Diamond Thinking: A critical thinking app to engage students beyond the classroom, and to assess individual or collaborative views.

email: boguslaw.ostrowski@newcastle.ac.uk

1. Introduction

The diamond ranking grid permits participants to visually rank options on a given topic in a specified subject area, according to the suggested formats shown in Figures 1a and 1b. The number of possible permutations assigned to each are indicated; however, a tenth option can be included in the selection, requiring one to be discarded, thus making the possible number of permutations 363,880.

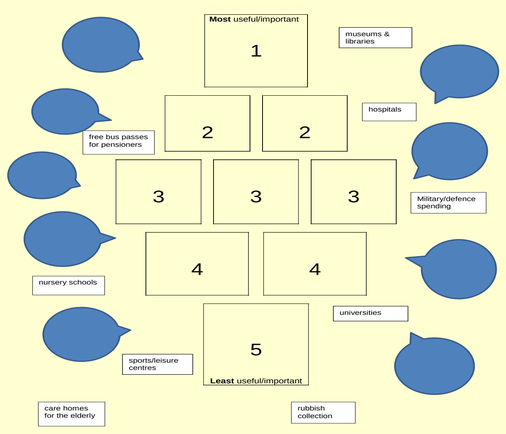

Figure 1a. Diamond ranking grid with 5 levels of ranking: 24 ways to rank options (4!).

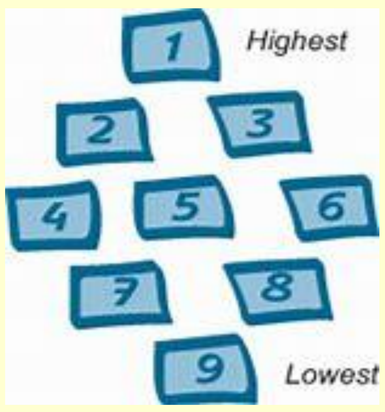

Figure 1b. Diamond ranking grid with 9 levels of ranking: 40,320 ways to rank options (8!).

2. Methods

- Traditionally, diamond ranking has been used in the classroom as a paper-based exercise in a variety of educational and other contexts (Clark, 2009; Woolner *et al.,* 2010), or as an interactive Word document (Ostrowski, 2013; Ostrowski *et al.,* 2017).
- The interactive Word document allows greater participant autonomy and increased flexibility, allowing ranking options to be made using drag & drop boxes, together with comment balloons to justify the choice for each ranking (Figure 1a).
- Following face-to-face scaffolding, the document is emailed to students; the completed rankings provide qualitative (comments) and quantitative (ranking) data. Completing rankings beyond the classroom allows more time for personal reflection, and offers the opportunity for students to give carefully reasoned explanations for their ranking choices.
- Comments made to justify the choice of rankings may supply a rich source of qualitative data and can be evaluated using thematic analysis (Table 1; example only), whilst the frequency distribution of quantitative data can be examined, for example, to reveal trends and preferences (Figure 2).

3. Results

Negative	Positive
Internet and classmates do some distraction. (3) I think it is not interesting. (4) There are a lot of students. Can not answer all inquiries. The weakness of the net makes a boring lesson. I think it's a waste of time. (5) This way of learning I will give up halfway (5)	This is the basis of all courses. (1) Having to say that this is original way to teach. (3) This is very convenient for students to learn knowledge. Students can hear the teacher's instructions when they are not in the classroom. (3) It can help me view and review the knowledge of language (3)

Table 1. Thematic analysis of qualitative data from comment balloons indicating a positive or negative attitude towards specific course components (online live lessons; IELTS level ~4.0).

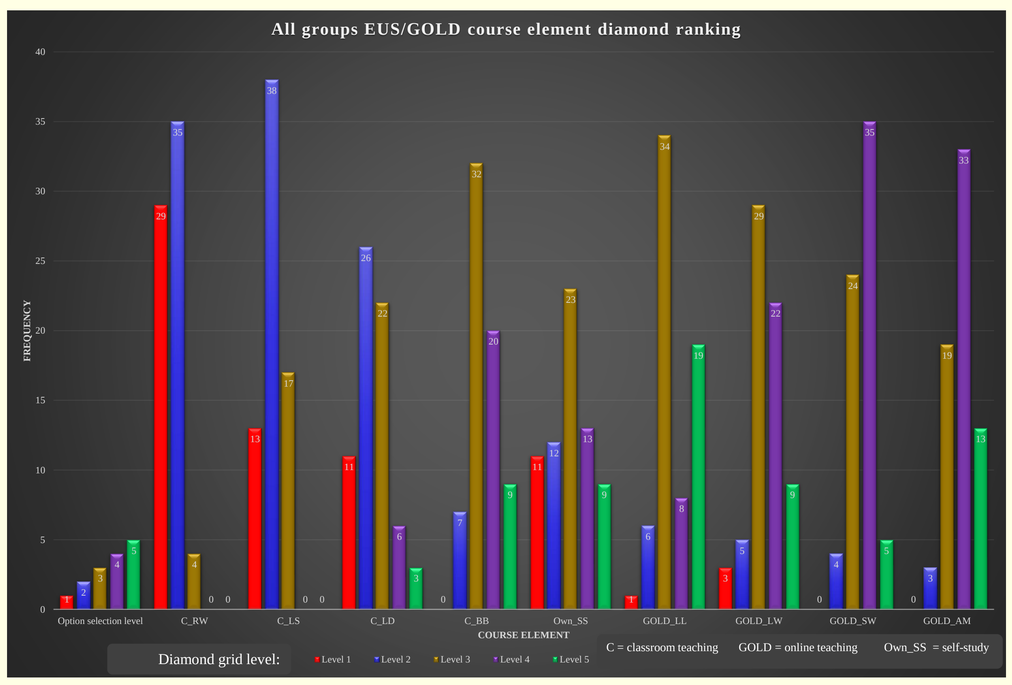

Figure 2. Frequency distribution of rankings for different course elements in a blended learning English for Academic Purposes (EAP) programme.

4. Discussion

Further development of the procedure has resulted in a web-based app, Diamond Thinking. The app can be used on an individual basis, or collaboratively, where completed individual rankings are randomly paired. The latter stage incorporates a real-time chat facility so participants can negotiate a collaboratively agreed third ranking whilst viewing both their individual rankings. Facilitators can follow the progress of individual and paired rankings as the choices are made, and access the online chat between participants after the final rankings and comments have been made.

Currently in the form of a minimum viable product, the app can be trialled by registering at www.diamondthinking.co.uk and joining an example board: Learning and Teaching in Higher Education, and then entering the access code F2F3D7.

Suggestions for creating your own ranking using the app are welcomed.

5. Conclusion

- The Diamond Thinking app is an interactive tool which encourages individual, and collaborative, critical thinking across a broad range of subjects.
- It can be used with students, or staff, to gather both quantitative & qualitative data on subjects and topics across the curriculum.
- The facilitator can interact with the target cohort; for example, following analysis of responses it may be decided to review particular topics as a result of comments or views expressed.
- At least 18 items of information can be obtained per participant; more if the comments are comprehensively reasoned.
- The app enables a wide range of subjects to be surveyed, and to gather views on the options being ranked, together with details of the nature of participants' understanding of the topic.

References

1. Clark J. (2009). Exploring the use of diamond ranking activities as a visual methods research tool. *In: 1st International Visual Methods Conference*. 2009, University of Leeds.

2. Ostrowski, B. (2013) Are intercultural communication and intercultural competence teachable/learnable in the university context? *British Association for Applied Linguistics Special Interest Group on Intercultural Communication in Higher Education Seminar, Newcastle University, 16-17 May 2013.* https://baalicsig.wordpress.com/activities/icsig-seminar2013/seminar-presentations/paper-7-Ostrowski/

3. Ostrowski, B., Windeatt, S. and Clark, J. (2017) How "blended" should "blended learning" be? In K. Borthwick, L. Bradley & S. Thouesny (Eds), *CALL in a climate of change: adapting to turbulent global conditions – short papers from EUROCALL 2017* (pp. 242-247). Research-publishing.net. https://doi.org/10.14705/rpnet.2017.eurocall2017.720

4. Woolner, P., Clark, J., Hall, E., Tiplady, L., Thomas, U. and Wall, K. (2010), "*Pictures are necessary but not sufficient: using a range of visual methods to engage users about school design*", *Learning Environ. Res.*, Vol. 13 No. 1, pp. 1-22.