



WP.3.2

VALIDATING THE HANDBOOK WITH A GUIDELINE



**Enhancing Practices and Strengthening Core Competencies
in Disaster Nursing through the Learning HUB (ECoDN-HUB)**

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Validating the Handbook with a Guideline Content

1. Lawshe Technique

2. Ateşman Readability Formula

3. Patient Education Material Assessment Tool

Aim of Validating the Handbook with a Guideline

This handbook was developed within the framework of the project titled “Enhancing Practices and Strengthening Core Competencies in Disaster Nursing through the Learning Hub (ECoDN-HUB)”, conducted under the European Union Erasmus+ Cooperation Partnerships in Higher Education (KA220). To ensure the scientific validity and reliability of the handbook in terms of content, structure, language, visual design, applicability, and health communication, various standardized and evidence-based evaluation tools were utilized. In this context, the Lawshe Technique, the Ateşman Readability Formula, and the Patient Education Material Assessment Tool – Turkey (HEMDA-B) were employed.

The evaluation of the handbook will be conducted based on expert opinions obtained through forms structured in accordance with the criteria of the tools. Through this evaluation process, the content validity, readability, information reliability, and practical applicability of the handbook will be systematically analyzed.

Based on the data obtained, the content of the handbook will be developed on a scientific basis and its suitability for the target audience will be maximized. In this way, the handbook will serve as a qualified and evidence-based educational material within the scope of the ECoDN-HUB project.

1. Lawshe Technique

The Lawshe Technique, developed by Lawshe in 1975, is a widely used method for determining the content validity ratio and analyzing content validity based on the agreement among expert opinions. In this technique, each item is evaluated by experts as “essential (3 points),” “useful, but not essential (2 points),” or “not necessary (1 point),” and additional suggestions may also be provided (<https://rameliaz.github.io/files/kuliah/matrikulasi-mapsi/ayrescally.pdf>). The Lawshe technique evaluation is presented in Table 1.

Table 1. Evaluation items presented to experts for each item

Option	Description
3	Essential
2	Useful, but not essential
1	Not necessary

The Content Validity Ratio (CVR) of the Lawshe technique is calculated using the following formula:

$$CVR = (N_e - N/2) - 1$$

N_e : The number of experts who evaluated the relevant item as 'Appropriate'

N : The total number of experts.

The Content Validity Ratio ranges between -1 (absolute rejection) and +1 (absolute acceptance), where a value of +1 means that all experts found the item appropriate. If fewer than half of the experts mark an item as “appropriate,” the result becomes negative. Items with negative signs are excluded. The Content Validity Index (CVI) of the entire test/questionnaire is calculated by taking the average of the CVR values of all remaining items after removing the necessary ones. If $CVI \geq CVR$, it is accepted that the final form of the items has statistically significant content validity (Lawshe, 1975; Ayre & Scally, 2014). In the application stages of this method, the first step is to determine the group of experts to be consulted. In the next step, the draft form is created, and the opinions of the experts are received. Then the Content Validity Ratio (CVR) and Content Validity Index (CVI) calculations are performed. Finally, according to the results of the Content Validity Ratio (CVR) and Content Validity Index (CVI) calculations, it is decided whether each item should be included in the questionnaire (Lawshe, 1975; Ayre & Scally, 2014).

2. Ateşman Readability Formula

The Ateşman Readability Formula was developed by adapting the Flesch (1948) readability formula, which is used for English texts, into Turkish by Ateşman (1997). This formula reveals the readability level of a text through calculations based on the first hundred words. While performing these measurements, the Ateşman Readability Formula takes into account linguistic features such as word length and sentence length. It plays an especially important role in the preparation of educational materials and the creation of texts suitable for the target audience. The obtained scores range from 0 to 100, with higher scores indicating that the text is easier to read. According to the scoring ranges, 90–100 is evaluated as “very easy,” 70–89 as “easy,” 50–69 as “moderately difficult,” 30–49 as “difficult,” and 1–29 as “very difficult.” The evaluation of the Ateşman Readability Formula is shown in Table 2.

The readability score is calculated using the following formula:

$$\text{Readability} = 198.825 - 40.175 \times (\text{Total Syllables} / \text{Total Words}) - 2.610 \times (\text{Total Sentences} / \text{Total Words}) \text{ (Ateşman, 1997).}$$

Table 2. Evaluation of the Ateşman Readability Formula

Score Range	Readability Level
90-100	Very easy
70-89	Easy
50-69	Medium
30-49	Difficult
1-29	Very difficult

This formula is frequently used in areas where content needs to be produced in accordance with the target audience's educational level, such as health education, public announcements, and children's books. Moreover, with the increasing prevalence of presenting texts on digital platforms, readability analyses have also become an important quality indicator in digital content design. Due to its objective and applicable structure, the Ateşman Readability Formula is widely preferred in academic studies, the development of educational materials, and content editing (Flesch 1948; Ateşman, 1997; Wolf, 2013).

3. Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P)

The Patient Education Materials Assessment Tool (PEMAT) is a comprehensive measurement tool used in the evaluation of patient education materials, focusing on two main areas: understandability and actionability. Developed by Shoemaker, Wolf, and Brach in 2014, the Turkish validity and reliability study of the Patient Education Materials Assessment Tool (PEMAT) was conducted by Akkoç in 2020. The tool systematically examines the levels of understandability and actionability of materials. The understandability domain evaluates, through 19 items, whether the information is presented clearly, simply, and in a way that is appropriate for the educational level of the target audience; whereas the actionability domain, with 7 items, measures the extent to which the proposed information can be applied in daily life (Akkoç, 2020). The evaluation is conducted as “agree = 1” and “disagree = 0,” and in some items, depending on the structural characteristics of the material, the option “not applicable (NA)” is used. The evaluation of HEMDA-B is presented in Table 4.

Table 4. Evaluation of the HEMDA-B tool

Points	Explanation
1	Agree
0	Disagree

The total score is evaluated out of 26 points. As the score increases, the quality of the material improves. Additionally, the total score is divided by the possible maximum score to obtain a percentage score. The higher the score, the more understandable or actionable the material is considered to be, while lower scores indicate problems related to content organization and linguistic appropriateness (Lawshe, 1975; Akkoç, 2020). This score serves as a numerical indicator of both the understandability and actionability levels of the material. The systematic and structured construction of the items demonstrates that PEMAT-B is a highly consistent and reliable assessment tool. The main reason why PEMAT-B is considered a highly consistent and reliable tool is due to the systematic and structured design of its items. Overall, the inter-rater reliability of PEMAT is moderate to excellent. It is emphasized that integrating the scale into the quality assurance processes of

patient education materials enables more efficient and effective delivery of these materials (Vishnevetsky, Walters, Tan, 2018).

Patient Education Material Assessment Tool for Printable Materials

Understandability

Item #	Item	Response Options	Rating
Topic: Content			
1	The material makes its purpose completely evident.	Disagree=0, Agree=1	
2	The material does not include information or content that distracts from its purpose.	Disagree=0, Agree=1	
Topic: Word Choice & Style			
3	The material uses common, everyday language.	Disagree=0, Agree=1	
4	Medical terms are used only to familiarize audience with the terms. When used, medical terms are defined.	Disagree=0, Agree=1	
5	The material uses the active voice.	Disagree=0, Agree=1	
Topic: Use of Numbers			
6	Numbers appearing in the material are clear and easy to understand.	Disagree=0, Agree=1, No numbers=N/A	
7	The material does not expect the user to perform calculations.	Disagree=0, Agree=1	
Topic: Organization			
8	The material breaks or "chunks" information into short sections.	Disagree=0, Agree=1, Very short material ¹ =N/A	
9	The material's sections have informative headers.	Disagree=0, Agree=1, Very short material ¹ =N/A	
10	The material presents information in a logical sequence.	Disagree=0, Agree=1	
11	The material provides a summary.	Disagree=0, Agree=1, Very short material ¹ =N/A	
Topic: Layout & Design			
12	The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points.	Disagree=0, Agree=1, Video=N/A	
Topic: Use of Visual Aids			
15	The material uses visual aids whenever they could make content more easily understood (e.g., illustration of healthy portion size).	Disagree=0, Agree=1	

16	The material's visual aids reinforce rather than distract from the content.	Disagree=0, Agree=1, No visual aids=N/A	
17	The material's visual aids have clear titles or captions.	Disagree=0, Agree=1, No visual aids=N/A	
18	The material uses illustrations and photographs that are clear and uncluttered.	Disagree=0, Agree=1, No visual aids=N/A	
19	The material uses simple tables with short and clear row and column headings.	Disagree=0, Agree=1, No tables=N/A	

Total Points: _____

Total Possible Points: _____

Understandability Score (%): _____

(Total Points / Total Possible Points x 100)

Actionability

Item #	Item	Response Options	Rating
20	The material clearly identifies at least one action the user can take.	Disagree=0, Agree=1	
21	The material addresses the user directly when describing actions.	Disagree=0, Agree=1	
22	The material breaks down any action into manageable, explicit steps.	Disagree=0, Agree=1	
23	The material provides a tangible tool (e.g., menu planners, checklists) whenever it could help the user take action.	Disagree=0, Agree=1	
24	The material provides simple instructions or examples of how to perform calculations.	Disagree=0, Agree=1, No calculations=NA	
25	The material explains how to use the charts, graphs, tables, or diagrams to take actions.	Disagree=0, Agree=1, No charts, graphs, tables, or diagrams=N/A	
26	The material uses visual aids whenever they could make it easier to act on the instructions.	Disagree=0, Agree=1	

Total Points: _____

Total Possible Points: _____

Actionability Score (%): _____

(Total Points / Total Possible Points x 100)

KAYNAKLAR

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