Ross Phillips’ Logic Game

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Ross Phillips spent a great deal of his professional life supporting and promoting the teaching of philosophy, and in particular philosophy in schools. He was one of the key instigators of Philosophy for Children (P4C) in Australia and VCE Philosophy in Victoria. His death in 2008 was a sad loss. In this paper I want to pay tribute to Ross by preserving one jewel from his legacy of philosophical teaching and sharing it with those who would otherwise not have the privilege: the Logic Game.

I first discovered the Logic Game in 1995 when Ross presented it at the International P4C Conference in Melbourne. It is a deceptively simple but highly effective and theoretically sophisticated tool for teaching logic. I particularly want to share this treasure as it was very influential for my teaching and for my understanding of P4C.

In the Logic Game, Ross had developed a method for teaching logic that was consistent with the core principles of learning in P4C and their rejection of standard academic methods of teaching logic. But his method was also different from the way Lipman approached the teaching of logic using Harry Stottlemieier's Discovery (1982). To explain Ross' approach I will first describe a standard academic method of teaching logic, and then Lipman's alternative theory of learning and his method of teaching logic. This will allow me to present the theory behind the Logic Game in comparison to the standard academic approach and Lipman's approach. Lastly I will describe how to play the Logic Game.

The theory behind the Logic Game

The standard academic method of teaching logic starts with a description of an argument as a series of statements, where some – the premises or reasons – are meant to give support to a conclusion, to make it at least likely that the conclusion is true. The teaching method would likely
continue with a description of different forms of argument and an explanation of what makes a good argument. Typically the focus is on validity: the lecturer explains to students that some arguments have a valid form – which means that if the premises were true, the conclusion must also be true – and some arguments are invalid – which means the conclusion is not guaranteed by the premises. Additionally it would be explained that if a valid argument also has true premises it would count as a sound argument, but otherwise it would be unsound. The standard academic method of teaching logic might also involve presenting students with a list of fallacies, which are common types of argument that are unsound for one reason or another. Students would learn logic by memorising these descriptions and explanations and then complete exercises where they apply the theory to identify which arguments were valid, which were sound and which were fallacious.

The theory of learning behind the standard academic method of teaching logic is very different from how learning is conceived in P4C:

To learn something well is to learn it afresh in the same spirit of discovery as that which prevailed when it was discovered or in the same spirit of invention as that which prevailed when it was invented (Lipman, 1988, p. 21).

This theory of learning has Deweyan roots where learning occurs only through a process of inquiry (Dewey, 1938, p. 8). This means that students learn by engaging in inquiry for themselves rather than being presented with ‘the refined, finished end-products of inquiry’ (Lipman, 2003, p. 20). According to Dewey, inquiry begins with experienced doubt or felt discomfort and moves towards creating a ‘unified whole’ (1938, p. 108). So under this theory, students learn by starting with a genuine problem and then engaging in inquiry until this problem is resolved. I call this learning by inquiry.

The academic method of learning logic is contrary to the theory of learning underlying P4C because it presents the students with the conclusions of years of inquiry about what makes an argument logical, and does not engage students in inquiry for themselves about these issues. The only significant learning task for students is to practice applying the conclusions they are presented with.

According to the P4C theory of inquiry learning, to learn logic students should start with an issue about logic that they experience as genuinely problematic, and which puts them in a state of cognitive dissonance (not a ‘mock’ problem that merely provides intellectual exercise). Then, by engaging in the same sort of inquiry that expert philosophers engage in (but at a more novice level), they resolve their problem, thus developing the same sort of knowledge about logic that philosophical experts have developed.

Based on this theory of learning, Lipman designed a new way of teaching logic. His approach was to abandon the academic logic textbook based on transmission models of teaching, instead offering a novel as a stimulus for inquiry about logic. His novel, *Harry Stottlemeier's Discovery*, depicts a group of children engaged in an ongoing dialogue which often touches on issues of logic. The novel introduces students to problematic issues about what makes an argument convincing by depicting the children in the novel grappling with their own reasoning and the reasoning of others. Students read the story and choose issues from it that they then address in their own inquiry where they grapple with the problems, raise questions, suggest possible answers and generally inquire about what makes a good argument. In this way, students inquire for themselves and construct their own knowledge about logic.

This process of inquiry learning in Lipman’s method of teaching logic can be summarised in the following stages (2003, pp. 100-103):

1. **Stimulus**: Shared experience of a story that raises philosophical issues.
2. **Agenda**: Generate philosophical questions about the issues in this story.
3. **Dialogue and discussion**: Attempt to answer and make sense of each question, facilitated by the teacher who draws on discussion plans and exercises to help deal with the philosophical issues.
4. **Review and reflection**: Draw final conclusions and decide what to do next.
These stages of inquiry are sometimes taken to be definitional of P4C. However, they are merely a simple, introductory instance of a deeper and more flexible inquiry learning process that starts with a philosophical problem and ends with a philosophical resolution. So, even though Lipman starts with a story as the means to make philosophical problems evident and stimulate inquiry, this is not the only possible method for inquiry learning.

Ross Phillips’ Logic Game uses a different method of teaching logic based on the inquiry learning process of P4C. Rather than present students with a story that raises issues that they could choose to inquire into, the game presents students with a collection of arguments that are problematic in various ways, and invites them to rank the arguments from good to poor. The idea is simple but powerful. Rather than start by transmitting principles of logic and then having students apply them, Ross started with the cases that the principles were invented to make sense of. These cases are impossible to categorise using unsophisticated conceptions of logical and illogical, reasonable and unreasonable. In order to make sense of these challenging problematic cases, students must modify, improve and transform their conceptions of logic. The real aim of the Game is not the ranking itself, but the criteria that students devise for distinguishing good arguments from poor arguments. These are the tools that they can use to discern the difference between high quality and poor quality arguments.

The teacher’s job in the Logic Game is to help his or her students to participate in inquiry where they can construct (or reconstruct as Dewey might say) the logical principles for themselves, rather than directing them to a particular answer. Through grappling with the cases in the Logic Game, students develop their own principles of logic which make more sense to them than if they were simply imposed ready-made.

I use versions of the Logic Game in my primary, secondary and tertiary teaching as well as in my teacher education work. The result is always a greater depth of understanding of the principles of logic than is possible through a standard academic approach, but because it is a targeted activity, the result is achieved more rapidly than it would be by reading the Lipman novels.

Inspired by Ross’ Logic Game, I made use of this same model of teaching and learning in Connecting Concepts (Golding, 2002). I present students with a number of philosophically problematic cases about a concept such as ‘racism’. It is difficult to say whether each case is an example of something that is racist or not, and in order to categorise them, students have to refine and develop more sophisticated conceptions of racism.

For the rest of this paper I describe the Logic Game itself, and how it is used. The fundamentals of what I describe come directly from Ross, but I have also elaborated and refined the Game over the years, so now (like many teaching materials associated with P4C) it is difficult to say where Ross’s contribution ends and mine begins.

Playing the Logic Game

1. Break students into groups and hand out a full set of arguments to each group, one argument to a sheet of paper. Give the groups the following instructions:
2. ‘Arrange the arguments from best argument to worst argument.’
3. ‘Come up with reasons for your arrangement.’
4. ‘Develop general rules or criteria about what counts as a good or a bad argument, and what makes one argument better than another.’
5. Discuss the different rankings and the criteria for distinguishing a better from a worse argument from those that have been suggested by students. Use the Teacher Notes to facilitate a deep, challenging and productive dialogue.

Once some clear rules or criteria for what counts as a good argument have been developed give students the following instructions:

6. ‘Write your own good argument that follows the rules you have developed.’
7. ‘Write your own bad argument that breaks the rules you have developed.’
Note that the Logic Game is not an exercise where students practise applying the definitions of good and bad arguments which have been given to them by the teacher, nor is it a subtle ploy from the teacher so they can lead students to come up with the categories of valid and sound arguments. The Logic Game gives students a chance to confront problematic arguments and construct ways of thinking about them that help them to make sense of the cases and develop their own meaningful and sophisticated conceptions of logic.

The cases
I will describe a set of cases, based on Ross's original set, that I have been using for many years to stimulate inquiry about the principles of logic. Like Ross, I have put these into syllogistic form to make the structure of the argument clear. The first two lines are intended to give support for the last line. Thus the first lines are the reasons and the final line, indicated by 'therefore', is the conclusion. Some of the cases are culturally specific, so feel free to change them so they refer to your own cultural context.

1. All live chickens squawk when trodden on
   This is a live chicken
   Therefore if I tread on this chicken, it will squawk

2. Listening to modern music makes you very tall
   The Seven Dwarves are really tall
   Therefore the Seven Dwarves listen to modern music

3. All elephants are purple
   This banana is an elephant
   Therefore this banana is purple

4. Auckland is a city in Australia
   Australia is part of New Zealand
   Therefore Auckland is a city in New Zealand

5. Dame Kiri te Kanawa is a New Zealand Cultural icon
   All 'All Blacks' are New Zealand Cultural icons
   Therefore Dame Kiri te Kanawa is a member of the 'All Blacks'

6. If Mangere is in Auckland then Mangere is in New Zealand
   Mangere is in Auckland
   Therefore Mangere is in New Zealand

7. If Mangere is in Auckland then Mangere is in New Zealand
   Mangere is in New Zealand
   Therefore Mangere is in Auckland

8. Auckland is a city in Australia
   Australia is part of New Zealand
   Therefore Auckland is a city in New Zealand

9. If Brisbane is in Auckland, then Brisbane is in New Zealand
   Brisbane is not in New Zealand
   Therefore Brisbane is not in Auckland

10. The sun rose every day I remember
    No-one has ever reported a day in which the sun didn't rise
    Therefore the sun will rise tomorrow

11. The first philosophy class I had was brilliant
    The second philosophy class I had was brilliant
    All philosophy classes will be brilliant

12. Dr McKenzie has a PhD in History
    Dr McKenzie said in class that Elisabeth the First died in 1603
    Therefore Elisabeth the First died in 1603

13. Dr McKenzie has a PhD in Astrophysics
    Dr McKenzie said in class that Elisabeth the First died in 1603
    Therefore Elizabeth the First died in 1603

14. Aspirin is better for pain relief than cocoa
    Morphine is better for pain relief than aspirin
    Therefore Morphine is better for pain relief than cocoa
15. Nothing is better than eternal happiness
   Cold porridge is better than nothing
   Therefore cold porridge is better than eternal happiness

16. If you walk in the rain, you get wet
   I didn't walk in the rain
   Therefore I am not wet

17. If you walk in the rain, you get wet
   I walked in the rain
   Therefore I got wet

18. If you walk in the rain, you get wet
   I didn't get wet
   Therefore I didn't walk in the rain

Teacher notes
In this section I give a brief description of how the teacher can facilitate a productive Logic Game. I provide some guidance for the teacher so she can help her students uncover the issues, discover problems in their current conceptions of logic and in their rankings of the arguments, and then develop new, meaningful principles of logic.

First the teacher can ask questions that will help students think through the general issues:

1. Do the reasons given prove the conclusion true?
2. Do the reasons given provide some support to the conclusion?
3. Do the reasons given provide no support to the conclusion?
4. Are arguments like this one usually good or usually bad arguments?
5. How do you tell the difference between arguments that actually prove their conclusion true and arguments that trick you into thinking they prove their conclusion when they do not?
6. Can an argument convince someone but still be a bad argument?
7. Can we mistakenly think an argument is good?
8. Can an argument be good even if the reasons turn out to be false?

9. Can an argument be bad even if the reasons are true?
10. Can an argument have a true conclusion?
11. Can a good argument have a false conclusion?

Second the teacher can help the students uncover and reflect on the issues that the cases present. The cases, individually and when compared, raise a number of challenges to our conceptions of what makes a good argument. I have not addressed every possible issue here, but only a few of the important ones, which I describe briefly. It is important to note that the students may discover other unanticipated issues with these cases. These are especially important to discuss.

The description of these issues is provided to help you to point out cases that will challenge the students' conceptions and thus help them refine those conceptions. For example: If students decide that argument 1 is good because it has true reasons, ask them to consider an argument such as 7 that has true reasons but which do not lead to the conclusion. If students decide that argument 16 is poor, ask them to consider an argument they think is good which has a similar form, such as 18, and ask what the difference between them is, etc.

- Some cases have true reasons, but the reasons do not lead to the conclusion (2 & 5): while others have false reasons, but the reasons do lead to the conclusion (3).
- A few have (plausibly) true reasons and the reasons do support the conclusion. These seem to be the best examples of good arguments (1, 6 & 9). However, one is bad through and through as it has false reasons, the reasons do not lead to the conclusion and the conclusion is false (2).
- Some have conclusions that are true, which makes it seem like they are good arguments, but the reasons do not support this conclusion (7) or the reasons are false (8). On the other hand, one has a false conclusion, but the argument does support this conclusion (3).
- One has reasons that look false, but they are true and do lead to the conclusion (9).
In most of the cases, the reasons are given in an attempt to prove the conclusion true, but in some, the reasons are only intended to make it likely that the conclusion is true (10-13). The reasons given in 10 and 12 seem to make it likely that the conclusion is true. They give much stronger support than 11 and 13, but not as strong as 6 which proves its conclusion true.

Some cases problematise the importance of the meaning of words in the arguments (14 & 15). Although they seem to have the same basic form, 14 is a good argument while 15 seems crazy because the words used in 15 seem to mean different things in the reasons and the conclusion.

Some have a form that means that if the premises are true the conclusion must be true, but others, although similar, have a form that means the reasons do not lead to the conclusion. The reasons in 6 and 9 lead to the conclusion, but they do not in 7, even though it looks similar. Likewise, 16-18 all share a similar form, but only 17 and 18 prove their conclusion true. Even though 16 looks similar, the conclusion does not follow from the reasons given.

The Logic Game is an enjoyable and useful teaching tool that also advances our understanding of P4C and philosophy teaching. Thank you Ross. Long may students engage with and learn from the Logic Game.

References


