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HANDBOOK OF PREVENTIVE DENTISTRY FOR ADOLESCENCE

FAKULTAS KEDOKTERAN GIGI
UNIVERSITAS KRISTEN MARANATHA

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PART I

DENTAL INDICES:
Patient Hygiene Performance Index (PHP Index)

It was developed by Podshadley AG, and Haley JV (1968) to assess the extent of plaque and debris over a tooth surface as an indication of oral cleanliness. Debris for PHP was defined as the soft foreign material consisting of bacterial plaque, material alba and food debris that is loosely attached to tooth surfaces.

As the emphasis in dental treatment moves from restoration to prevention, procedures for assessing oral hygiene levels become increasingly important. Ramfjord, Greene and Vermillion, and O'Leary and associates have developed methods for measuring periodontal disease and oral hygiene. Podshadley and Haley originated the patient hygiene performance (PHP) method. They reported that it is reliable,sensitive,and simple to administer. This method is intended not only for the dental practitioner, but also for use in public health surveys and research.

To help future investigators draw better samples, they determined statistically the group sof tooth surfaces of adults that had similar degrees of cleanliness as measured by the PHP method. The surfaces selected from these groups will contribute a substantial amount of information to the assessment of total oral hygiene. We also identified statistically equivalent substitutes for these surfaces in each group.

_____

Measurement of Oral Hygiene

The number of oral debris present on tooth surfaces determines the patient hygiene performance (PHP) score. The patient is given a disclosing agent, which stains the oral debris. The debris on each surface is assessed by dividing the tooth into five sections. The clinical crown is divided longitudinally into mesial, middle, and distal third. The middle third is further subdivided into thirds, which are described as gingival, middle, and occlusal.

Tooth Number in FDI system
16 - Upper right first molar
11 - Upper right central incisor
26 - Upper left molar
36 - Lower left first molar
31 - Lower left central incisor
46 - Lower right first molar

Each division is examined for oral debris. If none ris is present, 1 is assigned. The value of 1 is assigned only to those areas showing definite debris. The score used in our study was the sum of all five divisions for each tooth surface. It could range from 0 to 5 for any single surface.

The tooth surfaces which are assessed are the bucal of the maxilary molars, the lingual of the mandibular molars, and the labial of the maxillary and mandibular incisors.
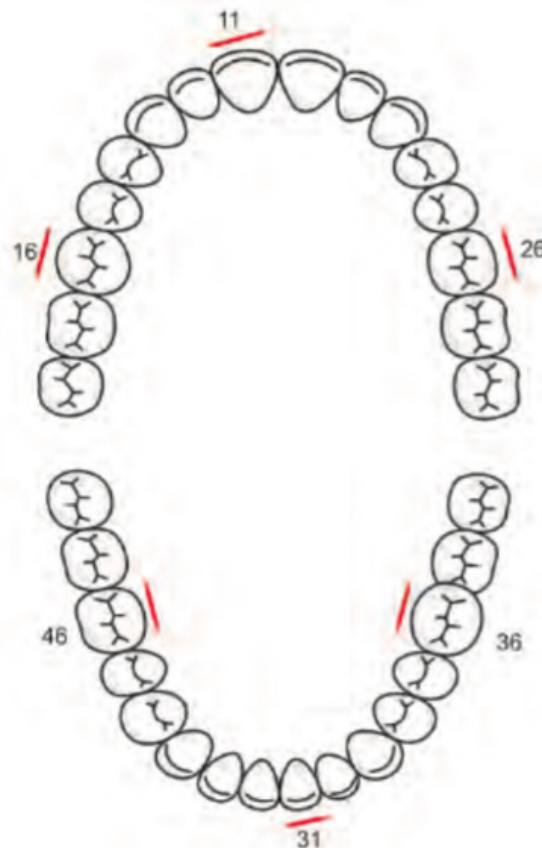

Figure 1. PHP Index: 6 surfaces are scored

If the first molar is missing:
Are less than three-fourths erupted, have full-crown restorations, or are too badly broken down to assess, the second molar is substituted.

If the second molar is missing or cannot be used:

The third molar is then subsituted.

If all three molars are missing or cannot be used:
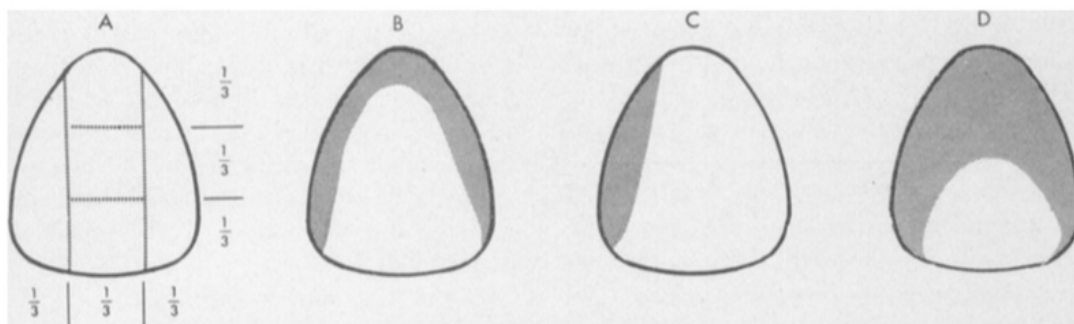
An M is placed on the recording chart.

If the deisgnated central incisor is missing or cannot be used:

The adjacent central incisor is substituted.

If both central incisors are missing or cannot be used:

An M is placed on the recording chart.

To assess the debris on each surface, the examiner must mentally devided the tooth into five sections:

Figure 1. The subdivisions of a tooth used in PHP (patient hygiene performance) method, with examples of scoring by this method: A. Five subdivisions, B. debris score of 3, C. debris score of 1, and D. debris score of 4

Procedure :

1. Disclosing solution is applied
2. The patient is asked to swish for 30 seconds expectorate but not rinse.
3. Examination is made using a mouth mirror
4. Each tooth surface to be evaluated is subdivided into five sections as follows :
a. Vertically: Three divisions mesial, middle, and distal
b. Horizontally: The middle third is subdivided into gingival, middle, and occlusal or incisal thirds.
5. Each area with plaque is scored a point so each tooth score can range from 1-5 points

Scoring :

• Debris scores for individual tooth: Add the scores for each of the five subdivisions.
 The scores range from 0 to 5.
• PHP for an individual: Total the scores for the individual teeth and divide by the number of the teeth examined. The PHP value ranges from 0 to 5.
• PHP Index for a group: To obtain the average PHP score for a group or a population, total the individual score and divide by the number of people examined.

Interpretation :
Nominal scale for evaluation of
scores:
1. Excellent: 0 (No Debris)
2. Good: 0,1-1,7
3. Fair: 1,8-3,4
4. Poor: 3,5-5,0

Instrument :
Instrument for PHP index:
1. Disclosing solution
2. Disposable glass and
water for swish
3. 4 basic instuments

PART 2
DENTAL INDICES: DECAYED, MISSING, AND FILLED TEETH (DMFT) INDEX

This index was developed by Henry Klein, Carrole E Palmer and Knutson JW in 1938. This index was based on the fact that dental hard tissues are not self-healing and established caries leave a scar. The tooth remains decayed and if treated may be extracted or filled. It is an irreversible index.

DMFT describes the amount (the prevalence) of dental caries in an individual. DMFT numerically expresses the caries prevalence and is obtained by calculating the number of teeth (T) which are:

• Decayed (D)

• Missing (M)

• Filled (F).

It is thus used to get an estimation illustrating how much the dentition until the day of examination has become affected by dental caries. Thus:

o How many teeth have caries lesions (incipient caries not included)?

o How many teeth have been extracted?

o How many teeth have fillings or crowns

Selection of Teeth

All 28 teeth are examined (based on 28 teeth). Teeth not included are:

o Third molars

o Unerupted teeth (a tooth is considered as erupted when the occlusal surface or incisal edge is totally exposed)

o Supernumerary and congenitally missing teeth

o Teeth removed for reasons other than dental caries such as for orthodontic reasons and impactions

o Teeth restored for reasons other than dental caries, such as trauma, use as a bridge abutment and cosmetic purposes

o Retained primary tooth when the successor permanent is present. The permanent tooth is considered.

Procedure

Each tooth is examined using a mouth mirror, an explorer and adequate light. The teeth should be observed by visual means as much as possible and only questionable small lesions should be checked by using an explorer.

Rules for Scoring DMFT

o No tooth should be counted more than once
o Decayed (D), Missing (M) and Filled (F) teeth should be recorded separately
o Tooth lost or filled due to reasons other than caries are not included
o Deciduous teeth are not considered in DMFT index
o A tooth with several fillings is counted as one tooth.

Criteria for Recording

Decayed (D) recording:
• When dental caries and restoration are present on the same tooth, the tooth is recorded as D:
o When a crown is broken due to caries, it is recorded as D
o Tooth with temporary restoration is recorded as decayed.
• Missing (M) recording:
o When a tooth has been extracted because of dental caries
o When a tooth is carious, it cannot be restored and is indicated for extraction.
• Filled (F) recording:
o Permanent restorations are recorded as F:

Criteria for Identification of Dental Caries

• Lesion is clinically visible and obvious
• Discoloration or loss of translucency typical of undermined or demineralized enamel
• Definite catch and the explorer tip can penetrate into soft yielding material.

DMFT Scores

• The sum of the three figures forms the DMFT value. For example, DMFT of 4 + 3 + 9 = 16 means that 4 teeth are decayed, 3 teeth are missing, and 9 teeth have fillings. It also means that 12 teeth are intact

Individual DMFT

- Total each component separately total D, total M, total F. Total D + M + F = DMF SCORE

Group Average

- Total the D, M and F for each individual
- Divide the total DMF by the number of individuals examined.
- Average DMF = Total DMF / Total Number of Individuals Examined

Instrument

Instrument for DMFT:

1. Disposable glass and water for swish
2. 4 basic instruments
3. DMFT form

Decayed-Missing-Filled Teeth Index (DMFT and deft)

Described by Henry T. Klein, Carrole E. Palmer and Knutson J W in 1938

Name _____   Date __/__/____

Age/Sex _____   Case No. _____

Income -   Brushing -

Education -   Agent -

Occupation -   Frequency -

Diet -   Sugar exposure -

```
              55  54  53  52  51  61  62  63  64  65

     18  17  16  15  14  13  12  11  21  22  23  24  25  26  27  28
     48  47  46  45  44  43  42  41  31  32  33  34  35  36  37  38

              85  84  83  82  81  71  72  73  74  75
```

D =   d =
M =   e =
F =   f =

DMF-T = D + M + F =   def-t = d + e + f =

_____

Staff Signature

Decayed-Missing-Filled Teeth Index (DMFT and deft)

Described by Henry T. Klein, Carrole E. Palmer and Knutson J W in 1938

Name _____   Date__/__/____

Age/Sex _____   Case No. _____

Income -   Brushing -

Education -   Agent -

Occupation -   Frequency -

Diet -   Sugar exposure -

```
        55  54  53  52  51   61  62  63  64  65
```

		55	54	53	52	51	61	62	63	64	65		

```
  18  17  16  15  14  13  12  11   21  22  23  24  25  26  27  28
  48  47  46  45  44  43  42  41   31  32  33  34  35  36  37  38
```

```
        85  84  83  82  81   71  72  73  74  75
```

☐ D =   ☐ d =
☐ M =   ☐ e =
☐ F =   ☐ f =

DMF-T = D + M + F =   **def-t = d + e + f =**

_____

Staff Signature

PART 3
HEALTH PROMOTION: COMMUNICATION

The World Health Organization (WHO) defines health promotion as being a "process of enabling people to increase control over, and to improve, their health. It moves beyond focusing on individual behavior towards a wide range of social and environmental interventions.

Criteria for developing oral health strategies: (Strategies and approaches in oral disease prevention and health promotion - Richard G. Watt)

Based upon WHO guidance on the development and evaluation of public health policy, the following set of criteria are presented as a framework within which to assess the quality of oral health strategies:

• Empowering: oral health strategies should enable individuals and communities to assume more power over the personal, socioeconomic and environmental factors that affect their oral health.

• Participatory: oral health professionals should encourage the active involvement of key takeholders in the planning, implementation and evaluation of oral health strategies.

• Holistic: oral health initiatives should foster physical, mental and social health, and focus upon the common risks and conditions that influence both general and oral health.

• Intersectoral: Oral health professionals should collaborate with the relevant agencies and sectors to place oral health upon a wider agenda for change.

• Equity: Oral health policies should be guided by a concern for equity and social justice and should ensure that inequalities in oral health are addressed where possible.

• Evidence base: Oral health interventions should be developed on the basis of existing knowledge of effectiveness and good practice.

• Sustainable: Oral health policies should bring about changes that individuals and communities can maintain and sustain once initial funding has ended.

• Multi-strategy: Oral health strategies should use a combination of approaches, including policy development, organizational change, community development, legislation, advocacy, education and communication to promote improvement in oral health.

• Evaluation: Sufficient resources and appropriate methods should be directed towards the evaluation and monitoring of oral health strategies. Both process and outcome evaluation measures should be used.

COMMUNICATION THEORY FOR 12-YEAR-OLDS

Communication (i.e., the conveyance or exchange of thoughts, opinions, or information) can occur through several means, but in the dental environment, communication is done primarily through dialog, tone of voice, facial expressions, and body language. Communication between the doctor and the child and parents is essential for a successful outcome. The four essential elements of communication are:

1. The sender (counselor)
2. The message (what you want to deliver)
3. The context (the material presented, how interesting it is)
4. The receiver

Communication is classified into four different methods; verbal, non-verbal, visual and written communication.

1. **Verbal communication** is the way we communicate with words. Some verbal engagements are informal, such as chatting with a friend over coffee or in the office kitchen, while others are more formal, such as a scheduled meeting or when performing a presentation. Verbal communication includes:

a. Tone and voice

b. Words that are spoken

c. Using words that the child understands best

2. **Non-verbal communication** it is important to pay attention to both the their words and their communication.

Non-verbal communication includes:

a. facial expressions

b. posture

c. eye contact

d. hand movements

e. touch.

Avoiding non-verbal communication:

a. eye contact

b. sighing

c. scrunched up face → unpleasant when received by the audience.

3. Visual communication

Nowadays, visual communication engagement has ben common implemented within society. Facebook is visual with memes, videos, images, etc., Instagram is an image-only platform, and advertisers use imagery to sell products and ideas. The images we post on social media are meant to convey meaning.

4. Written communication is the exchange of information, ideas, or messages through written language in the form of letters, emails, notes, and more. written communication have the same goal to disseminate information in a clear and concise manner

HOW VIDEOS COULD BE AN EFFECTIVE MEDIA FOR 12 YEARS OLD

Video is a type of visual audio media, which means a learning medium that can be seen using the sense of sight and heard using the sense of hearing. In the medium of learning, video can be said to be effective to be used against the learning process, especially as digital literacy that provides motivation to students and generates student excitement as long as its use is appropriate and in accordance with the topics conveyed in the study.

The ability to understand is a basic ability that students must have, this is because the ability to understand (understanding) is the basis for students to develop themselves so that they have the ability to apply, analyze, evaluate and finally the ability to create. Therefore, the ability to understand is considered very important to be mastered by every student.

In the context of learning, what is sometimes a problem in several studies is the ability of students to understand concepts. One of the studies based on this problem succeeded in proving that video media can be used as a solution to overcome students' low ability to understand a concept. The ease of presenting videos that can be repeated during the learning process makes it easier for students to understand the contents of the video, besides that the presentation of a structured material also makes it easier for students to understand the material, especially about concepts.

TYPE OF EDUCATIONAL VIDEO WHICH ARE SUITABLE FOR ADOLESCENT

Video is a type of visual audio media, which means a learning medium that can be seen using the sense of sight and heard using the sense of hearing. In the medium of learning, video can be said to be effective to be used against the learning process, especially as digital literacy that provides motivation to students and generates student excitement as long as its use is appropriate and in accordance with the topics conveyed in the study.

Using multimedia-specific audio-video aids for learning purposes is not a new concept, but the type of media used and how it is used has changed a lot with the innovation and advancement in technology. Young people are heavily involved in online video viewing, especially on social platforms such as Youtube or Facebook. The most popular genres include other music and entertainment genres. Educational videos struggle to occupy a niche in the viewing habits of young people. However, the time spent watching on-demand or streaming content opens up some interesting opportunities for educational content trying to capture a piece of that time, if it's well designed. and attract. Educational videos have become an important part of higher education, providing an important content distribution tool. Effective use of video as an instructional tool is enhanced when instructors consider three things: how to manage the perceived load of the video; how to maximize video engagement; and how to promote active learning from video.

One of the main considerations when building educational materials, including videos, is cognitive load. Cognitive load theory, originally presented by Sweller (1988, 1989, 1994), suggests that memory has several components. Sensory memory is temporary, gathering information from the environment. Information from sensory memory can be selected for temporary storage and processing in working memory, which has a very limited capacity. This processing is a prerequisite for encoding into a virtually unlimited capacity long-term memory. Because working memory is very limited, learners must filter out information from sensory memory that need attention during the learning process, an observation that has important implications for the creation of educational materials.

These definitions have implications for the design of educational materials and experiences. In particular, instructors should seek to minimize unnecessary cognitive load and should consider the subject's intrinsic cognitive load when constructing learning experiences, carefully structuring them when the material has a high intrinsic load. . Cognitive theory of multimedia learning builds on cognitive load theory, noting that working memory has two channels for information acquisition and processing: visual/visual channels and auditory/speech processing channels. These theories lead to several recommendations for educational videos.

Effective Educational Videos

TABLE 1. Practices to maximize student learning from educational videos

Element to consider	Recommendation	Rationale	Examples
Cognitive load	Use signaling to highlight important information.	Can reduce extraneous load. Can enhance germane load.	Key words on screen highlighting important elements Changes in color or contrast to emphasize organization of information Changes in color or contrast to emphasize relationships within information Brief out-of-video text explaining purpose and context for video (e.g., learning objective for video)
	Use segmenting to chunk information.	Manages intrinsic load. Can enhance germane load.	Short videos (6 minutes or less) Chapters or click-forward questions within videos
	Use weeding to eliminate extraneous information.	Reduces extraneous load.	Eliminating music Eliminating complex backgrounds
	Match modality by using auditory and visual channels to convey complementary information.	Can enhance germane load.	Khan Academy–style tutorial videos that illustrate and explain phenomena Narrated animations
Student engagement	Keep each video brief.	Increases percentage of each video that students watch; may increase total watch time. May decrease mind wandering.	Multiple videos for a lesson, each ≤ 6 minutes
	Use conversational language.	Creates a sense of social partnership between student and instructor, prompting the student to try harder to make sense of the lesson.	Placing the student in the lesson by use of "your" rather than "the" during explanations Use of "I" to indicate the narrator's perspective
	Speak relatively quickly and with enthusiasm.	Increases percentage of each video that students watch. May increase sense of social partnership between student and instructor.	Speaking rates in the 185–254 words per minute range Expressions of instructor excitement, such as "I love the next part; the way the feed-forward mechanism works is so elegant," or "Consider how the cell solves this tricky problem of needing to regulate three genes in sequence; it's really cool."
	Create and/or package videos to emphasize relevance to the course in which they are used.	Increases percentage of each video that students watch. May increase germane cognitive load by helping students recognize connections.	Videos created for the class in which they are going to be used, with instructor narration explaining links to preceding material Explanatory text to situate video in course
Active learning	Consider these strategies for promoting active learning:		
	Packaging video with interactive questions.	May increase germane cognitive load, improve memory via the testing effect, and improve student self-assessment.	Integrate questions into videos with HapYak or Zaption, as described by Obodo and Baskauf (2015) Follow short videos with interactive questions within an LMS, as done by Keithly and colleagues (2015), or within Google Forms, as done by Caudel and colleagues (2015)
	Use interactive features that give students control.	Increases student ownership and may increase germane cognitive load.	Create "chapters" within a video using HapYak or YouTube Annotate
	Use guiding questions.	May increase germane cognitive load, reduce extraneous cognitive load, and improve student self-assessment.	Senchina (2011) provides guiding questions for videos designed to introduce physiology students to professional ethics related to experimenter–subject interactions, such as the following: "Observe the subject's behavior and responsiveness during the dehydration period. What changes as the subject becomes dehydrated? What problems does he have? Observe the experimenters' behavior and responsiveness as dehydration progresses. What do they do differently? Why?"
	Make video part of a larger homework assignment.	May increase student motivation, germane cognitive load, and student self-assessment.	Package videos with a series of questions or problems that ask students to apply the concepts from the videos. iBiology Education videos (e.g., *What Can You Learn with a Light Microscope?*) provide one example (iBiology, 2016)

Signage, also known as spotting, is the use of text or icons on a screen to highlight important information. For example, a signal can be provided by the appearance of two or three keywords, a change in color or contrast, or an icon that draws attention to an area of the screen. By highlighting key information, cues help direct learners' attention, thereby targeting specific elements of the video for processing in working memory. It can reduce unnecessary costs by helping novice learners determine which elements of a complex tool are important, and it can also increase associated costs by emphasizing organization and connectivity. in information.

Eliminating or removing interesting but unnecessary information that does not contribute to the learning goal may provide other benefits. For example, music, complex backgrounds, or extras in animation force learners to judge whether to pay attention, which adds unnecessary load and can impair learning. Finally, the usefulness of video lessons can be maximized by combining the method with the content. By using both audio/verbal and visual/imaginary channels to convey new information, and by tailoring the specific information type to the most appropriate channel, instructors can improve cognitive load. relevance of the learning experience. For example, showing an animation of a process on screen during narration, it uses both channels to unravel the process, thus providing learners with dual and complementary streams of information to highlight. enable features that need to be processed in working memory. In contrast, displaying animation while displaying printed text uses only the image channel and thus overloads this channel and hinders learning. In another example, using a "talking head" video to explain a complex process only makes good use of the speech channel (since watching the speaker conveys no more information).

A conceptual framework for enhancing learning from educational videos that identifies e-learning as a type of self-regulating learning. Self-directed learning requires students to monitor their own learning, identify learning difficulties, and respond to those assessments; in other words, it requires students to actively construct and interrogate mental models, practicing metacognition of the learning process. However, those who are new to a field find it difficult to accurately gauge their understanding, often overestimating their learning. This problem can be more complicated when new information is conveyed via video, which students report is easier to learn and remember than text. Incorporating practices that engage students in the kind of cognitive activity needed to process information – engaging in active learning – can help them build and test mental models. , transforms video viewing explicitly from a passive event to an active learning event. The means to achieve this may vary, but the following strategies have been shown to be successful in a number of contexts.

Video can be an important way to enhance student learning and build engagement in biology lessons. However, to maximize the benefits of educational videos, it is important to keep in mind the three main components of cognitive load, those that impact interaction, and those that promote active learning. Fortunately, taking these factors into account leads to a few recommendations:

- Keep videos short and focused on learning goals.
- Use audio and visual elements to convey appropriate parts of an explanation; think about how to make these elements complementary instead of redundant.
- Use signage to highlight important ideas or concepts. Use a conversational and enthusiastic style to build engagement.Integrate video into an active learning context using instructional questions, interactive elements, or related exercises.
- Relaxed or funny approach in educational videos. Videos should be short, edit quickly, and include infographics.

HOW POSTER COULD BE AN EFFECTIVE MEDIA FOR 12 YEARS OLD

Early childhood has several characteristics that must be considered by teachers because it is different from adults. One of these characteristics early childhood is an active learner (Piaget in Cameron, 2001). As active learners, children like to be involved in the learning process. That's because they learn things from everything around them more indirectly than being directly imagined in their minds (Perry, 2013). This means that students especially at the young learner stage will feel the fun and enjoyable of learning when they can see the animation through the process, they may be able to learn it more easily than just hearing the teacher's explanation. One of the reasons this research was conducted was to examine the use of visual media in the form of posters in early childhood English language learning. The following section presents a review of the literature followed by the methodology used for this study. Then the data analysis and results are reported and finally a general discussion is provided.

Illustrated posters in education are decorative objects but few realize the educational potential of posters. Posters are attractive and colorful learning media that can enhance the learning environment (Musser and Osa, 2004). Posters have been recognized as collector's items for many reasons (Jennings, 2012). Posters have instructional value. Educators use posters as teaching tools in Language Arts and visual Arts. Not only as a reference in glimpses of past vogues, but also from the point of view of structuring effective and concise communication (Kelsch & Werremeyer, 2011). According to Jensen, "our eyes register about 36,000 visual images per hour, while the retina alone supplies 40% of all nerve fibers that are connected to the brain; 90% of the brain's sensory input is from visual sources."

Some tips that can be used to make effective learning posters for children

1. Make posters according to the lessons that will be given to children
The first tips for making learning posters for children are adapted to learning material. Make sure you make posters that can contain learning material in a short, interesting and clear way, don't deviate from the topic that will be told to a child

2. Make posters with attractive colors for children
Posters are usually made in several special colors for children, give colors that are not monotonous, such as just red, but provide a touch of color that is effectively attractive to children, make it a combination of 3-4 colors.

3. Provide contrast
You have a first glance opportunity to entice a child to see the poster. And one way is to use contrasting colors in the poster. Avoid using monochrome and monotone colors. Because this will make the poster difficult to read and less attractive. Mainly, use a contrasting color between the background and the informational writing or on the animated picture on the poster

4. Take into account the size and place
Determine where the poster will be installed and displayed to the child, because this will determine how the poster will be designed as a whole. Starting from the appearance, style, to the size of the poster itself.

5. Use large visuals or cartoon characters and whether using photos, illustrations, or text
a large and dominant visual will determine a good poster. Just like text, these visuals must be read from a distance. Also use characters that are familiar to the child's imagination so that the child will easily recognize the poster

6. Enter a Call to Action
The purpose of making posters is to convey information about something to children. The way to touch children is to invite or invite them, such as asking students to invite them to read, for example. Therefore, the call to action is very important. Invite them to read more books.

7. Be Creative
Poster design is a place where designers can have a lot of creativity. Even though there are some of the above principles that should be followed, it is not impossible to "break" some of the rules so that the poster you make has its own characteristics. And can attract and convey messages well to children

POSTERS WHICH ARE SUITABLE FOR 12 YEARS OLD

In order to receive information thoroughly, there are various methods that could be implemented, such as posters. There is some helpful information in order to create a good poster presentation.

1. Keep your poster simple! Put less words and add photographs, graphs, tables, and other graphics creative.
2. Make sure to have an organized structure for the poster layout.
3. Pay attention to your font size. Make sure it is readable within the audience distance.
4. Points or bullets are preferable than writing down paragraph.

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