# ADVANCING YOUR TEACHING THROUGH THINKING SKILLS AND "THE 6 PRINCIPLES"

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### Abstract

Based on theory, practice, and ELT research, this article explores how divergent and convergent thinking skills correlate with the 6 Principles for Exemplary Teaching to advance L2 teaching and learning in the university setting. The thinking skills and the 6 Principles will be defined, exemplified, and applicable strategies revealed.

### Introduction

In today's teaching environment, where technologies are making it more feasible than ever to access information effortlessly and deliver data at an accelerated pace with astounding results, it is not surprising that educators wonder how such access will impact their teaching and their students' learning. It is therefore imperative that the core thinking skills of divergent and convergent thinking are at the heart of teaching and learning, advancing discovery, problem solving, and decision making. Moreover, linking the divergent and convergent thinking skills with established principles for exemplary teaching creates a propitious combination to advance one's teaching and learning repertoire.

### **Convergent and Divergent Critical Thinking Skills**

Identifying, developing, and practicing convergent and divergent critical thinking skills in the field of education, whether first language or second language teaching, will advance teaching and learning amidst the ever-growing fascination with artificial intelligence and computer systems. According to Dalalah and Dalalah (2023), Generative AI can produce copious information, yet it is without human flexibility, cultivation, and application of new knowledge - the knowledge that is "highly contextual and subjective," creative, strategic, insightful, and "frequently acquired through experience, education, or reflection" (Dalalah & Dalalah, 2023, p. 5). "Human thinking" is what all educators should be targeting, developing, and strengthening when preparing their lessons and educating their students. Prioritizing advanced cognitive skills in education promotes critical thinking and knowledge application in new contexts. Generative AI lacks human understanding, experience, and personal context needed for effective decision-making and problem-solving (Zhai, Nyaaba, & Ma, 2024; Estrella et al., 2020; Meeker, 1987). In this way, tools to develop critical thinking come in the form of skills: divergent and convergent critical thinking and teaching principles: the 6 Principles for Exemplary Teaching.

In the 1950's, American psychologist and educator, J.P. Guilford introduced the concepts of divergent and convergent thinking as a component of his research on the Structure-of-Intellect (Guilford, 1959; Plucker, Waitman, and Hartley, 2011). As identified by Guilford (1967), divergent production is the "generation of information from given information, where the emphasis is upon variety and quantity of output from the same source; "likely to involve transfer" (1967, p. 214). Where convergent production treats the learning task or problem to be solved in a "rigorously structured [way] and the result is a limited straightforward and sharper response (p. 215), convergent production is focused on the generation of multiple ideas. Explained in relation to education, convergent thinking is "a student's ability to provide predetermined correct answer" (Plucker et al., 2011) and divergent thinking is "the process of finding different solutions and answers to one problem" (Villalba, 2011). Additionally, convergent and divergent thinking skills complement one another, in that the "performance on convergent tasks is actually the result of divergent production and evaluation" (Barlow, 2020), with divergent thinking often occurring first and convergent thinking second. Hence, convergent thinking is a "more focused, exclusive control style, that is, strong top-down" thinking (Hommel, Colzato, Fischer, and Christoffels, 2011). It utilizes existing knowledge to make sense of new information and stresses "accuracy and logic, and applies conventional search, recognition, and decision-making strategies" (Ritter and Ferguson, 2017).

In respect to divergent thinking, it "involves producing multiple answers from available information by making unexpected combinations, recognizing links among remote associates, or transforming information into unexpected forms" (Ritter and Ferguson, 2017). Moreover, it is a skill that Guilford (1959) recognized as having four distinct qualities: fluency, flexibility, originality, and elaboration (Runco, 2011). These qualities offer unrestricted opportunities to think and unleash one's imagination, and it is certainly applicable in a teaching and learning environment-thereby, encouraging investigations, varied viewpoints, and problem solving (Mursky, 2011). To further amplify the benefits of convergent and divergent thinking to education, Cropley (2005) in his study on the benefits of convergent thinking, highlighted their attributes, processes, and results. The results for convergent thinking included an improved comprehension of facts, an accurate and immediate answer, and growth of advanced skills (Cropley, 2005, p. 392). For divergent thinking, the results are various or other solutions, a departure from the ordinary, and unforeseen and surprising results (p. 392). These thinking skills can be taught and practiced in the classroom via purposefully implemented strategies and activities that yield a balanced interplay between analytical and creative thinking skills. Some of these strategies and activities, which will be discussed later, are directed toward divergent thinking creation (Clapham, p.367 2023) such as checklists, attribute listing, brainstorming, mind mapping and SCAMPER. Moreover, there are strategies directed toward convergent thinking: problem-finding, developing plans for action, problem solving and idea evaluation (Clapham 2023, p.367). Both divergent and convergent thinking strategies/activities will be discussed comprehensively when paired with the 6 Principles of Exemplary Teaching.

# The 6 Principles for Exemplary Teaching of English Learners®

It is no exaggeration that all committed educators feel a great responsibility to deliver high quality teaching to invoke about high-quality learning. Employing the convergent and divergent thinking skills mentioned above is certainly one way to accomplish this task. Additionally, if those skills are combined with teaching principles, the mission to deliver high-quality instruction, no matter the type or level of teaching, is further advanced. Regarding which teaching principles to combine with the just mentioned thinking skills, I propose considering the field of English Language Teaching and its core organization, TESOL (Teaching English to Speakers of Other Languages) International Association. In 2018, it unveiled six principles for exemplary teaching of English learners with its publication of, The 6 Principles for Exemplary Teaching of English language educator in in K-12 classrooms in the United States, adult English language and workforce development programs, English for Academic Purposes settings, and the English language teaching of young learners in a multilingual world (Short et al., 2018, Blok et al., 2020, and Shin et al., 2021).

The 6 Principles for Exemplary Teaching, at its core, is "good" teaching, appropriate for all learners. Moreover, these principles can be combined with convergent and divergent thinking skills to further advanced teaching and build critical thinking skills in learners both in and out of the classroom. The 6

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Principles "are not revolutionary or groundbreaking concepts in language learning. They are well-established guidelines drawn from decades of research in language pedagogy and language acquisition theory" (Short et al., 2018, p.7). Figure 1 identifies six self-evident values that are not only significant in English language teaching (ELT) but are applicable for all types, levels, grades, and teaching settings. The 6 Principles image shown in Fig. 1 also illustrates the connective nature of each principle to be implemented as one unit, "You cannot just know your learners, for example, and then not act on that knowledge when you plan instruction" (TESOL International Association, About, n.d.) The 6 Principles must be and need to be applied as a whole to achieve teaching excellence.

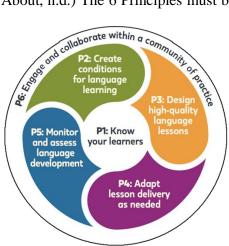


Figure 1: TESOL's 6 Principles for Exemplary Teaching of English Learners® (Short et al., 2018).

Having comprehensively introduced divergent and convergent thinking skills and the 6 Principles, relating both approaches will bring advantages for educators and learners, as seen in the following applicable strategies and activities.

Starting with the 6 Principles, each Principle will be paired with either convergent or divergent thinking to exemplify how the correlation can elevate teaching and learning. The student audience for the following activities and strategies that pair the 6 principles with the thinking skills are international college students in an intensive English language program. Nonetheless, these strategies and activities can be modified and adapted to suit students at various grades, levels, and settings.

Principle 1, "Know your learners," targets getting to know the student fully for the benefit of meeting each student's needs and empowering and motivating the students' learning along the way. Its authors advocate embracing and leveraging "the resources that learners bring to the classroom to enhance learning (TESOL International Association, Principle 1, n.d.). Table 1 identifies the characteristics that learners bring to the classroom.

| ±  |   |  |  |  |
|--|---|--|--|--|
| Important Characteristics to Know about English Learners                                       |   |  |  |  |
| What teachers need to know about their learner's education, language background, and resources |   |  |  |  |
| Access to supportive resources   | Educational background                  |  |  |  |
| Home language  | Social-emotional background             |  |  |  |
| Cultural background  | Learning preferences                    |  |  |  |
| Level of proficiency   | Cultural knowledge                      |  |  |  |
| Life experiences   | Interests                               |  |  |  |
| Home language literacy level   | Gifts and talents                       |  |  |  |
| Home language oral proficiency   | Life goals                              |  |  |  |
| Special needs  | Sociopolitical contacts of home country |  |  |  |

Table 1: Important Characteristics to know about English language learners (Short et al., 2018, p. 37).

Principle 1 has been paired with and divergent thinking, and is illustrated in a well-known icebreaker activity, "Find Someone Who." This activity has been recreated to further exemplify the divergent thinking skill and Principle 1. In "Find Someone Who," students are given a worksheet that asks them to find three people to match each description and write the persons' names next to the descriptions. Students are then to write the details from their responses on the "Find Someone Who Worksheet." (A portion of this activity is presented in Table 2.)

|                                     | Names | Details from response |
|-------------------------------------|-------|-----------------------|
| drank a cup of tea this morning.    | 1.    | 1.                    |
|                                     | 2.    | 2.                    |
|                                     | 3.    | 3.                    |
| who speaks more than two languages. | 1.    | 1.                    |
|                                     | 2.    | 2.                    |
|                                     | 3.    | 3.                    |
| who lives in the dormitory.         | 1.    | 1.                    |
|                                     | 2.    | 2.                    |
|                                     | 3.    | 3.                    |

Table 2: Find Someone Who Activity Worksheet (Modified and adapted by R. Naughton 2023).

The questions on the worksheet feature the information in the Important Characteristics chart (Short et al., 2018). Furthermore, the activity not only allows the students to ask numerous questions to their classmates but also permits the instructor to observe and hear the questions and responses, thereby getting the opportunity to know not only more about the students' interests and lives but also about their English language proficiency. Once the students have completed interviewing their classmates, they are asked to complete the activity's Venn Diagram to show the commonalities between them and their classmates. (See Fig. 2). Our intention to bring diverse groups of students together has met with great success. The next phases is to have a student governing board: President, Vice-president, Secretary and Treasurer. My fellow colleague and I will continue to act as the advisors.

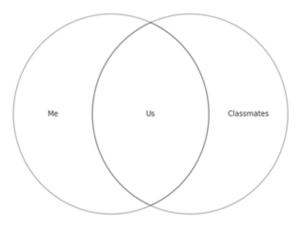
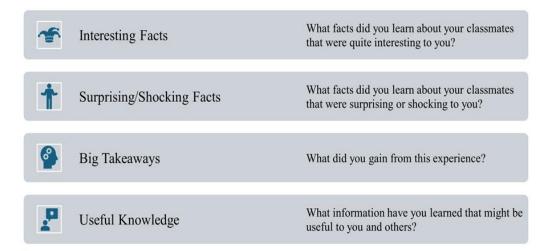


Figure 2: Venn Diagram "Me, Us, Classmates" (Naughton, 2023).

Regarding the Venn diagram, the students are asked to complete the graphic organizer with information that is true about them and their classmates according to the answers from the questions on the "Find Someone Who Activity Worksheet" (Naughton, 2023). Once the students have completed the Venn diagram, they are asked to answer the "Find Someone Who Follow Up Questions" (Naughton, 2023). (See Fig. 3).



"Find Someone Who Follow Up Questions"

## Figure 3: "Find Someone Who - Follow Up Questions" (Naughton, 2023).

This adapted and modified "Find Someone Who" activity shows how teachers can find out more about their learner while employing divergent thinking skills of exploration to advanced not only their teaching but also the students learning, bring about multiple benefits to both.

Principle 2 attends to creating conditions for language learning. To create such conditions educators should consider creating a safe and inviting classroom culture where learners feel comfortable. This can be done by paying attention to the "physical environment, the materials, and the social integration of students to promote language learning" (TESOL International Association, TESOL ME, n.d.). One way to meet Principle 2 and also integrate divergent thinking skills is to "build a repertoire of learning tasks that students enjoy and experience as inherently motivating" (Short et al, p. 42, 2018). Learning tasks that create conditions for language learning and learning divergently are "game-like activities, tasks structured as play, experiential activities, storytelling, simulations, experiments, rehearsed performances, role-plays, chants, and computer-based research (Short et al., p. 42, 2018). These types of tasks are further assisted by the following open-ended questions to promote communicative language use and encourage multiple perspectives and varied solutions: "What could this be?", "Where could this be?", "How could this be?", "Why could this be?", and "When could this be?". These strategic questions allow for the divergent qualities of fluency, flexibility, originality, and elaboration. Therefore, for students to achieve, teachers must set highexpectations and create conditions in which they promote divergent thinking skills and top-quality performance to engage, foster and encourage high-level learning for all students (TESOL International Association, Principle 2, n.d.).

Principle 3 is aimed at designing high-quality lessons for language development. One way to achieve this is to follow a well-structured, organized, and goal-focused syllabus. Moreover, such a syllabus can be

further enhanced by the adherence and application of convergent thinking skills. Figure 4 presents a lesson plan template (Naughton, 2022) in which teachers and students can follow to both promote and activate convergent thinking while aiming to meet the goals and objectives of the lesson. This lesson plan template emphasizes logical and reasonable learning procedures that target clear sound objectives to lead to specific answers and outcomes. Convergent thinking in combination with Principle 3 allows for refining, connecting, and prioritizing in a lesson plan to reach the desired result and the best solution for teaching and learning (Convergent thinking activities, n.d.).

|                               | Lesson Plan |      |         |          |      |             |              |
|-------------------------------|-------------|------|---------|----------|------|-------------|--------------|
|                               |             |      |         |          |      |             |              |
| Lesson Plan                   |             |      |         |          |      |             |              |
| Lesson Title:                 | T eacher    | :    | Dat     | e:       | Less | on length:  | Lesson Type: |
|                               |             |      |         |          |      |             |              |
|                               | 1           |      | Class F | Profile  |      |             |              |
| Class Size:                   |             | Age: |         |          |      | Proficiency | level:       |
|                               |             |      | -       |          |      |             |              |
|                               |             |      | Instru  | ction    |      |             |              |
| Objectives/Outco              | mes:        |      |         |          |      |             |              |
|                               |             |      |         |          |      |             |              |
| Materials:                    |             |      |         |          |      |             |              |
|                               |             |      | Proce   |          |      |             |              |
| Warm Up/Revie                 |             |      | Proce   | dure     |      |             |              |
| Teacher:                      | w:          |      |         | Student: |      |             |              |
| reacher.                      |             |      |         | Stutent. |      |             |              |
|                               |             |      |         |          |      |             |              |
| Introduction/Pre              | -Task:      |      |         |          |      |             |              |
| Teacher:                      |             |      |         | Student: |      |             |              |
| Presentation/T as             | k           |      |         |          |      |             |              |
| Teacher:                      |             |      |         | Student: |      |             |              |
| Practice                      |             |      |         |          |      |             |              |
| Teacher:                      |             |      |         | Student: |      |             |              |
| r eacher:                     |             |      |         | student  |      |             |              |
| E valuation/Asses             | sment       |      | 1       |          |      |             |              |
| Teacher:                      |             |      |         | Student: |      |             |              |
| Ann line tine (A firm         | . Taala     |      |         |          |      |             |              |
| Application/After<br>Teacher: | r i ask:    |      | 1       | Student: |      |             |              |
| r eacher:                     |             |      |         | Stutent: |      |             |              |
|                               |             |      |         |          |      |             |              |
|                               |             |      |         |          |      |             |              |

Figure 4: Lesson Plan Template (Naughton, 2023).

Another strategy to employ is the following verb choice chart which displays Bloom's Taxonomy verbs (Anderson, et al., 2001). (See Figure 5, Bloom Taxonomy Verbs Choice Chart). The chart provides the teacher choices when creating lesson objectives. The teacher chooses the verbs from Bloom's Taxonomy which they believe will permit them to reach their lesson objectives. The diagram can display verbs for a single day's lesson, a unit's lessons, or a week's lesson. The teacher chooses how to navigate the chart and can tick the verbs already covered. The verbs can be placed in an order that makes sense to the teacher, and they can also be substituted with other verbs from Bloom's Taxonomy depending on the objectives of the lesson. (See Figure 5: Bloom Taxonomy Verbs Choice Chart).

The teacher is responsible for planning a lesson that is well structured and will provide opportunities to control, guide and expand learning. Subsequently, the below chart (see Fig. 5) presents information probing verbs which can help achieve the desired results.

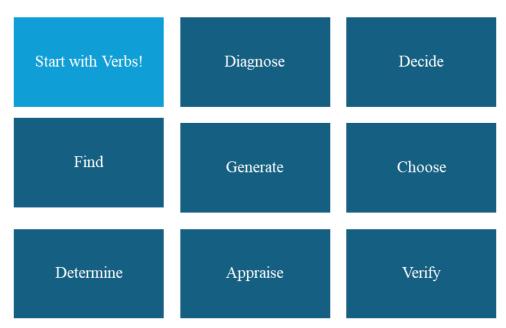


Figure 5: Bloom Taxonomy Verbs Choice Chart (Naughton, 2024)

Principle 4 is "Adapt Lesson Delivery as Needed." This principle supports the truth that not all learners learn the same and that as educators we need to assess our learners and adapt/modify our lessons to best meet their needs. A lesson that looks flawless on paper may after delivery not meet the needs of the learners. It may need to be tweaked and adjusted depending on various variables. Hence, it is essential to continually assess the lesson and have alternative techniques in mind when challenges arise. One tool that assists in adapting lesson delivery and promotes divergent thinking skills is the brainstorming technique: SCAMPER (Eberle, 2021). The acronym SCAMPER stands for the following: Substitute, Combine, Adapt, Modify/magnify/minify, put to another use, Eliminate, and Reverse or rearrange. The SCAMPER technique was first "suggested by Alex Osborn and later arranged by Bob Eberle as a mnemonic in 1991" (Serrat, 2017). This technique not only accomplishes its objective but can also be applied to meet Principle 4. Table 3 presents SCAMPER questions teachers can use to adapt lesson delivery as needed and encourage divergent thinking skills (Divergent Thinking, 2022).

| Substitute            | What other material, process, idea, approach can you replace for your current idea?         |
|-----------------------|---|
|                       | Can you use an alternative idea to the one you posed?                                       |
| Combine               | Consider multiple ideas.  |
|                       | Can you combine more than one idea, or a component of several idea into a new idea?         |
| Adapt                 | What component of your idea can be changed to adapt to another category or concept?         |
|                       | What adjustments can you make to the idea?  |
| Modify/Magnify/Minify | How can you change the color, form, application, approach, etc. to modify the idea a bit    |
|                       | into something else?  |
|                       | Can you increase, exaggerate, or add something to the idea? Can you reduce the ideas into   |
|                       | smaller parts, or split up the idea into multiple ideas?                                    |
| Put to Another Use    | What other applications can this idea potentially have across other categories or concepts? |
|                       | Can it be applied to other environments or situations?                                      |
| Eliminate             | Is there a component you can eliminate to create something different?                       |
| Reverse or Rearrange  | What is the opposite of your idea?  |
|                       | What could you create if you rearranged the elements or components of your idea?            |
|                       | What if you reverse or invert the components of the idea?                                   |
|                       | Combine<br>Adapt<br>Modify/Magnify/Minify<br>Put to Another Use<br>Eliminate                |

Incorporating the SCAMPER technique in one's teaching context will not only encourage creativity and curiosity but also bring about new perspectives and insights (Eberle, 2021, pp. 5-7). SCAMPER is ideal for adapting lesson plan delivery and modifying instruction. For example, if learners are struggling with the teaching material, the teacher can choose to substitute that material for one that is more appropriate for the level of the learners. If a new material cannot be chosen, modifying, magnifying, or minifying it can also be applied to assist the students and achieve the lesson's objectives.

Principle 5: Monitor and Assess Student Language Development is a purposeful principle and combines well with convergent thinking. The main underpinnings of Principle 5 are to routinely monitor and assess students' progress for the purpose of identifying strengths and weaknesses for language and knowledge development (TESOL International Association, Principle 5, n.d.). In English language teaching, the goals are to advance the students language proficiency and build their self-confidence. (Practical Applications, n.d.) This can be achieved via formative assessment, note-taking, rubrics, checklists, teacher and peer feedback, elicitation, and open-ended questions (Short et al., 2018, pp. 58-62). Furthermore, convergent thinking questions similar to the ones shown in Fig. 6 can be used when teachers want to ensure the correct answers and full understanding of the material/topic being taught. Teachers can offer the students the choice to answer one, some or all the questions shown in the figure. These questions can be answered individually, in small groups or as a class. Convergent questions can be changed depending on the purpose of the lesson. Such a tool promotes monitoring, aids assessment, and guides in initiative-taking learning.



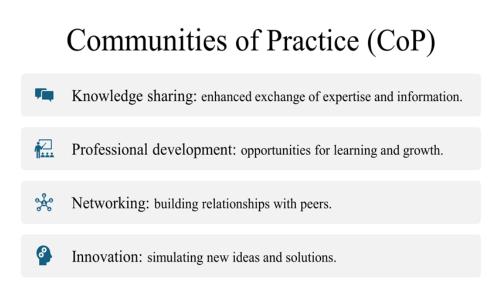
Figure 6: Convergent Thinking Questions Choice Chart (Naughton, 2024).

 Table 4: The Fundamental Principles of CoPs

| in learning and self-development"  | The | Fundamental Principles of CoPs   |
|--|-----|--|
| <ul> <li>development</li> <li>3comprising a self-organizing group that does not necessarily require leadership or control</li> <li>4fostering communication and knowledge exchange among community members</li> <li>5developing oneself and generating new knowledge through shared experiences,</li> <li>6emphasizing experiential and problem-solving learning in real-life situations</li> <li>7promoting continuous exposure and sharing of knowledge and experiences to support members' knowledge and expertise development through feedback and mutual support in learning and self-development"</li> </ul> | 1.  |  |
| <ul> <li>control</li> <li>4fostering communication and knowledge exchange among community members</li> <li>5developing oneself and generating new knowledge through shared experiences,</li> <li>6emphasizing experiential and problem-solving learning in real-life situations</li> <li>7promoting continuous exposure and sharing of knowledge and experiences to support members' knowledge and expertise development through feedback and mutual support in learning and self-development"</li> </ul>  | 2.  |  |
| <ul> <li>5developing oneself and generating new knowledge through shared experiences,</li> <li>6emphasizing experiential and problem-solving learning in real-life situations</li> <li>7promoting continuous exposure and sharing of knowledge and experiences to support members' knowledge and expertise development through feedback and mutual support in learning and self-development"</li> </ul>  | 3.  |  |
| <ul> <li>6emphasizing experiential and problem-solving learning in real-life situations</li> <li>7promoting continuous exposure and sharing of knowledge and experiences to support members' knowledge and expertise development through feedback and mutual support in learning and self-development"</li> </ul>  | 4.  | -fostering communication and knowledge exchange among community members          |
| 7promoting continuous exposure and sharing of knowledge and experiences to support<br>members' knowledge and expertise development through feedback and mutual support<br>in learning and self-development"  | 5.  | -developing oneself and generating new knowledge through shared experiences,     |
| members' knowledge and expertise development through feedback and mutual support<br>in learning and self-development'  | 6.  | -emphasizing experiential and problem-solving learning in real-life situations   |
|  | 7.  | members' knowledge and expertise development through feedback and mutual support |

Principle 6, Engage and Collaborate within a Community of Practice, encourage educators to participate in professional engagement, development, and collaboration to improve their teaching and provide the best support, resources, and knowledge for their students (Short et al., 2018, pp.63-65). To be able to accomplish this objective, teachers first need to understand the concept of communities of practice (CoP), which can be "any group of people engaged in a similar activity who share knowledge about the activity in order to increase expertise and solve problems" (Groff, 2023). Additionally, the "fundamental principles of CoPs are detailed in Table 6, highlighting the purpose and intentions of belonging to a professional community (Kanyarat & Kanyarat 2024, p. 286).

When teachers are integrated into a community of practice, they frequently experience a sense of motivation and dedication towards their teaching responsibilities. They find themselves encompassed by fellow enthusiastic teachers who aid and inspire (Kanyarat & Kanyarat 2024, p. 286). Likewise, they become members that contribute, foster, and develop knowledge and expertise. The following diagram highlights the benefits of participating in a CoP as explained by Wenger, McDermott, and Snyder (2002). (See Figure 7).



#### Figure 7: Communities of Practice (CoP) chart illustrating its 4 key benefits (Wenger, McDermott, & Snyder, 2002).

The above benefits of community of practice (Wenger, McDermott, & Snyder, 2002), which are established in Principle 6, strongly relate to convergent thinking. In regard to "Knowledge Sharing," it is the discovering of credible information. Concerning "Professional Development," it is the enhancing of one's teaching repertoire through inquiry and selection. With "Networking," convergent thinking permits the deciding, seeking, and choosing of learning opportunities for career development. Lastly, convergent thinking assists "Innovation" by maintaining reason to arrive at logical and attainable solutions. Thus, applying convergent thinking to Principle 6 will aid in growth of advanced skills in the teaching profession.

## **Final Reflections and Thoughts**

In this article, a through exploration of how divergent and convergent thinking skills correlate with the 6 Principles for Exemplary Teaching revealed practical ways educators can advance not only Second Language teaching and learning in the university setting but also teaching and learning in general. Moreover, the value of critical thinking, exemplary teaching and lifelong learning were championed, calling to mind that there is no replacement for human conscientiousness, intellect, creativity, and solidarity.

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