



The Effect of Visualization as Mental Strategy on Developing Speaking Fluency of EFL Secondary School Students

By: Omar Ali Hussein Alani (Ph.D)

Ministry of Education/General Directorate of Education/Diyala/Iraq

Abstract

There may be several challenges when using visualization as a mental strategy to increase proficiency with speech in secondary school; some may relate to students, while others may relate to teachers. It is implied that many students are unfamiliar with mental processes or mental tactics like visualizations when there is a limited understanding of cognitive strategies. In addition to lacking drive and confidence, individuals may have no idea how to create internal practice scenarios or mental imagery. It can be challenging to employ innovative citrates when students are hesitant to communicate. This study aims to investigate the effect of visualization as mental strategy in improving speaking fluency of Iraqi EFL secondary school students. This study is hypothesized that there is statistical significance difference in speaking fluency between the experimental group who are taught using visualization as a mental strategy and the control group who are taught by conventional method. Sixty students from Al-Muhsin Secondary school participated as a sample in this study. By using suitable statistical method, the results showed that EFL secondary school in the experimental group speak more fluent than the control one.

Email: omar.eng29@gmail.com

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المخلص

قد تواجه استخدام استراتيجيات التصور الذهني لتحسين الطلاقة في الكلام لدى طلبة المرحلة الثانوية عدة تحديات؛ بعضها قد يرتبط بالطلبة، بينما يتعلق البعض الآخر بالمعلمين. ويُفترض أن العديد من الطلبة ليسوا على دراية كافية بالعمليات الذهنية أو الاستراتيجيات العقلية مثل التصور الذهني، وذلك نتيجة للفهم المحدود للاستراتيجيات المعرفية. إضافةً إلى افتقارهم إلى الدافعية والثقة بالنفس، قد لا يمتلك الأفراد القدرة على إنشاء سيناريوهات تدريب داخلية أو صور ذهنية. كما قد يكون من الصعب توظيف استراتيجيات مبتكرة عندما يُبدي الطلبة ترددًا في التحدث. تهدف هذه الدراسة إلى تقصي أثر استخدام التصور كاستراتيجية ذهنية في تحسين طلاقة التحدث لدى طلبة اللغة الإنجليزية كلغة أجنبية في المدارس الثانوية العراقية. وتقتض الدراسة وجود فرق ذي دلالة إحصائية في طلاقة التحدث بين المجموعة التجريبية التي تلقت تعليمها باستخدام التصور كاستراتيجية ذهنية والمجموعة الضابطة التي تدرس بالطريقة الاعتيادية. شارك في الدراسة ستون طالباً من مدرسة المحسن الثانوية، وقد أظهرت النتائج من خلال استخدام الطريقة الإحصائية المناسبة أن طلبة المجموعة التجريبية كانوا أكثر طلاقة في التحدث مقارنةً بالمجموعة الضابطة

Section One

1.1 The Problem

Visualization, the ability to create mental images from written or spoken language, enhances comprehension and is one of several methods. Enhancing visualization skills when looking at pictures or reading can significantly benefit students academically and in their lives beyond education. Many secondary school students lack metacognitive knowledge about mental strategies. Sometimes, they need to effectively generate mental images or scenarios to facilitate fluent speaking; this limitation arises from their lack of awareness regarding metacognition. A lack of training in using visualization techniques can also directly hinder students from speaking fluently. Without visualization training, students may revert to memorization, which does not support real-time speaking fluency, instead of using mental imagery to produce natural language. Also, the untrained students are unable to transfer mental rehearsal to actual speaking situations, especially when they are under pressure. These issues can be categorized into cognitive, psychological and instructional barriers.

1.2 The Aim of the study

This study aims to investigate the effect of visualization as mental strategy in improving speaking fluency of Iraqi EFL secondary school students.

1.3 The Hypothesis of the Study

It's hypothesized that there is statistical significance difference in speaking fluency between the experimental group who are taught using visualization as a mental strategy and the control group who are not

1.4 The Limits of the Study

This study is limited to:

1. Fifth EFL secondary students from AlMuhsin Secondary school.
2. Visualization as a mental strategy
3. speaking fluency

1.5 The Procedures

To achieve the aim of the study, the following procedures have been followed by the researcher:

1. providing theoretical background about visualization as a mental strategy and speaking skill
2. constructing a test that suits this study.
3. collecting the required data and then analyzing them statistically
4. discussing the results

Section Two

2.1 Speaking

Speaking is a crucial part of learning a second language. Through its evolution through the historical context of language training, it has gained a critical and vulnerable significance. Over the past 20 years, speaking abilities have gained the right to be a free part of language learning, acquisition, and assessment because of their underappreciated importance (Bygate, 2003; Namaziandost et al., 2019).

There are two main types of language abilities: **receptive and productive**. In the first group, we find reading and listening; in this context, "meaning can be extracted from the discourse" (Harmer, 2007). Ur (1991) stated that "Speaking is the productive aural/oral skill." It involves generating structured verbal expressions to communicate meaning. From an intuitive standpoint, the ability to communicate verbally appears to be the most crucial of the four linguistic competencies. As a matter of fact, a lot of language learners think that speaking is the same as total competence in a language, and they use their speaking abilities as a yardstick for their language proficiency, achievements, and learning progress. Instead of reading, understanding spoken language, or expressing oneself on paper, the capacity to communicate with others is closely linked to and measured by fluency. People often take a speaker's proficiency in a language "at face value" in various settings. More than any other skill, people evaluate our language competency based on how well we communicate (McDonough, 1996).

The process of creating and conveying meanings using both spoken and non-spoken symbols in a range of situations is known as speaking (Chaney, 1998,). Speaking is an essential part of teaching and learning a foreign language. Since English has become the primary language of communication, it is more important than ever to have successful and meaningful relationships. In addition to creating grammatically sound phrases, students should also employ them in socially suitable situations that take into account the social standing and cultural background of the speaker (the person or people they are speaking to).

Nunan (1989) asserts that the acquisition of speaking skills in a particular language necessitates the development of the following sub-skills:

1. Proficiency in articulating phonological characteristics of the language comprehensively;
2. Mastery of stress, rhythm, and intonation patterns;
3. A certain level of fluency;
4. Transactional and interpersonal communication skills;
5. Competence in delivering both brief and extended speaking turns;
6. Skills in managing interactions;
7. Utilization of appropriate formulaic expressions and fillers.

2.2 Various aspects of Speaking:

1. "Accuracy

It encompasses the proper utilization of vocabulary, grammar, and pronunciation." In structured and supervised activities, the emphasis is typically on precision, and the instructor explicitly communicates the significance of accuracy through feedback. Gower et al. (1995). In verbal communication, precision is paramount, and educators should promote the proper utilization of language among pupils. Nevertheless, educators should not prioritize accuracy excessively, as an overemphasis on creating perfect language from the outset may hinder

pupils' confidence in their speaking abilities. Consequently, Gower et al. (1995) recommended that, for certain activities, teachers should explicitly communicate to students the areas in which accuracy is anticipated and to what degree.

2. Fluency

Fillmore (1979), as cited in Yang (2014), defined speaking fluency as: a) the capacity to speak for extended durations with multiple pauses; b) the ability to construct logical, justified, and semantically meaningful phrases; c) the use of appropriate terminology in various settings. d) Language utilization ought to be inventive and visionary. These statements are necessary to assess the students' speaking fluency. Speaking is an integral component of second language acquisition and instruction, making it essential for students to achieve fluency in English.

Furthermore, Harmer (2007) and Crowther, Trofimovich, Issacs, and Saito (2015), as cited in Albino (2017), asserted that the concept of speaking fluency is associated with the notion of "communication." For instance, in dialogue, a student may commit a mistake in grammar, such as "Maria live in Cazenga" [live vs. resides], yet the student can still articulate the sentence with a degree of fluency. In this instance, we can still articulate the sentence, but with a grammatical inaccuracy. However, if we frequently engage in this practice, the information acquired during the conversation is not entirely accurate.

Richards (2006) asserted that speaking fluency is cultivated by various factors, including involvement in problem-solving activities, negotiation of meaning during pair work, and the application of communication methods. These variables can assist learners in enhancing their speaking fluency.

According to Ers, Stituito, and Lee (2008), there are two requirements for assessing fluency. Initially, Uncertainty. Hesitation phenomena, such as fillers, predominantly manifest at the commencement of an utterance or phrase, possibly due to the heightened demand on planning processes at these points (Barr, D., 2001) in (Corley & Stewart, 2008). Secondly, formulaic expressions. Fonseca (2018) indicated that the formulation's expression is linked to the language. The Summer Institute of Linguistics (SIL) Internationally defines an idiom as a multi-word statement that operates as a coherent and comprehensible entity. Idioms provide challenges for students of second languages due to the ambiguity of their meanings when analyzing the individual words. Standardized phrases and idioms pertain to figurative language, which does not convey its literal meaning.

Disfluency can be caused by various variables, such as insufficient vocabulary, communication skills, attentiveness, and suitable speech patterns. Since there are so few reports that are guided by any other than intuition, the phrase "fluency" is utilized with confidence despite the lack of understanding surrounding it (Guillot, 1999). According to Novak and Cañas (2008), an idea is defined as "a perceived regularity in events or objects, or records of events or objects, designated by a label". Nesbit & Adescope (2006) defined a concept map as "a visual representation of an individual's knowledge structure on a specific topic as constructed by the learner."

Novak and Gowin (1984) introduced concept mapping as a pedagogical method that visually shows knowledge and elucidates the interconnections within that knowledge to enhance its significance for the learner. The benefits of employing concept mapping include: (1) enhancing student success as an advanced the organizer; (2) enabling student to engage deeply with concepts and retain information more effectively; (3) fostering imaginative thinking and problem-solving skills; (4) augmenting learner autonomy and independence; (5) facilitating the organization of various concepts and visualizing the interconnections among

primary concepts meaningfully; and (6) assisting students in focusing entirely on essential concepts and ideas, disregarding extraneous details (Kommers, 2004).

Skehan (2009) concentrated on narrative exercises to enhance the oral fluency of EFL learners. Nevertheless, it appears that the researchers neglected to account for the constraints on the ability to focus on all facets of the content. Skehan's (2009) study was considered to aid language learners by altering performance conditions and modifying task characteristics through the implementation of task repetition approaches. The investigation aimed to address the gap by investigating the effectiveness of pre-task preparation conditions, allocating equal time to both strategies, which demonstrated favorable and substantial impacts of story tasks on learners' speaking fluency.

3. Articulation

McDonough and Shaw (2003) asserted that the instruction of pronunciation is conducted through various methods and for diverse purposes. Occasionally, entire courses may focus on it; at other times, educators address it as it emerges. Some educators prefer to 'drill' accurate pronunciation habits, while others prioritize the development of clarity within fluency.

The approach of teaching pronunciation is completely dependent on the teacher because there is no uniform pattern for teaching pronunciation. Some teachers adopt a 'bottom up' approach in which children form and perceive sounds as 'properly' as possible. In contrast, the 'Top down' method considers learners' pronunciation as part of a larger communicative strategy (McDonough & Shaw, 2003).

2.3 Visualization

Tomlinson (1998) called "the ability to create mental pictures or images during reading" a powerful tool for language acquisition. Burkhard (2005) Strategy Visualization refers to the methodical application of complementing visual representations to enhance the analysis, growth and development, formulation, interaction, and execution of strategies inside businesses. According to McNamara (2007), one metacognitive reading method that leads to comprehension gains is visualization. Visualization, together with prediction, questioning, clarification, and summarizing, is introduced as the fifth method by Pressley (2000). He believes that visualization based on generative teaching could be used well in reading comprehension and is a supporter of multicomponential methods to understanding education. According to McNamara (2007), not every mental models are visual. However, there is a long and regarded history of research on the significance of visuals and visualization during processing data and reading. Johnson-Laird (1983) believes that the most important part of reading is creating a mental model.

To help readers go beyond the text and understand the concepts presented, McNamara (2007) suggests using visualization or imagery. This is because visualizing encourages readers to draw on existing knowledge, which helps to solidify the ideas presented in the text. Actually, our level of familiarity with the subject matter and our capacity to form mental images while reading have a significant impact on visualization (Keene and Zimmermann, 1997). According to research by Gambrell and Jawitz (1993), our comprehension of written material is likely to be higher if we can create some mental picture from it. Researchers Keene and Zimmermann (1997) found that students were more engrossed in detailed descriptions when they used mental images while reading. According to them, students might gain a deeper understanding of the material and find the text more engaging when they bring their own knowledge to the table.

Willis (2008) argues that visual aids may help people make associations with previously acquired patterned knowledge. Visualization also helps students make connections between new words and what they already know, according to research by Harris and Sipay (1990). According to Rosenblatt (1978), this approach helps pupils relate to the material on a more personal level.

2.4 The Importance of Visualization

Ziemkiewicz C, et.al (2012) state that as visualization becomes increasingly significant, academics are investigating more intricate challenges. Visualizations now function as cognitive aids in problem-solving, as users increasingly depend on them to address more complex challenges. Color and perceptual theories are essential for making sound design decisions; nevertheless, they are inadequate on their own to direct the creation of a representation for a cognitively intricate activity. These ideas fail to consider user cognition or the use of visuals as an enhancement of an individual's cognitive capacity. They also said that Visualization users exhibit significant variability in experiences, backgrounds, individuals, and cognitive capabilities; nonetheless, visualizations, akin to many other software applications, remain predominantly developed for a singular archetypal user. Undoubtedly, tailoring each visualization for a specific user would be unfeasible. Understanding the general distinctions among user groups may inform design for particular domains and propose various analytical modes or customization alternatives within a single system. A novel study domain has recently arisen that adopts a contrasting methodology to the conventional "one size fits all" strategy. This research indicates that an individual user's cognitive style, with the visual design, influences the usefulness of the visualization.

E. Sinitsyna, S. Burikova (2016) states that All phases of teaching foreign languages can benefit from visualization, which is frequently employed as a supplemental technique and occasionally as the primary one. On the one hand, it is a well-known and long-standing method; nonetheless, many teachers undervalue and disregard it. We want to highlight the benefits of using visual aids when teaching foreign languages.

First, when learning a language, imagery is crucial, particularly if the teacher and students do not speak the same language. Simply displaying the item works better than constantly using a dictionary.

Second, if students focus in class, complete their assignments, and generally put in a lot of effort, visualization ensures that they will successfully acquire vocabulary and grammar skills.

Thirdly, visualization stimulates focus and attention, boosts motivation to learn, facilitates perception and comprehension, lessens fatigue, develops imagination, and even has a beneficial emotional impact on students.

Fourth, one of the useful tools in the adaptation process may be visualization. Students must adjust to a completely new environment where language is merely one of many issues, whether they are learning the language in the nation where it is spoken or if they plan to move to another one in the future. Students' cultural awareness is increased when images or movies regarding holidays and celebrations are shown, acquainting them with the traditions and practices of another nation. Thus, visual aids are crucial while teaching foreign languages. Effective visualization techniques can increase the efficacy of research.

The use of visual aids can facilitate the acquisition of new words (O'Malley and Chamot, 1990). As an example, if the student is learning the term "exploration," they might visualize a scientist employing specialized drills for oil exploration. Once again, as everyone's life is unique, the pupils could visualize things differently. The key distinction

between visualization and the method of loci is that the former involves mentally conjuring up an image or scenario for every word, while the latter involves associating each word with a specific, familiar location and experiencing it as if one were there.

One technique that might help teachers warm up students and provide them with background information before presenting the exercise is the use of visual aids (Azadi et al., 2018). According to the Oxford Advanced Learner's Dictionary, visual aids are publications, graphs, or images that assist students in drawing insightful conclusions or enhancing an introduction. Films, slides, outlines, and other devices that can be seen by the human eye (apart from books) can be used for teaching, defining addresses, and other purposes (Wehmeier, 2000; Hosseini et al., 2017). Furthermore, visual signals are instructional tools (such as a chart, guide, or model) and things you look at (such a diagram or movie) that is used to clarify something.

2.5 Visualization Strategies

According to Salas et al. (2021), the visualization strategy is often suggested as a knowledge teaching method to help students while they learn. Students may be inspired to see and visualize situations or interactions through visualization. There are different types of strategies which can help students to develop students to be fluent speakers, these are:

1. Mental Image:

Mental image is defined as having the ability to generate mental representations of a narrative in one's "mind's eye," might improve the quality of these mental representations (Algozzine and Douville, 2004). Mental imagery denotes any image conjured in the mind in the absence of the actual thing or event, encompassing images associated with sight, sound, taste, smell, and touch sensation, and emotions. Jenkins (2009)

2. Mind Mapping:

Arulselvi E. (2017) Mind Mapping is a pedagogical tool that employs a non-linear methodology, prompting learners to contemplate and investigate concepts through visual-spatial relationships radiating from a central subject to interconnected outer branches. Mind mapping provides various practical advantages that render it an essential instrument in educational settings, particularly for language acquisition and comprehension of text (Syukur & Tohamba, 2025). Mind mapping serves as a graphical representation tool that aids students in simplifying intricate knowledge by deconstructing it into digestible and interconnected components. This approach effectively stimulates both the creative and analytical sides of the brain, fostering a whole learning experience.

3. Visual Aids

Graphical depictions of numerical probability expressions are known as visual aids. Some examples of these are grids, line and bar charts, and icon arrays (Paling, 2003; Spiegelhalter et al., 2011). When transparent, meaning that its components are well-defined and effectively portray relevant risk information through the establishment of part-to-whole links in the data, visual aids offer an effective way to communicate risk (Garcia-Retamero and Cokely, 2013).

4. Graphic organizers:

Meyen, Vergason, and Whelan (1996) define graphic organizers as "visual displays that educators utilize to arrange information in a way that facilitates comprehension and learning." Gajria et al. (2007) highlighted that graphic organizers render challenging content more comprehensible for students with learning difficulties.

5. Diagraming

Cesarone (2007) defines concept diagrams as "chart-like graphics that depict a concept and its many different relationships, with broad ideas positioned at the top of the diagram, supporting ideas at the bottom, and lines illustrating the relations between the concepts." This technique can assess students' comprehension of content by requiring them to construct their own idea diagrams. This would allow the educator to identify "misdirected links or erroneous connections" (Helfgott, 2007).

Section Three / Methodology

3.1 The Experimental Design

According to Best and Khan (2014), experimental design is the set of steps that allow the researcher to test the hypotheses that have been put forth and draw reliable findings on the relationships between the dependent and independent variables. The part of study when variables are changed and their impact on additional variables is noted is known as the experimental design (Das & Hopkins, 2017). According to Creswell (2012), experimental design is the conventional approach to performing quantitative analysis or assessing a theory or process to ascertain whether it influences dependent variables or results.

3.2 The Population and the Sample of the Study

The population is the researcher's first point of interest while collecting data and drawing conclusions (Al-Mashhadany, 2020). Best and Kahn (2006), a population is a collection of people who share at least one trait that sets them apart from other people. The population of this study includes 80 male students from Almuhsin secondary schools in Diyala/ Baquba,

Ary et al. (2018) define a sample as a collection of people, things, or occurrences chosen for research purposes from a population, typically in a way that accurately reflects the sizable group which they are drawn. So, the sample of the study is 60 male students.

Section (A), comprising thirty students, has been selected at random to serve as the experimental group. Section (B), also comprising thirty students, has been selected at random to serve as the control group. Therefore, as indicated in table (1), the sample size is 60 students in total.

Table (1)
The Sample of the Study

Sections	Groups	No. of sample
A	Experimental	30
B	Control	30
Total		60

3.3. The Validity and the Reliability of the Test

Frankel et al. (2012) define validity as the appropriateness, accuracy, meaningfulness, and utility of the inferences drawn by researchers from the data they collect. Content validity pertains to the extent to which a test accurately measures the construct it is intended to assess. It evaluates whether the test accurately assesses the intended characteristics or abilities (Hughes, 2003). Mousavi (2009) defines face validity as the degree to which an examination seems to accurately evaluate the abilities or knowledge it claims to measure, based on the subjective perceptions of participants, decision-making administrative personnel, and untrained observers in psychometrics. The assessment has been submitted to a panel of educators and linguistics professionals to ensure its face validity.

Reliability on the other hand, is a crucial characteristic of a measuring instrument, defined as "the degree to which an instrument for measuring consistently measures whatever

it assesses." (Bachman & Palmer, 1996). The result derived from the use of Cronbach's alpha equation is 0.80, which is deemed a statistically acceptable index.

3.4 Scoring Scheme

Scoring refers to the application of a scale of numbers to quantify responses. Assessment yields significant insights into students' performance and educators' perspectives (Genesee et al., 1996). Mousavi (2012) characterizes a scoring strategy as a method for assigning value numbers or scores to test objects.

The researcher has adapted O'Malley and Pierce (1996) scoring to assess the students' speaking which is encompassing four dimensions: **pronunciation**, **grammar**, **vocabulary**, and **fluency**. Each aspect comprises four levels, with each level possessing a degree. The overall score for the test of speaking will be 100 marks, as indicated in **Table 2 below**.

Table (2)
The Adapted Scoring Scheme of the Speaking Test

Aspect	Information	Score
Pronunciation	- Very clear so easy to understand.	22-25
	- Easily understood despite the influence of the mother tongue can be detected.	18-21
	- There are pronunciation problems so that listeners need full concentration.	14-17
	- There are serious pronunciation problems that cannot be understood.	10-13
Grammar	- No or few grammatical errors.	22-25
	- Sometimes there is a mistake, but it does not affect the meaning.	18-21
	- Often make mistakes making the meaning hardly comprehensible.	14-17
	- Severe solecism that it could not be understood.	10-13
Vocabulary	- Using the appropriate vocabulary and expressions.	22-25
	- Occasionally using less precise vocabularies and should be explained again.	18-21
	- Often using inappropriate vocabularies.	14-17
	- Vocabulary is very limited so that the conversation cannot be happening.	10-13
Fluency	- Very fluent.	22-25
	- Fluency is slightly disturbed by the language problem.	18-21
	- Often hesitated and stalled because of the language limitations.	14-17
	- Talk disjointed and stopped so that the conversation cannot be happening.	10-13

Section Four / The Result

After collecting the data and using the required statistical means, the following results come out as follows:

4.1 Result Related the Hypothesis

All mean scores are collected and compared to determine whether the experimental group's and the control group's posttest mean scores differ significantly. According to statistical means, the experimental groups' mean scores were **64.93** and the control group's were **57**, with standard deviations of **7.61** and **9.75**, respectively. There is a significant difference between the experimental and control mean scores, as indicated by the calculated t-value of 3.65 and the tabulated t-value of **1.98** at the degree of freedom (**57**) and the level of significance (**0.05**) obtained using the t-test formula for two independent samples. Consequently, as seen in table (2), the result of the experimental group's posttest means scores differ significantly from the control group. This result indicates that there is statistical significance difference in speaking fluency between the experimental group who are taught using visualization as a mental strategy and those who are not (control group) is **verified**.

Table (2)

*Means, Standard Deviation, and t-Values of the Two Groups
in the Achievement Test*

Groups	No. of Students	Mean	SD.	T-Value		DF	Level of Significance
EG.	30	64.93	7.61	Calculated	Tab.	57	0.05
CG.	30	56.23	9.75	3.65	1.98		

4.2 Discussion of the Result

According to the test results, it has been seen that the experimental group is influenced by the Visualization as Mental Strategy used in the classroom; the calculated t-value is larger than the tabulated t-value. The experimental group's exposure to contemporary technological tools, such as visual aids, diagram, mind mapping, and graphic designer, has aided students in improving their capacity to speak fluently in the class. The Visualization strategies help students develop their ability to communicate, recall, and generate new ideas. Students learn how to express themselves, thoughts, and things by Visualization as Mental Strategy.

Section Five / Conclusions and Recommendations

5.1 Conclusions

Based on the obtained result, the researcher has come up with the following conclusions:

1. Students are encouraged to speak fluently through using such strategies.
2. These strategies enable students to interact between themselves.
3. Applying these strategies in the class may have reduced speaking shyness.
4. The experimental group who receives visualization as a mental strategy perform speaking well than those in control group.

5.2 Recommendations

According to the result, it's recommended that:

1. Teachers should integrate visual aids in speaking instruction before starting presentation.
2. Train teachers on how to use visualization techniques.
3. Encouraging visualization for exam preparation (specially oral exam).

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Appendix

The Speaking Fluency Test

SPEAKING FLUENCY TEST

1. Picture-Based Speaking Task

Look at this picture and describe what is happening in detail. You have 1 minute to prepare, and 2 minutes to speak.



2. Scenario-Based Role Play

You are at a train station. You are late for a trip. Explain your situation to the ticket officer and ask for help.

3. Storytelling from Pictures

Look at the following 4 pictures. Create and tell a story based on them.

