Cornell University

CORNELL ERGONOMIC SEATING EVALUATION v21 ADMINISTRATION INSTRUCTIONS

Background

The seating evaluation v21 is designed as a practical guide to help practitioners make comparative design decisions about different ergonomic chairs. The form started life as a >50 item list that was compiled based on published literature on seating evaluation research studies. Through iterative use and analysis the form was revised to a 25 items version, and then a 15 item version. With advances in chair design the original evaluation form has been expanded to a 21 item form and the scoring process has been improved. This short evaluation form is still designed to be quick and easy to use by non-ergonomists as well as ergonomists to help guide decisions about seating products.

The content of the evaluation form is based on those questions that most differentiate between chairs (or sitting experiences) and those that relate to ergonomic design considerations. The form does not valuate design issues, such as color, style etc., nor does it cover esthetic or economic considerations, it only addresses those features of greatest ergonomic importance.

How to score the evaluation form

The form is to be used to compare different chairs rather than as an absolute evaluation tool. Say that 4 chairs are being compared, then each user would be allowed to sit in each chair for a specified period of time (it may be as brief as a few minutes, but this will limit some reactions, e.g. to seat pan comfort, and it is preferably that this is at least 90 minutes, unless the user really doesn't like the chair). At the end of this test period for each chair the user then rates their experiences of sitting in that chair.

The use of the 11 point scale is based on a 10cm linear rating scale design, but the defined intervals are given to speed the scoring process. The use of 11 points gives a true mid-point value of 5 that represents a us experience is average for the chair, and the extremes are the scale bipolar anchors with a minimum of 0 defined as unacceptable and 10 as exceptional on the same acceptability scale so that responses to all items can be directly compared. If a chair does not have a feature then it scores 0 on that item.

The rating responses are subjective and the focus is on factors such as the usability and comfort of the chair. The scale is organized into 5 Separate sections (4 component sections: chair adjustments, seat comfort, ease of use, and body support, and 1 overall comfort rating section). The scores for each section are totaled and the section scores are summed and an overall % ergonomic design score is calculated.

In this way different chairs can be compared either on individual items, on each of the 4 feature sections and on overall subjective performance, or the total chair performance is indicated by the % ergonomic design score (%EDS).

CORNELL ERGONOMIC SEATING EVALUATION FORM v21

This form was revised and updated in 2007. The form can help you to evaluate the ergonomic design of a chair. You should answer each question by giving a rating out of 10, with higher scores indicating better performance. This form can be used as part of your chair evaluation process and to compare the designs of different chairs. You can copy this form without permission for noncommercial and educational purposes. If you have any questions or comments please contact Professor Alan Hedge at the Department of Design & Environmental Analysis at Cornell University (ah29@cornell.edu).

Evaluator Name: _____	Date: _____
Chair Manufacturer _____	Model _____

Evaluation Criteria	Marks out of 10
A: Chair Adjustments (are these available and how usable are they?)	**Unacceptable(0) ----- Average(5) ---- Excellent(10)**
1. Usability and range of seat pan depth adjustment	0-1-2-3-4-5-6-7-8-9-10
2. Usability and range of back height adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
3. Usability and range of backrest recline adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
4. Arm support range of adjustability	0-1-2-3-4-5-6-7-8-9-10
5. Chair seat, back and arms adjust independently to allow comfortable sitting	0-1-2-3-4-5-6-7-8-9-10
	A: Chair Adjustments Score =
B: Seat Comfort	**Unacceptable(0) ----- Average(5) ---- Excellent(10)**
6. Seat pan/cushion comfort (evaluate after at least 90 min. of sitting)	0-1-2-3-4-5-6-7-8-9-10
7. Seat edge contour comfort (no pressure points under buttocks, thighs, knees)	0-1-2-3-4-5-6-7-8-9-10
8. Backrest cushion comfort (evaluate at various recline positions)	0-1-2-3-4-5-6-7-8-9-10
9. Armrest comfort (when sitting back and resting arms)	0-1-2-3-4-5-6-7-8-9-10
	B: Seat Comfort Score =
C: Ease of Use	**Unacceptable(0) ----- Average(5) ---- Excellent(10)**
10. Ease of chair seat height adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
11. Ease of seat pan depth adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
12. Ease of armrest height adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
13. Ease of backrest recline adjustment while sitting	0-1-2-3-4-5-6-7-8-9-10
14. Ease of cleaning chair parts and materials	0-1-2-3-4-5-6-7-8-9-10
	C: Ease-of-use Score =
D: Body Support	**Unacceptable(0) ----- Average(5) ---- Excellent(10)**
15. Mid/Upper back support at various recline positions (no forward push or fall back)	0-1-2-3-4-5-6-7-8-9-10
16. Lumbar (low back) support (evaluate at various recline positions)	0-1-2-3-4-5-6-7-8-9-10
17. Seat pan support at various backrest recline positions	0-1-2-3-4-5-6-7-8-9-10
18. Armrest height support range (below thigh level to above seated elbow height)	0-1-2-3-4-5-6-7-8-9-10
	D: Body Support Score =
E: Overall Chair Experience	**Unacceptable(0) ----- Average(5) ---- Excellent(10)**
19. Overall ease of use of the chair and controls (include training & adjustment time, # movements)	0-1-2-3-4-5-6-7-8-9-10
20. Overall appearance of the chair	0-1-2-3-4-5-6-7-8-9-10
21. Overall comfort of the chair	0-1-2-3-4-5-6-7-8-9-10
	E: Overall Chair Experience Score =
TOTAL % ERGONOMIC DESIGN SCORE (%EDS) = ((A+B+C+D+E)/210) x 100 =	