses used to determine originality every ten years. Any item that is not on the list is considered statistically infrequent and therefore original. Although I used the most recent list which was updated in 2017, the criteria could be culturally bound. A few participants included culturally or religiously specific items such as mosques and prayer rugs. However, those were rare, and most items that were not scored as original occurred regularly in the participants’ contexts. Age may have been more of a limiting factor than culture, because all participants in this study were college students, but the originality scoring criteria were based on elementary through adult responses. Like with the possible cultural influences on the narrative interactive tasks, the scoring was consistent, so reliability was strong even if construct validity was threatened by the cultural or age bias of the originality list.

This study was designed to be as comprehensive and straightforward as possible, but nevertheless it did have numerous logistical, analytical, statistical, and cultural limitations. They were mitigated to the greatest extent possible through adequate sample size, assistant training, thorough and clear analysis, cultural sensitivity, and other means of addressing the potential constraints. Even with these limitations, it has still provided valuable knowledge that will contribute to the understanding of creativity as an individual difference in second language acquisition.
VI. Conclusion

Summary

In this dissertation I have explored the relationship between creativity and second language production. Specifically, I investigated how language learners’ creative potential might affect their use of communication strategy, narrative structure, and course grades in L2 English, and how proficiency may play a role in these relationships. Participants from a Turkish university completed the Torrance Test of Creative Thinking (TTCT), an interactive oral elicitation task, a monologic oral narrative task, and a biodata survey. The TTCT scores included sub-measures of fluency, originality, elaboration, and resistance to premature closure. The scores were considered as raw totals and as ratios in order to account for the confounding influence of fluency on scores for the other three sub-measures. For the interactive task, participants elicited a series of target words from interlocutors without using five prohibited words, based on the popular game Taboo. The prohibited words prompted the need for participants to use communication strategies. In the narrative task, participants told a story based on a nine-frame comic strip. The biodata survey asked questions about Grade Point Average (GPA), proficiency, age, etc.

Communication strategy use was considered using Dörnyei and Scott’s (1997) taxonomy which included direct, indirect, and interactional strategy categories. Analysis revealed consistent relationships of small-to-medium effect size between raw total creativity scores and direct and indirect communication strategy use in the interactive task, as determined by Pearson’s correlations significant at the $\alpha = .05$ level along with 95% confidence intervals that did not cross zero. There were only a few relationships between creativity and the use of communication strategies in the narrative task, i.e., total raw and ratio-based creativity and
indirect appeals for help; raw resistance to premature closure and word coinage; and ratio-based resistance to premature closure and retrieval. There were not any notable relationships between creativity and interactional strategies, creativity and narrative structure, or creativity and English course grades. To determine the influence of proficiency on the relationships that were evident between creativity and direct and indirect communication strategy use in the interactive task, I performed a sequential multiple regression using proficiency and creativity as predictor variables. Creativity was a modest but clear predictor of combined direct and indirect communication strategy use, while proficiency accounted for none.

**Overall Findings**

Overall, the results of this dissertation research point to two primary conclusions. First, creativity is indeed an individual difference that affects second language production. Building on the foundation of Ottó (1998), Albert and Kormos (2004, 2011), and McDonough et al. (2015), this study has revealed several solid relationships between creativity and various measures associated with second language acquisition. Most notably, overall raw creativity scores explained 13.6% of the variance in direct and indirect communication strategy use in the interactive task. This is not a large prediction in terms of the average 32% of variance explained by similar studies in the field (Plonsky & Ghanbar, 2018), but it is fairly substantial given that only two predictor variables were included in the model, and creativity is not yet widely recognized or studied as an influential individual difference in second language acquisition. The collection of other findings (i.e., overall creativity and indirect appeals for help in the narrative; resistance to premature closure ratio and number of words per AS unit in narrative; raw elaboration and Contextual Grammar I grade) suggests that there is more at play on a smaller scale. These associations between specific sub-measures of creativity and particular linguistic
outcome measures could provide starting points for future studies as the study of creativity in SLA develops.

Second, the association between creativity and language learning in this study seems to be concentrated in communicative activities. The relationships that emerged most consistently, specifically with direct and indirect strategy use, were all in the interactive task. The monologic narrative task and the English course grades—which were based primarily on non-interactive criteria—did not show evidence of being related to creativity in any significant way. The majority of courses in both the Cumulative GPA and English Skills GPA did not focus on spoken interaction, so the lack of relationships is consistent with the trend towards findings mainly in the interactive task. This difference in the effect of creativity on interactive versus non-interactive tasks could be a reflection of differences in convergent and divergent and thinking, and that creativity is most often measured by divergent thinking tests. Interaction, like divergent thinking, requires fluency, originality, and flexibility in order to maintain a flow of conversation or to complete a task. Monologic tasks or assignments might align more closely with convergent thinking, which requires a specific correct answer and does not require additional skills that aid in interaction in a second language.

Alternately, the difference in results between interactive and other tasks could be attributed to the context. The definition of creativity used in this dissertation specifies that a product is creative “within a *social context*” (Plucker, Beghetto, & Dow, 2004, p. 90, original emphasis). Although the interactive task was not presented as a game, many participants did count the total number of words they elicited from their guesser, as they would in the regular game Taboo. Perhaps a competitive inclination made participants exert more effort in divergent thinking. The established story line of the monologic task could have made participants feel as if
there was a single right way to tell the story, and that a convergent approach was best for that task. So, even though both the interactive and narrative tasks were carried out in the same rooms with the same research assistants, the social nature of the interactive task may have prompted more divergent thinking, which manifested itself in communication strategy use.

By any explanation, the difference is consistent with Torrance’s (1970) conclusion that college-age students exhibit greater originality in dyadic than in individual tasks. The experiment he conducted focused only on creativity, not another variable such as L2 production, and he did not find differences between individual and dyadic performance on the TTCT sub-measures of fluency and flexibility that meet today’s typical statistical standards. However, the difference in dyadic and individual creative originality is highly relevant to the findings of the current study. Like his collegiate students in dyads, the students who participated in this study also showed greater evidence of creative thought when working in dyads. More recent research also supports the influence of interaction on linguistic creativity (Katz & Hussey, 2011). The focus of this dissertation was how creative skill might influence strategy use, not on creativity expressed in the language itself. However, the concept is similar in that the creative potential of an individual seems to be realized more through interactive work instead of individual work. Further exploration with additional methods and in different contexts will help clarify the nuances of this complex difference in outcomes between interactive and monologic tasks.

It is important to distinguish between interactive tasks and interactional strategies. The stronger results in the interactive task would lead to the expectation that interactional strategies would also be most utilized by individuals with high creative potential, but apparently this association is restricted to the type of task instead of the type of strategies used. There was not any relationship between creativity and the interactional strategy category in the interactive task,
which included rejections, confirmations, and other responses to the guesser’s utterances. Perhaps the direct and indirect strategy categories require a deeper level of divergent thinking than the interactive categories. The direct strategy of circumlocution, for example, requires a speaker to say something in a new or different way to achieve some communication goal or understanding. An interactional strategy such as a simple confirmatory “yes” response, on the other hand, does not necessarily require creativity. Novelty and utility, which are integral components of creativity as defined for this dissertation (Plucker, Beghetto, & Dow, 2004), are more necessary for direct and indirect strategies than for interactional strategies as categorized by Dörnyei and Scott (1997). This could explain why interactional strategies did not exhibit relationships with creativity in this study despite the prevalence of relationships in the interactive task.

**Future Research**

Because the consistency between this research and previous studies varied, future research is necessary to further refine and enhance understanding of creativity and how it may affect pedagogy in second language acquisition. Ottó’s (1998) work with creativity and course grades showed a relationship, whereas this study did not. The difference seems to be in the amount of creative thought required on the assessments that determined the grades. The same is true of the contrast between Albert and Kormos’s (2004, 2011) results and this study’s results. Their narrative task required creative thought because participants were creating a story based on one picture, whereas in my narrative task an established story was provided in a multi-picture comic strip. McDonough et al. (2015) avoided the problem of separating creative thought from linguistic outcomes by developing their criterion measures from a corpus of words and features actually produced by the participants during the task. In the current study, I made every effort to
eliminate the need for divergent thinking in the tasks by specifying which words had to be described in the interactive task, and by providing a fully developed comic strip story for the narrative task. This seemed to be largely successful, but researchers should be careful to use methods that fully separate creative and linguistic variables in the future.

These differing results also suggest that language teachers should carefully consider the level of creativity required for classroom activities and assessments separately. Whereas activities that require students to produce novel and useful ideas can increase their output (Albert & Kormos, 2004, 2011) and can be highly engaging for students who enjoy that kind of task, requiring the same on assessments might deprive less-creative students of the opportunity to exhibit their L2 linguistic skills. Real-world use of an L2 often does require creativity and use of communication strategies though, so balancing the need for authenticity and limiting the need for creativity in assessments will be a challenge.

The same need to balance authenticity and separation of creativity from linguistic measures holds true for future endeavors. Researchers should make intentional decisions about using individual, dyadic, or group tasks, given the evidence of differing influences of creativity on task type. Individual tasks offer more control and separation of creative and linguistic measures, but dyadic and small group tasks are often more authentic simulations of L2 oral production scenarios. Research using stimulated recall might help language teachers better understand and address the numerous and sometime conflicting demands that tasks of different types can place on language learners.

Future research should also more thoroughly treat creativity alongside other individual differences that affect second language acquisition, in line with more recent treatment of individual differences as dynamic and interactive variables that may shift within context and
This dissertation considered proficiency, which turned out not to be a predictor of communication strategy use. Adding willingness to communicate would be a logical next step for a study with continued focus on communication strategy, because it could help clarify language learners’ uses of achievement versus reduction strategies during tasks. Considering additional measures of personality using the Big Five model comprised of openness, conscientiousness, extraversion-introversion, agreeableness, and neuroticism-emotional stability would build upon the interest in personality by SLA researchers (Dörnyei & Ryan, 2015) and the work of Feist (1998), who linked certain personality traits with creativity. Learning strategies, motivation, anxiety, and positive emotions are additional individual differences that could interact with creativity (Dörnyei & Ryan, 2015). Structural equation modeling would provide a more advanced statistical tool to build upon this dissertation’s use of multiple regression as more individual differences are added to models in this line of research. All of the published research thus far has focused on secondary and tertiary-level English language learners, so given the possible cultural influences on notions of creativity, expanding the research to include learners of other languages at more levels will be important. Whether considered in relation to communication strategy, classroom implementation, or other individual differences, there is tremendous opportunity for continued research of creativity in applied linguistics. In this dissertation, I have contributed knowledge on one aspect of creativity as an individual difference in second language acquisition and provided a solid basis for continued exploration of this burgeoning line of research.
Appendix A: Ethics/IRB Approvals

ORTA DOĞU TEKNIK ÜNİVERSİTESİ
MIDDLE EAST TECHNICAL UNIVERSITY

UYEŞİLAMALI ETİK ARAŞTIRMA MERKEZİ
APPLIED ETHICS RESEARCH CENTER

DÜNYA BÜYÜK UAE, DÜNYA BÜYÜK ORTA DOĞU
oration and protect the ethical interests of people involved in the research. It is important to ensure that the research is conducted in such a way that the participants are not harmed in any way.

Sayın Ashleigh PIPES:


Bilgilerimize saygıyla sunarım,

Prof. Dr. Canan SÜMER
İnsan Araştırmaları Etiği Kurulu Başkanı

Prof. Dr. Mehmet UTKU
IAEK Oy ese

Prof. Dr. Ayhan Gürbüz DEMİR
IAEK Oy ese

Yrd. Doç. Dr. Pınar KAYGAN
IAEK Oy ese
HUMAN SUBJECTS ETHICS COMMITTEE
EVALUATION OUTCOME

Dear Reviewer,

Please indicate the result of your review by first marking one of the following three choices. If you mark option two ("Revision is Needed") or option three ("Reject"), please provide explanations for your decision.

Date of evaluation: 28.02.2017

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<td>No revision is required. Data collection can be started <strong>✓</strong></td>
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<tr>
<td>2.</td>
<td>Revision is needed ___</td>
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Signature: ___
APPROVAL

January 4, 2019

Ashleigh Pipes
dawkinsa@georgetown.edu

Dear Ashleigh Pipes:

On 1/3/2019, the IRB reviewed the following submission:

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<th>Type of Review</th>
<th>STUDY</th>
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<tbody>
<tr>
<td>Title</td>
<td>Examining Cognitive Creativity as an Individual Difference in Second Language Production</td>
</tr>
<tr>
<td>Investigator</td>
<td>Ashleigh Pipes</td>
</tr>
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<td>IRB ID</td>
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<td>IND, IDE, or HDE</td>
<td>None</td>
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<tr>
<td>Documents Reviewed</td>
<td>Pipes Creativity Consent Form, Category: Consent Form; Pipes Creativity Debriefing Form, Category: Any Other Study Related Documents;</td>
</tr>
</tbody>
</table>

The IRB has approved the submission. You can begin research activities. The approval is valid from 1/3/2019 through 1/2/2020. Any modifications to the IRB-approved protocol and other supporting documents must be reviewed and approved by the IRB prior to implementation.

If the study will continue beyond 1/2/2020, please submit a continuation request form at least thirty (30) days prior to 1/2/2020 to allow the IRB sufficient time to review and approve the request.

In conducting this protocol, you are required to follow the requirements listed in the
Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system.

Sincerely,

Michael Orquiza
Appendix B: Informed Consent

Consent to Participate in Research Study

İstediğiniz zaman araştırma görevlisinden yardım isteyebilir, sorularınızı Türkçe sorabilirsiniz.

Whenever you like, you may ask the research assistant for help; you may ask your questions in Turkish.

Study Title: Examining Cognitive Creativity as an Interlocutor Individual Difference

Investigator: Ashleigh Pipes, Middle East Technical University

Introduction

You are invited to participate in this research study. Please take as much time as you need to make your decision. You may talk about your decision with other people, but you should decide to participate or not to participate. If you want to participate, please sign your name and date the end of this form. If you have any questions, ask the researcher or research assistant who explains this study to you.

Background and Purpose

The aim of this study is to collect data about how people complete tasks in a foreign language. It is investigating how individual differences in language learners affect the way they speak.

Study Plan

If you decide to participate in this study, you will be asked to complete some activities related to language learning. They are a survey, a figural exercise booklet, an individual speaking task, and a speaking game with a partner. It will take about 60-75 minutes. You may complete the tasks during weekday class hours in regular classrooms in the METU Department of Foreign Language Education building (EF-B).

Risks

There are no risks associated with participation in this study. The activities will not cause discomfort.

Benefits

If you participate, you will have the opportunity for English speaking practice, and you may learn about your strengths and weaknesses as a language learner. You may also help researchers understand how students learn to speak in English. In some cases, your instructor may give extra credit for participation. If you choose not to participate, another opportunity for an equal amount of extra credit will be available to you.

The decision to participate or not participate in this study will not affect your grades in any of your classes.

Confidentiality

Every effort will be made to keep any information collected about you confidential. Neither your name nor other identifiable information will be included in any presentations or publications based on the results of this research project. When the study starts, you will be assigned a participant number. Your course grades/GPA, recordings, survey, and test results will only be associated with your participant number. The data will be saved on the researcher’s password-protected computer and in a locked office cabinet. Only the researcher will have access to the link between your name and participant number. The data will only be used for scientific research purposes.

(continued on back)
Your Rights as a Research Participant

Participation in the study is voluntary. You may quit at any time. If you decide to stop participating, there will be no effect on your relationship with the researchers or any other negative consequences. If you decide to stop participating, please tell the researcher or research assistant that you want to quit. The information you provided before you stopped participating will not be used in the analysis or final report of the study.

Questions or Concerns?

If you have any questions or concerns before, during, or after the study, you may contact the researcher, Ashleigh Pipes, at the METU Department of Foreign Language Education, EF-B 15, apipes@metu.edu.tr, or 312-210-4076.

Statement of Person Obtaining Informed Consent

I have fully explained this study to the participant. I have discussed the study’s purpose and procedures, the possible risks and benefits, and that participation is completely voluntary. I have invited the participant to ask questions and I have given complete answers to all of the participant’s questions.

_______________________________________________________                 ___________________
Signature of Person Obtaining Informed Consent                     Date

_______________________________________________________
Name and Surname of Person Obtaining Informed Consent

Consent of Participant

I am participating in this study totally of my own will. I know that I can quit participating at any time. I give my consent for the anonymous use of my test results, oral data, written data, and course grades/GPA for scientific purposes.

I have received complete answers for all of my questions.

I understand all of the information in this “Consent to Participate in Research Study” form.

_______________________________________________________                 ___________________
Signature of Participant                     Date

_______________________________________________________
Name and Surname of Participant

After you sign this form, you will be offered a copy of it to keep, and the researcher will keep another copy in your research record.
Appendix C: Biodata Survey

(administered online with Qualtrics software)

Q1 Thank you for agreeing to help with this project. Please answer the following questions concerning your feelings about communication with other people in English. There are five sections total. It should take about 15 minutes.

If you do not understand something, please ask the researcher, teacher, or assistant for help at any time.

[Willingness to Communicate items here]

Q9 The next few questions ask some information about yourself.

Q8 What is your native language (mother tongue)?

- Turkish (1)
- Other (2)

Skip To: Q10 If What is your native language (mother tongue)? = Turkish
Skip To: Q22 If What is your native language (mother tongue)? = Other

Q22 What is your native language (mother tongue)?

Q10 What is your gender?

- Male (1)
- Female (2)

Q11 How old are you?

121
Q12 What year are you? (If you are not a regular METU FLE student, please mark Erasmus/special/other.)

- First-year student (1)
- Second-year student (2)
- Third-year student (3)
- Fourth-year student (4)
- Erasumus/special/other student (5)

Q24 Did you attend METU prep school?

- Yes (1)
- No (2)

Q13 What is your cumulative GPA (as close as you can remember)?

0 0 1 1 2 2 2 3 3 4

Click to write Choice 1 ()

Q14 What is your most recent proficiency test score (as close as you can remember)?

Q15 What proficiency test was it?

- METU proficiency test (1)
- Other (2)
Q23 Which kind of proficiency test did you take (TOEFL, etc.)?
________________________________________________________________________

Q16 What month and year did you take the proficiency test?
________________________________________________________________________

Q17 What is your name? (This will only be used to match your data. All of your answers will remain anonymous.)
________________________________________________________________________

Q18 What is your e-mail address? (This will only be used if there is a problem with your data, or if you want to receive results related to the project).
________________________________________________________________________
Appendix D: Comic Strip Task

Instructions:
Your task is to tell the story of this cartoon strip. Give as much detail as possible about the people and the things you see in the pictures. You must say something about each picture. You may also add ideas not shown in the pictures.

A Successful Businessman by Sempé

Copyrighted material. Please contact author for cartoon strip.

Appendix E: Interactive Task Instructions and Sample Card

1. Welcome! Please read these instructions and then wait for your turn in the lobby up the steps.

2. Here’s what to do when it is your turn:
   
   A. Sit in the empty “Speaker” seat. The assistant will check your participant number and start recording.
   
   B. You will be given a stack of Taboo cards like the sample. Describe the words written at the top of the cards to your partner. Try to get your partner to say the word as quickly as possible. Follow these rules:
      
      i. You may NOT say the word written in blue, or any part of the word in blue.
      
      ii. You may NOT use the black words below the line or any parts of the black words to help you.
      
      iii. You may NOT use gestures.
      
      iv. You may only use English.
   
   C. If you get completely stuck, you may say “PASS” and move to the next card.
   
   D. Continue for 5 minutes. If you finish all the cards, you may try again on any cards you passed. The assistant will tell you when to stop.
   
   E. Move to the “Guesser” seat.
      
      i. Try to guess the words your new partner is describing.
      
      ii. If you know what your partner is describing but cannot remember the word in English, you may say it in Turkish (only when you are guessing).
   
   F. Move on to the next room on the schedule for your story-telling task. Please do not share information about the activity, as that would affect the results of the research project. Thank you for your participation!

Sample card:
Appendix F: Interactive Task Word Lists

Set A
1. Calendar
2. Waffle
3. Monster
4. Lemon
5. Museum
6. Motorcycle
7. Mermaid
8. Oven
9. Cowboy
10. Mirror
11. Passport
12. Police Officer
13. Comb
14. Butterfly
15. Pharmacy
16. Parachute
17. Comet
18. Camera
19. Bread
20. Forest

Set B
1. Clock
2. Popcorn
3. Ghost
4. Strawberry
5. Park
6. Helicopter
7. Unicorn
8. Refrigerator
9. Pirate
10. Pillow
11. Wallet
12. Astronaut
13. Lipstick
14. Spider
15. Attic
16. Umbrella
17. Moon
18. Computer
19. Pepper
20. Airport
Appendix G: Research Assistant Pre-training Instructions

Examining Cognitive Creativity as an Interlocutor Individual Difference

Instructions for Research Assistants

1. Arrange your room so that you and the participant can sit comfortably. Make space on the desks or table for the cartoon, your papers, the recorder, backup recorder (if available), and candy. Place the cartoon face-down until you finish the instructions. Hang the instructions and do not disturb signs on the door.

2. Test the recorder. Place it near enough for good sound quality, but not right in the middle where it might make the participant uncomfortable. *Do not hide the recorder. They must know they are being recorded.*

3. When the participant arrives, greet them in a friendly way. Show them where to sit, and be sure the door is closed before you go over the instructions. Keep in mind that they might be nervous and reassure them if needed. Read the instructions out loud.

Instructions:

“*I am going to show you a cartoon strip with nine pictures. Your task is to tell the story of the cartoon strip. Give as much detail as possible about the people and the things you see in the pictures. You must say something about each picture. You may also add ideas not shown in the pictures. Do you have any questions?”*

You may emphasize that they should give as much detail as possible and that they must say something about each picture, but do not change the instructions. They must be consistent for every participant. Answer any questions to the best of your ability. If you do not know an answer, make a decision that will keep things the most consistent for all participants. *It is fine to use Turkish for helping them understand the task.*

4. Find their participant number on your list. If they do not have a participant number yet (unlikely), explain the study and informed consent form, give them time to look over it, ask them to sign the bottom section if they are willing to participate, you sign the top section, and then assign them a number by writing their name beside one of the available numbers on the back of the list.

5. When they understand what to do,
   a. Turn the cartoon over.
   b. Start the recording (important-do not forget to start the recording!).
   c. Say their participant number out loud.
   d. Tell them “You may begin.”
6. As they speak, provide positive backchannels (nods, smiles, etc.), but try not to say anything. For example, if they have trouble with the word “psychiatrist/psychologist,” just affirm whatever they say without correcting them. Allow for some silence if necessary. It might feel uncomfortable at first, but they could need the time to think.

7. Let the participant end the story. They might pause a little before they stop, so make sure you do not cut them off too soon. Stop the recorder, then tell them “Good job” or some similar positive feedback.

8. Put a check mark to the left of their name when they are done.

9. Enthusiastically thank the participant. Help them check the schedule to see where to go next if necessary (especially students 9 and 10).

10. Check to be sure everything is ready for the next participant (cartoon face down, recorder ready, etc.)

11. When you are done with all of your participants, bring your recorder and backup recorder to Ashleigh’s office.

Thank you for your help!!!

Research Assistant Procedure for Taboo

1. Student in “Speaker” seat moves to “Guesser” seat.
2. New student enters and sits in “Speaker” seat.
3. Ask if they have read the instructions. Give them time to read instructions, explain the rules, and answer questions as necessary.
4. Ask student to find their participant number on the list.
5. Start recorder.
7. Say participant’s number out loud.
8. Tell participant to begin.
9. Start 5 minute timer.
10. Say “pass” out loud if student passes a card.
11. Say “You said [taboo word]” and take card if they say one of the black words on the card.
12. If necessary, you may remind the guesser that they may guess a word in Turkish.
13. Say “Time is up” when 5 minutes is complete.
15. Thank participants.
16. Tell guesser to go to the next activity (room 40).
17. Tell speaker to move to guesser seat.
18. Put cards back in order.
19. Get out other stack of cards.
20. Invite the next speaker into the room.
Appendix H: Debriefing Form

Debriefing Form

Study Title: Examining Cognitive Creativity as an Interlocutor Individual Difference

Investigator: Ashleigh Pipes, Middle East Technical University

This research project is expanding on findings concerning the relationship between cognitive creativity and course grades (Otto, 1998), narrative structure (Albert & Kormos, 2004, 2011), questions, coordination (McDonough, Crawford, & Mackey, 2015), conjunctions (Mackey, Park, Akiyama, & Pipes, 2014), and communication strategies such as exemplification, questions, circumlocution, and use of fillers (Pipes, 2016) by investigating the potential relationship between creativity and use of L2 communication strategies among L2 English university students in Turkey. You completed the Torrance Test of Creative Thinking (TTCT) figural version. You also completed a willingness to communicate survey and two L2 production tasks. The production tasks asked you to describe objects and to tell a story based on a series of pictures.

Data will be analyzed to determine relationships between the mental characteristics assessed by the TTCT (fluency, elaboration, originality, resistance to premature closure, and abstractness of titles) and your use of L2 communication strategies (approximation, avoidance, circumlocution, message abandonment, and message reduction), as well as willingness to communicate and course grades. For example, results may show that students with higher cognitive creativity scores are more skilled at using communication strategies such as circumlocution, or students with lower cognitive creativity scores may tend to use avoidance strategies in L2 speaking and writing. This study will further establish cognitive creativity as an important individual difference in second language acquisition. This will allow for better understanding of how students use second or additional language and more effective second language instruction in many contexts.

Data collection is projected to be completed by June 2017. Initial analysis will be ready by September 2017. As previously stated, the data will be used only for research purposes. For more information about the study and its results, or if you have any further questions or concerns, you may contact the researcher, Ashleigh Pipes, at the METU Department of Foreign Language Education, EF-B 15, apipes@metu.edu.tr, or 312-210-4076.

Thank you for your participation!
Appendix I: Torrance Test of Creative Thinking Certification
Appendix J: Interaction Task Transcription Conventions/Instructions

- Type participant number first. Name of file. Actual start time (in min. and sec.)
- Transcribe every word of the participant who is describing the items. Type continuously (no returns) until the guesser speaks. Hit return when guesser speaks.
- Do not transcribe the guesser.
- Include restarts and repeats.
- Indicate self-interruptions, restarts, and repeats with a hyphen –
- Indicate “fill in the blank” inflection with a __. For example, if a speaker says “not hot, but” and emphasizes but in a way that clearly indicates the guesser is being prompted to say cold, use __ following the word that is emphasized to prompt the guesser.
- Include all verbal fillers.
- Indicate very short (0-3 seconds) pause with comma,
- Indicate terminal pause with .
- Indicate pauses longer than 3 seconds with...
- Indicate paralinguistic cues in italics and double parentheses, i.e. ((laughter)).
- Anything not in English, type bold [Turkish] in brackets.
- If an utterance seems to be in English but you cannot understand it, type [indistinguishable] [unintelligible], or [indis.] or [unint.] in brackets.
- For any interjections, instructions from researchers/data collectors type [RA] in brackets. Do not include RA backchannels.
- When a participant passes an item, type PASS in all caps—even if it is the RA who said “pass.” This is the one thing RAs might say that you need to type. Just be sure to type PASS only once if both the participant and RA say it, but check the word list to be sure they did not pass two cards in a row.

Participant 3 02March17Taboo1 16:18

Uh, It is something that Swiss people are best at, best at doing, and you you can use it as a style of your clothes uh but you wear it on your arm
Uh, it, It doesn’t adjust warmer. Um.
Yeah, this is a material, something that you wear on your arm.
Yes. Do I change it?
It is uh something that you probably, people probably eat while uh going to cinema
Yes. Um, it is something that most people are afraid of uh, if they are in cemetery
Yes, uh. I can PASS that.
Okay, it is a place that people uh go at the weekend with their children or they take their dogs and they children
Yes. It is uh a military vehicle, uh
N. You can fly it—aaahh!
((laughter))
Uh, it is actually an animal uh it can go very fast and people use and have used it for centuries and thousand years as a transportation but it is, the uh
Yes But uh, it is a special horse and girls love it, and it is pink and fantastic
It’s something different...[indis.] so I PASS
PASS
Appendix K: Narrative Transcription Conventions/Instructions

- Header for each narrative should be: Participant number. Name of file. Recording start time/actual narrative start time (in min. and sec.)
- Transcribe every word.
- Include restarts and repeats.
- Indicate self-interruptions with a hyphen.
- Include all verbal fillers.
- Indicate very short (0-3 seconds) pause with comma.
- Indicate terminal pause with .
- Indicate pauses longer than 3 seconds with...
- Anything not in English, type bold [Turkish] in brackets.
- Paralinguistic acts, like laughter, type italic ((laughter)) in double parentheticals.
- Any interjections, instructions from researchers/data collectors type [RA] in brackets. Do not include RA backchannels.
- Type end time at end of narrative.

Example:

54. 010617NandTASH. 0:00/0:07

Uh, there is a man in the office, and he seems to be bored with his situation. And...he seems bored and, so tired. Ah I cannot explain on anything...uh, [RA encouragement] It seems like he must do a lot of things and...[RA encouragement] There is a heavy traffic, and there is a man who seems very uh, ah, it’s very hard. [RA] After the exam, my brain is- [RA]. There is a man who is talking to a psychia-psychiatr- I cannot do this. [RA] There is a man who is talking about his problem, and he want to be, he wants to be of course, he wants to be relieved, and he wanna get away from his pains. Okay. [RA] Leave the city and live a simple life. [RA] Leave the city and live a simple life. What’s that supposed to mean? [RA] I think he’s a minister... [RA] He’s a farmer and he don’t know what to do about his life, and...[RA] I think he wants to live a happy and um, peaceful life... [RA] He is taking care of his plants, and he seems happy. [RA] And his plans is growing up, day by day. And he seems to start a business by raising this things. Ah, simdi anladim. [Turkish] Now I got it. Simdi anladim! [Turkish] [RA]Okay. He is bored with his situation, and he can handle all of this. And he talked, to he talks to a psychiatrist and he says that leave the city and live a simple life. And he decides to live a simple life. He uh grow plants, uh live in a farm. And, I think this is a circle. He wants to live a happy and, happy and uh peaceful life, but he grow a business, and he is bored. Again. That’s all, I think. 6:15
Appendix L: Coding Protocol

Coding Protocol: Communication Strategies

1. Recommended background reading: Kennedy & Trofimovich (2016) and Dörnyei & Scott (1997)
2. Recommended supplies: Max QDA; MS Word

Strategies and descriptions directly from Dörnyei & Scott (1997), p. 188-194, with minor adaptations

<table>
<thead>
<tr>
<th>Task</th>
<th>Strategy</th>
<th>Description</th>
<th>Example from data</th>
<th>Notes</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>Message Abandonment</td>
<td>Leaving a message unfinished because of some language difficulty.</td>
<td>I wanna PASS this</td>
<td>“PASS” might sometimes be in the RA’s voice, or repeated by the RA after the speaker says it. Be careful to count each pass exactly once. Speakers might also pass multiple words in a row—count each one. Refer to word list if it is unclear.</td>
<td>D</td>
</tr>
<tr>
<td>N</td>
<td>Message Reduction</td>
<td>Reducing the message by avoiding certain language structures or topics considered problematic language-wise or by leaving out some intended elements for a lack of</td>
<td>And he start, he decided to uh move to a place that he could uh cultivate a something. And he want to live a simple life. And...he uh, he set up a business there, and uh, he mm, still busy. He</td>
<td>Combining any two frames in the Narrative is reduction. Speakers may try to cover up their own reductions, so look at the comic to check for evidence of addressing all 9 frames in at least some way, even if it is minimal. This would count as minimally but adequately addressing frames 5-9: Uh, (5)ss-a farmer has a question on his mind and he dunn’t know the answer. He um, he is, (6)he stands near the flowers and (7)walks around the farm. And (8)he has some employees and he is checking them. And uh,(9) he is again in his office and talking to his phone. (“Stand” is probably a substitution for the more difficult “squat” in frame 6.) Other reductions are not counted because they</td>
<td>D</td>
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</tbody>
</table>

Sample: Yeah. Um...these are like, how can I say it? Aircrafts, but they have like, weights and stuff.
<p>| T, N | Message replacement | Substituting the original message with a new one because of not feeling capable of executing it. | Tasks did not readily allow for replacement, only abandonment (T) or reduction (N). Some possible instances would be covered by Restructuring, but otherwise might be impossible to tell without stimulated recall because this is a cognitive strategy not always evident in speech. | D |
| T, N | Circumlocution (paraphrase) | Exemplifying, illustrating, or describing the properties of the target object or action. | In Taboo, count one circumlocution for each attempted word if the speaker makes any attempt at exemplifying, illustrating, or describing, even if it is an incomplete attempt or if the speaker is cut off by the guesser. If speaker expands on the original circumlocution attempt in a subsequent turn, count it as Response: expand. Other strategies may also be embedded in a circumlocution, i.e. Approximation. | D |
| T, N | Approximation | Using a single alternative lexical item, such as a superordinate or related term, which shares semantic features with the target | Count only when there is another word that would be more natural/usual. The speaker may sometimes identify the use approximation with an “it’s not..” some similar item phrase, i.e. “not a fruit but a…” An approximation could be embedded in a circumlocution. Count both the circumlocution and the approximation. Just count an approximation once if it is used repeatedly. | D |</p>
<table>
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<tr>
<th></th>
<th>Use of all-purpose words</th>
<th>Extending a general, “empty” lexical item to contexts where specific words are lacking [or prohibited].</th>
<th>Includes words such as thing, make, do, thingie, blah blah, etc. Note that not every use of words such as “thing” will be used strategically: check context to determine if “specific words are lacking.” In other words, the all-purpose word is being used instead of another more specific word, not as a natural part of a description.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T, N</td>
<td><strong>Word-coinage</strong></td>
<td>Creating a non-existing L2 word by applying a supposed L2 rule to an existing L2 word.</td>
<td>Rare in this data set.</td>
</tr>
<tr>
<td>T, N</td>
<td><strong>Restructuring</strong></td>
<td>Abandoning the execution of a verbal plan because of language difficulties, leaving the utterance unfinished, and communicating</td>
<td>This follows a more elaborated attempt than a simple Self-repair (see below). Be careful not to confuse with abandonment, because the message is still attempted in Restructuring, just in another way. Also do not confuse with Self-repair, which is the repair of just a word or few words.</td>
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</table>

**Note:**
- **T, N** indicates that the example is both throwaway and natural.
- **D** indicates that the example is detailed.

Word-coinage

Creating a non-existing L2 word by applying a supposed L2 rule to an existing L2 word.

**Example:**

<p>| | | | |</p>
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<td></td>
<td><strong>and there’s a bigger house, a deluxer house</strong></td>
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Restructuring

Abandoning the execution of a verbal plan because of language difficulties, leaving the utterance unfinished, and communicating.

**Example:**

<p>| | | | |</p>
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<tbody>
<tr>
<td></td>
<td>you are tired after school, you go home, want to relax, want to...No, not take a nap. You forget all about it. You</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Word or structure.

count only once)

hmm there’s also vehicle to, uh, help, harvesting I guess (for tractor)
the intended message according to an alternative plan.

are in a lesson, you don't want to listen to teacher, and you start to imagine things.

(implicitly switches from dorm to classroom approach to elicit clock)

<table>
<thead>
<tr>
<th>T, N</th>
<th>Literal translation (transfer)</th>
<th>Translating literally a lexical item, an idiom, a compound word or structure from L1/L3 to L2.</th>
<th>This would require a native-like Turkish coder. Also, words that prompted this were eliminated from Taboo after pilot study.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T, N</td>
<td>Foreignizing</td>
<td>Using an L1/L3 word by adjusting it to L2 phonology (i.e., with an L2 pronunciation) and/or morphology.</td>
<td>Not applicable because participants were specifically instructed not to use any Turkish. Any instances will be subsumed by code switching.</td>
</tr>
<tr>
<td>T, N</td>
<td>Code switching</td>
<td>Including L1/L3 words with L1/L3 pronunciation in L2 speech; this may involve stretches of discourse ranging from single words to whole chunks and even [Turkish], but little. (using portakal to describe lemon)</td>
<td>All instances in both tasks should be transcribed as [Turkish]. Some might also have the Turkish utterance transcribed, but just count each bracketed indication as one instance of code switching. Do NOT count proper nouns as code switching. If you are not sure if a word or phrase is a proper noun, make a note and ask.</td>
</tr>
<tr>
<td>T, N</td>
<td>Use of similar-sounding words</td>
<td>Compensating for a lexical item whose form the speaker is unsure of with a word (either existing or non-existing) which sounds more or less like the target item.</td>
<td>Rare or absent in this data set.</td>
</tr>
<tr>
<td>T, N</td>
<td>Mumbling</td>
<td>Swallowing or muttering inaudibly a word (or part of a word) whose correct form the speaker is uncertain about.</td>
<td>Yes. ((mumbles)) Um...uh, ugly? Could be marked in data as ((mumbles)) or ((muttered)) but occasionally [indiscernible.], or [unreadable]. May require re-listening to audio to determine if it is a transcription difficulty, pronunciation variation, or a reflection of speaker’s uncertainty. If an utterance is mumbled in Turkish, count as both mumbling and code switching. If unsure, make a note and confer with other coders.</td>
</tr>
<tr>
<td>T, N</td>
<td>Omission</td>
<td>Leaving a gap when not knowing a word [or not being allowed to use it] and carrying on as if it had been said.</td>
<td>Oh we have the saying that oh you must have seen a, you look so, you know, scared (for ghost) Salt and... (to elicit pepper) Do not count when speakers verbalize “blah blah” or “dit dit dit” to indicate a blank. Instances of “fill in the blank voice” also count as Omission in this data. Do not count omissions of articles (a, an, the). Might be easily confused with restructuring, so be sure to check if speaker carries on or changes course.</td>
</tr>
<tr>
<td>N</td>
<td>Retrieval</td>
<td>In an attempt to retrieve a lexical item, saying a series of incomplete or wrong forms or structures before to go a psychist-psychiatric? Um and uh the Retrieval is mainly a lexical (vocabulary) strategy. Note that a retrieval is characterized by eventually saying the word correctly or the speaker continuing as if she or he thinks it has been said correctly.</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Self-repair</td>
<td>Making self-initiated corrections in one’s own speech.</td>
<td>so probably he don’t know, he doesn’t know the a lot of sheep, sheeps and...</td>
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</tr>
<tr>
<td>T</td>
<td>Other-repair</td>
<td>Correcting something in the interlocutor’s speech.</td>
<td>Rare or absent in this data. Possibly a few instances of pronunciation repair in Taboo.</td>
</tr>
<tr>
<td>N</td>
<td>Self-rephrasing</td>
<td>Repeating a term, but not quite as it is, but by adding something or using paraphrase.</td>
<td>This is not correcting one’s own mistake, but more of a self-initiated clarification after an initial sentence/clause/utterance is complete. In Taboo, only count if it is within the same turn. See Response: rephrase and Response: expand strategies as well.</td>
</tr>
<tr>
<td>N</td>
<td>Over-explicitness (waffling)</td>
<td>Using more words to achieve a particular communicative goal than what is considered</td>
<td>Note: Narrative instructions said to “give as much detail as possible about each picture,” so do not confuse explicit detail or saying things that appear in multiple pictures with saying more than is necessary to convey an idea.</td>
</tr>
</tbody>
</table>

*Psychiatrist said*

*He I-he looks happy*
normal in similar L1 situations.

stress about the work. I think as mm, as the more, the, work gets bigger, and I mean the bigger the work is, the more stressful the, his life is. Some thing is like that. Yeah, and he’s still not happy. Because of the stress of this big ((emphasis)) farm.

T, N  
Mime (non-linguistic/paralinguistic strategies)  
Describing whole concepts nonverbally, or accompanying a verbal strategy with a visual illustration.  
That’s all. ((little sigh)) And in this picture…  
Non-linguistic strategies do not apply because gesturing was against the rules in Taboo, and there is no video for either task. Paralinguistic strategies such as laughter, sighs, etc. are marked as ((sigh)). Count each item marked as ((ital)) once.

N  
Use of fillers  
Using gambits to fill pauses, to stall, and to gain time in order to keep the communication channel open and maintain discourse at times of difficulty.  
Um, there are a lot of animals um, uh, there are sheeps and vegetables, and uh he is running this uh farm and, uh, he find himself in this same position. (count 6)  
Count each um, uh, eh, ah, etc. once. Occasionally, participants use unique fillers such as “you know,” “I mean,” or “yeah.” If these are repeated consistent with the definition of fillers without adding any meaning to the utterance, count as a filler.
<table>
<thead>
<tr>
<th>N</th>
<th>Self-repetition</th>
<th>Repeating a word or string of words immediately after they were said.</th>
<th>And it's a tragic story, tragic story. Something uh something sharp...</th>
<th>Different than self-repair, self-rephrasing, and retrieval because no change is made—repetition is exactly the same two or more times. It might be interjected with a filler. Ignore the filler and still count as a repetition. However, do not count repeated fillers as repetition, because they are not meaningful words (so <em>uh, uh, uh</em> is not a repetition). Do not include confirmations and rejections (yes, yes... and no, no...) because they are counted individually as INT strategies. No matter how many times the word or string of words is repeated, just count it as one self-repetition.</th>
<th>InD</th>
</tr>
</thead>
</table>
| T | Response: repeat | Repeating something the interlocutor said | *G: Watch time clock*  
*S: Yeah. Yeah, clock.*  
*G: Mirror*  
*S: No. Not mirror.* | In this data, other-repetition is used for confirmation or building rapport, not just to gain time. Be sure not to count instances when the Guesser repeats the Speaker. Listen to audio again if necessary. | InD |
| T | Feigning understanding | Making an attempt to carry on the conversation in spite of not understanding something by pretending to understand. | Does not apply to this data because Taboo speaker is in lead position in interaction, and any lack of understanding would inhibit the speaker from achieving the goal of the interaction, so there is no motive to feign understanding. | InD |
| T, N | Verbal strategy markers | Using verbal marking phrases before or after a strategy to signal that the word or structure does not carry the intended meaning perfectly in the L2 code. | *and lots of chicken babies, I don't know their English.*  
*corns, and s-mm, What's this to English? I don't know.* | Usually includes “I don’t know,” “in English,” and/or “how can I say.” Such a phrase might mark a strategy of reduction or abandonment, so it is not necessary to identify the strategy that the marker comes before or after. This strategy is similar to hedging in conversation or “breaking character” in acting. Do not include markers that are clearly comments on understanding of the narrative itself, i.e. *I think the man is upset*, because that is in relation to understanding the comic, not using language. Do not include phrases such as | InD |
<p>| | | |</p>
<table>
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<tbody>
<tr>
<td><strong>T</strong></td>
<td>Direct appeal for help</td>
<td>Turning to the interlocutor for assistance by asking an explicit question concerning a gap in one’s L2 knowledge [or a prohibition of the task].</td>
</tr>
<tr>
<td></td>
<td>how can I, shit, I forgot the word</td>
<td>“that’s all” at the end of narrative frames or at the end of the whole narrative.</td>
</tr>
<tr>
<td></td>
<td>*Discern if it is part of the regular flow of the sentence. If so, maybe not a marker, if yes, probably code.</td>
<td></td>
</tr>
<tr>
<td><strong>T, N</strong></td>
<td>Indirect appeal for help</td>
<td>Trying to elicit help from the interlocutor [Research Assistant] indirectly by expressing lack of a needed L2 item either verbally or nonverbally.</td>
</tr>
<tr>
<td></td>
<td>um...can I say big?</td>
<td>Yes, uh change the word, a synonym.</td>
</tr>
<tr>
<td></td>
<td>No no. Can I say PASS?</td>
<td>Does not apply to Narrative, because there is no active interlocutor. For the Taboo data, Direct appeals are any explicit question or request addressed to the Guesser. They may be a gap in the Speaker’s L2 knowledge, but they may also be a way to elicit a word from the forbidden list or elicit another helpful idea. Count each question once.</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td>Asking for repetition</td>
<td>Requesting repetition when not hearing or understanding something properly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rare in this data. May occur when Speaker wants Guesser to repeat something that was correct.</td>
</tr>
<tr>
<td><strong>T</strong></td>
<td>Asking for clarification</td>
<td>Requesting explanation of unfamiliar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rare or absent in this data because speaker does most explaining, and guesser’s responses are typically short and simple.</td>
</tr>
<tr>
<td>T</td>
<td>Asking for confirmation</td>
<td>Requesting confirmation that one heard or understood something correctly.</td>
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<td>------------------------------------------------------------------------</td>
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<tr>
<td>T</td>
<td>Guessing</td>
<td>Guessing is similar to a confirmation request, but guessing involves real indecision. Confirmation request implies a greater degree of certainty regarding the key word.</td>
</tr>
<tr>
<td>T</td>
<td>Expressing non-understanding</td>
<td>Expressing that one did not understand something properly either verbally or nonverbally.</td>
</tr>
<tr>
<td>T</td>
<td>Interpretive summary</td>
<td>Extended paraphrase of the interlocutor’s message to check that the speaker has understood correctly.</td>
</tr>
<tr>
<td>T</td>
<td>Comprehension check</td>
<td>Asking questions to check that the interlocutor can follow you.</td>
</tr>
<tr>
<td>T, N</td>
<td>Own-accuracy check</td>
<td>Checking that what you said was correct by asking a concrete question or repeating a word with a question intonation</td>
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<td>-------------------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| T    | Response: self-repetition on subsequent turn | Repeating a word, group of words, or clue given on a previous turn. | S: No, it's **something bigger** and it can **float in the air**.  
G: Uh  
S: It makes noise, a lot of noise, and people usually duck their heads near it.  
G: It’s a gun right?  
S: No no no no. It's **something bigger**. A **vehicle**.  
G: A vehicle oh  
S: It can **float in the air** and you have | New for this data. This distinguishes Response: expand and Self-repetition from instances when a speaker repeats what she/he previously said in response to a Guesser’s failure to say the target word. | INT |
| T    | Response: repair | Providing other-initiated self-repair | Rare in this data because guessers do not have reason to correct speakers, and RAs do not provide linguistic input. | INT |
| T    | Response: rephrase | Rephrasing the trigger | Rare in this data. This is almost the same as self-rephrasing, but this is specifically when | INT |
it is a response to something the Guesser said.

| T    | Response: expand | Putting the problem word/phrase into a larger context [or adding additional information, giving additional clues in response to Guesser’s utterance] | S: Usually girls and some goth men put this on.  
G: [indistinct]  
S: No. Um on their face. | For this data, Response: expand is most often the follow-up to a circumlocution attempt and/or an incorrect guess in Taboo. For each turn that the speaker takes and adds any tidbit of additional language or information after a guesser response, even if incomplete, count an additional Response: expand. | INT |
|------|-----------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|     |
| T    | Response: confirm | Confirming what the interlocutor has said or suggested. | **Yep, ha ha.**  
**Yes.** | These include confirmations that the guesser has said the target word as well as confirmations that the guesser has said something else the speaker is trying to elicit in the process. Count each “yes,” “yeah,” etc. once. | INT |
| T    | Response: reject | Rejecting what the interlocutor has said or suggested without offering an alternative solution. | **No,**  
(count 1)  
**No, no. It’s like uh the first thing you said.**  
(count 2)  
**No, no, no.**  
(count 3) | Be careful not to include occasional instances of speakers saying no to themselves or to their own ideas. Count each “no” or other rejection once. | INT |

Additional Coding: Narrative Structure

1. Count the number of Analysis of Speech (AS) units using Level 2 analysis.
   - An AS unit is a “single speaker’s utterance consisting of an independent clause or sub-clausal unit, together with any subordinate clauses associated with either” (Foster, Tonkyn, & Wigginsworth, 2000, p. 365).
   - Level 2 analysis excludes short utterances such as fillers.
   - Example, with 16 AS units indicated by slashes (/):
Well, um, there is a business man. He seems very bored in the city. And then uh he’s in the traffic, he must be bored right there, too. He goes to the psychiatrist I think. Uh, talks about his problems. And the psychiatrist tells him, tells him to leave the city and live a simple life. Maybe he is too overwhelmed with the city life. So he leaves to the urban, rural areas. And then he becomes a farmer, he seems to become a farmer. Raises chickens and sheeps, and he gets more and more crops, more and more animals. Then he gets overwhelmed with this it seems. He has more employees, he has more animals, and then he becomes another business man again. And he seems very overwhelmed and bored again.

2. Count words in each narrative (use MS Word Review word count feature).

Amendments

- Do not include punctuation (, . ?) immediately following at utterance because it is quicker and easier to highlight by double clicking, which does not include them. For paralinguistic items marked with brackets or double parentheses, also do not include brackets and all parentheses, also because it is easier to highlight by double clicking, which does not include them. Leave out fillers or other disfluencies before and after multi-word strategies, but include them if they are in the middle of a strategy. For questions (Direct appeal for help), include the entire question, not just the question words at the end.
- All-purpose: if you could substitute a more appropriate word/the target word in, then yes, it’s an all-purpose word. If you could not substitute a more appropriate word, it is not. Ex: It’s something that goes tick tock. Is NOT all-purpose, because It’s clock that goes tick tock doesn’t make sense.
- Don’t count lead-in questions that are getting at something other than the target word as circumlocution.
- For approximations and all-purpose words, use the first instance but not subsequent instances within the same target word attempt.
- Any morsel of additional information makes it a Response: expand. For example, “Sleep, or” is more information than “sleep” so it is a Response: expand. Also include anything that is part of the expansion, including repetitions of the guesser’s previous guess. For example, Include all of this line: “Space. Um, These people uh work about space?” Do not exclude “Space. Um” since it is part of the expansion of information.
- Response: reject: include “not” phrases when the speaker is rejecting the guesser’s guess. Just highlight the “not”. Do not include self-rejections, such as when the speaker is acknowledging their own mistake (that would be a verbal strategy marker).
- For the purposes of this data “okay” is a filler, not a confirmation.
- Direct appeal for help: include commands/requests for information that are not questions, too.
- Code-switching: only highlight the word “Turkish”
References


