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Developing Creative & Critical Thinking in Young Learners

JoAnn-Netto Shek

National Institute of Education, Singapore

Abstract

This paper argues for the teaching of thinking to young learners particularly in English language lessons. It begins by examining the need for the teaching of thinking skills in preparation of young learners as 21st century learners before identifying the spectrum of thinking skills for young learners. Using the theoretical construct of constructivism, the paper will demonstrate how thinking skills should be contextualised in authentic children's literature as a means of modelling good thinking and thinking frames. Instructionally as well, it is argued and demonstrated how thinking skills can be applied to language input young children receive in English language lessons as well as in output tasks. The paper ends with recommendations of teacher knowledge and instructional resources cited in this paper as well as discussion questions for educators to begin conversations of how the teaching of thinking might be situated and applied to their current instructional practice.

Keywords: *thinking skills, young learners*

1. The Young Learner as a Creative and Critical Thinker

Speak to teachers of young learners and they will tell you that young learners are not only creative as thinkers but undoubtedly critical as well. It is not uncommon to hear both teachers and parents regaling moments of young learners displaying a remarkable degree of either inventive or insightful thinking. And, as teachers, we seek to further develop these cognitive resources as best we can. Research breakthroughs since the 1980s in the teaching of thinking as learnable intelligences offer us some ways to do so.

It is now acknowledged that young learners are a distinct group of learners. Extending from Clay's work (1991) and others (Durkin, 1966; Holdaway, 1979; Taylor & Dorsey-Gaines, 1987) which revealed that children do not enter school *tabula rasa*, young learners are identified as "elementary school-age students ranging from 7- 12 years old" (Kang, 2014, p. 551) and are differentiated from very young learners who are under 7 years old. As a group of learners, they make sense of themselves and the world in ways that are far more visibly constructivist than older learners. Teale & Sulzby (1989) offer us a portrait of young learners as literacy learners in terms of four important characteristics: first, they begin to read and write very early in life; second, they do so by observing and participating in authentic real-life settings; third, their abilities to read and write develop concurrently and in interconnected ways and finally, they construct understanding and learning by actively engaging with learning materials. It is primarily because of these characteristics that researchers who work with young learners have described this stage of development as "emergent literacy" (Clay, 1967) and advocate that instruction with this group of learners should needfully be characterised by three distinct features which are - enthusiasm, engagement and extension (Puchta, 2013).

Understanding young learners as “active constructors of knowledge” (Piaget, 1969) situates them as key to the instruction-learning loop in the classroom. Through this lens, teachers become acutely aware of how to position instruction in terms of how supportive it will be for schema activation and development (Piaget, 1969) by learners, how instruction will allow for a steady path of sense-making (Vygotsky, 1986) ensuring that learners are motivated through task engagement (Bandura, 1997). It is also against this theoretical cocktail of constructivism, interactionism and critical literacy that we understand the role that creative and critical thinking play when teaching young learners.

In many ways, this lays to rest a concern that some teachers have about the suitability of teaching either creative or critical thinking to young learners for it is clear that against the backdrop of the young learner as an active learner that the teaching of thinking skills as a means of learning is appreciated.

2. Thinking Skills as a Means of Learning

a. The imperative

As creative and critical thinking are significant 21st century competences, they cannot be ignored and serve as an important imperative for us as teachers to ensure that learners, and even young learners, are prepared for the changing demands of the world. This compels us as teachers then to consider how we too can engage our learners successfully for learning through their use. In addition, when we understand that young learners are already active to the process of learning before they enter school, the use of creative and critical thinking skills as part of instruction for learning becomes essential. An early remark from Teale (1995) to encourage “students to think with and through reading and writing” foreshadows this.

b. The spectrum of thinking skills for young learners

“Critical thinking” is largely understood as logical skills that can be “tacked onto other learning” (Paul, 1989, p. 3). Norris (1989, p. 23), citing Blair (1983); Ennis, (1981); Hitchcock, (1983), explains critical thinking as “rationally deciding what to do or believe”. A useful and comprehensive taxonomy of critical thinking skills is found in Appendix A from Project Intelligence (Brandt, 1989; p. 71). As a spectrum of skills, this list is a useful reference for teachers. However, many teachers remain comfortable and still use Bloom’s taxonomy (Bloom, Engelhart, Furst, Hill, & Krathwohl, 1956) which also provides a useful but less comprehensive list of skills to work with. Significantly, if we were to refer to the list outlined by Project Intelligence, it is apparent that many of the skills listed as “Foundations of Reasoning” can be utilised for young learners. In addition, these skills can also be infused (Swartz & Parks, 1994) quite successfully into instruction for young learners.

Constructivist approaches to teaching young learners creative and critical thinking are also in agreement with this approach to teaching thinking. One example is from Langrehr (1999) who proposes that the teaching thinking for young learners should begin with thinking skills to improve mental organisation. The skills he proposes (see Table 2 below) is a nod in agreement in the direction of the first category of thinking skills identified by Project Intelligence:

Table 2: Improving Mental Organisation (Extracted from Langrehr, 1999)

Improving Mental Organisation
Observing properties
Observing similarities
Observing differences
Categorising similar things
Identifying differences
Comparing
Sorting Things into Groups
Organising Things in Order of Size
Organising Things in Order of Time
Generalising about Examples

Langrehr (1999) explains that activities that help learners organise information through observation prepares them for more complex thinking processes such as analysing and abstraction that they will need in later school years and most of the literature on the teaching of thinking skills to young learners are in agreement with this view.

Creative thinking, on the other hand, is explained as linked to critical thinking. Perkins (Brandt, 1989, p. 39), who proposed creativity by design, explains that “the creative thinker has to be critically aware, because creative thinking, except in the simplest situations, involves the generation and sifting of possibilities and reworking them.”

3. Teaching Thinking: A Contextualised Approach

As literature plays an important role in the instruction of young learners, thinking skills are best taught contextualised in good literature. Instruction that is anchored in a selection of good stories and non-fiction books provide teachers with many affordances for instruction, including the teaching of thinking. Temple, Martinez & Yokoda (2006) explain that there are three defining qualities that characterise children’s literature as a body of work and they are:

1. The main character or protagonist is usually the age of the intended audience
2. The plot or storyline is straightforward and
3. The language used is concrete and vivid.

Tompkins (2003, p. 120), however, points out that there are specialised categories of children’s literature that are designed for the development of specific sets of foundational literacy skills. One example is a distinctive category of books used for the teaching of shared reading called predictable books. These books, she explains, have “repeated words and sentences, rhyme, or other patterns.” Extending from that view, children’s literature used primarily for the teaching of thinking can be supported with books that either demonstrate the use of specific thinking skills through events or characters or require learners to explicitly use particular skills. For example, cumulative stories of which “If You Give a Mouse a Cookie” by Laura Joffe Numeroff (1985) is an excellent example where because of the plot structure, it allows for the thinking skill of sequencing to be learnt quite easily and in an authentic manner. Similarly, fables as a category of children’s literature offer opportunities for learners to abstract a key lesson from the story in the form of a moral. More complex stories such as “Voices in the Park” by Anthony Browne (1998), which is premised on the thinking skill of points of view or perspectives, serve as a good model for the teaching of thinking skill of points of view itself. Finally, William Steig’s “Dr De Soto” (1982) is an excellent example of creative problem-solving.

The significant role that children’s literature plays in the teaching of thinking is not new. Lipman’s “Philosophy for Children” programme (Lipman, 1981) uses a wide range of stories as platforms for dialogic thinking (Lipman, 2003). However, as this body of literature grows in sophistication and range, teachers of young learners will not only find general stories that can be used to encourage grand conversations with children about good and poor thinking but stories that model thinking skills as well.

a. *Thinking Skills to Structure Input*

A key instructional process that experts in the teaching of thinking have advocated as important for learners in general is to model good thinking (Beyer, 1987; Marzano et al., 1997). This can be done in two ways: (1) through explicit instruction and (2) through teacher modelling.

i. *Explicit Teacher Input*

Explicit teacher input in lessons for young learners takes several forms in the classroom. Input provided by teachers is advised to be structured such that learners will “notice” (Schmidt, 1990) it in order for intake. Input that is structured by thinking skills helps learners “notice” the input more clearly and encourage the use of prior knowledge for the learning of new knowledge. One example how this can be done in a grammar lesson on the past tense is demonstrated below as Figure 1:

Sentences from a Book Pupils Have been Reading	
1	John walks to the shop.
2	John walked to the shop.

Figure 1: Structuring Teacher Input Using the Thinking Skill of Comparison

In this example, learners are presented with two sentences whose context comes from a book they have been reading. The sentences are the same except for one critical difference for learners to “notice” and that is, the verb group which is the instructional objective of the lesson. Both sentences are read-aloud by the teacher and visually presented on the whiteboard, ensuring that the verb group is highlighted after the learners have spotted the difference between the sentences. In response to a teacher-initiated question, “What difference do you notice in these sentences about John?” learners are led to focus and therefore, attend to the difference. The act of comparison encourages learners to link their prior knowledge about present tense signalled in the first sentence by the verb group “walks” with new knowledge signalled by the verb group “walked” in the second sentence. In this way, explicit teacher input is initiated with the teacher asking the learners to use the thinking skill of comparison. By augmenting this input with teacher modelling of how to recognise past tense markers through the use of a Think-Aloud (Davey, 1983), young learners are cognitively coached (Collins, Brown, & Hollum, 1991) into mastery.

ii. *Word Walls and the Importance of Introducing Metalanguage*

Word walls are another opportunity for teachers of young learners to situate thinking skills at the input stage of lessons for learning. Word walls are displayed collections of words identified by the teacher from books learners are reading “or social studies and science thematic units” (Tompkins, 2003, p. 165). These walls are developed collaboratively with learners and then posted on classroom walls as a resource for pupils

to refer to and use in extension literacy activities. An example of a word wall is given below as Figure 2:



Figure 2: An Example of Classified Words on a Word Wall.

Through word walls, language input is structured and organised through the use of the thinking skill of classification to help learners locate patterns in the input for storage in the long term memory. As words are classified, learners are introduced to the language of thinking.

b. Thinking Skills in Output Tasks

i. Word sorts

While the presence of thinking skills in input stage of lessons help learners attend to and focus on the instructional objective of a lesson, the presence of thinking skills at the output stage of a lesson supports learning in terms of helping learners construct and apply new knowledge. For example, activities such as word sorts (Bear, Invernizzi, Templeton, & Johnston, 2004) help learners use the thinking skill of classification for conceptual understanding by forging relationships between language-thought (Vygotsky, 1986). Word sort activities require young learners, working in groups, to examine, compare, contrast and sort a pack of words around a given (closed sort) or learner determined (open sort) topic or theme. Word sort activities can be introduced for learning of grammatical concepts such as word class, or scientific concepts such as “fish” or “flowers”.

ii. Timelines

Timeline activities, on the other hand, are another group of tasks that help learners with “the organisation of things according to time” (Langrehr, 1999). Such tasks require learners to identify events from stories that learners have been reading. After learners become comfortable with sequencing events, teachers can then increase complexity by requiring them to categorise events on the timeline. An example of a timeline activity based on “The Crayon Box That Talked” by Shane DeRolf (1997) is given below as Figure 3:

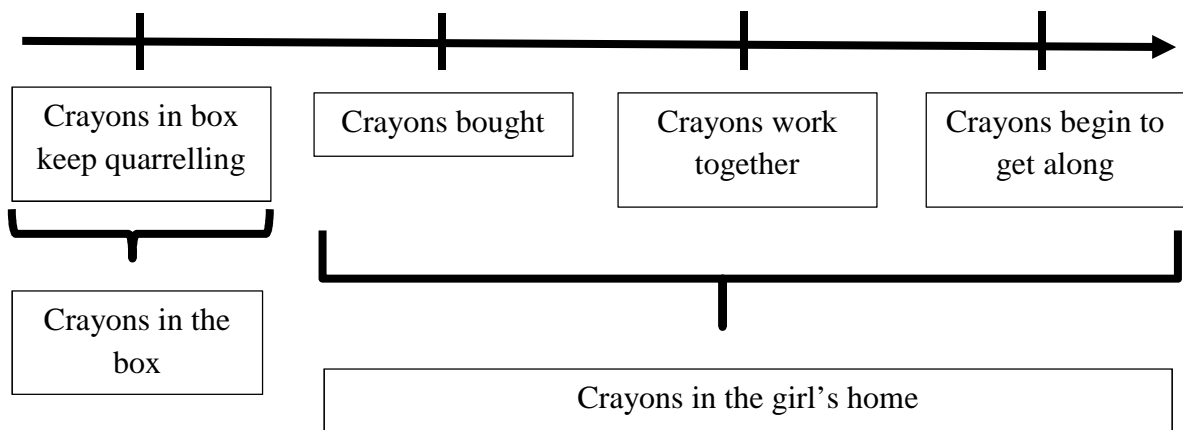


Figure 3: Timeline Activities to Teach Sequencing & Classification

iii. Graphic Organisers

Other examples of the use of thinking skills in output tasks include response tasks that require learners to make text-to-self, text-to-text or text-to-the-world connections with characters in stories (Rosenblatt, 1983). Response tasks such as “Just like Me” (Groeber, 2002, p. 10) is an example of tasks that use the thinking skill of comparing to encourage an aesthetic stance in young learners as they read or listen to stories.

To make the skill of comparing visual and visible (Collins, et al., 1991) for learners, a graphic organiser in the form of a Venn diagram is used. In tasks such as this one, the skill of comparing is supported by a graphic organiser requiring learners to locate the similarities and differences between a character in a story and themselves. This is shown as Figure 4:

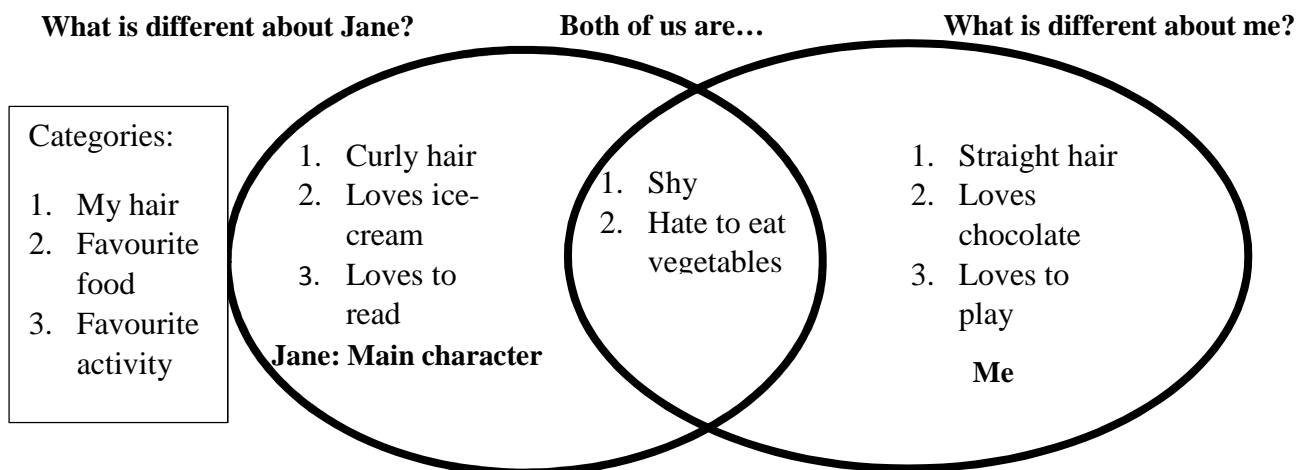


Figure 4: Response Activities as Thinking Tasks

Graphic organisers provide learners with support by making each step of the thinking skill visible. Each aspect of a graphic organiser is also supported by teachers modelling what, how much and when to complete it. As young learners mature and develop greater competence in thinking skills with the use of graphic organisers, they will find them useful for reading non-fiction texts, as study aids, speaking aids and so on.

c. Thinking Skills to Extend Learner Thinking

Findings from Sipe (2002) show that young learners respond to stories in five ways: (a) dramatizing (b) talking back (c) critiquing or controlling (d) inserting and (e) talking

over. Talking back (Tompkins, 2005) is explained as when learners talk back to characters by giving them advice. During a read-aloud, learners extend their thinking by spontaneously talking back to characters advising them to proceed or not with a course of action. Strategies such as talking back require learners to reflect on a character's thoughts and decisions giving them good practice in metacognitive training (Flavell, 1978).

A strategy such as inserting, however, where learners insert themselves or their friends as characters into the stories read, offer young learners the opportunity to use the language of the characters in context. Significantly, inserting offers young learners the opportunity through role play to think in context as a character. This thinking skill practised will depend on the episode chosen from the book and the character the learner has chosen to be. For example, in Andrew Clements "Frindle" (1996), learners could use thinking skills as Nick's friends who are secret agents or as helpers in the Penny Pantry store and their responses will be different depending on who they choose to be and in what episode.

A third strategy called talking over allows for learners to modify stories according to established criteria. With older learners who have more developed writing skills, the SCAMPER strategy (Glen, 1997) can be introduced as a thinking frame (De Bono, 1976) to write modifications to stories they are reading. (Refer to Appendix B for the SCAMPER thinking frame). Equally, Lipman's "Philosophy for Children" programme (Lipman, 1981, 2003) uses stories as platforms to develop reasoning skills with a view to moving learners from users of thinking skills to developing reasoning patterns in preparation of their engagement as active and ethical citizenry in the future.

4. Young Learner Classrooms as Thinking Classrooms

Early calls from Fisher (1999), soon after breakthroughs in the area of the teaching of thinking as a learnable intelligence, to teachers and schools to develop a culture of thinking in schools are revealing of the need to strengthen the teaching of thinking in classrooms. In this article so far, we have understood that instruction for young learners is both dialogic (Fisher, 2007), process in its orientation and visual. Cambourne & Turnbull (1987) serve to remind us that young learners require learning environments that are print-rich indicating that classrooms walls are filled with language that will help learners acquire and extend their learning. Similarly, the classrooms for young learners should be filled with examples of good thinking, posters of thinking frames used when exercising good thinking, the language of thinking and indications of how good thinking are entry ways into metacognition and the development of good habits of mind (Costa & Kallick, 2000). These materials, particularly when constantly referred to during instruction for learning, remind learners that classrooms are places where good thinking is prioritised and valued apart from correct answers. They serve to compliment the hard instructional work that teachers already put into designing effective lessons from diffusing. Most importantly, they seek to remind the members of the class how to behave within a climate of thinking.

5. Conclusion

The teaching of thinking is a crucial set of skills that learners, and in particular young learners, must acquire in order to become effective learners. Constructivist, student-centred paradigms to learning situate the teaching of thinking deeply into instruction requiring teachers to effect learning as young learners experience it. The use of thinking skills at the input stage of lessons ensures that learners are provided with the best possible ways of "noticing" the input to be learnt. Framing tasks according to cognitive and content goals ensure that learners are mentally engaged in tasks. Introducing tasks that extend student thinking allows learners to see the relevance of

what they are learning and how their learning can be used. Lastly, creating classrooms that signal the importance of being thinking and ethical trains them up to meet a much more complex world ahead.

6. Summary

- The teaching of thinking is an important imperative that cannot be ignored by teachers in general and in particular, teachers of young learners.
- Thinking instruction is a means of learning for young learners and is embedded and contextualised in the literature and instruction for young learners.
- At the input stage, thinking instruction can be used to structure the input of a lesson to help young learners activate and build schema and to engage them in the process of learning.
- At the output stage, the teaching of thinking frames tasks and output of student learning.
- To help young learners prioritise thinking as a means of learning, knowing and being, the classrooms for young learners should be enculturated with learning materials that encourage thinking as the premise for learning, knowing and being.

7. Discussion Questions

- Do you agree with the argument for the teaching of thinking to young learners? If so, why? And if not, why not?
- What thinking skill frames the lesson input you prepare for your young learners? Review the section entitled “Thinking Skills to Structure Input” and consider how you might or might not resituate it and why.
- This article provides a number of activities and tasks that can be introduced to young learners to teach them normative thinking skills. Compare some of these activities with a favourite activity that you use in your lessons for young learners. How does it compare in terms of using thinking skills for learning?
- Take photographs of the walls of your classroom and evaluate if the young learners in your classes are encouraged through your posters and learning materials to be active thinkers. How can you improve the environment of your classroom as one that is print-rich and thinking?

8. Suggested Activities

1. Form an informal focus group with three to four young learners from your classes. Have a conversation with them about the stories they liked so far in your classes, the activities they enjoyed and why and the thinking skills they learnt in your lessons so far. Review your notes taken during this conversation for directions about improving the teaching of thinking if you need to.
2. Review the children’s literature that you have been using for instruction in your lessons. Are there any stories that need to be replaced with books where thinking is demonstrated more deliberately?
3. Examine a unit of work that you have designed for your class of young learners. Does the teaching of thinking have a presence in the unit? Can you strengthen its presence in the unit to maximise learning for your learners.

9. Further Reading

Brandt, R. S. (1989). On Creativity and Thinking Skills: A Conversation with David S. Perkins. In R. S. Brandt (Ed.), *Teaching Thinking* (pp. 36-42). Alexandria, Virginia: Association for Supervision and Curriculum Development.

This book remains relevant and gives a good overview of the teaching of thinking. It contains conversations with the key experts from Project Zero and their thoughts about creative and critical thinking. This book serves as a good starter for teachers who wish to understand the nature of both creative and critical thinking.

Marzano, R. J., Pickering, D., Arredondo, D., E., Blackburn, G. L., Brandt, R. S., & Moffett, C. A. (1997). *Dimensions of learning: Trainer's Manual (Second edition)*. Alexandria, VA: Association for Supervision and Curriculum Development.

Many books have been published from this team of researchers who situate the teaching of thinking as a means of learning. This particular soft-bound book is teacher-friendly, offering many instructional ideas to teachers.

Groeber, J. F. (2002). *25 Simple Things to do for Literacy*. USA: Pearson Professional Development.

Joan Grober's book also serves as a good resource for teachers. She offers 25 activities that have a literacy-orientation and there are many where young learners are asked to work with thinking skills. The language of the book will help you speak about thinking processes to young learners as well.

Langrehr, J. (1999). *Teaching Your Children To Think*. Singapore: Teachers Resource Center.

This is another good resource for teachers who wish to have a range of classroom activities for young learners. Langerhr's orientation in this book is more cognitive but simple enough for use with young learners when needed. It also serves as a good contrast to Groeber's book that situates thinking skills as a means of learning.

Table 1: Outline of Thinking Skills
(Extracted from Project Intelligence (Nickerson, 1989, p. 71))

Themes	Thinking	Thinking Skills
Foundations of Reasoning	Observation and Classification	Observation
		Differences
		Similarities
		Groups and Essential Characteristics
		Classes and Classification
		Hypothesis Testing
	Ordering	Sequences and Change
		Orderable Dimensions
		Orderable Dimensions and Relative Descriptions
	Hierarchical Classifications	Definitions of Hierarchical Classification
		Applications of Classification Hierarchies
		Interpreting and Using Hierarchies
	Analogies	Solving Analogies
		The Bidirectional Relationship of Analogies
		Group Analogies
		Completing analogies
	Spatial Reasoning & Strategies	The Tangram
		True Tangrams
		Visual Projection
Understanding Language	Word Relations	Antonyms
		Synonyms
		Word Classification
		Analogies and Metaphors
	The Structure of Language	The Relation between Order and Meaning
		The Structure and Purpose of Paragraphs
		Main Ideas & Topic Sentences
		Rhetorical Structure
	Reading for Meaning	Understanding the Author's Message
		Interpreting Beliefs, Feelings, & Goals
		Understanding Different Points of View
		Adopting Different Points of View
		The Importance of Previous Experience
Verbal Reasoning	Assertions	Form vs Meaning
		Common Forms of Assertions with Quantifiers
		Establishing Truth and Falsity of Universal and Particular Assertions

		Using Diagrams to Represent Assertions	
		The Non-reversibility of Positive Universal Assertions	
		The Reversability of Negative Universal Assertions	
		Restating Assertions	
		Relationships Between Assertions	
		Counterexamples and contradictions	
	Arguments	Understanding arguments	
		Validity vs Truth	
		Using Diagrams to Help Judge the Validity of Arguments	
		Some New Forms of Logical Arguments	
		Evaluating Plausible Arguments	
		Opposing Arguments and Counterarguments	
		Constructing and Evaluating one's Own Argument	
Problem-solving	Linear Representations	Direct Statements	
		Statements with Order Reversal	
		Statements in Difficult Language	
		Indeterminate Statements	
		Inventing Statements	
	Tabular Representations	Numerical Tables	
		Numerical Tables with Zeroes	
		Truth Tables	
	Representation by Simulation and Enactment	Simulations	
		Flow Diagrams	
		Consolidation Exercises	
		Transfer Exercises	
	Systematic Trial and Error	Trial Answers	
		Exhaustive Searches	
	Thinking Out the Implications	Thinking about the Givens	
		Thinking About the Solution	
	Decision-making	Principles of Decision-Making	What are decisions, Who makes them, and When?
			Why are some decisions difficult to make?
Choosing Alternatives with Known and Unknown Outcomes			
Gathering and Evaluating Information to Reduce Uncertainty		Outcome Possibility Assessment	
		Relevance of Information	
		Consistency of Information	
		Credibility of Information	
Analysing Complex Decision Situations		Establishing Preference	
		Weighting Dimensions	

Inventive Thinking	Design	Analysing a Design
		Comparing a Design
		Imagining Changes
		Evaluating a Design
		Improving a Design
		Designing Something New
	Procedures as Designs	Analysing a Procedure
		Evaluating a Procedure
		Improving a Procedure

Appendix B

SCAMPER Activity

After we have discussed our story in terms of the Setting, Plot, Characters and Themes, use SCAMPER as a thinking frame to FRACTURE it.

Remember...*Be creative!!*

Your Story:	
S _{UBSTITUTE}	
C _{OMBINE}	
A _{DAPT}	
M _{ODIFY}	
P _{UT}	
E _{LIMINATE}	
R _{EVERSE}	

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