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**INCREASING SEATBELT USAGE IN LOGGING SKIDDERS THROUGH
BEHAVIOUR MODIFICATION AND
SEATBELT REDESIGN**

**A thesis submitted in partial
fulfilment of the requirements for the degree of Master of Science
in Psychology at Massey University**

Mark J.M. Sullman

1994

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ABSTRACT

This study examined methods for increasing seatbelt usage in one type of heavy logging machine (the skidder). This machine is used extensively for extracting felled trees and transporting them from where they are cut down to a central processing area. Preliminary investigations suggested that the operators of these machines failed to wear their seatbelts because they were poorly designed and because the operators simply forgot.

A survey of the literature on increasing safety behaviours found that the two most powerful techniques were behaviour modification and human factors engineering (or ergonomics). Therefore, these were the two techniques used here.

The standard seatbelts were redesigned to make them easier to use and an orange flashing reminder light was installed into the machines of seven full-time skidder operators. These machines were operating in either Kaingaroa, Rotoehu, Tahorakuri or Te Whakao Forests in the central North Island of New Zealand.

The experiment used a multiple baseline single subject design, with the subjects receiving each treatment twice. With the installation of the redesigned seatbelt, mean seatbelt usage for six subjects rose from 21% to 31%. One subject refused to wear a seatbelt throughout the experiment. Installing the reminder light increased seatbelt usage by a further 1%. Removing the new seatbelt design caused usage to drop 16%. A further decrease of 5% occurred with the return to baseline phase when the reminder light had also been removed. The second introduction of the new seatbelt resulted in an increase in usage from 10% to a mean level of 46%. This was increased a further 22% with the reintroduction of the reminder light. The results showed that an easier to use seatbelt in combination with a reminder light can increase the level of seatbelt usage. The results also provide further evidence of the power of both behaviour modification techniques and human factors engineering in the field of occupational safety.

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