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Amplification of Rapid Education via Disruptive Visual Works During Covid-19 Pandemic

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Abstract— The Covid-19 outbreak caused a disruption in the way that knowledge was often shared since it abruptly ended physical contact between writers and recipients. Visuals played a bigger part in this scenario's teaching and co-creation of information-dissemination sessions. By stimulating Visual Spatial Intelligence and Bodily-Kinesthetic Intelligence to promote critical thinking, active participation, and co-creation of solutions for predetermined scenarios, Disruptive Visual Works (DVWs) needed to be put into practice to accelerate dissemination and implementation at different levels for different participants. The easy use of such visual tools through application software like Miro, Mural, JamBoard, and Lucid Chart was made possible by the digital preparation of the material in the virtual environment. In order to grasp the future while incorporating self-drawn visual components, a visual thinking workshop was organized as part of the road map for digital learning. 73 participants responded to the questionnaire that was distributed at the end of the program. Workshop exposed participants' behavior to the unlearned skills and difficulties in rekindling their bodily-kinesthetic and visual-spatial intelligence. In order to use visual components of an activity effectively for rapid learning, it was discovered that participants are aware of them but are hesitant to use them.

Keywords— Bodily-Kinesthetic Intelligence, Cognitive Spheres, Disruptive Visual Works, Linguistic Intelligence, Visual Spatial Intelligence

I. INTRODUCTION:

The Covid-19 outbreak triggered a disruption in the way that knowledge was often shared since it abruptly ended physical contact between writers and recipients. Before Covid-19, we rarely discussed visuals and graphics while discussing information; instead, we always concentrated on text-based information. However, Covid-19 brought about an instant change, with graphics taking over as the main form of communication everywhere we turned, be it on the streets, screens, or the internet. These days, there are many visuals in textbooks and on digital learning platforms to aid students in understanding topics more quickly and easily. In order to help participants co-create solutions that incorporate visual thinking, facilitators also use a variety of visual facilitation techniques [1].

If we talk about information literacy in the pre-Covid-19 era, the use of visuals as the main means of information transfer through various media to invoke Visual Spatial Intelligence for the interpretation and execution of given scenarios was in practice, and it was also in practice to invoke Bodily-Kinesthetic Intelligence to increase participants' level of involvement to increase co-creation quotient [2]. According to studies, we can only remember about 10% of what we learn when we only read or hear about it. However, when we study the same material using both text and visuals, we can remember up to 55% of it. Confucius also claimed that if someone performs an activity physically, they will remember it

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for the rest of their lives. This is illustrated in Figure 1.

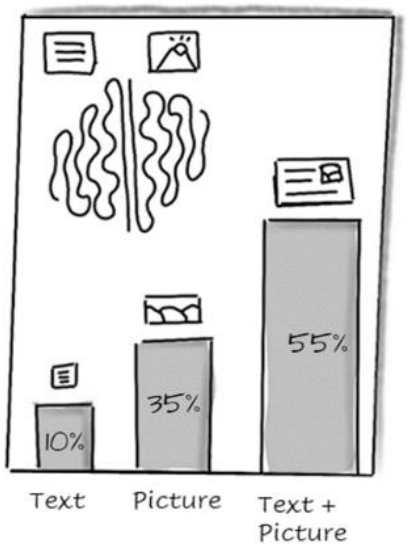

Figure 1: Memory Retention from Different Forms

In recent years, the field of professionals has paid relatively little attention to the idea of information literacy and how it relates to visuals and graphics. According to James W. Marcum, who supports and promotes the idea of visuals and learning chances, "to separate visual information from traditional alphabetic information is shortsighted when considering the opportunities provided with advancing technology." The Covid-19 crisis altered the old textual learning culture, where very few images were employed and more text was used, in favor of a burgeoning visual learning culture. Marcum stated in a previous publication titled "Beyond Visual Culture: The Challenge of Visual Ecology" that "information must be shifted into multimedia-based services to grasp the ephemeral but omnipresent interactivity, to perceive the totality of today's visual ecology, and to manage continuous media that today's culture will not be lost" [3]. The last ten years have seen global movement along these lines, and the majority of learning centers have free access to digital devices to support the development of visual ecology. However, Covid-19 compelled institutions to implement the practice immediately.

Information literacy is not seen to be in opposition to other forms of literacy such as digital, health, financial, and media literacy [4]. People who use information literacy should be open-minded to new sorts of technology being offered, adapt to these changes, and move forward. Information literacy is also not restricted to simply a certain type of organizations or facilities. The use of digital platforms like Zoom, Google Meets, Miro, Mural, JamBoard, etc. by both authors and recipients have to be learned more quickly thanks to Covid-19.

According to Gardner, linguistic intelligence is the capacity to utilize words to convey to others various ideas and concepts, whether orally or in writing [5]. For the past five centuries, the majority of educational methods have been built on this maxim. The new global order of education through digital means has a stronger emphasis on the use of visual-

spatial intelligence. Disruptive Visual Works (DVWs) are being introduced by facilitators in learning and co-creative activities whenever possible, but they haven't yet found a place in the textual worlds.

Bodily-Kinesthetic Intelligence-based activities can help with learning retention because they are based on the principles of using hands, heart, and mind (Figure 2), which include using gross and fine motor skills, exerting a lot of energy, and drawing on one's own and other people's experiences to carry out the activity [6]. A couple of the DVWs include bodily kinesthetic intelligence activities for the students so that the learning is permanently ingrained in their minds.

The Covid-19 predicament required new approaches to communication and interpersonal intelligence development. Students were no longer in the authors' direct line of sight, but instead used video cameras to communicate with them digitally. Despite the fact that the environments at both ends of the spectrum were less favorable than the real classroom could be, stakeholders improvised in their presentations, learned how to use digital white boards, asked questions or took tests in chat rooms, and continued.

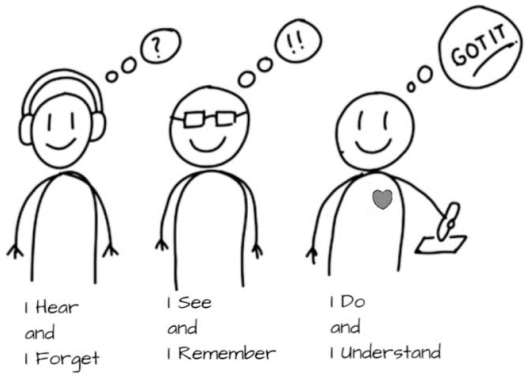

Figure 2: Bodily-Kinesthetic Intelligence

II. DISRUPTIVE VISUAL WORKS IN THE LEARNING PROCESS

Putting DVWs into practice made its case in the Covid-19 era, which was earlier also not that easy and couldn't be done in a day, a little more challenging. But if the introduction is based on the Unfreezing, Movement, and Refreezing phases of Lewin's change model [7], it might pave the way for the desired change. A growing number of new DVW types are now being incorporated into the global educational process.

Disruptive Visual Works serve as a useful tool that facilitators and learners can utilize to better understand how knowledge is created and can be presented. Linguistic intelligence presents people with alphabetical imagery since words may also be thought of as alphabets that are combined to produce sound. Similar to when we discuss DVWs and Visual-Spatial Intelligence, DVWs are combined to produce an image that corresponds to the word, making it simpler for people to recall it in the future.

III. IMPLEMENTATION OF DVWS IN VICKERY'S MODEL OF INFORMATION TRANSFER

The three elements that make up Vickery's Interpersonal Information Work are the science that helps us comprehend the problem, the technology that will be utilised to solve it, and the art of participation [8]. The tools employed for

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interpersonal communication have a direct impact on the 'triple glow' of information work. At this point (Figure 3), DVWs can significantly contribute to improving the luminescence of information work.

Covid-19 provided the chance to introduce DVWs in the most inventive way, and platforms like JamBoard, Mural, and Miro met that demand. They provided a way to remember interactions between authors and recipients outside of the physical interaction area of the pre-Covid-19 era in both digital and physical versions.

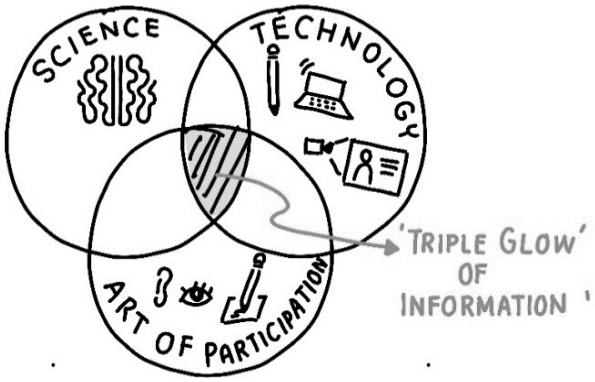

Figure 3: Venn Diagram Showing “Triple Glow” of Information Work

While elaborating on information transfer, Vickery asserts that even though the same procedure is used for passing the information, there will be variations in the information work from person to person when text messages are employed. When the receiver is given additional support to eliminate information transfer discrepancies, the retention and recall of the information improve. By assisting the information's creator (sender), DVWs can fulfil that job.

Lower feedback can be changed by the author (source) to eliminate discrepancies taking into account who the knowledge recipients are. The visual facilitator could build the suitable catalyst for boosting the flow of information in a collaborative manner. Upper feedback loop has the potential to use DVWs to affect the relay of information. For message interference, images could be introduced to a spoken or textual communication (Figure 4).

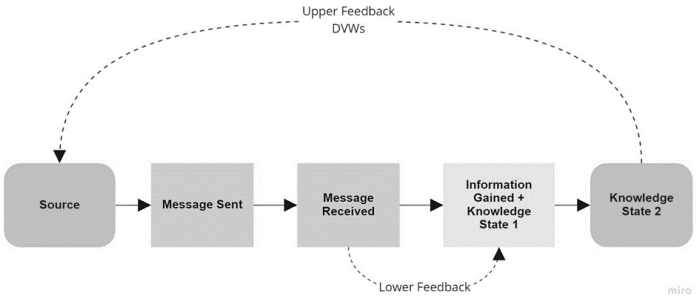

Figure 4: Vickery’s Model of Information Transfer

Here, science and technology can assist with the real-time or post-message processing of image distribution. The introduction of DVWs into the lower and upper feedback loops of the information transfer process now has a variety of opportunities.

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IV. VISUAL MAPPING

One of the first few teaching and learning techniques to which a person is exposed is visual mapping, which introduces the visualization of relationships between items, time, or concepts. This paradigm differs from the one previously stated in that it involves the creation of visual maps or visualizations to begin the cognitive process of exploring relationships between image and text.

Visual mapping enables people to think about all the variables that might be pertinent to the main topic being investigated because it is more of an exploration activity. Simple lines with dots or circles that depict a timeline or steps can be used as visual maps. It might also be extremely complicated, with the main topic of conversation at its center and numerous nodes and sub-nodes connecting to it to reflect all potential themes and relationships. Figure 5 is an example of visual map.

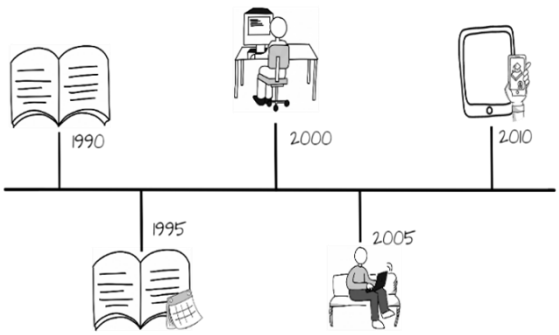

Figure 5: Timeline of Evolution of Education Mediums

The receiver's (reader's) responsibility in a complicated visual map is to ensure that all the elements—textual or visual—are connected to the main topic being studied. With the aid of many components and subcomponents linked to Gardner's Theory of Multiple Intelligence in a single source, the author has attempted to describe it in the following visual map (Figure 6).

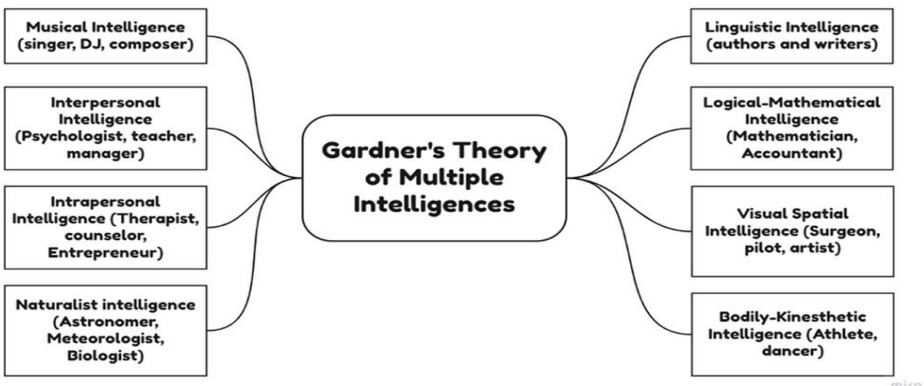

Figure 6: Mind Map of Gardner's Theory of Multiple Intelligence

A teacher or student can concentrate on each component separately to shape how the information is received. Such a visual map requires that all the components be taken care of. He or she can consider how the text format or visual elements are displayed and how they can each overcome reading tunnel vision.

Currently, the material is prepared digitally, making it easy to use such visual maps with software like Lucid Chart, JamBoard, Miro, and Mural. Such digital visual tools allow authors and readers to examine them together even when participants may be in different locations.

These digital editions also give the author the freedom to grant participants access for the sole purpose of watching, commenting, or amending. Additionally, he or she can form it into a poll or time-limited responses for interactive involvement that tests a person's different intelligences. However, as the use of these apps is still in its infancy, a broader understanding of such digital visual tools is necessary.

Observation during Virtual Visual Thinking Workshop

During the virtual visual thinking workshop held during the Covid-19 period, a survey regarding the use of visuals in transmission and reception of a message and how visual metaphors can influence visual thinking was conducted among various professionals in different domains based on the information transfer and knowledge acquisition. Participants were also questioned regarding their level of comfort when sketching a graphic employing fundamental drawing elements.

About 75 participants responded to the questionnaire and results indicated that 45.3% of them were not afraid of creating a visual, 80% of them were aware of how to create visual using basic drawing elements (shapes, lines, arrows, people), 68% of the participants acknowledged that their drawing skills were that of a beginner and 82.7% of them were aware that what a visual metaphor is and how it can be used to convey a situation differently but relatable to the actual scenario (Table 1 and Figure 7).

Table of Data (75 Participants)

Question	Response 1	Response 2	Response 3
As a person who thinks visually, do you fear drawing?	Yes (15, 20%)	No (34, 45.3%)	Somewhat (26, 34.7%)
Are you familiar with drawing fundamentals? (Shapes, lines, arrows, people)	Yes (60, 80%)	No (8, 10.7%)	Somewhat (7, 9.3%)
As a visual thinker, how would you describe your drawing?	Beginner (51, 68%)	Intermediate (20, 26.7%)	Pro (4, 5.3%)

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What is a visual metaphor?	To depict a situation accurately (13, 17.3%)	To depict a situation in a manner distinct from but similar to actual (62, 82.7%)	-

Table 1: Response to Questionnaire on Visual Thinking

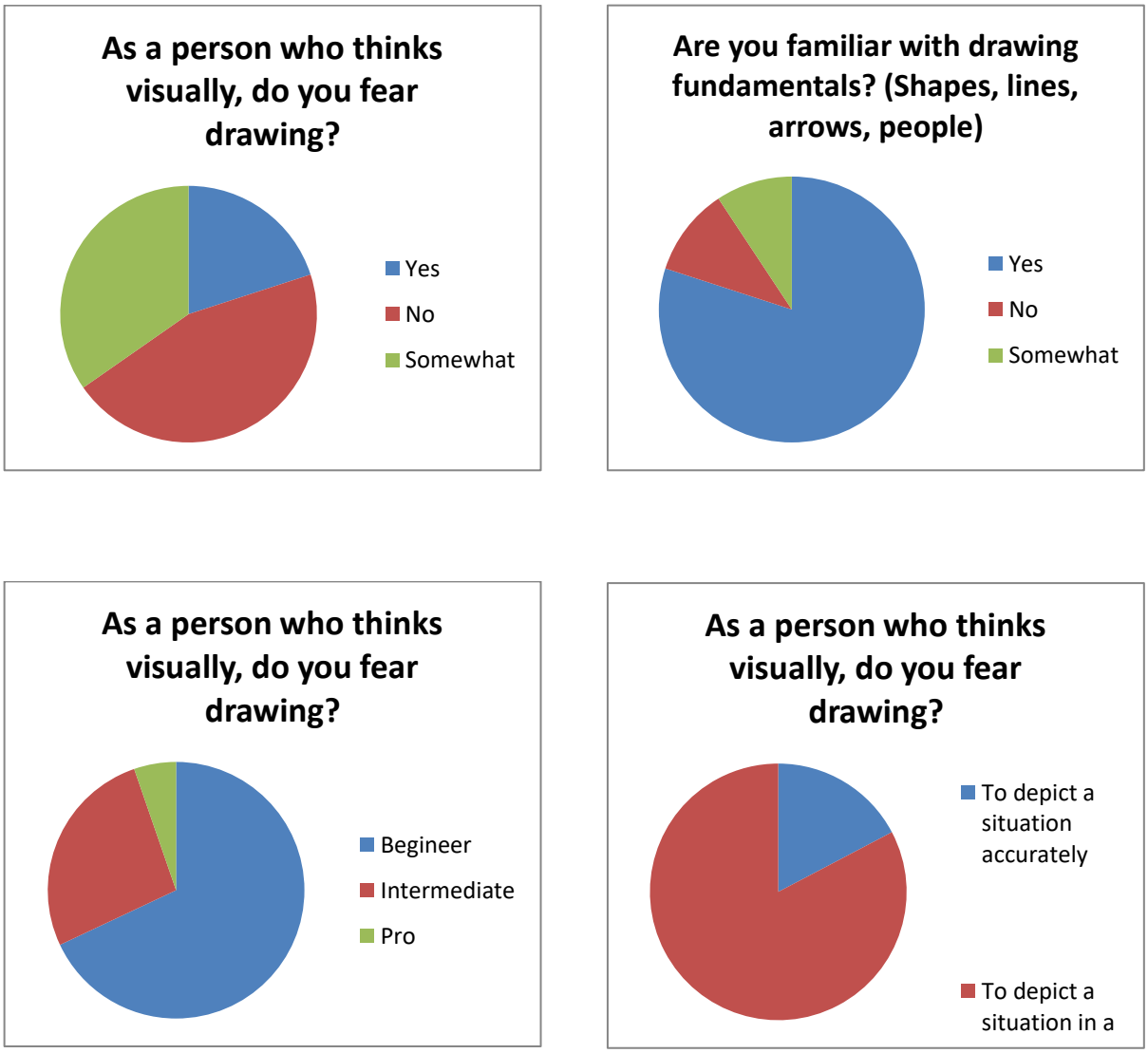

Figure 7: Data Representation of the Questionnaire

VI. CONCLUSION

The introduction of DVWs could hasten the shift in information creation, dissemination, and reception that is now required. Vickery's information transfer model, which focuses on transmission and medium of delivery, has experienced a radical change because it now includes more visual information in addition to text and verbal information. Text could be accompanied by a visual in Kinneavy's communication triangle, which focuses on the context creation requirement for

agility. A scriber who can draw the picture in real time and bring all the stakeholders to a participatory platform, the author using visuals in the message itself, or requiring the audience to draw it collaboratively for better engagement. The type of scribing could be generative scribing, system scribing, graphic recording, or sketchnoting. This contemporary information's (message's) multi-model nature will cause a paradigm change in terms of learning and growth.

Although visual/drawing is a crucial part of learning in the elementary years, it is lost in maturity, according to the author's survey. Encoders and decoders must recognize that visuals and drawings serve as catalysts for the faster decoding of information, thus they shouldn't be subjected to criticism. For the communication of in-depth information (message), even a visual or drawing made using basic shapes (line, circle, square, triangle, polygon, etc.) shall be encouraged.

The incorporation of visuals and drawings into the message is now necessary because information is no longer just verbal or written; technology is the key here. Researchers can now focus their searches on just the text, pictures, or videos they want. It is necessary to develop strategies for enhancing the information's (message's) content while continuing to function in a dynamic environment. Element addition may take place over the course of one or more sessions.

The focus must be on ensuring that audiences participate fully and pay close attention as the speaker draws connections between different pieces of the content. Where it can affect the decoder (receiver), shift in practice must keep pace. For the advantage of the recipients of the information, DVWs or comparable other influencers of multiple intelligence must be included in the information distribution process.

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