

# How Not to Sink a Ship: Vocational Education in 3DVWs

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## ABSTRACT

People working on a ship's bridge can come from a number of countries, cultures or social situations. Having people from three or four different nationalities is not unusual. Issues arise when bridge personnel cannot communicate in emergency situations, leading to grounding or other disasters. Work is being started on developing a 3D Virtual World where Ship's Bridge Teamwork can be practiced as part of research into how to use Multi User Virtual Environments (MUVEs) in vocational education contexts. An educational design based research methodology that uses theory to seed development work.

## Categories and Subject Descriptors

K.3.1 [Computers and Education]: Computer Uses in Education

## General Terms

Design, Experimentation.

## Keywords

3D Virtual World, Ship's bridge simulation, teamwork, design based methodology.

## 1. INTRODUCTION

People working on a ship's bridge can come from a number of countries, cultures or social situations. Having people from three or four different nationalities is not unusual. Issues arise when bridge personnel cannot communicate in emergency situations, leading to grounding or other disasters. For example, on a ship where the captain was from a different culture from the other officers, staff were not able to tell the captain he had the wrong heading in a direct enough manner because the culture of both the captain and the staff would not allow direct contradiction by subordinates of the captain. In the captain's culture subordinates would be listened to but he would insist on making the call. Other ship's personnel were not able to contradict the captain because in their culture making an error causes a person to lose face hence they did not communicate in a clear direct manner to the captain. In a second example the captain was not able to accept warnings from the subordinate because she was female. The consequence being that the boat capsized and sank.

A theory seeded methodology [2] is being used to develop a 3D Virtual World, also known as a MUVE, to help ship's bridge personnel develop bridge communication and teamwork.

## 2. BACKGROUND

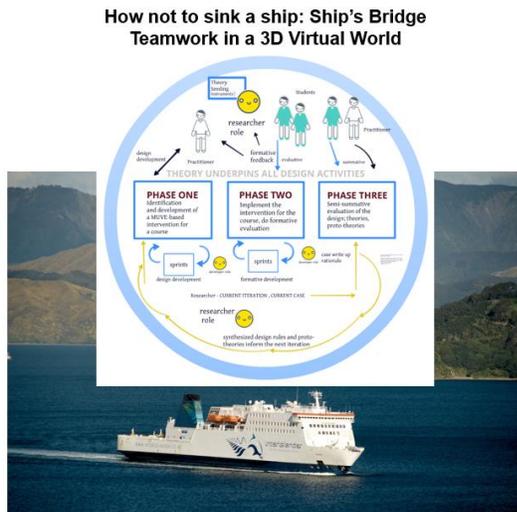
The International Maritime Organization (IMO) is the United Nations agency responsible for the safety and security of shipping and the prevention of marine pollution by ships [1]. The IMO provides training material to assist in the implementation of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers. We note all teamwork aspects in a relevant model course from the IMO "Model Course 1.22 Ship's Bridge Teamwork" does not involve using a simulation system.

## 3. CURRENT SITUATION

The methodology is being applied. At this point the researcher is taking a developer role. Having tested a prototype of the 3D Virtual World in a Maritime Studies simulation laboratory. Voice communication is being developed to meet the ship's bridge training requirements.

## 4. NEXT

Marine Studies tutors will test the system and work with the researcher to develop a classroom intervention based on the IMO Module Course 1.22.



This poster paper appeared at the 4<sup>th</sup> annual conference of Computing and Information Technology Research and Education New Zealand (CITRENZ2013) incorporating the 26<sup>th</sup> Annual Conference of the National Advisory Committee on Computing Qualifications, Hamilton, New Zealand, October 6-9, 2013. Mike Lopez and Michael Verhaart, (Eds).

## 5. REFERENCES

- 1 International Maritime Organization 2013 retrieved September 17<sup>th</sup> 2013 from <http://www.imo.org/About/Pages/Default.aspx> .
- 2 Cochrane, T., Davis, N., & Morrow, D. (2013). A Proposed Theory Seeded Methodology for Design Based Research into

Effective use of MUVes in Vocational Education Contexts. *International Journal of Virtual and Personal Learning Environments (IJVPLE)*, 4(2), 50-64.  
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