

Professional Disputation

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Received May 10th, 2013; revised June 10th, 2013; accepted June 17th, 2013

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This paper stresses an importance of the professional disputation, being initiated by the Department of Mechanical Engineering, Monash University in Australia. It explains the history of the subject, aims and procedure in a logical order, so that any individual or any institution can take advantage of this unique and extremely useful intellectual training system to equip researchers, students and/or businessmen with powerful oral and written skills in presentation of their thesis or proposition. The professional disputation is synthetic and systematic research training system or a game which has been elaborated by well-trained scholars upon the past human intellectual history.

Keywords: Disputation; Intellectual Training; Synthetic Education; Research; Philosophy

Introduction

Explicit intellect is not necessarily a dominant factor at all in identifying a problem at all, nor in establishing its limits, nor in setting its pragmatic constraints. Yet experience shows that new truths are obtained most easily, and with greatest conviction, by liberal and smart use of the methods of logical argument in testing any hypothesis that arises in the laboratories of the scholar or in the plants of the practitioners. The effectiveness of scientific development is largely dependent on legitimate argument. It is, therefore, believed that in scientific studies the intellectual method and spirit are particularly explicit.

Disputation, argument in which two parties, foe and friend, attack and defend a thesis, respectively, is an essential component of any discovery process, by which the scholar convinces both herself/himself and others of the validity or invalidity of her/his ideas, propositions, or hypotheses. It is an art and skill that can only be acquired through a systematic training, being viewed as an intellectual battle game (Iida et al., 2012). A scholar matures through a firm grasp of this intellectual skill step by step gradually. Considering that her/his intuitive skill is innate, peculiar, and private, the degree of stimulation can not be formulated quantitatively in general. Nonetheless, the value of art and skill in disputation exists in providing extremely effective knowledge and competent professional practice, as to be described in Section “The Procedure” in details.

The present paper introduces the junior author’s unique real experience in obtaining the art and skill of disputation as a formal requirement of Ph.D studies in the Department of Mechanical Engineering, Monash University, Australia during 1977 and 1979. The main purpose of disputation is to foster and nourish researchers, students, and/or businessmen with both oral and written arts and skills in presentation of their thesis or proposition.

History of the Subject

Around 1975, John Crisp, Bob Brown and Deane Blackman (1976a, 1976b, 1977) were quite disappointed with a shortage of critical activity among graduate scholars, of a lack of understanding of the research process, and absence of interest in the general knowledge in community. Their embarrassment, however, resulted in an immediate introduction of the novel subject, named “professional disputation”. The design of the professional disputation unit was set out in a brief treatise (Crisp et al., 1976a), which later served as the handbook for the subject. The design has proved to be surprisingly durable, and while there have been some variations in practice over the years and some relaxation of the ferocious debate have taken place over the years, the unit has essentially remained the same.

The original treatise has long been out of print, but it has been revised five times since 1975 reflecting changes in procedure to accommodate to needs of the graduate school. Despite the introduction of the revised materials, an attempt has been made to preserve the original style of professional disputation.

Very recently, this remarkable subject “professional disputation” has been introduced and subsequently formally adopted by the Japan Advanced Institute of Science and Technology (JAIST) to enlighten research students and academic staffs. Since JAIST is currently one of the leading post-graduate universities in the world, its adoption of professional disputation may have great impact upon the academic world.

The Aims

This subject is one of several required course work units in a graduate program, leading to the awarding of a degree in the Department of Mechanical Engineering, Monash University in Australia. The primary aims are the nourishment of disputative

skills, and the enhancement of a candidate's writing ability to embody their high quality dissertation. Those are also essential skills for distinct groups of people in any society. In no way is the assessment of the work of a proponent's research considered proper to this subject.

A proponent will never be considered proper without completing this subject. Indeed, a proponent must meet his obligation in disputation before her/his thesis is completed. Nevertheless, it is normally expected in the disputation unit that the thesis selected freely and proposed by a proponent will have originated from her/his interest in her/his research. Selection based on familiarity enables the proponent to find a thesis with an immediate and broader scope. The proponent has to understand that the thesis will be considered nothing but a proposition laid down and stated as a theme to be discussed, proved and maintained against attack. It is in this basic argumentative context that practice in disputation is offered.

The proponent is required to demonstrate a satisfactory level of disputative skills in the disputation, so that it is necessary to describe the contents in detail and to inform not only the audience but also disputants who challenge the efforts of the proponent and assessors, those who judge his performance, too. The proponent is therein advised that she/he is expected to display several competencies and to demonstrate them at an adequate level. Firstly, he needs a competency in devising an appropriate thesis; secondly, that in formulating an argument in defense of that thesis; then, that in presenting that argument publicly; and finally, that in engaging herself/himself in dispute over the argument.

Particularly important with regard to the thesis is that it must be unambiguous, precise, self-consistent and grammatical in its statement. In its quality, it must not be self-evident, shallow; or trivial. It must also be novel in that, if sustained, it is a statement of a truth previously unstated or unproven.

As to the argument, it should have logical strength and, preferably, validity. Especially, its premises must be identifiable and defined; its logical development must be both evident and sound; as a whole it must support or sustain the thesis.

Both written and oral skills in presentation of the thesis and its supporting argument are required. The proponent must show sensitivity to prevailing rule as well as professional competence. In a written demonstration called the prospectus, a logical evolution is demanded concretely showing an appropriate balance of materials, and adequate syntax, distinct precision, correct spelling and style.

In an oral demonstration, called the discourse, both the technique of delivery and the arrangement of content have to be of high standard. The delivery includes questions of syntax, clarity, and repertoire; those of mannerisms, behavior and timing, those of choice of aids in terms of which is to be wise and those of their use of the aids in terms of which is to be clever. With respect to the content, the material presented has to be judged in terms of whether they have been well exposed, appropriate to the audience, and in proper balance. Competence is also expected in the introduction of new ideas, and in the description of new concepts or of unorthodox views, utilizing relevant recourse to illustrative examples, suggestions, or analogies. The oral and written demonstrations, moreover, are to be complementary or mutually reinforcing.

Finally, there are the actual skills of verbal battle, in disputation. A proponent having these skills well developed will show ready comprehension of questions put, perception of the intent

and scope of a disputant's counter argument, and an aptitude to remain relevant and to the point. These skills include also ability in the legitimate use of such techniques as deflection, counter-attack and obscurity; and should disclose the proponent's authority and knowledge in her/his selected area.

In order to allow a display of all of these skills, as well as an assessment of them, a disputation session is scheduled; a panel of disputants, charged with the main burden of disputation, is appointed; and a panel of assessors is arranged. The panel of disputants prepares itself before the event by studying the prospectus, the written summary of the proponent's argument. The judgment of the panel of assessors is based on the main facets of disputation listed above.

The Procedure

The formal business of the disputation begins with issuing of the prospectus, the written summary of the thesis and proposed argument; this document is limited to five pages including figures and tables, and become available about one week before the verbal presentation. It carries a face sheet which sets out, as well as the name of the proponent and her/his thesis, the other people involved and in particular the panel of disputants. Its purpose is both to catch the interest of potential auditors and to display to anybody interested in engaging in dispute the main premises and argument to be used.

Before the disputation session the appointed panel of disputants (of several persons, normally four persons) meets and, on the basis of the prospectus, studies the argument and prepares an attack. Often a single meeting suffices, but sometimes the panel feels obliged to consult references, or the argument affords several lines of attack and a single meeting does not suffice to explore all of these. Well prepared panels provide for themselves several independent points with which to challenge the proponent's argument. When the attack on a particular point is lengthened in time, the successive steps will have usually been divided between the members of the panel who will then determine for themselves an order of attack.

The proceedings are conducted in a quite formal manner by a moderator, who has an impartial role to play throughout the disputation. At the beginning of the session, she/he introduces the proponent, announcing such degrees and other academic distinction.

After reminding all that forty-five minutes or less are allowed in which to present the argument, the moderator then invites the proponent to speak to this thesis. During the discourse interruptions are not permitted.

At the end of the discourse, however, the moderator declares a brief pause. This has several purposes, aside from allowing coffee to be served. It is an interval of relief for the proponent; it is an opportunity for the audience at large to reflect and exchange views on the material offered; most importantly it permits the panel of disputants to re-arrange their argument, if necessary, to account for the added material made available in the spoken presentation, or discourse. It is indeed realized that without this opportunity the panel of disputants is frequently capable of only a superficial and formal attack based on the written text and one which tends to ignore new material made available in the oral version. The pause lasts about ten minutes. Upon reassembling, the members of the panel press their points for about thirty minutes, and when they have done, the moderator invites other auditors to dispute. The auditors include the

panel of assessors who, since they have to judge the whole performance, have usually read the written argument more carefully than others and thereby have placed themselves in a better position to dispute. The whole exchange lasts a nominal forty-five minutes.

There may be strong pressures upon the moderator to extend the period of time, and she/he is permitted under the rules of procedure so to do if her/he judges the argument to be still expanding or that an important point remains unresolved. A rough justice allows each member of the panel about seven minutes. To get full value out of this as a disputant requires careful preparation and in addition, cooperation from the proponent who can easily, by a tedious reply, spend question time wastefully.

In this process the moderator has a difficult role to play. She/he has the power to interrupt, to declare a question to be inadmissible, or to attempt to clear a misunderstanding by rephrasing question or answer; but every interruption breaks the continuity of the dialogue and intrudes into the conflict in which the proponent and her/his adversary are engaged. In spite of these draw-backs, it being our experience that the ability to phrase a question or answer convincingly is not innate, assistance from the moderator is not infrequently required in order to keep the discussion with bounds. Disputants are accustomed to preface their argument with circumlocutory phrases or, during exchanges, wander away from the principal line of argument that at best confuse the proponent and, at worse, provide him with the opportunity of ignoring or avoiding the original point of attack.

After the moderator closing the session, the panel of assessors now goes away to consider the performance, and to judge either that the proponent has met the required standard, or not. The main counts are following four points: (1) the oral presentation, (2) the argument developed, (3) the performance in disputation and (4) the stated thesis itself. In broad terms, the proponent must pass on all of these counts. The proponent's supervisor may take part in the discussion which all the tutors attend and, when necessary, assist. In straightforward cases a decision is reached within a quarter of an hour, but on occasions it has taken much longer to get a consensus view from the assessors.

As soon as the assessors have reached a view, the proponent is called in. The formal decision of the assessors is given to her/him, together with their more important comments. From these there usually arises an extended discussion between assessors, tutors, supervisor and proponent which on occasions, has been so prolonged as to require postponement and subsequent conclusion. Usually, however, an hour has been enough, and the whole party requires working at a suitably provisioned common-room.

If the assessors feel the performance to have been inadequate, their decision (together with a recommendation) is considered separately by the tutors who prescribe what added work the proponent must undertake to secure a pass. Remedies available to the tutors are of several kinds; repetition of the disputation with or without further preliminary private tutoring; general disputation in video-camera with the tutors on the proposed thesis; tutoring in specific deficiencies; resubmission of the prospectus or of the thesis statement; the formulation and submission of a new thesis statement. Each but the first of these remedies has been imposed.

Concluding Remark

The assessment of the worth of any teaching program is in-

volving with difficulties not the least of which are questions of what features of its effect should be assessed and, indeed, what features can be assessed.

Many of the more important skills of disputation cannot readily be assessed objectively, so that the evaluation of any enhancement of skills and consequently, of the extent to which our prime aims are being met, is even more uncertain. By means of its operating procedure, there is no doubt that the unit has engaged graduate scholars and staffs in a range of scientific discussion in which they would not otherwise have been involved. And we believe this to be an important outcome in that it has led to a vitality of communicativeness—the essence of intellectual exchange—not particularly noticeable before. It is considered that all the unit elements of the process of disputation is contained within, and made visible by, the formal framework being constructed.

The unit has proved to be strong medicine for the Department after all. It has triggered intense and occasionally sharp cutting debate amongst staffs, and also amongst graduate scholars. It has influenced the attitude toward and the standard of research; on the other hand it has demanded considerable time and effort from all the academic staffs and graduate students in the Department.

Our finding that the more common faults in disputation relate to inadequacies in orderly, systematic thinking or applying the science of argument suggest that we could achieve comparable benefits with very much less effort, simply by offering formal courses in logic, argument and rhetoric. We propose to explore this option but, there is no question that the benefits of persisting with the disputation unit, far outweigh the over all costs, for this skill can be applicable to everyday affair for us all, and is, indeed, beneficial in view of refining our mind as well as scientific life, leading to innovative findings.

Acknowledgements

The junior author is grateful to Professor Deane R. Blackman for providing him all of the materials on the Professional Disputation unit, originating in the Department of Mechanical Engineering, Monash University, Australia. Last but not least, the junior author's sincere thanks are forwarded to the Monash University, Australia government, together with the Great Australians, who have given a Monash Graduate Scholarship for the junior author to study at the Department of Mechanical Engineering, Monash University as a Ph.D student under the supervision of the prominent and distinguished Professor Jonathan B. Hinwood, and to encounter with such a significant unit, Professional Disputation which plays a crucial role in the junior author's numeral discoveries and findings appeared subsequently. And still persisting.

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Appendix 1: Glossary of terms

Assertion: A positive statement.

Assessor: One of persons appointed to a panel of assessors who evaluate the disputation and the prospectus of a proponent.

Assumption: That which is taken for granted.

Auditor: A listener at a disputation.

Commentator: One who, being a tutor, is appointed to lead tutorial commentary in the concluding phase of a responsion.

Convener: The person, being in charge of professional disputation, who summons meetings of the panel of tutors.

Discourse: The spoken dissertation preliminary to disputation.

Disputant: One who participates in a disputation, especially one of a panel of persons appointed formally to sustain an attack during a disputation.

Disputation: That exercise in which disputants and the proponent, respectively, attack and defend a thesis.

Dissertation: A discourse, exposition, treatise; a holding forth in speech or writing upon a subject.

Examiner: One appointed to examine the thesis of a candidate as it is embodied in writing in a formal dissertation or treatise.

Foreman: The person who presides over and speaks for the panel of assessors or presides over and coordinates the attack of the panel of disputants.

Moderator: One who, being a tutor, presides over a disputation or responsion.

Premise: A proposition from which another is inferred.

Proponent: The candidates who in a disputation, or a responsion, defend a thesis.

Proposition: An assertion on various forms (see below):

1. **Thesis:** A proposition laid down in a written form or stated as a theme to be discussed, proved and maintained against attack.

2. **Theorem:** A proposition to be proved by a chain of reasoning; a truth to be established by means of accepted truths.

3. **Problem:** A proposition requiring something to be done; an inquiry starting from given conditions to investigate a fact, result or law; the question, usually only implied, involved in a syllogism..

4. **Corollary:** A proposition appended to one already demonstrated, as a self-evident inference from it; immediate deduction; natural consequence, result.

5. **Syllogism:** A form of reasoning in which from two given or assumed propositions, called the premises and having a common or middle term, a third proposition is deduced, called the conclusion from which the middle term is absent, e.g.

Man is mortal (major premise).

I am a man (minor premise).

Hence, I am mortal (conclusion).

In the above sentences, the word "man" is called the common or middle term.

Prospectus: That written account of the chief features of a thesis and its defense that is to form the matter of a forthcoming disputation or responsion, circulated for the purpose of obtaining support.

Responsion: A preliminary disputation undertaken by candidates to establish fitness for open dispute and to receive instruction from tutors in the art of disputation.

Supervisor: One who, formally appointed by the University, oversees and superintends the execution of the candidate's pro-

gram of study and who is charged with reading over the purpose of correction and revision any written account touching upon a candidate's thesis, such written accounts commonly taking the forms of a treatise or of an article prepared for publication. In disputation, one who acts a sponsor and a critic of a proponent's thesis.

Thesis: A proposition laid down as a theme to be discussed. Also, a literary composition dealing systematically with a definite subject, and/or a written dissertation especially the embodiment, as a volume, of a thesis.

Tutor: One of a panel which under the direction of its convener administers the professional disputation and instructs in the art of disputation.

Appendix 2: A Thesis

An illustrative example of a thesis, which was submitted to the convener, Professor J.D.C. Crisp, Department of Mechanical Engineering, Monash University on August, 1977, by the junior author, a Ph.D student of that Department at the time will be presented for the reference.

1. THESIS

We have observed large scale cellular secondary motions in tidal currents: each of the cells is different from a "boil"^{*} in rivers, in its nature.

2. INTRODUCTION

Although topographic photographs of the sea-bed by a side-scan sonar show that the sea-bed near the area of dye release is fairly flat, and has no obvious dominant features, aerial observation of dye patches released in tidal currents sometimes reveals a remarkable regular pattern of cells.

Each of the cells resembles a boil in appearance, but has longer-life time than a boil. Matthes (1947), Coleman (1969) and Jackson (1976) observed that boils appear any times on the river surface, but are largest and most energetic immediately downstream from crests of dune-like large scale ripples. Coleman (1969), also observed boils over large-scale lineation whose long axes are parallel to the main flow even so.

3. OUTLINE OF ARGUMENT

There is a close analogy between each of the cells and a boil in their internal flow structure and their scale: Each of their internal flow structures displace large volumes of water upward, which induces vortex suction capable of lifting bed-load materials. The scale of each of the cells is about 10 m ~ 30 m in diameter, while common boils range in scale from about 15 m ~ 30 m, and the largest scale is about 250 m (Coleman, 1969). However, all of the cellular secondary motions that have longer life time are different from boils that have shorter life time.

The life time of each of the cells observed is well over 30 min., as found by analyzing the colored cells (by the red-colored rho-da-mine and the green-colored fluorescein) shown on aerial photographs. On the other hand, boils do not persist for such a long time, and commonly a boil will break on the surface and disappear within a time span of 10 ~ 15 sec. Some of the larger ones, however, will persist for 20 ~ 30 sec. (Coleman, 1969). Also Jackson (1976) has pointed out that boils persist for as long as 20 sec. Therefore, no boils have a life time over 30 sec. Each of the cells is a cellular secondary motion which has longer life time. Hence, each of the cells is different from a boil

^{*}A "kolk" is river-bed deepening by vortex action induced by upward displacement of a body of water; and its dissipation at the surface is called a "boil".

which has shorter life time.

A boil is an intermittent phenomenon; the period of appearance of boils at the surface varies independently of the stream depth from 6 to 10 sec. (Korchokha, 1968), and it dissipates within 30 sec. On the contrary, because each of the cells can persist over 30 min, we can look at all the cellular secondary motion as if it is regular phenomena. This is the salient point of difference between these two phenomena, viz. cellular secondary motion and boil.

4. CONCLUSION

Each of the cells is different from a boil.

Appendix 3: Syllogism

An argument with two premises and a conclusion. There are three types of syllogism and proposition, viz. categorical, hypothetical, and disjunctive.

Both the premises of a categorical syllogism are categorical propositions, containing just three distinct terms between them, e.g.

- All men are mortal (major premise),
- Magellan is a man (minor premise),
- Therefore, Magellan is mortal (conclusion).

At least, one premise in a hypothetical syllogism is a hypothetical proposition, e.g.

- If Nate is eligible to vote, he is a citizen in Kanazawa (major premise),
- Nate is eligible to vote (minor premise),

- Therefore, Nate is a citizen in Kanazawa (conclusion).

At least, one premise in a disjunctive syllogism is a disjunctive proposition, e.g.

- Either Takeo is out of town or he is ill (major premise),
- Takeo is not ill (minor premise),
- Therefore, he is out of town (conclusion).

Appendix 4: Deductive Reasoning and Inductive Reasoning

Deductive, inductive, often confused, are not properly synonyms. They do agree in referring to processes of formal or informal reasoning, but the processes they describe are of opposite kinds. In deductive reasoning, an accepted general statement (true or false) is applied to an individual case; if formally, by the method of syllogism: All dogs are animals; this is a dog; therefore, this is an animal. In inductive reasoning, a set of individual cases is studied by the experimental method, and, from the observations made, a general principle is formed: Every metal I have tested expands when heated; therefore, I can expect all metals to expand when heated.

When the general premise in deductive reasoning is true, the deduction from it will be certain for all possible instances. The principle formed in inductive reasoning is a workable theory, but would be certain only when all possible instances had been examined.