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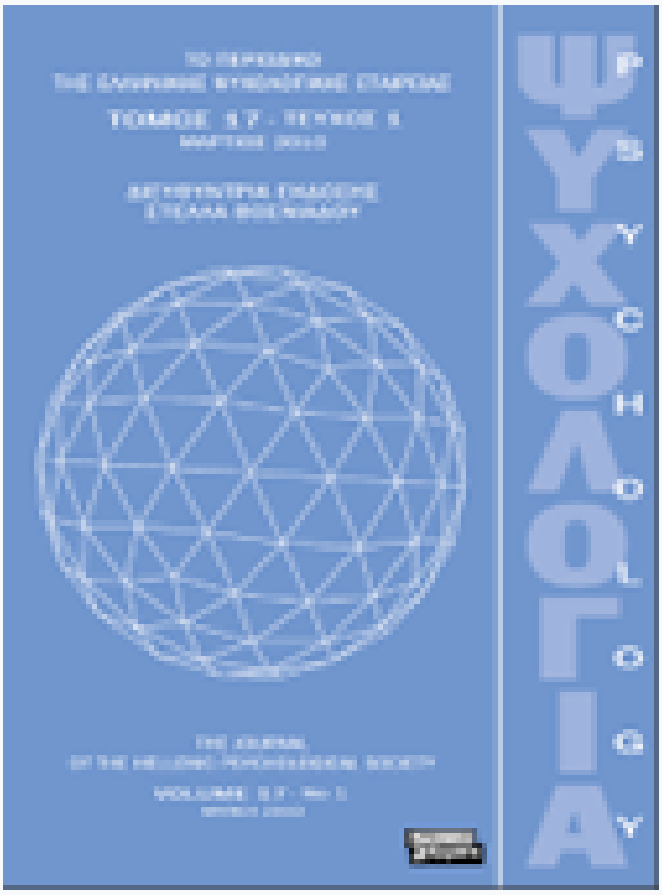

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An exploration of postgraduate students' conceptions of the nature of argument

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ABSTRACT Study at postgraduate level requires the development of the skills of argument in developing both theoretical and empirical work. This study aimed to explore conceptions of argument among post-graduate students using qualitative methods within a quasi-experimental design. Thirty nine students, divided into two groups, participated. Each group completed two tasks in a different order. Task 1 required each student to describe in writing how an argument might be used to add to knowledge and to list any characteristic structural features of an argument. Task 2 required the reading of a short text which was then evaluated in relation to its use of argument. For each task, small group discussion of differences, similarities and changes in views was tape-recorded. The findings showed considerable agreement regarding the main characteristics of an argument but variability in how argument was perceived to add to knowledge. The findings are discussed in relation to the work of Kuhn (1991) and in terms of their educational implications.

Key words: Argument, Higher education, Student learning.

1. Introduction

Academic argumentation and the practice of debate in the Western World have their roots in the Socratic-Aristotelian pursuit of the truth. Critical thinking, the logical consideration of strengths and weaknesses of a claim or proposal and contrasting it with alternative perspectives are central to this form of discourse and have been proposed as the highest form of reasoning. Siegel (1988, p. 13) describes such argumentation as "skilled scepticism" where the thinker seriously questions his or her deepest beliefs and assumptions, challenges them and identifies contradictions and inconsistencies. There are alternatives to the Western tradition of argumentation. Typically in East Asia maintaining harmony and avoiding offence or confrontation appear to be of greater value and importance than

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the search for absolute truth (Hofstede & Bond, 1984). Academic discourse in Eastern Asian cultures is not based on argumentation but rather listening to others, exposition of accepted fact, and restraint in expressing personal opinions, especially when these are contrary to the common consensus (Durkin, 2008).

In the UK, the development of critical thinking is a stated aim of undergraduate and postgraduate courses. Lecturers value the development of the skills of argumentation and a student who has acquired these skills is generally seen as a "good" student (Mitchell, 2000). The assessment criteria set out for master's level in 2003 by the UK Quality Assurance Agency for Higher Education refer to students acquiring skills of rigorous argumentation and critical analysis and developing an academic argument is the typical assessment method for the humanities, social sciences, some aspects of art (Andrews, 2007), and in the sciences (e.g. Kuhn, 1993; Wiley & Voss, 1999; Duschi & Osborne, 2002; Sandoval & Millwood, 2005). The nature of argumentation involving constructing, refuting and comparing arguments using a variety of types of reasoning (Andriessen, Baker & Suthers, 2003) has the potential for making students' thinking visible, refuting misconceptions, and modifying underlying beliefs (Baker, 1999) and there is evidence that engagement in constructing arguments enhances knowledge in college students (Wiley & Voss, 1999), and helps students to compare their conceptualisations with those of others and recognise potential points of conflict for further discussion (Suthers, 2003). This can be developed in small or large group discussions (e.g. Mason, 1996; 2001; Zohar & Nemet, 2002).

McCune (2004) showed that being encouraged to develop a critical, argumentative approach supported the development of deep approaches to learning in university students. Deep approaches are in evidence when students attempt to understand, integrate, or draw conclusions from material, while surface level processing is related to verbal reports of obtaining facts and information and trying to memorise (Marton & Säljö, 1976). Surface learning occurs when learners intend to complete the task with little personal engagement while intentions to reach an understanding lead to an interaction with the ideas and evidence to explore how conclusions have been justified by the author. McCune, in an interview study, investigated students' conceptions of essay writing as they progressed through the first year of a psychology degree. Analysis of the data revealed categorisations related to the use of evidence in argument (vague ideas about evidence; including different viewpoints; precursors to using evidence to support arguments; and using evidence to support arguments); the structure of essays (vague ideas about structure; structure from textbook and structure from questions; structure from content) and conclusions (unsure about conclusions; conclusions as summary; precursors to drawing conclusions from evidence; drawing conclusions from evidence). Overall, the guidance provided by tutors made little difference to students' conceptions of essay writing during the year and it was difficult for students to move from simple to more sophisticated conceptions. Where there was change this was related to the learning approach adopted and students acquiring a fuller understanding of how they could develop academically if they were prepared to make a serious and deep commitment to their studies. Recognising the importance of understanding was crucial as was developing a more personal viewpoint (McCune, 2004; Entwistle, McCune, & Walker, 2001). The evidence, to date, suggests that understanding differs in relation to its breadth, depth, and the structures used to organise it (Entwistle & Entwistle, 1992, 2003). Students who adopt deep, strategic approaches typically develop their own structures for organising knowledge which act as mnemonics during examinations. These personal understandings which require independent learning and do not rely on the content and structure provided during the course require students to actively engage with materials and re-organise information to reflect their existing cognitive structures rather than accepting what is offered to them by lecturers. This process is likely to involve the application of argumentation processes as students grapple with considering how new material fits with their existing knowledge.

Difficulties in developing argumentative skills

Argumentation skills are frequently not highly developed in young people and they may have difficulty producing relevant evidence to support their positions, counterarguments and rebuttals (Kuhn, 1991). They can also be guided by belief bias (i.e. previously held subjective views about the nature of argument or its content) when evaluating arguments (Klaczynski, 2000). Bias has been found to have an impact on college students' production and evaluation of arguments, most students evaluating arguments made from a single perspective as of higher quality even when made from a different perspective to their own (Baron, 1995).

East Asian students have particular difficulties in adapting to the Western argumentation tradition, differences in academic expectations often resulting in misunderstandings for lecturers and students (e.g. Leki, 1995; Prior, 1991). Durkin (2008) explored East Asian students' learning experiences in coping with Western academic norms of critical thinking in classroom debate and assignment writing and found that they adopted a middle way to cope with the cultural differences. They tended to adopt indirect challenge with a focus on reasoning which aimed to bring together rather than separate. The aim was not to argue between two polarized positions but to develop a more conciliatory discourse which allowed for diversity of opinions. Durkin concluded that the majority of East Asian post-graduate students did not fully internalize the academic norms and values of the West regarding critical thinking and argumentation.

Teaching argumentation skills

In the UK, until relatively recently, although developing the skills of argument is highly valued, little attention had been given to explicitly teaching the role, purpose and method of argument (Mitchell, 1994). Davidson (2000) explains this in terms of lecturers wishing to retain their power in relationships with students, the latter left to attempt to make sense of the often confusing and ever changing expectations of them which differ between subjects and tutors within a subject. This contrasts with the situation in the United States where the teaching of "composition" is an established part of the experience of higher education students and the writing and reading of argument is a prominent part of instruction and practice, typically separated from disciplinary study (e.g. Corbett 1965; Emmel, Resch, & Tenney, 1996; Fulkerson, 1988).

There is considerable debate about whether argumentation skills can be taught separately from the context of an academic subject. Giltrow (2000) suggests that talking about argument as a text type in general can confuse students because what counts as argument and evidence differs so widely. Students need to be inducted into the particular practices of their academic community. Andrews (2007) proposes that although arguments can take many forms particularly in postgraduate education including short position papers, argumentative research papers, critiques, syntheses, long essays, short dissertations or long theses, they all are based on the same principles.

Some have argued that while the term argument is clearly potent in regard to academic discourse it cannot be further unpacked and there is little useful advice that can be given about it (Crème & Lea, 1997). Not all have adopted such a pessimistic approach. Skills of argument have been taught through critical thinking approaches where arguments are analysed within the philosophical framework of premises and conclusions. Evaluation of arguments tends to be based on advice distinguishing between good and bad, or legitimate and illegitimate arguments in terms of their adherence to strict deductive and inductive models (Fairburn & Winch, 1996). Other approaches emphasise the questioning processes that students might usefully adopt when reading, generating or thinking through arguments (Barnes, 1992), or provide students with prompts that they can use in developing arguments, for instance, "Since, Then, Because" (Riddle, 2000). These approaches make no claims regarding the content of the related elements, how the relations should be expressed in language or whether the relations

need to be explicitly expressed in order for an argument to be understood to be taking place (Mitchell, 2000) thus taking account of the difference in the nature of argument in different subject domains. There is mixed evidence about the extent to which direct instruction in argumentation can be effective, some studies indicating that it can enhance skills (Sanders et al., 1994), others that it may have no positive effects (Knudson, 1991), although there is evidence that scaffolding argumentation performance by question prompting can be effective (Cho & Jonassen, 2002; Ge & Land, 2003; Jonassen & Remidez, 2005; Oh & Jonassen, 2007).

Models of academic argument

A number of models of the nature of argument have been developed. Walton (1989) drew on everyday examples such as political debates, ethical issues, scientific controversies and consumer problems suggesting that any argument could be usefully analysed using knowledge of reasoning in different domains of human enterprise. For him arguments in everyday life involved appeal to different kinds of knowledge base for support and justification. Schriffin, (1987) developed two approaches to argument: argument as dialectical relations within text and argument as the organization of interpersonal moves. In the first textual relations are analysed to find out what position is taken by speakers and what support they provide for it. In the second, interpersonal moves are considered in relation to how intentions and attitudes are organized, whether the individual wishes to challenge, defend, or rebut and so on. Schriffin defines argument as "discourse in which speakers support disputable positions" (p. 18). This conceptualizes argument in relation to participant roles and actions, argument as a performance which is provoked and sustained by an audience.

One of the most influential models of argument is that proposed by Toulmin (1958, Toulmin, Rieke, & Janik 1984 – see Mitchell & Riddle, 2000 for a discussion of its extensive uses). The "Toulmin" model sets out six units of argument organised into two triads. The first triad consists of: Claim (a position that we take a stand on functioning either as a starting point or destination in the argumentative process); Grounds (the information that the claim is based on consisting of anything from common knowledge to experimental findings, functioning to support the Claim); and Warrant (Laws, principles or rules relevant to the move from Grounds to Claim functioning to justify that move). The second triad consists of: Backing (general information associated with the status or provenance of the Warrant functioning to add authority to the Warrant); Qualifier (stating the degree of force or probability to be attached to the claim); and Rebuttal (acknowledging exceptions or limitations to the argument, admitting to those circumstances or situations where the argument would not hold. Toulmin, Rieke and Janik (1984) also outline a range of argumentative contexts, "forums of argumentation" which have their own rules and procedures arising from shared intentions, goals and outcomes. They suggest that all arguments, although they share similar elements, must be analysed in their context. Toulmin's (1958) general description of the structure of arguments in informal reasoning has gained wide acceptance (Kuhn, 1991) and is typically used as a normative standard in order to evaluate the quality of students' argumentation.

Most of the research to date has focused on the application of argumentation skills in undergraduates. Post-graduate study, with its requirements to appreciate and carry out research, places particular emphasis on the development of the skills of argument but to date there has been little research focusing on this particular group of learners. The research reported here aims to explore post-graduate psychology of education students' conceptions of the nature of argument.

2. Methodology

The first study began with exploratory semi-structured interviews with 16 students taking a Masters course in the Psychology of Education which had a heavy emphasis on empirical

research. They were asked how they perceived the concept of argument, what they believed the purpose of argument to be, what structural aspects of an argument that they had noted, and how argument might contribute to knowledge.

A second study aimed to further elucidate the findings from the first study by adopting qualitative methods within a quasi-experimental design. Thirty-nine students on the same Masters course participated. They were divided into two groups A and B. Each group completed the same two tasks but the order was reversed for the second group.

In the first task, participants were asked to describe in writing how an argument might be used to add to knowledge and to list any characteristic structural features of an argument as they understood the term. This information was then shared, compared and discussed in small groups. Participants were then asked to indicate the nature of any disagreements and any changes in their view of how argument might contribute to knowledge.

The second task required participants to read a short text (see appendices) discussing the design of an evaluation of a hypothetical literacy programme in a developing country. They were asked to indicate in writing the main steps of the argument, if they thought the author was making one, or to give their reasons if they thought not. If they thought there was an incomplete argument they were asked why. Their thoughts were then shared with a small discussion group. Following this they were asked to write about the nature of any agreement or disagreement and to outline any changes in their thinking about whether they perceived there to be an argument in the text. The discussions were tape-recorded and the tapes were transcribed.

3. Findings from Study 1

The data from the exploratory semi-structured interview study were analysed using an iterative process devised by Cooper & McIntyre (1993) to identify emerging themes. The process involved:

1. Reading a random sample of scripts;
2. Identifying points of similarity and difference among these transcripts in relation to the research questions;
3. Generating theories, on the basis of two, describing emergent answers to the research questions;
4. Testing theories against a new set of transcripts;
5. Testing new theories against transcripts that have already been dealt with;
6. Carrying all existing theories forward to new transcripts;
7. Repeating the above process until all data have been examined and all theories tested against all data.

Conceptions of the nature of argument ranging from confrontation or a "row", through reasoned discussion or dialogue to argument constructed within written text emerged from the interviews. Most of the interviewees conceived of argument as presenting a case, supported by evidence leading to a conclusion. It would be logical and structured. There was little reference to the nature of that structure or the kind of evidence that would be necessary or appropriate. Slightly more than half of those interviewed referred to setting out alternative viewpoints but there was no indication of how these contributed to the construction of the argument. A substantial minority referred to an argument as involving "winning" or proving something (for details see Table 1).

4. Findings from Study 2

First analysis

For study 2, initially, a grounded approach to data categorisation was adopted. The written statements of the students were examined and categorised into emerging themes as in study 1. Table 2 sets out the emerging categories with the percentage responses in each category made by the sample as a whole and groups A and B. Given the small size of the sample and the qualitative nature of the data it was felt to be more appropriate to look for variations in patterns of responses rather than undertake statistical analysis.

Table 1
Emerging conceptions of argument derived from individual semi-structured interviews.

Emergent conceptions	Total referring to a particular theme	%
Conception of argument		
Confrontation/row/disagreement, usually involving negative emotions	15	94
Reasoned discussion or dialogue which may be stimulating	12	75
Argument constructed within an essay or with oneself	7	44
Purpose of argument		
To present a case	13	81
To support a case	8	5
To defend a case	3	19
To set out several viewpoints or the pros and cons of something	9	56
To reach an agreement or conclusion	11	69
To win or “prove” something	7	44
To persuade	6	38
To test or crystallise ideas	7	44
To develop understanding	5	31
Process of argument		
Logical	10	62
Structured step by step	7	44
Relies on use of evidence	13	81
Presents a case	13	81
Supports a case	11	69
Defends a case	5	31
Presents alternative case(s)	8	5
Supports alternative case(s)	5	31
Provides answering counter argument	6	38
Weighs and evaluates evidence	7	44
Clarity and communication	4	25
Outcomes of argument		
Firm conclusion	5	31
Conclusion	7	44
Open verdict	4	25
Continued disagreement	1	6

Across the whole sample the purpose of an argument was mainly viewed as gaining a deeper understanding. In relation to process, almost all of the students believed that argument involved making an assertion or setting out a hypothesis, and a substantial majority that it supported or justified an assertion, used evidence, and set out alternate views. About half said that it was set out in logical steps and less than half that it was structured. In relation to the outcome of argument, substantial proportions indicated that it represented a re-assessment of views, a construction of knowledge, or the drawing of a conclusion.

Examination of the differences between the two groups suggests that conceptions of the nature of argument differed depending on whether the text had been read first or second. In relation to the purpose of argument those reading the text first tended to see argument less as a persuasion or presenting a particular point of view, challenging different viewpoints, less as integrating or clarifying beliefs and more as testing hypotheses and ideas, developing critical thinking and attempting to refute assertions (see Table 2). In relation to process, the group where the text was read first more reported logical steps, structure and a reduction in supporting and justifying assertions and using evidence. In relation to outcomes those reading the text first tended to see argument less as reaching a conclusion, re-assessing views or constructing knowledge, strengthening the original assertion and weakening or refuting the original assertion.

A similar thematic analysis was applied to the students' responses when the students were asked to analyse the argument presented to them. The findings are presented in Table 3. Across the whole sample almost two thirds believed that the text constituted an argument, but just over half that the argument was incomplete. About a quarter responded that it did not constitute an argument. In relation to the structure of the argument, in their written statements the great majority reported that the presented text made an assertion, and that it criticised the assertion. Under half thought that a counter argument was presented, or that it presented evidence to support the assertion. Similarly, under half stated that it reached a conclusion. Perceived weaknesses in the argument included poor logical presentation of the evidence, omission of other possibilities, the introduction of several perspectives, supporting evidence for several perspectives, and that the discussion was confusing and rambling. Where students felt that the argument was weak or incomplete their criticism focused on the lack of a clear assertion and poor logical presentation of the evidence. This suggested that they may not have understood the argument. Table 4 sets out the key elements emerging from the analysis of the presented argument.

Comparison of the percentage responses of the two groups in relation to their perceptions of the presented argument suggested that those who read the text first tended to be more positive about it constituting an argument, and fewer thought the argument was incomplete. More thought that it presented evidence to support an assertion, criticised the assertion, supported counter argument, criticised the counter argument and offered and supported a counter-counter argument and reached a conclusion. This group also tended to see the argument as having fewer weaknesses.

The grounded analysis of the data from the quasi-experimental study provided a clearer picture of students' conceptions of the nature of argument relating to written text than that derived from the semi-structured interviews. However, to enable a comparison to be made of the effects of the text itself an analysis was required which would focus even more closely on academic argument

Second analysis

A second analysis of the data in the light of Kuhn's (1991) study of the skills of causal argument was undertaken. In the Kuhn study 160 participants constituted a sample from the general population, selected to allow exploration of sex, age and college/non-college education, and a further three samples of "experts" in the fields covering the topics around which argument was

Table 2
Categories emerging from grounded analysis of the students' conceptions of argument

Emergent categories	Total	%	Total	%	Total	%
Purpose	**Whole sample n=39**		**Group A Own ideas first n=18**		**Group B Text first n=21**	
To gain a deeper understanding	18	46	9	50	9	43
To persuade/present point of view	9	23	5	28	4	19
To integrate or clarify ideas	6	15	4	22	2	9
To test hypotheses or ideas	5	13	1	5	4	19
Develops critical thinking	5	13	–	–	5	24
Challenges different viewpoints	9	23	7	39	2	9
Attempts to refute an assertion	5	13	–	–	5	24
Process						
Is set out in logical steps	19	49	7	39	12	57
Structured	16	41	6	33	10	48
Makes assertion/sets out hypotheses	34	87	16	89	18	86
Supports/justifies assertion	23	59	12	67	11	52
Criticises assertion	13	33	6	33	7	33
Sets out counter argument	11	28	6	33	5	24
Criticises counter argument	7	18	3	17	4	19
Sets out alternative views	23	59	11	61	12	57
Criticises alternative views	12	31	5	28	7	33
Uses evidence	26	67	13	81	13	62
Outcome						
Reaches conclusion	21	54	11	61	10	48
Re-assessment of views/construction of knowledge	23	59	13	81	10	48
Strengthens original assertion	8	21	6	33	2	9
Weaken or refute original assertion	6	15	5	28	1	5

Table 3
Analysis of presented argument.

Categories of response	**Total**	**%**	**Total**	**%**	**Total**	**%**
Overall view	**Whole sample n = 39**		**Group A Own ideas first n=18**		**Group B Text first n=21**	
Constitutes an argument	25	64	8	44	17	81
Does not constitute an argument	10	26	6	33	4	19
Not sure	3	8	3	17		
Argument incomplete	20	51	11	61	9	43
Structure of argument						
Makes assertion	30	77	13	81	17	81
Evidence to support assertion	15	38	6	33	9	43
Criticises assertion	23	59	8	44	15	71
Sets out a counter argument	19	49	9	50	10	48
Supports counter argument	11	28	8	44	3	14
Criticises counter argument	8	21	4	22	4	19
Offers counter counter argument	2	5	–	–	2	9
Offers support for counter counter argument	1	2			1	5
Reaches conclusion	18	46	7	39	11	52
Weaknesses of argument						
No or weak initial assertion	6	15	4	22	2	9
Insufficient evidence	7	18	4	22	3	14
Omission in the argument of other possibilities	9	23	5	28	4	19
Poor logical presentation of the evidence	16	41	9	50	7	33
Opposing views presented late in the text	3	8	3	17	–	–
Introduces several perspectives	9	23	4	22	5	24
Supporting evidence for several perspectives	8	21	4	22	4	19
Criticisms not properly addressed	2	5	–	–	2	9
Indirect argument	1	2	–	–	1	5
Confusing/rambling discussion	8	21	5	28	3	14
Overall, final conclusion not explained	6	15	3	17	3	14

Table 4
Categories emerging from grounded analysis of the students' analysis of the presented argument

Analysis of presented argument for whole sample	
Structure of argument	**Weaknesses in argument**
Makes assertion	No or weak initial assertion
Evidence to support assertion	Insufficient evidence
Criticises assertion	
Sets out counter argument	Introduces several perspectives/ Omission in the argument of other possibilities/ Opposing views presented late in the text
Supports counter argument	Supporting evidence for several
Criticises counter-argument	perspectives
Attempts to disprove case	Criticisms not properly addressed
Reaches conclusion	Overall, final conclusion not explained
	Indirect argument
	Confusing/rambling discussion
	Poor logical presentation of the evidence

explored. The experts were parole officers, teachers and philosophy graduates. The interview design was based on Toulmin's analysis of the nature of argument, and probed the reasoning used to support an assertion of cause and ways used to challenge or counter the assertion. Kuhn found that most participants were able to suggest a causal reason for a state of affairs, though a few could only advance on this by reasserting the reason in the form of illustration. Most provided evidence to back up their assertions and could also suggest alternative reasons with supporting evidence. But few looked to countering an assertion with evidence that would weaken or dispose of it. In terms of displaying both strategies of proposing and countering, the sample of philosophers clearly outperformed the others.

In spite of the more open use of the term argument in the present study compared with Kuhn's concentration on causal argument, it seemed likely that emphasising the research context would evoke similar strategies of assertion, alternative assertion, counter-assertion, search for supporting evidence, search for countering evidence, and consideration of rebuttal. It was also possible that more attention might be paid to supporting than to countering an assertion. The second analysis therefore looked beyond what was reported in the data to what was not mentioned, using the framework adopted by Kuhn.

The results for the students' reports of what constituted an argument in the research context, both before and after evaluating the text argument, are shown in table 5. The overall picture of the students' conceptions of argument is not surprising in view of Kuhn's findings. She

Table 5
Students' conceptions of argument as referred to in the research context

Aspects of argument referred to in students' own conceptions	Proportion of students making reference to selected aspect	
	Group A Own ideas first (n=18)	Group B Text first (n=21)
Argument purpose		
Support for idea	0.61	0.71
Challenge idea	0.50	0.38
Test idea	0.33	0.14
Argument process		
Counter-assertion	0.11	0.19
Alternative assertion(s)	0.67	0.62
Supporting evidence for any assertion	0.61	0.86
Countering evidence for any assertion	0.28	0.52
Reasoning process	0.28	0.38
Outcome mode		
Rejection/rebuttal	0.39	0.29
Modification	0.22	0.05
Compromise, consensus	0.11	0.05
Unspecified resolution	0.28	0.48

emphasised the apparent failure of most of her sample to appreciate that an argument goes beyond supporting or challenging an idea and aims to test it. In the present study only a quarter of the students mentioned testing, almost half mentioned challenging an assertion, whilst two thirds mentioned supporting it. Curiously, the effect of the text reading seemed to be to diminish the later likelihood of mentioning challenge and test. This will be explored below.

As to the process of argument and its conclusion or resolution, alternative assertions and the use of supporting evidence were frequently mentioned, but countering was relatively infrequently mentioned. A third of the students mentioned rejection or rebuttal of an assertion, but others indicated rather vague conclusions, some conveying a sense of argument as a social rather than an intellectual process. The effect of evaluating the text on

Table 6
Students' analyses of a text argument.

Aspects of argument referred to in students' own evaluation of text	Proportion of students making reference to selected aspect	
	Own ideas first (n=21)/(n=17)	After own ideas (n=18)/(n=12)
Judgement of argument		
Not an argument	0.19	0.33
Incomplete argument	0.43/0.53	0.61/0.92
Reference to assertion		
Clear first assertion	0.35	0.67
Judged absent or unclear	0.29	0.25
No reference to assertion	0.41	0.08
Argument process		
Alternative assertion	0.65	0.67
Supporting evidence for any assertion	0.76	0.83
Countering evidence for any assertion	0.65	0.58
Argument outcome		
Clear conclusion	0.35	0.50
Conclusion unclear	0.24	0.17
No reference to conclusion	0.41	0.33

students' own conceptions of argument appeared to be to increase the proportion of students referring to supporting and countering evidence, but to decrease reference to rejection or rebuttal.

Students' reports on the text argument are shown in table 6. Since the text concerned an argument as to why one research design might be preferred to another in a particular study, the analysis accepted as a first assertion whichever position was thought by the students to be such. This enabled all data concerning assertion, supporting and countering reasons or evidence, rebuttal and conclusion to be categorised, whatever the student had understood of the opposed positions in the argument. The use of different sample totals within each column is justified by the high proportion of students not seeing an argument and therefore not responding to the question which prompted reference to its structure. The lower sample sizes yield proportions of those students who did think there was an argument of some sort.

Table 7
Numbers of students reporting from each task condition any disagreement amongst themselves in their original comments and changes to these after discussion.

	Conceptions of argument		**Conceptions of text**	
	Before text (n=18)	**After text (n=21)**	**Before reporting of conceptions (n=21)**	**After reporting of conceptions (n=18)**
Disagreement	15	3	15	15
Change	13	3	4	14

It was surprising that a fifth of the students felt that the text did not present an argument, a proportion which rose to a third in those who had first spent time considering their own conceptions of an argument. The explicit reasons given by most who thought there was no argument was that it was merely a vague discussion. Judging by the responses of those who did think there was an argument, one reason for their doubt appeared to be difficulty in identifying what was being asserted and how it was being pitted against an alternative.

A third of the students were uncertain about a first or prime assertion, and of those who thought there was an argument more than a half overall had difficulty identifying a clear conclusion. More reference was made to the use of supporting and countering evidence than to the presence or nature of the assertions concerned. Only one student made any reference to rejection or rebuttal within the argument. There did not appear to be any order effect beyond that of more reference to a clear first assertion when the text was read after the students had reported their own thinking about argument. It may be that their own prior thinking had alerted them to the importance of looking for the assertions in an argument.

The students clearly did not find the text argument easy to identify and follow. This probably contributed to the lack of positive effect on their own thinking and to the drop in their reference to argument as testing an idea. In summary, this analysis showed that the students' own conceptions were biased towards supporting rather than countering an idea and that they were vulnerable to misunderstanding a text argument.

5. Analysis of discussion and post-discussion data

The students discussed their individual contributions within small groups both after writing their own comments on the concept of an argument in the research context and after evaluating the text as an argument. Table 7 shows the number of students who then wrote individual descriptions of any disagreements amongst them and noted anything they wished to change in their original comments.

Differences amongst those students who gave their own views on argument before reading the text seemed to stem from lack of focus on the research context (in spite of the instructions for the task), the extent to which contrary or alternative views were deemed necessary as distinct from supporting a single view, and whether the aim of an argument was to win or achieve consensus. The discussion, however, had a focusing effect in that 13 of the 18 were persuaded to add to their additional thoughts, all in the direction of adding the notions of challenging an idea and using evidence to evaluate it. When they came to discussing their evaluations of the text argument they used the criteria developed in their own thinking, but it

became evident that for some students these were based in an expectation of a causal argument in a conclusion-oriented empirical research report and that they had doubts about seeing speculative reasoning (a thought experiment) as argument. Perhaps the notion of argument in a research context had been taken too narrowly. In any event, although it was conceded that the text did constitute an incomplete argument, there was discussion as to whether it should be seen as a report or a discussion. Fifteen of the 18 students reported differences amongst themselves, and difference in opinion as to the author's intention led to criticisms which were reflected in comments that the author should have set out the text more logically and used more evidence. Fourteen of the 18 students made changes to or added comments to their original responses.

The 21 students who read the text first discussed their evaluations in terms of how the text fitted their different notions of argument which they had not previously expressed or discussed. Since these included doubts as to whether an alternative or counter assertion was needed for an argument there were differences as to whether the text constituted one. Further doubts came from misunderstanding the text, in one case seeing it as a discussion of qualitative versus quantitative positions rather than research designs, but in a few others through failing to identify the main assertions and treating supporting or countering statements in their place. There were, however, a few clear evaluations of the text as argument in terms of finding supporting and countering evidence for alternative assertions, but little if any mention of eliminating objections in order to arrive at a conclusion. Overall, the problems students had with the text were compounded by their uncertain and limited notions of what constituted an argument. Their predicament was reflected in the way 15 of the 21 students reported disagreement amongst themselves in their evaluations whilst only 4 added to their original comments. This was markedly different from the proportions for the students who read the text after working on their own conceptions. When they came to discussing their own conceptions of argument as identified after the text reading exercise, only 3 of the 21 reported disagreement amongst themselves, with two of them adding to their original comments. They constituted one of the five discussion groups formed by the students in that task condition. The other groups held together in claims of no difference in spite of their different original written comments, and the only student adding to these did so in terms of agreement with the others. Had the text experience focused their thinking so that they agreed readily, or had it upset them leading them to unite in denial? There is evidence for both possibilities. The comparisons made suggest a more limited focusing for the post-text than for the pre-text reports of students own conceptions, whilst the tone of the discussions of evaluations of the text as argument revealed some impatience and anger directed towards the author.

6. Discussion

The initial exploratory study revealed that for the majority of the participating post-graduate students argument was perceived as confrontation, and for some also as reasoned discussion. Less than half referred to argument as being the basis for academic work. Overwhelmingly, they saw an argument as presenting a case, with the majority indicating that it was logical and reached a conclusion. In the second study, which required a specific focus on academic argument, overall, the students also showed more inclination to see an argument as the assertion and support of an idea rather than as a process of testing it through comparison with counter or alternative assertions and the use of both supporting and countering evidence. These findings are reflective of earlier research with different populations (Kuhn, 1991; Baron, 1995). This lack of understanding of the nature of argumentation may limit students' potential to develop their own personal structures for representing knowledge. This in turn may limit the depth of their understanding.

Discussion amongst students about differences in their conceptions of an argument enabled them

to focus more on the research context and to extend their criteria for deciding what constituted an argument and thus to use these in evaluating a text argument – albeit less than fully. Discussion before reading the text appeared to lead towards group solidarity, whatever the value of the emergent viewpoints. This appeared to set the mould for evaluating the text. Evaluating a text argument without prior focusing on students' own conceptions of argument proved to be difficult. This seemed to be partly due to uncertainty about what constituted an argument, but partly to misinterpretation of the text substance. There was some confusion over the hypothetical nature of the argument when students appeared to expect an argument in the research context to be based on empirical data. This is likely to have been influenced by the nature of the course that they were undertaking with its strong emphasis on the importance of empirical investigation. There appeared to be some conflict between understanding of argument in empirical and theoretical argument. Evaluating the text argument did not help students with the expression of their own conceptions of argument in the research context. It seemed to promote reference to the use of evidence and to diminish reference to testing or challenging an idea. It also led to unproductive discussion of variation in conceptions and to denial of difference with no wish to change. On a more promising note the discussion of conceptions of the nature of argument did lead to disagreement and change. It seems that there would be value in facilitating opportunities for students to consider the nature of argument as part of their post-graduate academic study, rather than perhaps taking it for granted that they understand tutors' usage of the term. It also seems that use of the term in the context of empirical investigation may sit uneasily with its use in relation to textual argument. This invites further research.

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APPENDIX

As a preliminary illustration of reasoning about a design, we speak briefly of a hypothetical literacy program in a developing country. The evaluator's main responsibility is to assess the effect of a proposed new method, but he wants to hold down the cost of outcome measurement so that he can also study process and thereby get ideas for improving the program. A traditional design might assign villages at random: twenty villages to receive the instructional services and twenty to remain undisturbed except for the measuring process.

Organising the study would be costly, and a good deal of political capital would be spent in obtaining agreement to the randomisation. Therefore the evaluator should ask whether a less elaborate design could give a useful answer. For example, he could compare literacy before and after the campaign in the twenty villages actually tested. With no control villages, what could he safely conclude?

Suppose that no change is found. The failure of the treatment would not be denied, and the question of why it failed would become important. The control villages could shed no light on that (unless it is believed that a positive effect was masked by a downward trend over time that was taking place for other reasons in communities generally).

Suppose that a small change is found. Someone might explain away the finding by suggesting that literacy improved spontaneously. But if a change is small enough to be explained away as "spontaneous", no one should care whether the program caused it or not. If, for example, the average literacy rate went from 20 to 22 percent, the program failed.

Suppose that the change observed is sizable, that is, large enough to justify extending the program to other localities. Spontaneous improvement can be ruled out as an explanation; experience in many countries has shown that large improvements in literacy do not happen without intervention. A die-hard sceptic might suggest that other interventions concurrent with the new program produced the gain. But control villages would not be required to dispose of this challenge. Asking a few questions in those villages where improvement was greatest would identify any potent teaching activity that occurred alongside the experimental treatment.

The case is strong, then, for a before-and-after study. The resources saved go into studying why the program worked well where it did and into explaining poor outcomes where they occurred. This mixture of information will almost surely satisfy users of the study. Indeed, twenty villages is probably a larger sample than is needed, unless village-to village variation in program delivery or client response is large. This suggests the possibility of beginning development work in a few villages and increasing the sample only after pointed, significant questions arise that a small sample cannot answer.

This example in itself makes it obvious that we are at odds with much recent propaganda for "social experimentation". Many writers impressed by the virtues of strong designs say flatly that the design with random assignment is "the only proper design" or "the most desired design" for an evaluation. That kind of statement we find much too sweeping.

Μια διερεύνηση των εννοιών* που αναφέρουν μεταπτυχιακοί φοιτητές όσον αφορά στη φύση του επιχειρήματος

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Περίληψη

Οι σπουδές σε μεταπτυχιακό επίπεδο απαιτούν την ανάπτυξη δεξιοτήτων που αφορούν τη δημιουργία επιχειρήματος, προκειμένου να καταστεί εφικτή τόσο η θεωρητική όσο και η εμπειρική εργασία σε κάθε περίπτωση. Η παρούσα μελέτη είχε στόχο τη διερεύνηση των εννοιών που αφορούν το «επιχείρημα» όπως αναφέρονται από μεταπτυχιακούς φοιτητές. Χρησιμοποιήθηκαν ποιοτικές μέθοδοι στο πλαίσιο ενός οιονεί-πειραματικού σχεδιασμού. Στην έρευνα συμμετείχαν τριάντα εννέα φοιτητές, οι οποίοι χωρίστηκαν σε δύο ομάδες. Κάθε ομάδα εκτέλεσε δύο έργα με διαφορετική σειρά. Το έργο 1 απαιτούσε από κάθε φοιτητή να περιγράψει γραπτώς πώς ένα επιχείρημα θα μπορούσε να χρησιμοποιηθεί προκειμένου να συμβάλει στη γνώση, καθώς και να παραθέσει μια σειρά χαρακτηριστικών δομικών ιδιοτήτων ενός επιχειρήματος. Το έργο 2 απαιτούσε την ανάγνωση ενός σύντομου κειμένου και στη συνέχεια την αξιολόγησή του αναφορικά προς τη χρήση του επιχειρήματος. Για καθένα από τα έργα, διεξήχθησαν συζητήσεις σε μικρές ομάδες, οι οποίες αφορούσαν στις διαφορές, στις ομοιότητες και στις αλλαγές των απόψεων των φοιτητών. Οι συζητήσεις μαγνητοφωνήθηκαν. Τα ευρήματα της έρευνας κατέδειξαν σημαντικό βαθμό συμφωνίας μεταξύ των φοιτητών όσον αφορά στα κύρια χαρακτηριστικά ενός επιχειρήματος. Ωστόσο, υπήρξε μεγάλη διαφοροποίηση μεταξύ των φοιτητών όσον αφορά στο πώς γινόταν αντιληπτό ότι το επιχείρημα συνέβαλε στη γνώση. Τα αποτελέσματα συζητιούνται με αναφορά στο έργο του Kuhn (1991) και στο πλαίσιο σύγχρονων εκπαιδευτικών εφαρμογών.

Λέξεις-κλειδιά: Επιχείρημα, Ανώτατη εκπαίδευση (τριτοβάθμια εκπαίδευση), Μάθηση σπουδαστών.

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* Ο όρος «έννοια» χρησιμοποιείται ως μετάφραση του όρου “conception”, ο οποίος δηλώνει την ατομική ερμηνεία της επιστημονικής έννοιας. Στα αγγλικά ο όρος “conception” διαφοροποιείται από τον όρο “concept”, ο οποίος αναφέρεται στις επιστημονικές έννοιες.