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Fostering Creativity in Learning: Relinquishing Instructor Control

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Abstract: The purpose of this instructional article is to explain the various definitions and theories of creativity and to demonstrate a connection between creativity and learning. Research in the development of creativity in education is discussed, and a rationale is presented for why creativity is a relevant characteristic to develop in college students in order to prepare graduates for workplace demands. Lastly, implications of creativity for learners, and suggestions for teachers to encourage creativity are presented.

Keywords: creativity; teaching; higher education; learner autonomy; control; motivation

1. CREATIVITY IN LEARNING: RELINQUISHING INSTRUCTOR CONTROL

Some scholars argue that creativity is merely producing artwork, playing a musical instrument, or inventing a new type of product (MacKinnon, 1975). Indeed these activities are creative; however, contemporary researchers argue that even everyday activities such as doing homework, repairing a car, and preparing dinner can be considered creative (Travaglini, 2009). The relationship between creativity and learning is well established in the literature as a relevant and desirable characteristic of graduates entering the workforce (DETYA, 2000; Harrison, 2013; Tilbury, Reid, & Podger, 2003; Weaver, 1999). In order to encourage creativity in learning activities, instructors must be willing to relinquish some control, allowing for learner choice and autonomy rather than rigidity and uncompromising structure (Harrison, 2011). This instructional article establishes a theoretical rationale justifying the validity of integrating creativity into learning activities, as well as offers practical insights into methods for doing so. Before incorporating creativity into learning activities, it is prudent to examine the relevant theories and definitions surrounding this elusive construct.

A. Definitions and Theories of Creativity

Although the term creativity is often associated with art, music, theatre, etc., there is a growing body of research on creativity in various disciplines. Despite this, a definition of creativity has not been developed that addresses the expanse of human creative experience. One supposition for this is that it is difficult to discern what can be interpreted as a 'creative' object, or to describe the cognitive traits that characterize a creative person (Reid & Petocz, 2004). Bohm (1998) suggests that one of the problems is the confusion of what may actually be creative: is it a person, an idea, or an object? Historical definitions of creativity describe it as an experience of man's natural abilities, derived by inheritance, under exactly the same limitations, as the form and physical features of the whole organic world (Galton, 1869). Mooney (1963) further suggests that creativity is imagination inseparably coupled with intent and effort. While some literature uses creativity and innovation interchangeably, Gretz and Drozdeck (1992) describe innovation as an "external" word. It can be measured, and it generally talks about things that have been tested properly and found to have worked in the real world. In contrast, creativity is more of an "internal" word. It is subjective, and far harder to measure and to define. This is largely because creativity is considered an inward journey (Gretz & Drozdeck, 1992). For this reason, people in business often try to keep the word out of their official lexicon, preferring instead more neutral, more externally-focused language like "Value", "Excellence", "Quality" and "Innovation" (Gertz & Drozdeck, 1992).

Torrance's (1964), perspective has dominated psychometric approaches to creativity, viewing creativity broadly as the process of sensing a problem, searching for possible solutions, drawing hypotheses, testing and evaluating, and communicating the results to others. The process includes original ideas, a different point of view,

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breaking out of the mold, recombining ideas, or seeing new relationships among ideas (Craft, 2001). Other definitions include: "a person's capacity to produce new or original ideas, insights, restructurings, inventions or artistic objects, which are accepted by experts as being of scientific, aesthetic, social, or technological value (Vernon, 1984, p. 94); "the ability to produce new knowledge" (Dacey & Lennon, 2000); and "the achievement of something remarkable and new, something which transforms and changes a field of endeavor in a significant way" (Feldman, Cziksentmihalyi & Gardner, 1994, p. 1). Creativity is also frequently associated with the terms 'hard' and 'soft' thinking. This reflects the neurological processes associated with different hemispheres of the brain. According to McFadzean (1998) research suggests that the right side of the brain is visual and processes information in an intuitive and simultaneous way, looking first at the whole picture then the details (soft thinking), while the left brain is verbal and processes information in an analytical and sequential way, looking first at the pieces then putting them together to get the whole (hard thinking). Traditionally, the right side of the brain is associated with emotions, artistic creativity, imagination, etc., while the left side is associated with organization, logic and analysis ("Journey to Excellence", 2015). With this in mind, von Oech (2008) believes that creative thinking must be recognized as a process that involves both hard and soft thinking and both are required in order to be creative. Even those who are very inventive, and thrive on spontaneity and uncertainty, need to seek order and be analytical if they are to be successful. Thus, it can be inferred that assignments and classroom activities must be designed to incorporate both aspects of hard and soft thinking in order to facilitate the best possible environment for creativity to occur.

B. Definitions of Creativity in Educational Contexts

With regard to creativity in an educational context, Jeffrey and Craft (2001) claim that one of the difficulties with certain definitions that focus on extraordinary creativity is that they only apply to some extremely talented people, and may not be as relevant when focusing on the education of all learners. Kirschenbaum (1998) offers that it may be possible to discern three overlapping categories: (a) free expression ('self-expression', 'improvisation', 'exploring unknown outcomes'); (b) imaginative/associative thinking ('flexibility', 'a holistic approach', 'problem solving'); and (c) critical thinking ('making conceptual decisions', 'making things happen', 'eclecticism'). Seltzer and Bentley (1999) note that The English National Curriculum Handbook includes creativity within the section on thinking skills stating, "Creative thinking skills enable pupils to generate and extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes. Creativity is the application of knowledge and skills in new ways to achieve a valued goal" (p. 10). Seltzer and Bentley claim that to achieve creative thinking skills, learners must have four key qualities: (a) the ability to identify new problems, rather than depending on others to define them; (b) the ability to transfer knowledge gained in one context to another in order to solve a problem; (c) a belief in learning as an incremental process, in which repeated attempts will eventually lead to success; and (d) the capacity to focus attention in the pursuit of a goal, or set of goals. Kirton (1989) adds that individuals can be classified into 'adaptors' or 'innovators' and that these are stable personality traits applying across contexts and across time. One of the problems in attempting to unite these definitions is the conceptual incongruity between ordinary creativity and the similar but distinct notion of adaptability (Kirton, 1989).

Some scholars believe that if creativity were viewed from the point of being a characteristic of a certain type of person with certain personalities and behaviors, then it would be a simple matter to select only students with specific personality traits (Reid & Petocz, 2004). Those who follow this train of thought have looked for the determinants of creative thinking. Jungian theory describes four mind types that may be related to different styles of creative processes. These types are usually ascribed to individuals using The Mind Type Scale to classify their creative abilities into thinking/sensing, sensing/feeling, intuitive/feeling, or intuitive/thinking (Noscal 1995). Theories focusing on determinants of creativity contribute to the understanding of how creativity is brought about by looking at variation in personality, the composition of the physical brain and areas that may be related to creative problem solving (Noscal, 1995). Contrastingly, Marvszewski (1995) looked not at personality traits as determinants of creativity, but rather at the sort of real-world problems that allow for creative solutions. Since creative problems are divergent in nature, they allow one to arrive at a whole series of goals, which fulfill the criteria specified beforehand. An additional description of creativity comes from Csikszentmihalyi (1990) who suggests that in many disciplines, the mark of creativity is not the ability to solve the problem, but to be able to discover a problem. Reid and Petocz (2004) say that this has important implications for facilitators as it suggests that creative assessment methods should not prescribe certain solutions, but should give students an opportunity to first find the problem and then solve it. Marvszewski (1995) provides additional support for this view stating, "Certain qualities of intellect cannot be treated as universal factors

favoring creativity or hampering it. Their influence depends on the situation in which the creative process is realized. When the situation is independent of the individual it can considerably thwart the creative process" (p. 46). In order to understand the relationship between creativity and learning, it is important to address how facilitators and students perceive creativity.

2. THE RELATIONSHIP BETWEEN CREATIVITY AND LEARNING

Swede (1993) maintains that creativity is more than just a response to a situation; it is a process that results in some sort of outcome. Swede posits that the process must be unique and have value. He also suggests that to be creative, the process must be universally recognized, implying that the creative endeavor must be understood as such by people who are not the creator. Further, there must be something about the situation in which the creation has been placed that makes it significant and unique. If the idea of creativity is so tenuous, then an attempt to foster creativity in learning may be equally difficult (Reid & Petocz, 2004). Noscal suggests that one commonly shared mechanism of creative thinking does not exist; however, it is plausible to look at the discussion surrounding ideas of creativity and identify the aspects that are important to education and learning. Interestingly, the research on creativity as a desirable aim for inclusion in educational curriculum started in England in the 1960s, linking creativity to child-centered, discovery-based pedagogical approaches (Cox & Dyson, 1971). Since the mid 1990s, there has been a growing recognition from policy-makers that learner creativity is an extremely important aim for education. This is partially due to the economic imperative to foster creativity in business (Craft, 2001). It has been argued that fostering pupils' creativity in the classroom, will help them be able to identify and establish a framework for their lives (Annarella, 1999). Craft (1998) adds that the development of creative skills and attitudes across the curriculum may enable them to 'route-find' in a range of contexts in their lives, but we must first understand how to create an environment that cultivates creativity.

Reid and Petocz (2004) describe learning from a relational perspective in considering that learning, creativity, and the total learning environment can only be seen in relation to each other. This view is taken from the students' perception of their learning environment and how they understand their own learning as part of that environment. Saljo (1979) suggests that there is a relationship between how students go about learning and how they understand the totality of their learning experience. Students' approaches to learning may be related to their conceptions of learning, which include intentions and strategies (Prosser, Trigwell, & Taylor, 1994). This relates to creativity in learning in that each of the researchers' findings suggest a relationship between perception of the learning environment, conceptions of learning, and their approaches to learning. According to Swede (1993), the most sophisticated conceptions of learning enable students to demonstrate creativity through their learning outcomes.

An additional consideration is that students understand learning in different ways. Marton (1981) found that conceptual understanding of learning is based upon the relationship between the students' experience of learning and their reflections upon the experience, similar to Dewey's (1916) concept of retrospective sense-making. Entwistle and Marton (1994) posit that when content is learned, there are aspects of that content that come to the foreground when needed, while other aspects recede into the background. The ability to discern the movement of encapsulated knowledge from background to foreground is considered an important factor related to high quality learning. Reid and Petocz (2004) suggest that in this regard, it is apparent that creative learning happens when students are able to integrate several seemingly different things into a new and unique form. The relational theory of learning suggests that if students perceive the learning environment to support higher levels of creativity, then they will produce learning outcomes that demonstrate their ability to apply their knowledge in new and creative ways (Reid & Petocz, 2004). It is important to note that individuals are generally not taught creativity directly; rather creative processes draw from knowledge and practical skills. Creating an environment that supports higher levels of creativity involves encouraging students to believe in their creative potential, to engage their sense of possibility, and to give them the confidence to try. Robinson (1999) adds that high motivation and independence of judgment, willingness to take risks and be enterprising, and to be persistent and resilient in the face of adversity and failure are important attitudes for creative achievement. These attitudes can be encouraged and nourished to varying extents in all learners, particularly if they are linked with the development of self-directed learning.

A. Assumptions and Assessment of Learning

Ideas and assumptions about learning, motivation, and outcomes have changed over the past few decades. As unlikely as it seems, thirty years ago it was a commonly held view that students should be motivated by their love for a subject (Carey and Gregory, 2003). However, it is becoming increasingly apparent that grades are now considered 'campus currency' and research has emerged showing that students place more value on that which is measured (Maher, 2004). The danger in this is that student learning is only driven by the learning outcomes that are explicitly assessed, which may severely constrain

the educational experience. Maher (2004) argues that such a relentless pursuit of grades may 'squeeze out' emergent learning outcomes that can be rewarding for both students and facilitators. Coates (2000) states that learning outcomes are often written in way that represents 'threshold achievement' or what a student needs to do to obtain a minimum pass grade. This approach may restrict creativity which can restrict the creation of new knowledge and even encourage students to aim for what Hussey and Smith (2002) refer to as the threshold level; purchasing their credit points at the lowest price. As a result, Maher (2004) argues that it is important that learning outcomes are designed to encourage creativity within assessment tasks and that not all learning outcomes can, or should be, assessed. To this point, Robinson (2010) shares that the development of many common capacities and sensitivities can help to foster creativity by stimulating curiosity, training memory, and enhancing awareness. Recognizing and becoming more knowledgeable about the creative process can further help foster creative development since creative ability is best enhanced in the process of being creative. Thus, while the outcome of learning is important, it is important to recognize that the process is equally valuable and should be considered part of the learning assessment.

3. THE IMPLICATIONS OF CREATIVITY IN LEARNING

The implications of including creativity amongst the most important areas of learning has been highlighted by the World Conference on Higher Education where creativity was proclaimed as an innovative educational approach (Dacey & Lennon, 2000). Weaver (1999) describes the social consequences of integrating creativity into education as developing an entrepreneurial culture. He argues that it is essential to develop an entrepreneurial culture if society is to contend with the various dimensions of change. Creativity itself has also emerged as an element of the qualities desired by employers. In fact, the skills global employers consider to be the most important in graduates are creativity, enthusiasm, and the capacity for independent and critical thinking (DETYA, 2000). Additionally, employers of recent university graduates in Australia have indicated that they value the quality of creativity higher than any other employee skill (Tilbury, Reid, & Podger, 2003). Surprisingly, the group of employers surveyed by Tilbury et al. declared creativity to be the area in which recent graduates are most deficient, illustrating the need for greater emphasis of creativity in education.

A. Creativity in Children

The importance of creativity in learning is evidenced from the time children enter school, throughout college (Reddy, 2003). Harris (1998) suggests that most five year olds are totally confident in their creative abilities. Tragically, within three or four years this child, if typical, will experience a crisis of confidence. He or she will no longer feel competent or creative. Harris suggests that teachers are often partly to blame for the diminished inclination to be creative, as children become socialized. Robinson (2010) discusses that we need to change educational paradigms in order to not stifle creativity. He argues that our education system consists of a production line mentality where we produce graduates in batches without regard to individuality or even commonality beyond age. Robinson's work on divergent thinking as an essential component of creativity revealed that 98% of Kindergarteners are considered divergent thinking 'geniuses' based on Land and Jarman's (1998) divergent thinking assessment. By ages 13-15, divergent thinking abilities have drastically deteriorated. Robinson attributes this deterioration to an educational system that emphasizes only one correct answer to most problems. Crutchfield (1967) suggests that it is necessary to bring about the optimum development of the whole individual, and to achieve this aim, parents and primary education teachers must teach children to think creatively about things yet to be discovered. Crutchfield argued that children should be able to express themselves freely in creative activities that allow them to acquire habits of self-learning. In order to foster divergent thinking throughout elementary and high school years, Robinson encourages collaborative work since often the greatest learning happens in groups.

B. Creativity in College Students

Over the years, research has focused on creativity during the college years due to many outstanding creative scientists, performers, and writers beginning their productivity during their college years (Torrance, 1964). Thus, it is deemed appropriate for colleges to produce individuals who are used to and able to make creative contributions. Reddy's (2003) research found that people who make creative contributions to society are not necessarily those who possess high intelligence, but rather those who possess a high degree of creativity. Further, research indicates that the development and progress in various fields depends on creative individuals; thus, creativity should be nourished, encouraged, and cultivated in higher education to prepare leaders for the demands of the workforce (Singh & Mehra, 1981). Reddy (2003) argues that it is the responsibility of teachers and colleges to tap into creative potentialities of learners by encouraging them to take up various types of creative activities, and allowing for creativity in learning to develop creative thinking. Nevertheless, many instructors have argued that skills and knowledge are essential prerequisites for creativity.

This belief leads to most assignments having no requirement for creativity. Bartel (2008) believes it is much better to include both creative criteria as well as skill and knowledge criteria in assignment assessments; thus addressing von Oech's (2008) argument for the integration of both hard and soft thinking skills for maximum creativity. Naturally, this view poses a problem for students who believe that they are not inherently creative. This is why it is important for classrooms, both face-to-face and online, to foster creativity by allowing the creative process to take place. According to Rothenberg (1979) the creative process includes preparation, incubation, insight, elaboration, and evaluation. Assignment guidelines should be written in a way to get the wheels turning so that imaginations are ignited. Rothenberg suggests that it is easy to be tempted to use shortcuts such as showing examples as a substitute for relevant self-referential thinking; however, research shows that allowing the creative process to take place gives students the courage to develop and express their own ideas, leading to efficacy building opportunities (Bartel, 2008; Harrison, 2013).

C. Creativity as a Motivator for College Students

Educators have begun to recognize the importance of freewill and choice for learners in search of the best ways to educate learners and provide meaningful educational experiences (Harrison & Lentz, 2011). The perceived choice over one's actions reflects an ongoing decision-making flexibility to choose what to do, how to do it, and whether to do it leading to feelings of autonomy (Schunk & Zimmerman, 2008). As perceptions of creativity in learning are a predictor of motivation in students (Pintrich, 2003), learner perception of choice is also a predictor of the potential for creativity to occur (Chua & Iyengar, 2008). In particular, the more combinations one can generate from the initial elements, the higher the chance that a new and useful product will emerge (Simonton, 1999). The larger the choice set of initial elements, the more flexibility there is in the generation of different combinations (Harrison & Lentz, 2011). This gives rise to a richer set of potential solutions from which one can later choose. Lentz (2013) notes that people need to believe in their capabilities to exercise control over their work, as well as events that affect their work, in order to find incentives to act accordingly. Belief in one's capability to exercise control over one's life, or events that affect one's life, is presumed to be the foundation for human motivation and goal-directed behavior (Bandura, 1997). Pintrich's (2003) examined what motivates students in learning contexts and found creativity in learning to be a predictor of student motivation. Martin (2011) attributes his findings to the human desire to be treated as an individual, and found that students are motivated when assignments allow their individualization to shine and they are allowed to create something they can truly call their own.

D. Creativity in the Workplace

An additional implication of allowing for greater individual creativity in education is that it may improve employees' creativity and autonomy once they enter the workforce. Jeffrey and Craft (2001) suggest that encouraging creativity in organizations may well not only enhance market share, but also serve to ensure higher levels of commitment from employees, as well as higher levels of autonomy. Robinson (1999) notes,

> Adult learning now takes place in a world where flexibility and adaptability are required in the face of new, strange, complex, risky, and changing situations; where there are diminishing numbers of precedents and models to follow; where we have to work on the possibilities as we go along. In this changing world, old assumptions and old directions as to the routes forward can be a useful asset but they can also become an encumbrance. We will often find ourselves seeking entrances after emerging through unexpected exits. This is where creativity is of special importance and where the attitudes and abilities it entails come into their own. (p. 108)

Lucas (2001) suggests that organizations now have good reason to develop democratic cultures that encourage creativity because the role of creativity in business and innovation organizations has been acknowledged and accepted. Education is seen by many to play a role in the desire for and tendency for creativity in organizations. The promotion of collaborative practices and teamwork prepares students for work in organization that need creatively minded people if they desire to be effective in competitive markets.

4. TEACHING FOR CREATIVITY: RELINQUISHING INSTRUCTOR CONTROL

How can instructors motivate students to show their best work without relying on grades alone as incentives? Martin (2011) suggests that the answer lies in allowing learners to complete an assignment in such a way that their creativity, passion, and interests can shine. It is important to note that encouraging creativity does not mean abandoning traditional teaching and assessment methods, but it may mean taking a less controlling approach in learning activities and being more careful about how learning outcomes are presented to students (Maher, 2004). Robinson (2011) posits that creativity is sometimes associated with free expression, which is partly why some people worry about creativity in education. He notes that, "while creativity does involve enjoyment and imagination, it is also about working in a highly focused way on ideas and projects, crafting them into their best forms, and making critical judgments along the way" (pp. 4-5). Encouraging creativity in

learners may consist of setting up a learning environment that prompts students to see the essence, as well as the detail of the subject, to formulate and solve problems, to see the connectedness between diverse areas, to take in and react to new ideas, and to include the element of surprise in their work (Reid & Petocz, 2004). Ramsden's (1979) research found that students' perceptions of the learning environment are shown to exert important influences on their approaches to learning activities. He suggests that a student's perception of a particular learning task influences both the level at which he tackles it, and the approach at which he takes. If a student perceives that the learning environment allows for creativity, they are more likely to take a creative approach to learning endeavors (Harrison, 2011).

A. Learner Autonomy and Creativity

Creativity is a complex construct catalyzed not only by leadership that encourages "out-of-the-box" thinking and action, but also by an individual's characteristics that facilitate the development of novel ideas (Shalley, 1991). Past research has examined creativity by examining social environments, individual variables, affect, leadership, and other psychological constructs (Liu, 2011); however, as self-determination theory illustrates, the fundamental need for autonomy and freedom of choice in learning activities ultimately determines the motivation to engage in creativity (Gagné & Deci, 2005). Amabile and Gryskiewicz's (1989) research showed learner autonomy as the most important aspect of the work environment that fuels individual creativity. Further, Oldham and Cummings (1996) found that autonomy promoting jobs, as well as a supportive, rather than controlling leadership style, has a positive influence on follower creative performance. Oldham and Cummings' research, as well as research by Zhou (2003), illustrated that the non-controlling and autonomy supportive leadership style encourages followers to be more cognitively flexible and persistent in identifying creative ideas and solutions. Amabile (1996) adds that creativity supportive leaders are enthusiastic, good communicators, and set a clear direction without being controlling.

Naturally, some control must be maintained in order to meet course and program objectives. Research by Lentz (2013) supports the idea that autonomy and control are paired values that, when balanced, become complementary rather than competing values. Thus, when control and autonomy are allowed to co-occur, positive enacted behaviors should result. Lentz notes that when control exists without autonomy, absolutism may be perceived. This illustrates the need for instructors to provide control in terms of basic criteria that must be covered in a given assignment, while promoting autonomy and individuality in how students execute the given criteria.

Ryan and Deci (2000) identified learner autonomy as conducive to creativity, maintaining that followers become more creative in an autonomy-supportive environment that incorporates his or her perspective, recognizes personal feelings, provides assignment-related choices, and minimizes demands and pressure. Research on creative performance shows that perceived autonomy facilitates creative performance and helps improve individual adaptability in the creative process (Ryan & Deci, 2000). Creativity increases when learners experience high autonomy in the process of fulfilling their responsibilities and when they develop a sense of control over their assignments (Amabile & Mueller, 2007; Shalley, 1991; Zhou, 2003). Additionally, it is useful to encourage creativity and meaningful responsibility for students to think for and organize themselves, developing accountability in setting standards for their work.

B. Encouraging Creativity through Assignment Design

To foster creativity, teachers must encourage learners to think laterally (de Bono, 1995) and apply their learning in new contexts, looking at things from different points of view and experimenting with alternative approaches to solving problems. Sternberg and Williams (1996) suggest promoting creative performance by encouraging learners to define and redefine problems and projects. One method of doing this is to allow students to choose the direction of their projects, enabling them to use their own ways of solving problems. Sternberg and Williams found that offering students choices in how they complete projects helps them to develop problem solving skills, exercise good judgment, and use analytical skills; all of which are essential elements of creativity. The Journey to Excellence research summary on creativity (2015) discusses methods that instructors can use for promoting creativity in students. Several suggestions include: ensuring that assignments incorporate a range of teaching and learning styles; providing regular opportunities for discussion and collaborative work; making use of creative thinking techniques such as multimedia assignments, brainstorming, thinking hats, mind-mapping, etc.; sharing the learning intentions with students and providing them with opportunities for choosing how they work; encouraging students to improvise and experiment; designing online discussions in a manner that asks open-ended questions such as 'What if…?' and 'How might you…?'; modeling creative thinking and behavior; encouraging learners to develop criteria that they can use to judge the originality of their own work; and ensuring that assessment procedures reflect and acknowledge creativity.

Facilitators and curriculum designers have the opportunity to allow creativity through the course assignment structure and dialogues. Educators can encourage students to integrate personal creativity into course content, dialogue topics, and assignments by providing flexible assignment guidelines that still meet outcome objectives and requirements, but allow the learner freedom in execution. Practical examples of this include: allowing students the freedom to select his or her mode of completing an assignment such as offering multiple presentation options, and allowing the learner to choose which to use (i.e. videos, slide presentations, infographics, chart diagrams, mind-mapping, etc.); allowing students to select topics that are relevant to his or her work life; integrating a wide variety of types of assignments into each class (i.e. presentations, papers, journals, discussions, group collaborations, simulations, etc.); and encouraging students to present the content of a discussion or assignment in a creative delivery mode of their choosing (i.e. video/audio recording, slide presentations, infographics, mind-mapping, etc.). These examples, with careful curriculum design, can be effective in not only meeting course and program objectives, but also in developing practical skills that the learner can use outside of the classroom and put to practical use in his or her workplace. Curriculum developers should consider creating assignments and dialogue topics that allow students to express their creativity and to be innovative in problem solving by using open-ended questions, and allowing learners to choose the direction and focus of their project work. These strategies offer facilitators the opportunity to fulfill learner desires for creativity in learning endeavors and perhaps even increase learner motivation, self-efficacy, and self-directedness, in addition to preparing them to meet the creative demands of the contemporary workforce through practical experience in exercising creative thinking and project execution.

C. Promoting Creativity by Challenging Personal Assumptions

In conclusion, while much of the responsibility falls on curriculum designers, instructors play a significant role in creating an environment conducive to creativity. Designing curriculum that allows for creativity in assignments is only beneficial if learners feel that they are in a safe environment where they can be vulnerable to let their ideas flow. Teaching for creativity involves experimental activity, but always specifying and explaining the purpose of such activity. Those involved must feel secure enough to be willing to take risks and make mistakes in a non-threatening atmosphere that respectfully challenges while reassures (Robinson, 1999). Often instructors desire to produce lifelong learners that challenge their own assumptions when responding to a particular assignment; however, to encourage creativity, instructors must take their own advice. In various ways there are important links between lifelong learning and creativity, including challenging oneself, curiosity, questioning, reflecting, and assessing (Harrison, 2013; Robinson, 1999). Instructors are not automatic lifelong learners simply because they are immersed in an academic setting on a daily basis. To be a lifelong learner, an instructor must be motivated toward self-improvement and have a desire for personal growth. For instructors to be lifelong learners, they must challenge their own assumptions and look beyond how they personally would approach an assignment or problem. Instructors must avoid viewing student responses as strictly 'right' or 'wrong', and rather look for evidence of critical thinking and demonstration of new understanding in the students' individualized approach. This, in conjunction with designing assignments that allow creative thinking and execution, as well as developing assessment measures that acknowledge creativity has the potential to revolutionize the learning experience and increase student creativity.

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