

# The failure of peer to peer learning to deliver a positive student experience in simulator based education

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## 1. The Innovation

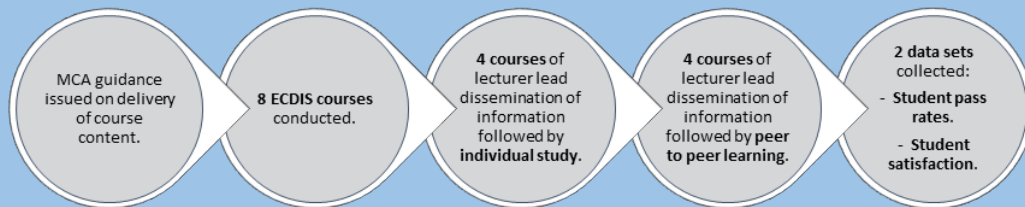
At the request of the Maritime and Coastguard Agency (MCA) – the organisation that accredits the maritime courses provided at LJMU – peer to peer learning was introduced in to a number of short courses that are delivered in the university's ship simulator (A4, K4, V4). It is the MCA's firmly held belief that peer to peer learning delivers better learning outcomes for students than individual study and there is some evidence that may back this up (Dingel *et al.*, 2013; Schroeder *et al.*, 2007; Webb and Mastergeorge, 2003; Boud *et al.*, 2001) (A2, A5).

## 2. What is peer to peer learning?

Peer to peer learning occurs when students teach other students (Rao and DiCarlo, 2000; O'Donnell and O'Kelly, 1994) (V2). This can take many forms, both formal and informal, but the common factor is that people on the same 'level' teach each other what they know (O'Donnell, O'Kelly, 1994; Hooper, 1992). As an introduction to an exercise or to set the goal to be achieved, knowledge may initially be shared by an instructor (Webb *et al.*, 2008; Hooper, 1992) but the subsequent studying is performed entirely by students interacting with other students (Dingel *et al.*, 2013; Fuchs *et al.*, 1997) (A1, K2).

## 3. Methodology

This research focused on a single short course. Five days in duration, it is aimed at developing the students understanding of a shipboard Electronic Chart Display Information System (ECDIS) (A1, K1).



Each course was composed of ten students. Data was collected from eighty students in total. Initially, this took the form of recording the pass/fail outcome that each student achieved at the end of the course. Subsequently, a single, short (one side A4) questionnaire was used to ascertain student satisfaction levels with the course that they had just finished. This was composed of a number of one line statements that participants were asked to rate against a five point Likert scale (K5, V1, V2).

## 4. Study group

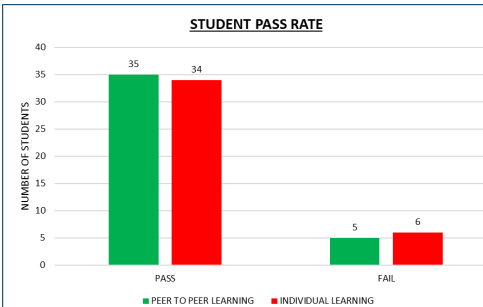
The characteristics of the participants that make up the study group are as follows:

- Male.
- Twenty to thirty years old.
- Physically fit (holding an ENG1 certificate).
- International students.
- Educated to Level 4 on the Regulated Qualifications Framework (RQF).
- Sea time of between twelve and forty months.
- Studying towards the Maritime and Coastguard Agency (MCA) Officer of the Watch (Unlimited) Certificate of Competency.
- Successfully completed the industry standard Scottish Qualifications Authority (SQA)/MCA examinations.

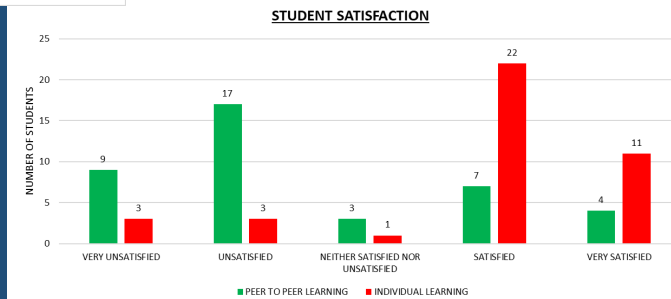


## 5. Results

The MCA's assertion that peer to peer learning leads to students achieving better overall learning outcomes may be correct. Strictly speaking, it is correct to state that more students passed first time under peer to peer learning (35 out of 40 - 87.5%) than individual learning (34 out of 40 - 85%). However, single factor ANOVA analysis of the **student pass rate** data set, collected across the eight ECDIS courses that were conducted, revealed that no statistical difference exists between the two approaches to delivering the course. To clarify, in this case, peer to peer learning and individual learning delivered exactly the same learning outcomes (A3, A5, K5, V3).



More concerning than this are the results generated from the data collected to measure **student satisfaction**. Across the eight ECDIS courses conducted, a clear trend exists. Single factor ANOVA analysis of the data was once again performed. This revealed a significant statistical difference between the two approaches to delivering the course. Peer to peer learning students demonstrated a much lower level of satisfaction with the course than their individual learning colleagues (A3, A5, K5, V3).



## 6. Feedback

**Staff** are mostly in favour of peer to peer learning. This is mainly because it was suggested by the MCA but there are also other reasons for the approach having their support. As more students could be grouped in to each class there is the potential for fewer contact hours to be required to deliver the course. Also, although they observe that some students appear less engaged in the process of learning, there is little difference between the students pass rates at their first attempt (A3, K5, K6).

The main complaint raised by **students** was that they felt they were not getting their money's worth. They felt that having paid for the course themselves they should have individual access to a simulator rather than having to share it with someone else. In addition, some weaker students felt overwhelmed by stronger students. The expectation was that stronger students would help their weaker counterparts. However, weaker students reported that they were dominated by the stronger, who took up much of the lesson time focusing on further developing their own skills and understanding rather than assisting their colleague (A3, A4, K3, K5, K6, V1, V2).

## 7. Conclusion

When considering peer to peer learning in a simulated environment – the MCA recommends it, staff love it, students hate it. With that in mind we have to ask our selves "what is the purpose of education?" Is it to adhere to a rigid pedagogy regardless of the outcome? Or is it to ensure that students have a positive learning experience whilst achieving the necessary learning outcomes? (A2, K6).