Creative and Critical thinking

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Abstract: The development of creative and critical thinking is seen as an inspiration to independent and student-centered learning. But what exactly do we mean when we talk about creative and critical thinking? When and why did these terms come into existence in modern education? This paper will compare and consider some of the diverse but not universally agreed definitions of these widely-used terms. The language and literature classroom will be offered as an example to prove ways of putting these approaches into practice. Finally, the paper will close with a discussion of the application of critical and creative thinking.

Introduction: Creative and Critical Thinking

The developments of creative and critical thinking are complementary, and both encourage independent and student-centered learning (Fisher, 1990). But what exactly do we mean when we talk about creative and critical thinking? When and why did these terms come into importance in modern education, and how can we encourage these types of thinking?

‘Critical thinking’ is defined in many ways, with no commonly agreed definition (Brookfield, 1987; Cassel & Congleton, 1993) and in the same way, the term ‘creativity’ is so widely used that there are various definitions (Lucas, 2001; Cropley, 2001) – which may in part be because researchers admit that we cannot yet fully explain the creative power of the brain (Sternberg, 1999). This paper will compare and consider some of the diverse but not commonly agreed definitions of these widely-used terms. The language and literature classroom will be offered as an example to demonstrate ways of putting these approaches into practice. Finally, the paper will close with a discussion of the application of critical and creative thinking.

Creativity and Creative Thinking

America in the 1950’s was a time of great competition to be the first in space, and this competitiveness sparked a greater interest in creativity. If the early successes of the Russians could be explained in terms of their greater creative abilities, then American politicians could at least save face by investing money into creativity research, thereby representing that American education was being changed to produce students who would be more ‘creative’ (Smith, 1959; Vernon, 1970). A second impulse towards creative thinking in the West was the move towards a ‘student-centered’ approach and away from a focus on ‘testing’ and ‘rote-learning’; this development was encouraged by business benefits seeing the value of a move away from opportunities of life-long employment and towards ‘flexible employment’ and ‘life-long learning’, creating cultures of innovation and change (Ekval, 1996).

Creativity involves being able to generate new, diverse and unique ideas. Gardner (1993) defines creativity as ‘the ability to solve problems and fashion new products and to raise new questions’. But it may not be enough just to generate ideas: creativity is often defined in terms of its importance to others. Thus Gruber & Wallace (1999) say that a creative idea ‘must be new and must be given value by some external criteria’; Robinson (2001) describes creativity as ‘imaginative processes with conclusions that are original and of value’; Fisher (2002) reminds us that creativity is of value in education because it improves human knowledge, even if the value of the new ideas is not known at that time.

Are humans naturally creative thinkers? Let it be sufficient to point out that young children have not yet learned how the world is ‘supposed to be’, and so they are less controlled by verdict, will accept far more different and open-ended possibilities and are perhaps more willing to think laterally than young adults; so for example young children would probably not find the idea of their parents flying round the room to be as surprising as we might, (unless we are Harry Potter fans) because they have not been taught ‘how (or ‘how not’) to think’. Children may also use the right side of their brains more, whereas maturity encourages the intellectual links in the brain to develop in such a way as to encourage critical, left-brain thinking.
Critical Thinking

Critical thinking is defined in the Delphi Report of Critical Thinking (American Philosophical Association, 1990) as ‘purposeful self-regulatory judgment’, which establishes itself in considering the evidence, methods and conceptual structures within which a decision is made about what to believe or what to do. Thus, the key characteristics of critical thinking are both inductive and deductive reasoning, problem-solving, and ‘reflective skepticism’ (Tiwari, Chan, Sullivan, Dixon & Tang, 1999.) A successful critical thinker should be able to analyze and assess major alternative points of view, to explain norms and reasons and to identify salient arguments (Facione & Facione, 1994).

Critical thinking supports as well as follows creative thinking because once the focus has been broadened by creative thinking, then critical thinking serves to evaluate ideas, which can be accomplished by narrowing the focus again to catalogue ideas and identify the most reasonable ones, or those most likely to succeed (Ruggiero, 1999).

Encouraging students to think critically involves, among other things, helping them to distinguish opinions from facts, to evaluate evidence, and to avoid shallow and unreasoned thinking. This approach is very important in helping to avoid (by recognizing) manipulation, which in turn can allow intellectual independence and creativity to flourish (Browne & Keely, 1993; Mayfield, 1997; Paul, 1995).

For a learning environment to encourage the development of critical thinking, Meyers (1986) considers that four elements need to be present: A) the stimulation of students’ interest, B) the creation of meaningful discussion, C) the exposure to the thoughts and views of others, and D) the development of a supportive and trusting atmosphere.

There are different vital elements giving by Meyers: -

1) He feels that obtaining and holding the students interest is the first, vital element, because once their interest is produced, students can be guided into thinking critically and this will develop their confidence in their analytical and problem-solving abilities.

2) The second stage of meaningful discussion, debate and questioning, allows students to develop the mental structures necessary for critical thinking.

3) The third stage of exposure to different viewpoints clarifies their own attitudes as well as helping students move on to reasoning from multiple views.

4) The fourth stage, an atmosphere of trust and support, is essential before students will dare to let go of biases and try out new ways of thinking.

Summary of the Differences between Critical and Creative Thinking Fishers (2002)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Creative Thinking</th>
<th>Critical Thinking</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Right-brain</td>
<td>Left-brain</td>
</tr>
<tr>
<td>2</td>
<td>An answer</td>
<td>The answer</td>
</tr>
<tr>
<td>3</td>
<td>Open-ended</td>
<td>Closed</td>
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<td>4</td>
<td>Associative</td>
<td>Linear</td>
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<tr>
<td>5</td>
<td>Risking</td>
<td>Reasoning</td>
</tr>
<tr>
<td>6</td>
<td>Perception</td>
<td>Logic</td>
</tr>
<tr>
<td>7</td>
<td>Yes</td>
<td>Yes but</td>
</tr>
<tr>
<td>8</td>
<td>Generative</td>
<td>Diagnostic</td>
</tr>
<tr>
<td>9</td>
<td>Divergent</td>
<td>Convergent</td>
</tr>
<tr>
<td>10</td>
<td>Lateral</td>
<td>Vertical</td>
</tr>
<tr>
<td>11</td>
<td>Possibility</td>
<td>Probability</td>
</tr>
<tr>
<td>12</td>
<td>Suspended decision</td>
<td>Judgement</td>
</tr>
<tr>
<td>13</td>
<td>Hypothesis forming</td>
<td>Hypothesis testing</td>
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<td>14</td>
<td>Subjective</td>
<td>Objective</td>
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<td>15</td>
<td>Primary schooling?</td>
<td>Secondary schooling?</td>
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While it is possible to differentiate critical and creative thinking, as does Fisher (2000), it is the argument of this paper that such a difference is not necessarily helpful in the classroom, because students need to think in both creative and critical ways and therefore to teach or encourage one style of thinking only may be counter-productive. Instead, an approach is needed which can combine critical and creative thinking.

An attempt to combine creative and critical thinking

The challenges in education, if we are to help students cope with a changing world, is to develop people who can think in different ways from those of the past. At all levels in education, creative thinking should be encouraged, for problem solving and personal intelligence both depend on creativity. Sternberg & Lubart (1999) Vol. 4, No. 5, Asian Social Science (102) shown that students’ academic performance improves when they are evaluated in ways that value and recognize their creative abilities. Critical thinking too is equally important in education in the modern world, not least to help students evaluate the mass of
information now available through sources such as the Internet and the mass media.

An method which combines both creative and critical thinking can encourage students to take the time to produce many ideas and arguments, to ask powerful questions, to recognize the validity of arguments – even if those arguments might mean challenging even previously held viewpoints. While it is common to separate analytical or critical thinking from intuitive or creative thinking, both creative and critical approaches are essential for our thinking to be effective, and in an economy where people are expected to be both skilled and flexible in the workplace.

Levels of learning

Bloom’s Taxonomy (1956) divided the way people learn into three overlapping domains of affective (feelings, preferences and values), psychomotor (physical and perceptual activities and skills) and cognitive (thinking, evaluating and synthesizing information). It is the cognitive domain which emphasizes intellectual outcomes, and as such, this is the domain which is of most concern in language learning. Bloom divided the cognitive domain into six categories or levels, which he represented in a triangle, with the largest section at the base. At First level he called knowledge, recall or recognition of facts. Bloom found that over 95% of test questions that students encounter require them to think only at this basic level. The Second level is comprehension or understanding, which involves interpretation and classification of ideas, and the beginning of critical thinking. In the Third level comes application, or using learned material in new situations, which involves problem-solving. The Fourth level is analysis, the ability to separate material into component parts and show the relationships between those parts. At Fifth level, according to Bloom, is synthesis (the ability to put ideas together in new ways, to innovate and think creatively). Sixth level is at the apex of the triangle, since in Bloom’s opinion it is the most difficult, is evaluation or judgment.

Since Bloom’s work first appeared, research has confirmed this classification of learning levels as a hierarchy, apart from the two highest levels. Both evaluation and synthesis depend on analysis – evaluation requires a comparison while synthesis requires re-arranging. This is similar to the distinction between critical and creative thinking – both are valuable while neither is superior. Students can ‘know’ about a topic or subject at different levels. While Bloom showed that most exams test (and many classroom teachers operate at) the lower levels of the classification, research has shown that students remember more when they have learnt the topic at the higher levels of the taxonomy: in other words, within the human brain, more connections have been made.

Across the course, it is possible to make use of the ideas behind Bloom’s taxonomy by encouraging a much broader focus than on only lower level thinking skills. To demonstrate this in a classroom setting, a question focusing on knowledge (Bloom’s lowest level) might be as basic as ‘what is the definition of …?’ and a level two (comprehension) question, common in multiple-choice exams, might ask ‘which is the best answer…?’. However, reading comprehension at this level can also be assessed by a different question, such as ‘how would you compare or contrast…?’ which already opens up more possibilities of demonstrating understanding of facts and ideas by organizing the data, and may well also lead to discussion between students which is leading into a level three (application) question such as ‘how would you show your understanding of…?’ Class discussions may make use of questions such as ‘what inference can you make from…?’, which illustrate Bloom’s fourth level, analysis. Synthesis and evaluation (Bloom’s top two levels) could be developed through questions such as ‘can you predict the outcome if…? or ‘can you elaborate on the reason…?’ (synthesis questions) and ‘do you agree with the actions/outcomes?’, or ‘what choice would you have made?’ (Evaluation questions).

In summary, while lower level questions (knowledge comprehension and simple application levels) are useful and appropriate for reviewing or summarizing content, evaluating students’ preparation and comprehension, and diagnosing their strengths and weaknesses, it is the higher level skills (analysis, synthesis and evaluation) which require complex application and which are therefore most appropriate for encouraging students to think more deeply, for encouraging discussions and stimulating students to seek information on their own. In addition, lower-level skills tend to be demonstrated by asking and answering closed questions (that is, where there are a limited number of acceptable answers). However, open questions (where there are many acceptable answers, some of which may not even be anticipated by the instructor) are more frequent when the higher-level skills are being used. Sometimes there is no one right answer – sometimes many reasons, solutions and possibilities can co-exist; and discussion can encourage this tolerance of uncertainty. In literature, for example, a word or phrase in a poem may not just mean one thing but could draw upon and include many possible meanings.
An Example of Developing Critical and Creative Thinking:

One method to encourage both critical and creative processes in the language or literature classroom is to use a ‘process writing’ approach; that is, not to insist that any piece of writing is completed in one go, without involving a drafting process to amend, re-organize and develop the writing. This allows time for creative thinking, (using techniques such as brain-storming or free writing to provide a new ‘way in’ to a topic; providing maturation time for ideas to emerge; using group-work as an active support for students doing things as individuals) and a period of critical thinking. Process writing can help the flow of ideas (through techniques such as brainstorming) and develop communication skills.

Developing out of the technique of process writing is a complementary approach, that of dialogues or process journaling, in which students write to the teacher, and/or to each other. The journals are typically used to record students’ feelings about a piece of writing, task or course being studied, and they are an effective tool in encouraging students to reflect on what they are learning. Journals can also encourage a new element in communication which can allow more personal comments or questions that students might be hesitant to voice in a class. Students have multiple learning styles and multiple writing styles and journaling allows a more diverse approach and perhaps a more varied repertoire which can also encourage them into different thinking styles, and so again allow both creativity and critical thinking to flourish. Communication skills are not only developed through writing, but also by speaking and listening practice. These ‘life-skills’ have been encouraged as a possible method to control the current high suicide rate among young people in Hong Kong (South China Morning Post, 23 March 2002), as being activities which can promote students’ self-confidence and positive outlook and also perhaps, help to detect despair in others. In addition, group work encouraging creative solutions to problems may help students to ‘open-up’ to each other, while a critical thinking approach can offer alternative viewpoints and attitudes. Literature can also offer a different viewpoint on life, because it can raise awareness of, and encourage discussion of (and hopefully, research into) different lifestyles, different ways of thinking and acting, different attitudes and beliefs. In this way, literature can be used to encourage critical thinking, and can even form the basis of a challenge to biases or previously held viewpoints, because it allows the reader to dip into other people’s lives in different cultures and periods of history, showing that even if the society we live in imposes certain expectations about behavior, other roles may be possible. Using literature in the classroom does not necessarily mean reading an entire novel. Poetry and short stories are an extremely valuable for the development of language, and to encourage critical and creative thinking. With all stories, poems and all pieces of writing, the activity that precedes the reading is crucial to encourage interest, as well to encourage thinking ‘around’ the topic in creative and critical ways. Any and all reading helps to develop vocabulary, brings a greater awareness of grammar and possible ways of expressing ideas, and improves the sub-skills of reading (such as prediction, guessing from context, skimming and scanning for information) which are essential in our daily lives, in and out of the classroom. Reading longer works (whether fictional or factual) can also encourage greater reading speed (an extremely useful skill in the age of mass information) as long as students are encouraged to realize that they can gain a great deal from any text even if they cannot understand every single word. Without some form of language it is almost impossible to express complex ideas, but language feeds those ideas so that our communication skills can go on developing along with our critical and creative faculties.

References


- Curriculum Development Council. (2001). Learning to learn: