Expanded Draft V1.1

**1 Introduction**

1.01 Literature review, 1.02 Aims, 1.03 Hypotheses etc

**2 Method**

*2.01 Participants*

2.011 Classification of Participants

Twelve participants were recruited by direct invitation at LOCATION. The criteria of the participants were that they need to have the relevant Sociometric, Career, and Performance Analysis pertaining to expert or journeyman level (Hoffman, 2016).

2.012 Participant Information

The participants had an average working experience of XXX years. The average age of the participants was XX. There were two participants recruited per role (ie two anaesthetists, two SN, two surgeons) that were matched on their experience as defined by the previous criteria.

2.013 Assessors

Three participants were recruited with the roles of ‘Assessor’. Their role was to analyze the recordings and identify specified events as defined by the researcher. The 3 assessors were... [add information here].

*2.02 Materials*

2.021 Simulated Surgical Theatre

An Operating Theatre was used with the necessary equipment present pertaining to the situation which was role played, with a mannequin as the patient. Individual audio recording devices and microphones were fitted to the staff members. Two HD cameras were set up in key areas in the theatre to capture all actions of the staff, along with the entrances/exits.

2.022 Surgical Caps and Uniform

Customized surgical caps for each participant were used, which included the name and role of the wearer. [cap info here: created by, material used, appearance etc.]. All other uniform was as standard, and unaltered which included standard caps when participants were not wearing the modified caps.

2.023 Post Production Editing

Adobe After Effects 2018 was used to add the videos side by side in preparation for analysis. In addition, motion tracking and blurring of caps was added to each theatre team member for the entirety of the simulation and applied to all videos regardless of the cap used. The name and role of all participants were added postproduction to help the assessors identify if incorrect names, roles were stated.

*2.03 Design*

*2.031 Experimental Structure*

A repeated measures design was used, and participants were matched pairs based on years of experience and job role. Additionally, counterbalancing was used to ensure the control of order effects therefore reduce or remove any confounding variables (see the procedure section for further details). The experiment reached a single blind status by not informing the participants the aims of the experiment, being the effect from wearing the modified caps. This includes both the theatre participants and the ‘Assessors’. A double-blind status was ultimately reached by implementing a ‘proxy’ researcher who delivered the materials to the participants and directed them as appropriate, however they also did not know the aims of the experiment.

*2.04 Variables*

2.041 Independent Variables

The independent variable was the Cap Type, with two conditions either No Information (NI) or With Information (WI).

2.042 Dependent Variables

The dependent variables were the Instruction Driven Task Completion and the subjective feedback from theatre staff.

As the status and result of a given task can change over time, Task Completion (TC) consisted of different outcomes which would be identified by the ‘Assessors’. These were C-UC, C-DC, P-UC, P-DC, I-UC, I-DC.

* Completed Undirected Communication (C-UC) (Task is defined by initial communication from one person to the team, and ending with the fulfilment of that task, performed by anyone in the team)
* Completed Directed Communication (C-DC) (Task is defined by initial communication from one person to a specific member, and ending with the fulfilment of that task, performed by the initial individual the instructions were directed to)
* Partially Completed Undirected Communication (P-UC) (Task is defined by initial communication from one person to the team, and ending with the fulfilment of that task, performed by anyone. However, there is evidence of suboptimal work, such as taken too long, not quite the right tool, etc.)
* Partially Completed Directed Communication (P-DC) (Task is defined by initial communication from one person to a specific member, and ending with the fulfilment of that task, performed by the initial individual the instructions were directed to. However, there is evidence of suboptimal work, such as taken too long, not quite the right tool, etc.)
* Incomplete Undirected Communication (I-UC) (Task is defined by initial communication to the team, but with no fulfilment of task, with nobody attempting it.)
* Incomplete Directed Communication (I-DC) (Task is defined by initial communication to a specific member, but with no fulfilment of task and with evidence that a specific individual should have completed this.)

The assessors also identified such behaviors as pausing upon name recall and incorrectly called names, roles. (again they do not know what videos involve modified caps, only the behaviors of the staff)

*2.05 Procedure*

All participants were gathered by direct invitation from the researcher. Participants were briefed by stating the experiment would be investigating how individuals adapt to being ‘dropped’ into a difficult situation. They were not told the true aim of analyzing their performance when wearing different caps. As the participants had 2 individuals with the same role, and were matched on experience, each individual with the same role was given either an ‘odd’ or ‘even’ label. A random number generator produced a number which assigned the ‘odd’ team who would be group A, and ‘even’ team who were Group B. This was performed before meeting the participants for the simulation.

Upon meeting Group A at the simulation site, they were provided information of the simulated situation and given their uniform which included modified caps. After completing the simulation, Group A were collectively interviewed with a set of questions that had 5 experiment relevant questions and 5 distractor questions. Group A were then given XX days before returning for the second half of the experiment. This was to reduce practice effects of the first simulation. They returned at the scheduled appointment and repeated the previous simulation, however when receiving their uniform without the modified caps but the standard caps, the following instructions were give- ‘We realize you may work with strangers in real life therefore we have included these caps to make the simulation more realistic’ [or something like this, so they do not think it’s a big deal]. After the simulation, Group A were collectively interviewed with set questions that had only 5 experiment relevant questions and 5 distractor questions. They were then debriefed with the true aims of the study, signed an updated consent form (and made anonymous etc), were given a debriefing form, and were thanks for their participation.

Group B completed the same procedure however they wore the standard caps first, and when they were provided with the modified caps, the following instructions were give ‘We realize you are working with strangers in the simulation and may not do this in real life, therefore we have included these caps to make the simulation more realistic’ [or something like this].

The resultant videos from the 2 cameras in the theatre were edited in After Effects 2018 and formed side by side so that the assessors could view all interactions occurring. Audio from each person was added to the footage to create a high definition video with high quality voice recordings of all participants. After ensuring all media was temporally aligned to <=1 millisecond, all caps were blurred to remove the viewers ability to identify the type of cap used. These 4 videos were then given to two assessors, along with instructions and worksheets to analyze the videos. The assessors were given a 3-week turnaround.

**Analysis**

Two out of the three assessors, whilst not being told of the aims of the study were given instructions to identify the various levels of Task Completion (see *2.04 Variables)*.[there are more measures you can use to assess the videos but I’ve just said this for now*]* They performed this work independently and were not informed of each other’s participation in the project. The third assessor checked through and combined the analysis of the previous 2 assessors. This not only finalized the results but ensured consistency and quality of their analyses was maintained.

….SPSS/quantitative

Thematic analysis of group discussion. Hypotheses should be accepted