

An all-of-band approach to simulator teaching

Introduction

At an ITTS course held in Adelaide in October 2014 I gave a short talk about my simulator software, Virtual Belfry. Part of the design of the program is its ability to record what was rung during a session and to present statistics about the ringing. These results can be saved, allowing an individual's improvement over time to be seen. That is all very nice, but does simulator teaching actually achieve what it promises (can it make you a better ringer?), and, more significantly, can it help an entire band to improve their normal weekly ringing? These were questions that I had been pondering. Serendipitously, Jim Woolford, an experienced ringer in Sydney for many years (originally from the UK) and now living in Orange, NSW, saw my demonstration in Adelaide and thought he could use the program to help develop the skills of the band in Orange.

An enthusiastic band of generally mature-age ringers was established in Orange after the bells were installed in 2007. They were given some initial intensive instruction by ringers from Sydney but since then their isolation – 260km inland over the Blue Mountains – made further development very difficult and their skills remained at a fairly basic level.

And so a project was born: Orange would become the subject of a study to measure the effectiveness of simulator teaching as a tool for improving a band's collective ringing abilities. In the discussion that follows, no names are mentioned (with one exception) to keep the focus on the band as a whole rather than on individuals.

After the necessary technology was purchased and set up, the project began in January 2015 with simulator sessions for eight members of the band. Jim Woolford and local ringer Norma Cother were to be the teachers (with Norma also a participant). We also recorded plain hunt major on the open bells as a benchmark for comparison with the same performance to be rung at the end of the study (yet to be rung). Simulator sessions then continued at intervals during the year, with some other members joining the group along the way. The last sessions were rung just after Christmas 2015. The fourteen participants had an average of 9 recorded sessions each during the year (ranging from 4 up to 17). Norma's 45 recorded sessions was so far outside this range that it was excluded from the calculation of the average!

The statistics obtained from Virtual Belfry focus purely on the accuracy of the striking. These are presented and summarised first, with an example to show how the raw facts and figures translate into improved bell placement. Some discussion was also had with the participants a few months into the study, to record their feelings about the simulator teaching process. These are presented after the statistics.

For anyone wanting a quick summary, a 36% improvement in striking accuracy was achieved while ringing rounds, measured from the start of the study to the end. For more details, read on.

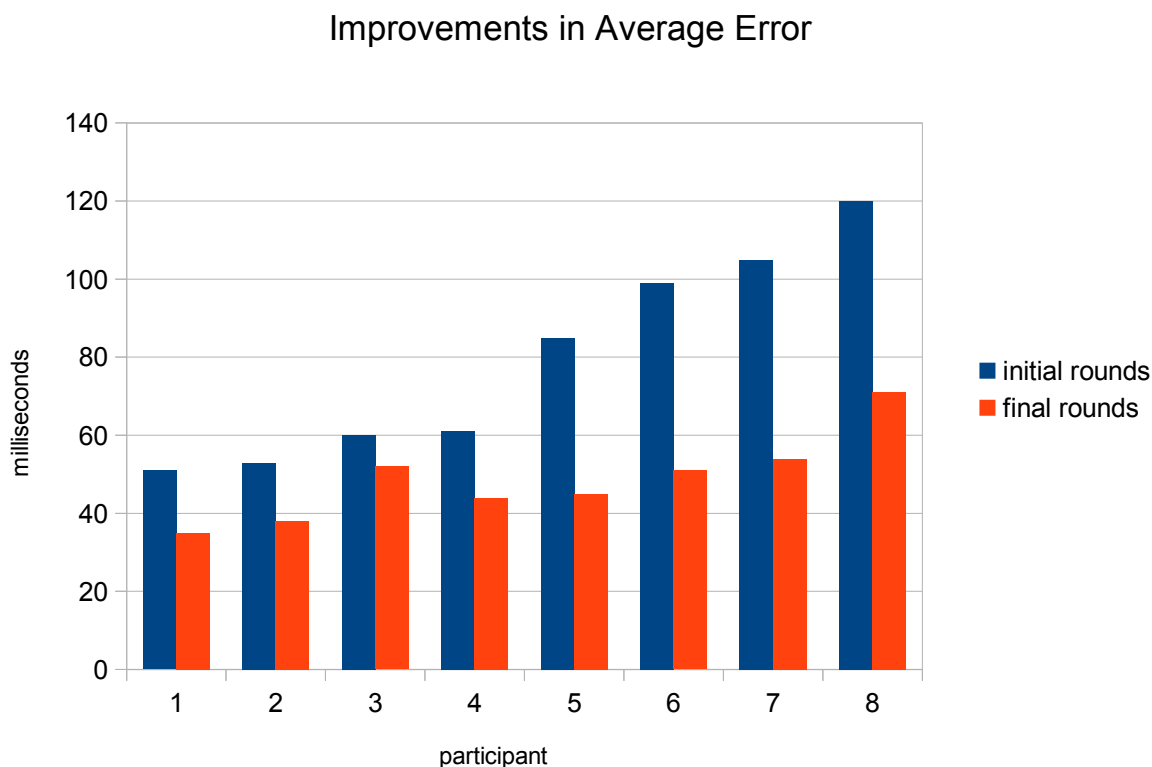
Analysis of Results

For the purposes of this report, I will focus mainly on one statistic: average error. This was recorded for each "touch" that was rung and is the average amount, in milliseconds, by which the blows strayed from perfection (regardless of whether they were early or late).

It should be noted that there were usually one or two initial blows after first pulling off that skew this figure. At present there is no way to exclude these from the statistics, but since the same effect is present throughout the study, it should not have unduly affected the conclusion. Another potential problem was unfamiliarity with ringing in the simulator environment. Looking at a screen (or

attempting to ring purely by ear) and attempting to fit into an absolutely precise rhythm takes some getting used to at first. This was evident in some initial attempts to ring rounds, which were therefore excluded.

While a range of exercises and methods were attempted during the sessions (see "Beyond Rounds" below), rounds provided the most objective measure of improvement. Eight ringers had rounds recorded from sessions at the beginning and the end, and the average errors for these eight ringers are shown in this chart:



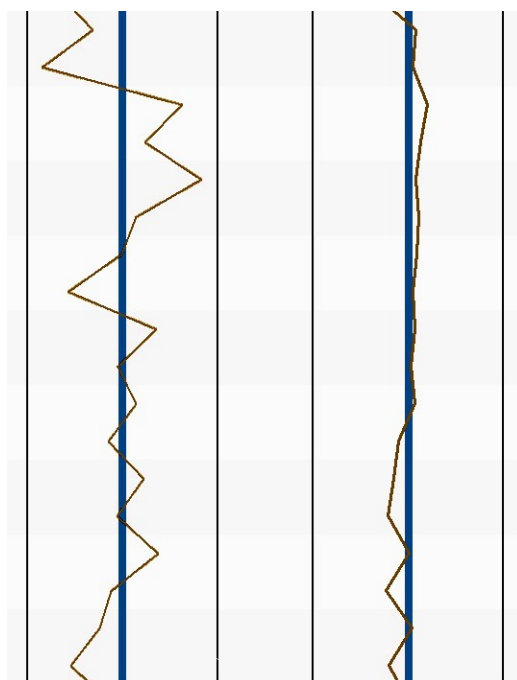
The averages for these eight ringers as a whole are (approximately):

Initial rounds: 79ms

Final rounds: 49ms

Percentage improvement: 36%

To show what these figures mean in practical terms, here are two samples of the actual lines taken from ringer number 7's initial and final rounds, arranged side by side for comparison:



(The above graphic was obtained using the Blue Line window of Virtual Belfry, with some editing in Photoshop to show the two separate lines together.)

Beyond Rounds

The above results relate only to rounds. All the participants rang other things, ranging from covering doubles through to (for example) touches of major and hunting on ten and twelve. Although the variety made it difficult to present objective evidence, these exercises provide us with another measure of progress in that, despite the increasing difficulty, striking accuracy was generally maintained or improved (the fact that the teachers considered the students capable of attempting these things as time went on is a fairly reliable indicator of progress). This is best illustrated with Norma's results, which document a progression from rounds and hunting on six bells through to a quarter peal of Little Bob Major on an inside bell, with similar striking accuracy for the quarter peal despite the obvious increase in difficulty.

Feedback from the Band

The following feedback was recorded at a meeting a couple of months after the start of the project:

Some people took time to become accustomed to the 2D view of ropes on the screen before they could make sense of it. Ringing the (simulated) treble was more difficult than ringing other bells. One person found it difficult to relate the simulator ringing to real ringing and was never entirely comfortable with the sessions. Those were the only comments "against".

One ringer had a mistaken impression of the timing of her own blow, and the sessions with the simulator had fixed that. Another gained the ability to tell (in normal ringing) when a mistake was their own and when it was someone else's.

General sentiments were expressed that the 1-hour sessions were a good thing; that the one-to-one focus was very beneficial; that the opportunity to focus on handling and style (as well as listening etc.) was very useful; that the ability to repeat things as often as required was appreciated.

More than one person thought it was easier to ring by listening than by watching. Another person said the sessions were teaching her the ability to listen to the ringing. Several said (of using the ropes) that they were able to see ropesight, or the pattern in the ropes.

Specific comments included "fascinating and interesting", "the versatility is fantastic", "I got that lovely feeling of the rhythm", "I can now tell when someone else is wrong and just keep going myself", "I am really enjoying it".

The opinion was expressed that this style of simulator training was a natural progression from the teaching techniques advocated for beginners at the ITTS course in Adelaide. Those techniques were good for beginners, but some modification was needed for established ringers wishing to improve their skills, and simulator sessions were considered an ideal approach for this.

Conclusion

The results of the study show that simulator training has made a tangible difference to the standard of ringing within the Orange band. It seems likely that the same process could be used elsewhere to similar effect. There are some pre-requisites, however:

- A reasonably experienced ringer is required to be the teacher;
- The teachers require training in the use of the software and advice on how to run sessions;
- The consent and enthusiasm of the band as a whole is essential.

A proposal is being prepared to offer demonstrations of simulator sessions in towers around Australia, the aim being to encourage greater awareness and use of this technology.

Acknowledgements

I would like to thank Jim Woolford, Norma Cother and the entire band of Holy Trinity, Orange for their enthusiasm and persistence with the sessions that produced the results shown in this report. The improvements are theirs and I hope it contributes to their ongoing enjoyment of ringing.

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