Using Card Sorts

Introduction

A card sort is an activity in which participants organise an often large number of cards into groups or categories. In the process they can work in pairs or teams and discuss which 'pile' a card should be put in. The 'piles' can have headings such as 'highly relevant; relevant; of no relevance.' Each card represents an idea, a skill or some other element of the subject matter under discussion, as shown in figure 1. Sometimes the cards can be used to create links between concepts, in this case they may be laid out without the use of headings and the discussion surrounds the nature/pattern of the layout.
The following briefing describes the pedagogical reasons for using card sort and gives some brief advice on how to design and use them. It covers a number of pertinent issues including how they might be used in assessment and how students view them.

Why Use Card Sorts?

A lot of the things we want to help students learn these days are in addition to pure subject knowledge. You may want students to develop concepts and models, identify and/or develop attitudes and even values. Try this thought experiment: imagine how you are going to develop a student's inclination towards a health and safety focus. It is easy to 'tell' students why they should behave in a health and safety conscious way but how likely are you to **develop an attitude** through telling? It's much more likely to happen through an activity that the student takes part in, and even more likely if that activity is supported by the opportunity to talk and share ideas about the subject with their peers. In this way participants build ownership of the ideas they develop.

Card sorts provide a structure that encourages such activity and discussion. They allow students to 'try out' concepts to see if they fit for them, to hear arguments for and against from their peers, and to come to realise what they essentially feel about something. As a result of using card sorts students will have had the opportunity to change their opinions.

Card sorts can be used to help students:

- Identify strengths and weaknesses
- Identify values
- Develop personal objectives around an area of
- concern
- Write action plans and
- Reflect on progress
- Develop linkages between ideas and concepts
- Build models of an area of knowledge/practice

Fig 1: Picture of card sort

They are a substantial aid in the personal development process and the creation of Progress Files.

How to Use Card Sorts

As with any other activity that is used for teaching purposes it is important to identify your intended learning outcomes from the activity and check how they fit with the rest of your teaching programme.

1. Setting Aims and Objectives

Question: **"What kind of learning outcome will a card sort facilitate?"**

Answer: The principle of card sorts is that it is all about bringing sense and organisation to the various elements (ideas, variables etc) of a complex problem or system. This makes them ideal tools in examining real world problems and issues where there is no "right answer" or clear model to apply and where there is a host of variables to contend with.

Question: "Is fluidity of thinking by your students a learning outcome that you want to encourage?"

Answer: Cards sorts allow for significant revision and adjustment of originally held ideas during the process.

2. Design

Question: "Does a Card Sort already exist for what I want?"

Answer: Unless the area you are interested in is related to general academic learning, placement, personal or career development the chances are you may have to write your own.
In an ideal world participants would create all their own cards/prompts for discussion. However, each individual participant is likely to have only a few of the appropriate concepts needed for the exercise (hence the need for cards/prompts for starting the discussion!). So in practice prompts will be based on the broad experience brought to the exercise by the designer and others consulted during the course of the design.
Tip: The content can to be gathered from real experience. You can use a variety of people including students as a resource, 100 students are more than capable of coming up with the prompts required for most discussions through brainstorming. Use their brainstorm and your own experience to develop a manageable set of prompt cards, you may have to make the cards a bit more general than the ideas your students come up with.
Having gathered your ideas for prompt cards always provide a number of blank cards so individuals can add extra prompts. It is important to make participants feel that they can bring their own ideas to a discussion using a card sort. Some people don't like to be constrained by others' ways of expressing things. Over time and use these new ideas will, if incorporated, improve your card sort.
Pitfall: Printers may not print blank cards – they assume your request is an error.

Question: "What types of card sort are there?"
Answer: There are at least 3 types of card sort in use – the type which is appropriate for you will depend on the learning outcome you desire;
1. **For Organising ideas** – Prompt cards can be grouped or organised to model a complex system and demonstrate the links between variables (figure 2).
2. **For Prioritising ideas** – Prompt cards can be used to identify an individual's values, priorities and response to a problem; use a different colour for 'category heading' cards (figure 3).
3. **For discussion** – Prompt cards can be used simply as a stimulus for clarifying, and exploration; each card is turned over and becomes a topic for discussion.

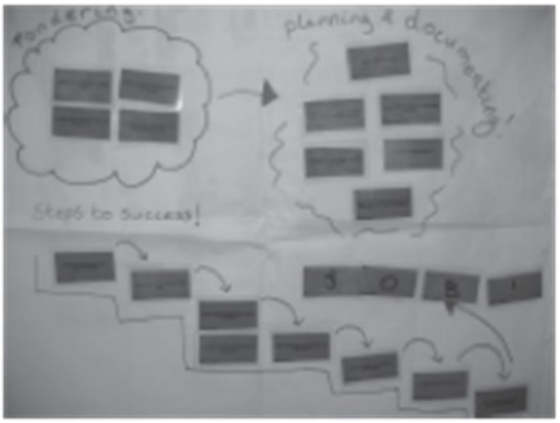

Fig 2: Organising ideas

Question: "What kinds of learning do they support?"
Answer: Card sorts are seen by most students to be different, informal and fun. They allow, through the prompts, a quick and ready way to explore a topic. Ideas can be tested out, moved around altered and changed (figure 4). A key feature is that ideas can be expanded through having to **explain to others** your ideas and finding **out what others think**. The strength of card sorts is that, whether by objective setting or conceptualising, they enable the student to own the outcomes of the activity.

3. Production

Fig 3: Prioritising ideas

Unless you are printing thousands, professionally produced cards cost. Self-produced versions cost staff time. Boxes to keep the cards in are prohibitive in cost. Electronic versions are effective in terms of reproduction but careful thought is needed as to how to replicate the visual impact and the interaction between students that you achieve when using real cards. Electronic versions have the potential to interpret the results for you but development costs are incurred with each modification.

Top Tips:

- Produce templates so that other tutors can make their own
- Number cards so missing ones can easily be identified and replaced
- Use different colours for categories/variables – tutors can then interpret results from a distance
- or even when the cards are written in Finnish!
- Cheap laminated "business card" size wallets can give an impression of high quality
- Laminated blanks can be used again
- Provide an alternative paper based version of the activity for colleagues who may not be
- confident in using card sorts

Pitfall: All methods involve planning ahead – remember it takes a minimum of 20-40 minutes to make a set of cards.

4. Delivery

Students appear to enjoy the process if it is appropriately introduced and explained, and they are encouraged into both personal reflection and group discussion.

Introducing the activity:

Students may never have come across this method of learning; they will need persuading that the activity is serious and worthwhile. Explain why you are using a card sort:

- Cards sorts offer a flexible but structured opportunity to assist in articulating issues
- The materials ask for the participants' involvement and ask them to take control of the learning
- The activity, if undertaken in groups, encourages the participants' to share ideas
- Cards make it easy for participants' to alter/change their thinking during the course of the activity
- It is fun

Be explicit and explain the purpose of each element of the process eg:

- Prompts for discussion – clarifying
- Organising ideas
- Expanding ideas, finding out what others think
- Testing ideas out, explaining
- Conceptualising
- Prioritising – identifying values
- Self assessment
- Setting objectives
- Action planning

Fig 4: Promoting ideas

Tips:

Groups: Encourage sharing within groups, get groups to interact, exchange members, explain to each other, force individuals out of friendship groups. If there is time, get them to present to each other.

Tiered Lecture Theatre: Get them to stack the cards, this is not a problem, they are so relieved not to have a lecture!

Pitfall: Card sorts are very easy to run, they almost run themselves – you will have plenty of time to interact with the groups and discuss their developing views. You will be able to challenge some of their more superficial responses and you will be able to help them focus on what's important to them. Sometimes students have difficulty choosing and everything ends up in the 'most important' column.

Briefing papers are designed to provide a condensed discussion on issues and topics related to teaching and learning in the physical sciences. Each guide focuses on a particular aspect of higher education and is written by an academic experienced in that field.

5. Debriefing: capturing the learning

Participants need to have their thinking validated. It is important on their ideas and to give the 'class' as a whole a view of some of the emerging themes as the participants have described them to you. You can ask for ideas from the groups in a plenary but be aware that students may not be able to generalise as swiftly as you can.
Students need to record their thinking, make sure you provide them with a structure to do this e.g. a sheet with questions such as 'What have you learned about XXX…?' Make them do it there and then, if you ask them to do it in their own time much of the thinking during the session will be lost. Having clarified their ideas/built concepts/set objectives students need to be encouraged to think about 'what now?' What actions are they going to take as a result? When? (figure 5)

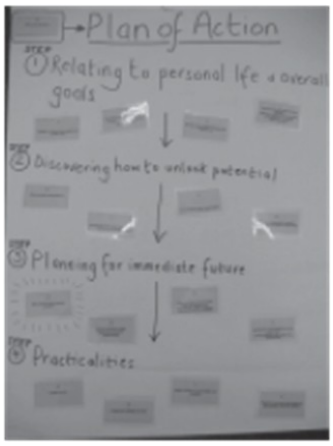

Fig 5: Action plans

6. Revisiting

Reflecting on the learning from card sorts is important both immediately and some time later. This is especially the case if the card sort has been used to set personal objectives and make action plans. Monitoring and reviewing actions is a must and can be done as part of an assessed piece of reflective writing.

Assessment

In areas where there is no right answer it will be difficult to assess content of learning. However, the process can be assessed. Students can and should be encouraged to write reflectively on their learning and experience shows that their reflection can be of high quality. There is a wide body of work that covers assessment criteria for reflective writing (see Moon, Jenny *Reflection and Employability*, Series 4 Learning and Employability, LTSN 2004 for further references).

Evaluating Card Sorts

Card sorts can be a rich learning experience for both tutor and student. German students at Leeds in one pilot stayed on beyond the session engaged until late evening! Physics students including those from France ***"wished they had done this exercise earlier"***. Work Placement students from Chemistry demanded copies of the cards! The Finns particularly valued ***"the interaction it encourages".***
The Good – *"It made you think"* – Geography student
The Bad – ***"I don't like being made to think"*** – Geography student
The Ugly – "***It's the sort of thing your parents would want you to think about"* –** International History and Politics

The Centre has created a web based card sort tool which can be customised for different uses. To access the tool and instructions on how to customise it go to:
<www.heacademy.ac.uk/physsci/home/projects/jisc_del/employabilityproject>

UK Physical Sciences Centre
Department of Chemistry
University of Hull
Hull HU6 7RX

Phone: 01482 465418
Fax: 01482 465418
E-mail: psc@hull.ac.uk
www.heacademy.ac.uk/physsci

Original Author: Maggie Boyle and Paul Jackson
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