Where Did Einstein's Ideas Come From?

«PUSHING FOR DEPTH» WITH UNDERGRADUATE NON-PHILOSOPERS

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In this article I will discuss my work with undergraduate 'non-philosophers' at Royal Melbourne University of Technology. Students enrol in courses such as engineering, accountancy, nursing, fine arts, etc., and in addition must complete four of the subjects offered by the Context Curriculum Unit, which has employed me as a philosopher teaching the subjects *Moral Issues in a Scientific Age, Tradition and Change, Search for Meaning and Culture and Creativity* since 1988.[1] This Unit was established in 1986 to assist students in meeting international standards of professional behaviour, and avowedly to help «produce graduates who are knowledga-ble, creative, critical, responsible and employa-ble.» Since 1991 I have been using strategies I have acquired working with practitioners of Phi-losophy for Children in various educational con-texts as a means of achieving these ends.[2]

Primarily, the influence of Philosophy for Children is apparent in my efforts to establish *community of inquiry* protocols in my classes, with students determining the particular topics of in-quiry, and taking increasing control over the pro-cess of inquiry. Wendy Turgeon recently responded to an informal description of my class-room sessions I titled «Where Did Einstein's Ideas Come From?» observing that 18-19 year olds «so often seem to lack any context at all from which to address questions!», and she asked how we might get around this particular problem.[3] The founders of Philosophy For Children (Lip-man, Sharp and Oscanyn. 1980, p.22) made the following related point, which I believe is particu-larly relevant to undergraduate students; and is perhaps exacerbated by their adolescent sense of pri-vacy:

> *Since we often assume that thinking is private and internal, we also view it as something mysterious and baffling. Under these circumstances, people are unable to apply criteria that would enable them to distinguish better thinking from worse thinking because the reality itself is not apparent to them.*

I will address the issue of how to motivate young adults to learn to distinguish between 'bet-ter and worse thinking' below by focussing on a set of strategies that I have used to ensure stu-dents achieve a greater depth of understanding of where they stand (or where they could stand) on various moral issues, as a *prerequisite* for establish-ing topics worthy of philosophical inquiry.

THE ROLE OF FACILITATOR

As recent discussions (Gardner 1997, Wilks 1997) have also challenged me to clarify the role I play as leader in the various communities of in-quiry I seek to establish. I will begin my discus-sion with a general description of the respon-sibilities I assume as a facilitator. This will serve to provide some background to the lesson plans I present below. I summarise my agenda under three aims.

1. Pushing for depth in inquiry

To use Gardner's phrase, I «push for depth» by requiring students learn to articulate the back-ground of thought and experience that has led them to claim to hold a certain belief. The tip of the iceberg is usually the utterance of a moral principle or injunction, which I first get students to `own' by translating into an `I statement'. Mak-ing an `I statement' is more than making a state-ment of belief, it requires identifying the feelings that the belief actually expresses. It may require some work and sensitivity to transform `dogma' into a sincere `I statement'. «Abortion is wrong» may become «I be-lieve abortion is against the will of God,» and finally expressed in a proper `I state-ment', as «I am frightened of disobeying God's commands...» «I believe abortion is unnatural» may become «The images I have of the act of abortion revolt me.» This requires genuine psy-chological insight and I do my best to help stu-dents avoid retrospective (or self righteous) justifications which may disguise the background of experience that actually sustains their point of view. Once a clear `I statement' is achieved I as-sume the role of urging students to examine their reasons, and their underlying assumptions for holding particu-lar positions, and further to discov-er any undesirable or problematic implications. I model this kind of questioning, expecting the stu-dents to learn and apply these skills during class-room discussions with increasing ease as the course progresses. «Give us A.I.R.» (Assumptions, Implications, Reasons) we say, rather than batting each other over the head with cherished conclu-sions.

2. The disentanglement of concepts

I see myself as drawing attention to philosophi-cal concerns (knotted thinking), motivating my students to start feeling the pressure and hang in there until they feel they have truly disentangled themselves conceptually. Yes, I love the work of Wittgenstein, and make much use of the idea of 'family resemblance concepts' at appropriate mo-ments.[4]

3. The development of rational sensibilities

Students often think that engaging in argument is to merely assert or gainsay a position, and on the whole they appear to be unconscious of the 'formal'[5] dynamics of argumentation. So, my strategy is to encourage students to attend to the feeling aspect of thought. For example, we focus on our reluc-tance to accept a contradiction (how irritating!), the pleasure of achieving consistency, the irresistibility of the conclusion to a valid de-ductive argument, the hesitancy we feel with an inductive generalisation,

the amusing temptations of analogous arguments (the mind boggles!), etc. Thus we learn to identify the intellectual 'in-stincts' that are articulated in the rules of Formal Logic; and by the way, this helps over-come the suspicion that being logical, or rational, is a mere rule following mechanical activity.

STARTING POINTS
(The first three two-hour sessions)

After a brief introduction to the course, and some warm-up exercises, I ask students to intro-duce themselves to the group and to relate either the most recent, or the most pressing, moral problem they have faced. Everyone present is in-vited to engage with each speaker. There are twenty odd students enrolled in the class; other students repeat the following themes in various forms:[6]

«I'm Anna. I'm interested in the legalisation of euthanasia because my Gran is dying... and wants to die with dignity before she's too far gone.»

«I say we should have trade sanctions on prod-ucts from Indonesia because of the abuse of the Timorese.»

«A beggar asked me for coffee money this morning, but I didn't give it to him. I didn't be-lieve him.»

«We should have a condom machine installed in the uni toilets.»

«I never have moral problems. I'm Christian» «I'm interested in IVF.»

«Homosexuals shouldn't be allowed to adopt children because its not fair to the child.» «That's the most recent moral problem I've come across: What's parenting got to do with your sex life? I believe homosexuals have a right to parent.»

«Well, I'm training for the army and for sure, I wouldn't want to meet gays in my workplace.» «I want to stop going to church... I think they are wrong about abortion.»

«I just got a parking ticket. But I had a choice either...»

«I hate racists. Indonesia's one thing, but what about Australians?»

«Why should I be good, when `bad' guys win?»

«I'm a vegetarian, and I think you carnivores suck.»

«Capital punishment should be reinstated for rapists... But I do believe in the sanctity of life.»

I need to reinforce the idea that the task is to provide a moral 'problem', rather than merely specifying a topic of interest. This an ongoing struggle throughout this activity. («So Anna, you said... can you tell us what the problem is then?»)

This exercise fulfills various aims:

1. Each student speaks on a matter they feel ei-ther comfortable or strongly about. This estab-lishes the expectation that everyone has a voice in this classroom no matter what the apparent seri-ousness of their concerns may be.

2. Students become aware (and are often im-pressed) that other people take seriously (or fail to!) various matters. The students seem to see their peers with new interest and are eager to fol-low up each other's concerns, particularly identi-fying peers with common interests and attitudes. (You might notice some students deliberately comment on their peers' introductions by way of posing related problems.)

3. Students are challenged to both identify a 'moral' problem, and to successfully express it 'as a problem'.

4. I can see some of the difficulties that students have with these latter tasks, and this provides me with the beginnings of a philosophical agenda.

LEADING QUESTIONS

(Concept development)

I then take the lead by setting group exercises like:

Were all these moral problems?

We eliminate those we decide didn't quite make it.

Can we now state what moral problems have in common?

Can we now state what makes a problem a 'moral' one?

Are there different kinds of moral problems? One class of six groups came up with the fol-lowing categories:

«Some are political, personal, legal, religious, some are `about' what morals are.»

«Some are about other people being bad, some are about what we expect of ourselves.»

«Some are relevant to everyone, some seem just personal.»

«Some are about life and death choices, some about quality of life.»

«»They are either about money or sex.» «There's cheating, greed, lust and idiots.»

FORMATION OF WORKING GROUPS

Each student must produce an ongoing journal and a two thousand word essay for final assess-ment. When I first began teaching these courses plagiarism was a problem, but the introduction of

'work in progress' activities and general classroom dialogue which encourages students to publicly air ideas, whatever their original source, has eliminat-ed this problem. I now find most essays are writ-ten in the recognisable vernacular of each student. Each discovers his or her own voice!

Initially we sort ourselves into groups with common themes emerging from our introductions and each group focuses on a particular one of these problems to represent to the class, explain-ing how they have gone about trying to come to a solution. We also form groups around our profes-sional goals and discuss what moral problems we might face in our work life. For example, students from the various engineering faculties at various stages in their courses form one group, environ-mental scientists join with town planners, nurses with radiologists, various kinds of designers with artists, etc.[7] We «fish bowl» these discussions, which provides students with information about the expertise of their peers, as well as providing opportunity for developing their critical listening skills.[8] These activities establish a sense of identity as mini-groups, and set the stage for cooperative work.

Once students have committed to a topic[9] we form final working parties responsible for a class presentation; for example, students interested in abortion, IVF and contraception, formed a group they named «To be, or not to be.» The group presentations, which commence after about six weeks, function as stimulus material for our *com-munity of inquiry,* and are treated as work in progress towards the students' final essays. The emergence of ongoing philosophical themes with wide-rang-ing implications for most moral issues stimulates students to take an interest in the oth-erwise `boring' or `irrelevant' topics selected by their peers.

IDENTIFYING CONCEPTUAL ISSUES

I utilise these various groups to begin philo-sophical inquiry. I ask students to discover a set of questions that are relevant to the issues raised by every person in their particular group - to dis-cover a common ground of inquiry to present to the class. This tends to move the discussion in the direction of metaethics, e.g., away from mere assertion, or proclamation, of rights (of the un-born, of women, of men...) to questions like «What is a right?», or even more specifically «What has your concept of `natural' got to do with my concept of `the will of God' when we dis-cuss rights?» We take note of recurring phrases or resting points (assumptions) used in general discussion, such as: `sanctity of life', `natural/ un-natural', `right to life'...

IDENTIFYING PHILOSOPHICAL TASKS

I observe any 'intellectual blocks', during such general discussions, and particularly take note of any epistemological discontent (my own included) as material for preparing the next class. In my role as 'leader' of a community of inquiry I concen-trate on keeping alive these specific philosophical concerns and I look for material that will serve the dual purpose of being relevant to the topics the students have

a genuine interest in, and which will enable me to direct their attention to addressing the question of HOW (and as we build up trust, HOW WELL) we are thinking about these im-portant issues.

PUSHING FOR DEPTH A PARTICULAR JOURNEY
(Sessions four and five.)

Once I think the group is ready, say the fourth session, I announce I will model the kind of pres-entation the students are required to prepare. I se-lect stimulus material that will naturally connect with the first group's topic. As stimulus material I have found various quotations from Albert Ein-stein's autobiography *The World As I See It* to be very useful.

I originally used extracts from this text to assist students enrolled in a subject called *Culture and Creativity* - my intention being to challenge their suppositions about 'the great-man' theory of crea-tivity. I had already posed such conundrums as would Mozart really have created works compara-ble to *Don Giovanni* if he had been shipwrecked as a babe and brought up by Maoris, or would he have become an exponent of the Haka! Having just viewed the film «Amadeus» the latter outcome seemed laughable; the students were convinced (something like) Italian opera would pour forth from Wolfgang whatever his cultural experience might have been. The impact of culture in shap-ing an individual's creative life was seemingly minimal to these students. Serendipity! Someone lent me Einstein's autobi-ography and this text turned out to be very pertinent as my students were mostly enrolled in science courses and they could more easily recognise that Einstein's crea-tive ideas were intrinsically connected with the historical domain of Physics. Since then I have found Einstein's autobiography particularly useful in assisting students in my course *Moral Issues in a Scientific Age.*

Where did Einstein's ideas come from?

In the lessons I am about to relate I selected the following quote for two reasons:

a) it led naturally to a discussion of the first group's theme, that being «Scientists are not mo-ral experts.»

b) to stimulate the students to recognise that moral opinions are not self evident, nor simply their own inventions.

Briefly, Einstein said:

A hundred times every day I remind myself that my inner and outer life depends on the labours of other men, living and dead, and that I must exert myself in order to give in the same measure as I have received... p. 1

i-The Outer Life

We first explored the concept of an «outer life»

- ***I ask my students:***

a) to select any object in the room - and you know how dull a tertiary classroom can be!

b) describe their relationship to it

c) go around the class listing the (anonymous) persons who have actually made possible this relationship.

- ***An example:***

a) «This chair.»

b) «I find it is useful, I can be comfortable when talking with my fellows, making notes...»

c) «...the retailer who sold it to the University, the family and business connections that made possible the establishment of that business, the truck driver who transported it here, the engi-neers who designed the truck, the forester who cut down the tree, the designer of the chair, the manufacturer, the cleaner who maintains it, the interior designer who organised the room, the student who last used it and left it in this position, the painter, paint maker, can maker and distribu-tor...»

- ***The list can go on forever,*** and the class grad-ually finds itself overwhelmed by how much the smallest aspect of their physical life is dependent on the multiplicity of efforts of others. We reflect on the fact that each contribution has being made by an ACTUAL individual performing specific actions, and students usually remark on how 'in-visible' such efforts are. We also consider how our own actions in relation to this object might effect the lives of other people. We use this model as a metaphor for «inner life».

ii-The Inner Life

- ***What counts as the furniture' of the inner world?***

Students' answers include: Attitudes, feelings, ideas, memories, perceptions, pictures, etc.

We consider Einstein's notion of «inner life», firstly by looking at his contributions to science and his avowed intellectual indebtedness to his scientific colleagues; and then by analysing a num-ber of short extracts from his letters included in the autobiography. These are largely tributes to (or rejections of) his colleagues and other thinkers of the day. Topics include: pacifism and disarma-ment, responsibili-ties of scientists, psychoanalysis, Jewish question...

We have a sense of Einstein grappling with the ideas of the day, the ideas of other people as he forms and reforms his own positions.

• ***We decided on a theme*** (a room) and each student selected a specific piece (of furniture) of their inner life expressed in an 'I statement' which I wrote on the board. One theme selected by students was nuclear disarmament.

Students' 'I statements' included:

«I am opposed to proliferation of arms.»

«I believe in the `sanctity of life', I am in awe of human life.»

«I'm frightened of aggressive attacks from com-munist states.»

«A scientist can't be responsible for others' ac-tions... I don't feel responsible for other's ac-tions.»

• ***We discussed the kinds of verbs we have used*** to express our moral positions:

e.g., I believe that, I know, I feel, I am commit-ted to, I am against, I think that it's wrong, I read in the Bible that... , I feel guilty about... ,

• ***We explore*** whether or how we can get from 'I statements' to general moral principles.

• ***We then discussed*** «Inner labour» and I asked students to recall the intellectual activities of oth-ers that have shaped these attitudes - specific in-tellectual acts, (for example, I was informed by X that...., X bullied, X preached at, X persuaded, X argued that, X inspired in me, X modelled, X re-lated her experience of... etc.).

This activity gave rise to interesting discussions about rhetoric (such as clarifying distinctions be-tween persuasion, indoctrination, bullying, emo-tional blackmail...) and led students to consider crite-ria for appropriately communicating their view points.[10]

• ***We consider our own contribution*** to the shaping of our attitude.

When have you changed your mind?, defend-ed your view? sought new information?

OUTCOMES

Students often think they alone are author of their ideas, and have no sense of their indebted-ness to others. As they compare their experiences they develop a sense of belonging to a particular tradition of thought. This sense of historical con-tingency enables them to gain some independence of thought. They may realise, for example, that what they have taken to be self-evident has only this appearance

because of the impressive actions of many people they are only contingently con-nected with. They also may realise they can take responsibility for the continued life of these atti-tudes, or if they so wish, their transformation.

As well as developing a sense of belonging to our particular intellectual community of inquiry, we are now in a position to debate the appropri-ateness of acts affecting the inner life. The stu-dents develop a taste for better thinking, both being prepared to self correct, and to assist their colleagues in achieving better understandings.

CONCLUSION

Students are required to keep track of their thinking in their journals, where they are to try to integrate their various opinions, (e.g., is your view on abortion consistent with your view on capital punishment?). I ask the students to take on board others' opinions, and require them to speak to (or write about) any matter raised, firstly by clearly articulating the speaker's view point, and secondly by demonstrating how well it sits with their own views. Their journal entries reveal they tend to develop a respectful awareness of the multiplicity of view points within our own community. The achievement of internal consistency and a better understanding of other's views, and therefore greater tolerance for difference, are all greatly val-ued by students.

Although this approach rarely generates an in-terest in fully fledged philosophical texts, I believe my students develop argumentative and listening skills that enable them to seriously grapple with their prejudices. In taking an increasingly reflec-tive attitude to moral issues they are much better equipped to negotiate their way through the com-plex moral terrain they will meet with in their professional and personal lives. [11]

NOTES:

1. Not all of the fifty or so subjects offered by the Context Curriculum Unit are potentially philo-sophical, e.g., introductions to computer software packages, basic Japanese...

2. Originally I had designed my courses with explicit references to classical philosophical writers, deploying material I taught in the Philosophy department at Melbourne University (e.g., in moral is-sues: Plato, Aristotle, Kant, Hume, Mill, Sartre...) - in highly edited forms. To be honest this was as effective in nurturing the reflective life of my students as «raindrops off oil slick roadways» as Lipman recently declaimed of current `critical thinking' courses.

3. email correspondence 3rd February 1997.

4. Such as times of 'nothing buttery', the inclination to define a problematic concept as 'nothing but...'; for example, «Christians only believe in God out of fear of death», implying the concept of 'religious faith' is reducible to 'fear'.

5. I am using the term 'formal' here in a way that musicians might more easily recognise, as ·movement of thought through time', rather than as an antonym for 'casual'.

6. Initially I provided an example myself, such as «I'm Janette, and I am struggling with a conflict between my family and work responsibilities», but

I avoid this, unless the students are really stuck, because they tend to mimic the form of my statement resulting in little variety in the kinds of examples offered. I can assume students do have some experience of moral problems and it is their concepts I want to work with.

7. An advantage of a mixed disciplinary class is there are often numerous sources of relevant expertise. To set the stage I encourage the students to look for expertise within the group; we brainstorm for questions to bring the 'experts' out of the woodwork: anyone training in the army? with personal experiences of war? with potential professional connections with the military, or the production of weapons?

8. *Fish Bowl*

1.) A small group of students form a circle to explore an issue, and are given a particular set of protocols, for example, using de Bono's six thinking hats, enacting a role play, conducting a debate, establishing a community of inquiry. 2.) The remaining students sit outside the circle (either in working groups or as individuals) with various listening tasks.

(i) Procedural: for example, were the protocols maintained? did anyone dominate the discussion? any unfair manoeuvres made? was a consensus reached? what conflicts emerged? did anyone change their mind? unexpressed assumptions? dogmatic statements?

(ii) Content: what facts were disputed? what facts need to be checked or gathered? what philosophical issues emerged?

9. Interestingly the problems chosen are often closely related to students' first identification of a moral problem, except that themes like friendship and

personal honesty drop away in favour of more politicised issues. This is partly because the course title «in a Scientific Age» invites students to focus on moral problems arising from technological advances, such as IVF, cloning, euthanasia... but also because more public and formal `language games' have developed around the latter issues, they are safer!

10. On another occasion students discussed the intellectual work of other people, (for example, I have been influenced by a journal article, speech, soapy, newspaper article, film, novel, poem, legal battle, law, report of the medical profession, religious teaching, etc.), which gave rise to discussions about appropriate sources of information and influence, and the inquiry becomes more socially and culturally oriented.

11. As there is minimal assessment of teacher success, this is a personal judgement that can only be examined retrospectively by reading of student journals, or conducting interviews with students. As a point of historical interest, in 1996 the Unit began devolving its teaching responsibilities to internal staff, so the kinds of subjects I mention herein are largely taught by people with neither a background in philosophy, nor an interest in the pedagogy of 'inquiry.'

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