GROUP CONSULTANCY, AS EASY AS FALLING OFF A BICYCLE?

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The development of consultancy skills is a lifelong cycle of learning from experience. Our aim in the School of Computing and Management Sciences at Sheffield Hallam University is to develop consultancy skills in our students by carrying out consultancy activities of increasing complexity and reality but with decreasing support. Our students are encouraged to reflect on their experiences in order to learn from both their successes and their failures. It is hoped that this approach will enable them to carry on learning by reflection throughout their professional life.

When teaching our undergraduate statisticians at Sheffield Hallam University we see consultancy skills as a very important part of their training. We provide a theoretical underpinning in this area via courses on Business and Professional Skills and Environment. These introduce students to the organisational and communication skills which are necessary to function effectively in a working environment, but they only provide a foundation for extensive practice. We have found that the most effective way to develop consultancy skills is by guided and supported practice in actually using these skills. Indeed we believe it is just the beginning of a lifelong cycle of learning from experience. This cycle begins early in the first year for the students, with extended practicals where theory is put into practice, a process which continues throughout the course. The realism of these exercises is enhanced in the second year of the course by the use of group consultancy projects and is put into practice in the third year when students spend the full year on placement in industry.

The aim is to develop consultancy skills by actually carrying out consultancy activities of increasing complexity and reality but with decreasing support. The process can be likened to riding a bicycle where learning the theory is no substitute for actually getting on the bike and giving it a try. At first a large degree of support from a teacher will be needed to keep the bike upright but as time goes on and the rider becomes more confident this support can gradually be withdrawn. The consultancy skills which are developed in this way include vital communication skills, particularly the all-important listening skills. Above all the students are encouraged to reflect on their experiences in carrying out the consultancy in order to learn from both their successes and their failures. This approach will enable them to carry on learning by reflection throughout their

professional life in much the same way as is advocated by Schön (1991). This idea of learning by reflection was described by Kanji and Wallace (1994).

The whole process can be seen as cyclical building on experience and learning from both success and failure at each stage, in a way which is analogous to both the Deming cycle (Neave, 1990) and Alan Graham's PCAI approach to statistical problem solving (Pose the question, Collect the data, Analyse the data and Interpret the results) (Graham, 1990). However, we take this idea one stage further to adopt a spiral approach with the same cycle being repeated at each stage of the learning process, but with increased realism and decreased support. We include realistic problems throughout the course but also use a program of practicals and case studies which involve wider-reaching problems. Initially these practicals will be accompanied by detailed instructions about how to tackle them but as the course progresses students are increasingly expected to develop their own problem-solving strategies to solve more open-ended problems. In the second half of their second year we have a whole unit devoted to a group consultancy project in which a group of students work for three months on a real problem for an outside client. They then go out on a full year work placement in the third year where they will have varying levels of support from their employers and only minimal support from the university.

The cycling analogy here would be that children usually begin by riding a three-wheeled bicycle in their own garden, progress to a two-wheeled bicycle with stabilisers, then the stabilisers are removed and a larger bicycle provided. Most responsible teachers would not allow a child out onto the public highway alone until they are convinced that the child is proficient on such a bicycle. In much the same way we aim to ensure that our students are able to act as statistical consultants with minimal support when they leave us to move on to the reality of the workplace, although we would expect them to continue learning and improving throughout their careers.

We would like to focus on one particular stage of our training process, the group consultancy project. As mentioned earlier this is a group exercise, usually involving four students working as a team to carry out a project for an outside client. The time-scale is much longer than anything they have tackled previously, but still rather short given the real problem they have to tackle. The client is usually a local business but could also be a charity or a public service. The client pays only expenses such as telephone calls, photocopying, postage etc., but at the same time has to accept that the students are still

very much novices, so the work will not necessarily be of the highest standard. Each group has an academic supervisor who essentially has a watching brief. Students, client and supervisor have an initial meeting, but after that the students are expected to deal directly with the client. The supervisor monitors progress and only intervenes if there are serious problems.

Our cycling analogy for this would be the stage at which a child first rides off alone without stabilisers or a teacher walking alongside. This would normally take place in a fairly safe area where the consequences of falling off would be likely to be unpleasant but not disastrous. The supervisor's role is similar to that of a teacher who, once the child has set off, stands back but keeps a watchful eye on her, making sure no attempt is made to tackle anything too dangerous. From the students' point of view it will be very much a case of applying what they already know and developing confidence in their own abilities. They should be capable of carrying out the allotted task but will still need to work hard at something which is new to them. They may lack confidence in their own decisions and need the reassurance of the supervisor, just as the cyclist may wobble on rough ground and need a teacher's hand to steady her.

One of the most important aspects of group consultancy is working as a team. They will have done group work earlier in the course but never anything on this scale. They will need to communicate well both with each other and the client, listening as well as talking. They will need to plan both their time and the allocation of tasks. The best projects are often those in which one student takes a lead role and the others happily follow this lead. Problems tend to arise when either nobody is willing to take the responsibility of leading or there are power struggles for leadership. This co-ordination within the group is similar to the physical co-ordination needed to ride the bicycle.

It is inevitable that in some cases students will make mistakes, just as everybody at sometime falls off a bicycle, but we all learn from our mistakes. They need the freedom to try things by themselves but don't want to risk serious injury. We believe that by involving the students in group consultancy projects we are giving them the opportunity to develop skills and competencies in preparation for the world of work.

To illustrate how the projects work we will focus on two of them, one relatively successful and one relatively unsuccessful. In considering these two projects some contrasts can be made between them in terms of the critical success factors that have already been mentioned. These factors relate to the formation of a real team from an

arbitrarily selected group of students, the establishing of team dynamics via agreed roles and responsibilities and the start of the development of tight time management and planning with appropriate implicit communication. These are all curriculum components within the Business and Professional Skills and Environment units but they need to be applied for real learning and understanding to take place. The project supervisor is aware of these aspects of the learning process and quickly attempts to get the bicycle riders to co-ordinate their physical actions to allow smooth and rapid progress. Obviously some groups will need more support than others, but the main objective is the same for all groups.

Let us first consider the more successful project, commissioned by Whitbread Inns. The Area Manager had identified four local public houses that were not hitting their targets in terms of customer utilisation. The brief was to apply a market research strategy to suggest possible modifications to the pubs that would increase customer utilisation. Due to time and travel limitations it was subsequently decided to focus on two of the original four pubs. The initial introductory meeting went well and each of the four group members asked appropriate and sensible questions in an attempt to define the scope of the project and what was required. The students and client exchanged contact telephone numbers and fixed a date for a next meeting which included a tour of the pubs. Following the first meeting, the students arranged brain-storming sessions to establish or confirm their ideas on how the project should proceed. The bicycle rider was already exchanging the well used training bicycle for a more sporty model. The supervisor's role from then on consisted of technical assistance as required. The group decided to split into two so that they could save time on travelling to the selected pub but to share technical expertise, thus establishing a two-tier approach; pub-specific activities performed by each pair and technical activities that were spread across the whole group.

The market research consisted of, firstly, making a comparison of age and economic activity between the area around the appropriate pub and another area which contained a theme pub (called Hot Shots - an American theme bar), using information from the 1991 Census of Population (the study took place in 1994, so the Census information was quite recent). The Hot Shots pub was aimed at 18-25 year olds and had proved to be a major success. Secondly the general public in the area surrounding the project pubs were surveyed using face to face interviews. The results of the socio-economic comparison showed the project area was very similar to the comparison area

but with a slightly higher proportion of 18-25 year olds, and slightly lower unemployment levels. The survey also showed that the location of the project pubs was good but the atmosphere and image poor. The student group recommended that a comparable change of theme was appropriate.

The second of the two projects was commissioned by a researcher working with the Derbyshire Ambulance Service. The project had two facets, to establish if weather and road conditions affected the time taken for an ambulance to reach the scene of an accident and to obtain the views of ambulance crews concerning what they felt were the major issues in relation to response times. The intention was to combine information from these two sources and produce comparative conclusions. In the initial discussion with the supervisor the aims of the project were outlined and suggestions on how the group might maximise its effectiveness and efficiency by establishing roles and responsibilities. The group then arranged an interview with the researcher.

The project group decided that they would adopt a mixed co-operative group structure model. There would be no specialisation of roles and responsibilities; the group would operate as a democracy with agreement by vote. It may have been this decision that precluded effective and efficient progress. They decided each to take a quarter of the data and produce separate analyses and then compare results. This required several iterations and caused delay. The same approach was taken to the designing of the crew questionnaire. Each group member produced a draft questionnaire and discussed them with the project supervisor before a final version was produced. Unfortunately the questionnaire had been designed without any input from the client other than that from the initial meeting. Since the group had not kept in close contact with the client they found it difficult to re-establish contact. The group then returned to the data produced and performed some of the analyses that had been requested but largely failed to meet the actual brief. What can be said about this cyclist and the teacher? Certainly the removal of support caused a small accident and the cyclist was reluctant to get back on. Encouragement did not seem to work, so cycling as an activity was replaced by other more pressing activities. This group certainly realised, at some length and too late, that co-operation and making difficult decisions about roles and responsibilities is essential for the successful completion of a group-based consultancy.

In conclusion, we believe that students learn best how to be statistical consultants by gradually taking on that role. One important stage in that process is the group

consultancy project where they tackle a real problem for a real client, with only background support from a supervisor. Inevitably some will find it more difficult than others. Some will discover that they enjoy the role and pursue a career which will use consultancy skills, the racing cyclists of the statistical consultants world. Others will find it very difficult and decide that a more 'pedestrian' career would be appropriate. In each case they will have been able to reflect on their own strengths and weaknesses.

REFERENCES

Graham A. (1990). Investigating Statistics, a beginners guide, Hodder and Stoughton
Kanji G. K. and Wallace (1994). Learning to Learn: the continuous development of a professional statistician. *Proceedings of the Fourth International Conference on Teaching Statistics, Vol.1*, (pp 315-322). Rabat, Morocco: The National Institute of Statistics and Economics.
Neave H. R. (1990). The Deming Dimension, SPC Press
Schön D. A. (1991). The Reflective Practitioner, how professionals think in action, Arena