

Dr. HUTCHINSON. This is a title sent in by Dr. Davidson. Dr. Davidson suggested this.

We have the right to play with it if we choose, and probably should have done it, but we didn't.

Mr. HARDY. You would have gotten the same thing, even though you might have changed it? You might have changed his title, I mean.

Dr. HUTCHINSON. That is correct. It wouldn't have changed the work statement which we took out of his proposal.

Secretary Imirie (addressing Dr. Hutchinson). You might mention how this proposal was checked [further aside].

Dr. HUTCHINSON. Yes. We do certainly concern ourselves with the quality of the work proposed to us.

Now in this case we sent the proposal out to five reviewers.

I have appended to the proposal summary a review by Dr. Harry Helson—H-e-l-s-o-n—head of the department of psychology at the University of Texas.

(The backup document is as follows:)

ROBERT DAVIDON, BRYN MAWR COLLEGE—GRANT NUMBER AF-AFOSR 62-1

(Formerly contract AF 49(638)-726)

Title: "Subjective Estimate of Body Space."

Annual rate: \$13,000.

Doctor Davidson is studying the way in which a person (for example, an operator in a weapon system) judges his position in space and the spatial relationships involved in relation to the dials, gages, levers, pedals, and controls that he utilizes in performing his job. His investigation will determine the way in which the operator of military equipment utilizes cues to maintain his sense of orientation. The kinds of cues normally used to maintain one's orientation in space are frequently disrupted in the working environment of modern military vehicles and weapon systems.

For example, in a space vehicle, information to the central nervous system originating in the sense of balance (vestibular or middle ear), from feelings in the seat of the pants (or kinaesthetic sense), and from visual sensations involving both near and distant perception will be either canceled out or critically distorted.

While few persons will be called on to travel in space vehicles and satellites, the selection and training of these few is a matter of critical importance.

This study has applicability to many military occupations which impose restrictions on the operator's ability to judge distance within his normal work area and his orientation in external space in which he must operate or navigate. The kinds of military jobs that utilize space judgment include pilots of high altitude and ultraperformance aircraft, monitors of radar scopes and other types of equipment, those performing vigilance and surveillance tasks, those working in subterranean, submerged, arctic, or shrouded environments, persons using visual displays in command posts, those in situations that involve sensory deprivation (isolation), or sensory overloading (distracting environments), and, it might be added, those driving vehicles on public roads.

DESCRIPTION OF WORK

This study investigates the individual's estimate of the space occupied and required by his body while at rest and engaged in physical activities.

The self-perception of subject's body geometry is based on stimuli received by numerous sense modalities: tactile, kinaesthetic, vestibular (sense of balance from middle ear), and visual, among others.

The perception of body space under normal environmental conditions is the result of the integration of cues from a considerable number of sensory organs. This integration and coordination of information in regard to spatial relationships is one of the complex and, so far, incompletely understood areas of human behavior.