

Evaluation of the  
Adelaide Vascular Fellowship  
Examination Trials  
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## *Executive summary*

This study aimed to record elements of the 2005 Adelaide Vascular Fellowship Examination Trials ('the Trials'), to discuss the Trials in the light of aspects of research into education and assessment, and to make recommendations for consideration by the Convenor and the examiners.

Those attending the Trials were potential candidates for the Part 2 Fellowship Examination for Fellowship of the Royal Australasian College of Surgeons (RACS). The Trials aimed to assist the preparation and training of Vascular Surgeons by offering potential candidates for Fellowship the opportunity to experience the examination process and to receive feedback on their performance in trial examinations. Through participation in the Trials, candidates develop an awareness of what the exam contains and of how they respond to the exam setting.

Overall, the Trials gave the impression of being the result of careful thought and extensive planning on the part of the Convenor, examiners and organisers. The verisimilitude between the Trials and the Fellowship exams and the form, timing and individual nature of the feedback imply that the Trials provide an effective educational experience for the candidates.

The feedback sessions are a key element of the Trials, exemplifying the nature of the Trials as focused on assisting the candidates' learning. The feedback provided to candidates was evidence of best practice in assessment, being immediate and targeted to the individual's knowledge and needs. With assessment linked to learning through feedback and the learning taking place in an authentic environment, candidates have a clear opportunity to increase their knowledge and skills in the context in which the knowledge will be used and applied – in the Fellowship exams.

Current understanding of the ways people learn suggests that learning is most effective when related to need, driven by the learner and sufficiently flexible to address the diversity of learners' abilities. Evaluation of an educational process, and of the learning taking place during that process, needs to take into account the motivations, activities and interactions of all participants: planners, examiners and candidates. The extent to which each of these groups and the individuals who make up the groups are aware of, and able to change, their knowledge, skills, attitudes and practice will provide information on the learning taking place.

In the context of the Trials, two forms of assessment exist, the assessment of the performance of the candidates and the evaluation of the extent to which the Trials themselves provide an effective educational experience. The mechanisms in place to evaluate the Trials are important for planning and improving future Trials but are also indicative of the ways in which the convenor, organisers, examiners and candidates view the Trials.

This report concludes with the recommendation that the convenor and examiners consider the need for establishing mechanisms:

- to assess the conduct and underlying philosophy of the Trials.
- to assist candidates to embrace the advice they are offered.
- to discover candidates' expectations of the Trials and the extent to which these expectations are fulfilled or changed.
- to investigate benchmarks for the Trials.
- to ensure that the needs and expectations of examiners are met or extended.
- to review the content of the Trials in the light of the information gathering processes suggested above.

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## *Aims and purpose of the study*

This study aimed to record elements of the Adelaide Vascular Fellowship Examination Trials ('the Trials'), to discuss the Trials in the light of aspects of research into education and assessment, and to make recommendations for consideration by the Convenor and the examiners.

This report will not focus on the format of the Fellowship examination or the extent to which the examination determines skills appropriate for practice as a vascular surgeon. However, since the format and value of the Fellowship exam was commented on by a number of the participants, this report will summarise the various points of view expressed.

## *Context*

Those attending the Trials were potential candidates for the Part 2 Fellowship Examination for Fellowship of the Royal Australasian College of Surgeons (RACS). The Trials aimed to assist the preparation and training of Vascular Surgeons by offering potential candidates for Fellowship the opportunity to experience the examination process and to receive feedback on their performance in trial examinations. The Trials were developed to address a perception that the feedback provided to candidates who sit the Fellowship Examinations is not effective in assisting unsuccessful candidates to improve their performance should a candidate wish to re-present in future examinations. Furthermore, the examiners and organisers of the Trials hope that a mock experience of the exams will assist candidates to deal with the stressful, high-stakes nature of the Fellowship exams. Direct experience of the content and format of the exam might help candidates, who are in many respects competent, knowledgeable and experienced practitioners, and who might be thought to have the capabilities required by Fellows, prepare for their reactions to and behaviour in the actual Fellowship exam.

The mechanism for determining the eligibility of candidates for the Fellowship Examination is detailed in the relevant RACS documentation (RACS, 2002). It is evident that, in order to be eligible for the Fellowship exam, candidates will have undertaken extensive study and lengthy periods of approved training in surgical practice, requiring high levels of motivation and determination. Admission to RACS represents a significant milestone for surgical professionals, with a Fellow able to engage in specialised medical practice with a high degree of independence and concomitant responsibility.

The RACS Fellowship exams determine the format and content of the Trials curriculum, which focused on the clinical and viva elements of the exam. Although adopting the marking system of the Fellowship exam (where marks are given in the range from 8.0 to 9.5) the Trials' examiners use these merely as a guide with candidates being assessed on their demeanour and presentation, in addition to their knowledge and skill.

Examiners in the 2005 Trials included a mix of experienced and early career Fellows based across Australia and New Zealand. The examiners for the Trials volunteer their time and expertise on the basis of a stated desire to assist candidates and thus promote the development of the next generation of vascular surgeons.

The Trials ran from the evening of Wednesday 27 April 2005 to the evening of Saturday 30 April 2005. The Trials consisted of the various clinical examinations and viva elements of the Fellowship exams, plus a series of seminars and discussions on aspects of the content and format of the Fellowship exams. The Trials included a meeting of the examiners on the evening before the Trials and a Course Dinner on the Saturday evening to which candidates, examiners, observers and sponsors were invited. The full Trials program is attached (Appendix A).

The Trials were administered by professional event organisers with experience in the field of surgical training and practice, Archer Conferences & Events Pty Ltd.

## *Review of literature*

The Royal Australasian College of Surgeons publishes the Surgical Education and Training Handbook (RACS, 2005) which details the information necessary for persons wishing to be recognised as fully qualified surgeons and to register to practice as specialist surgeons. The Handbook covers such issues as eligibility for the Examination and the procedures and format of the Examination. It appears that there is no document which stipulates or identifies the aims of the Fellowship examination or the philosophies underpinning the assessment, other than that covered by the Handbook, which includes the following rationale. "The College has a community responsibility to define minimal training requirements for surgeons and to ensure by examination that required standards have been attained" (RACS, 2005, Introduction page).

No literature discussing research into trial examinations for vascular surgeons has been found. This might be due to nature of the Trials as focussed on a speciality within the broader, but still specialised, branch of surgery. The concept of a 'trial exam' is not new and in a broader medical context Beckert, Wilkinson, and Sainsbury (2003) reported on the value of a practice examination for medical students, highlighting the importance of focussing on student needs. Publications on research into, and discussions of, the training of surgeons do exist and a review of some of the more recent articles in this field has informed this investigation into the Trials. However, since the aim of the investigation discussed in this report is to apply some of the concepts used in education to the Trials, this section will also review relevant publications in the broad field of educational research.

### **Medical training and practice**

A review of the curriculum for neurosurgical training curriculum in Australia and New Zealand (Morgan, Clarke, Lyon, Weidmann, Law, Laidlaw, & Gull, 2005) questioned the existing curriculum and assessment within the Neurosurgical Advanced Training program of RACS in the light of changes in surgical practice and advances in educational theories. Investigations into professionalism, and surgical residencies point to the difficulties associated with assessing clinical practice and training outcomes (see for example, Anderson, Jentz, Kareti, Harkema, Apelgren, & Slomski, 2005; Arnold, 2002; Crossley, Humphris, & Jolly 2002, Norman, 2005; Rethans, Norcini, Maldonado, Blackmore, Jolly, La Duca, Lew, Pages, & Southgate, 2002; van der Vleuten, Lambert, & Schuwirth, 2005).

The need for objective measures in assessing medical training and practice occupies much of the literature (see, for example, Crossley, Davies, Humphris, & Jolly, 2002; Downing, 2005). The view that pure objectivity is possible, or even desirable, in research on human behaviour and interactions is, however, a matter of ongoing debate (Burns, 2000; Dey, 1993; Drapeau, 2002; Maykut & Morehouse, 1994; Strauss & Corbin, 1998).

## Assessment

In the context of the Trials, two forms of assessment exist, the assessment of the performance of the candidates and the evaluation of the extent to which the Trials themselves provide an effective educational experience. The distinction between these two activities will be highlighted by the use of different terms: 'assessment' as the process of determining learning, and 'evaluation' as the process of determining the success of the Trials. Both terms are defined and discussed below.

### ***Assessment of candidates***

While differences exist in the ways in which adults and children learn, many of the basic principles of assessment, and of education more generally, are common across a range of ages (Waldron & Moore, 1991; Zemke & Zemke, 1995). Recent approaches to education suggest that teaching is most effective when related to need, driven by the learner and sufficiently flexible to address the diversity of learners' abilities. This applies both to adults (Beckert, Wilkinson, & Sainsbury, 2003; Flint, 2001) and to children (Hayward & Hedge, 2005; Gee, 2003). These and other authors seek to highlight deficiencies in summative, end-of-chapter or end-of-course assessments and the difficulties associated with initiatives to change assessment practice to include methods that are more formative in nature.

Assessment can be, or should be, an integral part of teaching and learning, and not just a means to determine a narrow form of competence. Principles and practices of assessment ought to take account of the capabilities of each individual learner, as well as the needs of the educational system (Sax, 1989; Young, Kulikowich, & Barab, 1997). To be effective in changing student learning, assessment needs to be related to the context in which learning is taking place, being focussed on the students' individual skills and abilities and on the content and format of the curriculum (Shepard, 2000). An application of these principles to adult learners in medical education was discussed by Newman and Peile (2002), who emphasised the need for flexibility and reflection on the part of the educator.

Assessment is defined by Bredekamp, Knuth, Kunesh, and Shulman (1992) as "the ongoing process of observing, recording and otherwise documenting the work children do and how they do it, to provide a basis for a variety of educational decisions that affect the child" (p. 4). The curriculum framework for South Australian schools contains the following: "The process of assessment should ensure that learners are given the best possible opportunities to negotiate and demonstrate what they know and can do" (DECS, 2002).

In addition to being focused on students' needs and capabilities, and reflecting the aims and goals of the educational system in which the learning is taking place, assessment practices are dependent on how teachers understand learning, and how well teachers can interpret the work that students produce (Darling-Hammond, 1997). Assessment of learning can be seen as serving a social, motivational purpose as well as a cognitive, informational one (Ross,

Hannay, & Hogaboam-Gray, 2001; Shepard, 2000). It is necessary, therefore, for the assessment to extend beyond the student's work to an evaluation of the instructional environment, including the examiners and the curriculum itself (Greeno, 1998; Young, Kulikowich, & Barab, 1997).

### ***Evaluation of the Trials***

The mechanisms in place to evaluate the Trials are important for planning and improving future Trials but are also indicative of the ways in which the convenor, organisers, examiners and candidates view the Trials.

Evaluation has been defined as the process of determining merit, worth, or significance (Lopez, 2000). Evaluation involves three stages: the identification of standards of merit, worth, or value; an investigation of the achievement of these standards; and the synthesis of various results to arrive at an overall result or set of results (Scriven, 1991).

Commitment to results can be ensured by having in place mechanisms for assessing progress towards and achievement of the desired or stated results. The conduct of evaluation provides an indication of what results are deemed important by an organisation (Viljoen, 1992). "What you measure is what you get" is the maxim Viljoen (2001, p. 79) used to emphasise the role of assessment in the effective implementation of changed priorities and different practices within an organisation. Stoll and Fink (1996), discussing change in schools, used the maxim "Evaluate what you value" (p. 166). Fitz-Gibbon and Tymms (2002) presented a detailed discussion of the issues associated with the development of research-oriented indicator systems for schools arguing that schools must "measure what matters as comprehensively as possible" (p. 4).

The evaluation and decision-making practices, to the extent that they highlight the priority accorded to particular programs, provide a means to explore any difference between espoused aims and actual behaviour (Argyris, 1992, Argyris & Schön, 1978). The basic assumptions held by those in a group might be taken-for-granted, invisible and preconscious, so an investigation of the assumptions of a group can highlight the ways in which the members of that organisation view themselves, their interrelationships and their interaction with their external environment (Schein, 1992).

### **Learning as a social activity**

Research into, and assumptions about, how people learn, think and act point towards the value of assessment practices that are informed by a view of learners as constructing their knowledge as participants in a wider social interaction, rather than as individuals merely receiving knowledge (Young, Kulikowich, & Barab, 1997). Such an approach challenges the view that education is a unidirectional flow from teacher to learner, with the information

provided by the teacher being incorporated into the learner's repertoire of skills and knowledge.

The participation and reasoning of individuals engaged in a collaborative initiative can be seen as acts that are situated in the cultural and contextual features of the environment in which the individuals are participating (Greeno, 1994, 1998). An educational activity can thus be seen in terms of the reasoning and actions of a group of people who are acting collectively in a dynamic, unstable and complex environment. Rather than focusing on individual learners or teachers, the theoretical principles should focus on interactions among people and between people and their environment. An individual's engagement and participation in collective activity affects and is affected by their role and view of their role in the social group. How an individual thinks and acts might depend on their motivations, their knowledge and experience, the support they receive, their role in the organisation, the goals they have set, and their willingness or ability to act to achieve those goals. Their engagement could also depend on their awareness of the support available to them. Key to the understanding of individuals' thinking, actions and interactions is the notion that the conditions that enable participation include some properties of the individual and some properties of the system within which the individual is acting (Greeno, 1994; Gibson, 1977). The cultural and contextual features of the organisational environment provide participants with a scaffold on which to determine and base their actions. Research into the thinking and actions of individuals engaged in a collaborative activity becomes a matter of studying the reciprocal interactions of the scaffolds with the individual and the groups of individuals (Lakomski, 1999). The use the individual makes of these scaffolds depends on that individual's awareness of the scaffolds and on the connection between the scaffolds and the individual's awareness of their own knowledge, experience and motivation. The ideas mentioned here are explained further in Appendix E.

Examiners and candidates in the Trials can be conceptualised as interacting with each other and with the environmental resources around them (Lave, & Wenger, 1991). The interaction is influenced by personal, group and environmental factors. Note that the term 'environmental resources' as used here includes the patients or specimens and the documents detailing the format of the RACS Fellowship exam. If examiner, candidate and examination material are seen as being closely connected in an interacting relationship, ideas of objectivity in assessment become more difficult to define.

Under this framework the evaluation of an educational process, and of the learning taking place during that process, needs to take into account the motivations, activities and interactions of all participants: planners, examiners and candidates. The extent to which each of these groups and the individuals who make up the groups are aware of, and able to change, their knowledge, skills, attitudes and practice will provide information on the learning taking place.

## Method

This report is based on the researcher's attendance at the following sessions:

<b>Time</b>	<b>Session</b>	<b>Notes</b>
Wednesday evening 27 April 2005	Faculty meeting	Discussion of and the Trials and any changes from previous years, with the majority of examiners
Thursday afternoon 28 April 2005	Clinical Long Case examinations	One complete session (examination of patient, candidate with examiners, review of candidate, feedback to candidate); four sessions that excluded the examination of the patient; range of examiners and candidates.
Friday afternoon 29 April 2005	Anatomy examination	Three complete sessions; three sessions with short observation of a range of candidates and examiners.
Saturday morning 30 April 2005	Imaging tutorial	Attended last half of presentation
	Predicting the Short Case scenario	Whole presentation
	Pathology and Operative Surgery examination	Five complete sessions
Saturday afternoon 30 April 2005	Final assessments	All candidates
Saturday evening 30 April 2005	Course Dinner	Discussion with range of candidates, examiners and observers.

The researcher's role in investigating the Trials was known to the examiners and organisers but not to the candidates. The regulations for the Fellowship exam make provision for people to act as Observers. This is the role the researcher sought to mimic, associating with the examiners and not being introduced to or engaging in any discussion with the candidates.

While taking notes in and attending various vivas, clinical examinations and seminars, the researcher remained silent and in the background, dressed similarly to the examiners and candidates.

Detailed notes were made during the first two or three sessions of each viva or examination, with later sessions acting as opportunities to note differences or similarities between sessions with different candidates and examiners. Detailed notes were taken in the final feedback session. An attempt was made to cover the range of candidates and examiners, although the scheduling of sessions was such that some candidates or examiners were observed more often than others.

Informal conversations with the examiners were possible during breaks between sessions and at the two dinners. As with the sessions, not all the examiners were engaged in conversation for equivalent amounts of time or in the same depth.

A questionnaire (draft attached, Appendix B) will be sent to candidates once the Fellowship exams have been completed.

## *Record of observations*

### Mimicking

A great deal of effort was expended to ensure that the Trials mimic the Fellowship examinations, although the Trials did not include the written paper elements of the Fellowship exams. In addition to applying the same format and timing as the Fellowship exams for viva elements, Trial examiners sought to maintain the same level of impassivity and lines of questioning as are found in the Fellowship exams. This commitment to mimicking the actual exam process included following the time allocated to each clinical examination or viva, the numbers and demeanour of the examiners, the types of cases, the venues of the clinical examinations (in a public hospital) and the dress code of the participants. Unlike in the Fellowship exams where candidates sit only one of each session, the Trials provided candidates with several opportunities for each viva or clinical examination.

The examiners succeeded in remaining aloof from the candidate, providing few explicit positive or negative cues as to the validity of the responses being offered. It was unclear whether the occasional instances of negative comments directed at the candidate were part of an attempt by examiners to prepare candidates for the possibility of comments in the actual Fellowship exam or a real lack of empathy with the candidate. The latter seems unlikely given the consistently supportive nature of the discussions of candidates and the positive feedback given to candidates. There were few comments, like 'Good' or 'That's right', that indicated to candidates that they were on the right track. Some examiners seemed to offer more of the positive cues than others. There were some instances which demonstrated categorical rejection of the candidate's argument with exchanges like, 'So you are saying that ... [you consider a particular condition or possibility to be relevant] ... But you have also said that ... [some other condition is present] ... Well I think we can assume then that [your diagnosis or analysis is misguided]'.

The pressures of the limited time available for examinations and vivas was evident in some instances, with examiners and candidates indicating that there was insufficient time to cover the material or to deal with all aspects of the answers being given.

The Trials examiners were spread in age and the stage of their careers with a mix of early career and more experienced surgeons. Recent changes in the procedures for admission to the RACS have meant only the early career surgeons have faced the present form of Fellowship exams.

Candidates spent a great deal of time together, during the breaks in sessions and during the sessions, where only about four candidates were being examined at any one time.

Efforts were made to keep examiners and candidates separate during the tea and lunch breaks in order to prevent the development of a more relaxed relationship. The pairings of examiners and the spread of examiners who assessed each candidate were changed frequently. It is possible that the candidates' views of the Trials as simulations became more apparent as the Trials progressed. This could be due to the candidates' becoming accustomed to the format of the Trials or to the various examiners. Later in the Trials, in the latter part of the Saturday examinations, there was some contact and discussion over tea breaks. Examiners, candidates, observers and sponsors mingled during the Course Dinner at the end of the Trials.

The Trials process was very demanding with long days and intense concentration required by candidates and examiners.

### Examinations and vivas

The candidates were clearly nervous; speaking quickly, wracking their brains and desperate not to make a mistake. This applied whether candidates had taken notes, especially in the Clinical Long Case, or whether they were speaking without notes from some sort of an internal checklist.

At times, and with some candidates more than others, the candidates spoke primarily to only one examiner and not necessarily to the examiner asking the questions.

In some instances, the candidate watched very closely the note taking by the examiners – perhaps as a cue to whether the candidate was on the right track or not.

While there was some indication that candidates become accustomed to the nature of the Trials as 'not the real thing', all candidates and examiners continued to maintain the simulation of an exam situation throughout the Trials.

Examiners seemed able to treat each session as new, ignoring any opinions or impressions they might have developed through the candidates' performance in earlier sessions. The candidates remained nervous and were clearly working hard to maintain concentration in each session. Even in the final sessions, and for those candidates who had been performing well and who might have been developing a level of confidence in their knowledge and performance, the candidates continued to make mistakes and to display characteristics that had earlier been pointed out to them as unhelpful to their performance.

While the younger examiners were able to maintain the demeanour and line of questioning of the Fellowship exams, there was some indication, especially in the latter stages of the Trials, that the older surgeons made the candidates more uneasy. This uneasiness was evidenced by increased nervousness and avoidance of eye contact with the older examiner, especially when the Trial examiners included one older and one younger examiner.

The ability of some of the candidates to apply recommendations from feedback sessions to subsequent exam and seminar sessions was mixed. At times a candidate would begin the exam session employing techniques suggested in earlier feedback but, as the session progressed, the candidate would regress and drop the new behaviour or technique.

It is possible that the Pathology and Imaging tutorials on the Saturday morning covered topics and conditions that came up in the exams, also on the Saturday morning.

At times the examiners did seem to become frustrated by a candidates' lack of knowledge, or inability to present a simpler diagnosis or to follow the line being suggested by the examiners' questions. This frustration might have been evident to the candidate causing them to become either more nervous or more dogged in their presentation of the argument being given.

Not all candidates had the intention of sitting the Fellowship exams at the earliest opportunity, stating that they were using the Trials to benchmark for their candidature later in this year or early next year. Some candidates realised during the course of the Trials that they would not be ready for the Fellowship exams as soon as they had hoped, and decided that they would take more time to prepare for the Fellowship exams. In these cases, the examiners changed their approach in some of the sessions, providing feedback and suggestions during the session.

One of the external observers commented to the examiners that the examination approach being adopted was a realistic representation of the Fellowship exams. The examiners seemed pleased to have their approach affirmed.

Some of the advice given to candidates might seem contradictory. For example, 'keep talking until the examiners tell you to stop' versus 'think about your answer first'; or 'choose a line and stick to your guns' versus 'realise when you've gone wrong and don't dig a deeper hole for yourself'.

It is possible that examiners' questioning of and demeanour towards the only female candidate displayed less of the aloofness evident with other candidates. These differences were not, however, more significant than those between other candidates, especially between candidates who were more proficient and candidates who had gaps in their knowledge.

Samples of the comments made during the exam sessions, the discussion between examiners, and the feedback sessions are included in Appendix C.

## Feedback on each session

There was a strong change in the demeanour of the examiners when feedback was being given at the end of each examination or viva session. The dispassionate questioning approach was replaced by a relaxed and positive discussion of the candidate's answers and

approach, of the methods of questioning, and of possible strategies that the candidate could adopt to improve their performance. This feedback might have acted to soften the view of examiners as harsh or even fearsome. Despite there being no evidence that the older examiners were less positive in their feedback (which was uniformly and clearly supportive), candidates seemed less able to relax when receiving feedback from the more experienced examiners.

All examiners gave clear, practical advice directly related to the performance of the individual candidate in that particular session and to the patient or specimen that had been the focus of the session.

Suggestions included advice on exam technique, the use of normal clinical work as providing opportunities for further simulation of the Fellowship exams, and engaging in exam-related discussion with colleagues, supervisors and other candidates (where candidates worked with or near each other). Advice was also given on how to transfer the learning in the Trials and in normal practice to the exam context.

No detailed record of grades was given to candidates, although the grades were summarised in the final feedback session. It would seem as though all candidates received a good pass mark in at least one of their sessions.

Discussion leading to the feedback session sometimes included debate between the examiners about how they would have dealt with the case. This indication that there is not necessarily one right answer was pointed out to candidates in their feedback sessions.

One of the major changes to this year's Trials was a mechanism for capturing the feedback given in each session and using this as the basis for the overall assessment and discussion with each candidate at the end of the Trials. A written summary of the final feedback session was sent to each candidate soon after the completion of the Trials.

### Final summary feedback

As with the feedback after each session the comments and suggestions by the examiners was related directly and clearly to the performance of each candidate. The scoring system was clarified, highlighting the ways in which scores of 8.5 were not subject to review in the Trials. The examiners' comments were recorded and sent to each candidate soon after the Trials.

Many of the suggestions made to candidates during the session feedback were reiterated during the final feedback. Examiners affirmed the amount of work that candidates had done and were very positive about the candidates' prospects of success in the Fellowship exams, whether the candidates were sitting in May 2005 or not. The advice and support was provided

with caveats particular to each candidate, along the lines of 'if you are able to control your tendency to be overly nervous [or flippant or expansive]'.

## Reflection

At the beginning of each feedback session the candidates were asked what they thought of their performance. The usual responses were noncommittal and the candidates gave the strong impression that they were more interested how the examiners rated the performance.

One candidate decided after the first day of the Trials that more time was needed as preparation for the Fellowship exams.

## Tutorials

Although the sample observed was small, the impression received was that the candidates engaged more fully with those tutorials that dealt with clinical issues than with those that discussed examination technique and preparation. The one tutorial attended in its entirety seemed to offer clear and relevant advice and was based on the examiners' analysis and experience of the candidates' performances in the previous day's examinations. However, none of the candidates took notes and they appeared disengaged. The candidates' approach to this tutorial contrasted with a preceding tutorial which had elicited more interest in terms of questions and note taking.

## Relationships

There was evidence of a softening in the relationship between candidates and examiners as they became accustomed to each other through the daily series of vivas and clinical examinations. The examiners were however, still able to maintain an aloofness and the rigour of a realistic exam situation. Even in the latter stages of the Trials candidates were still nervous during vivas and examinations, making mistakes typical of stress and contrary to advice given to them in earlier feedback. The nervousness continued during the feedback sessions.

The examiners were well known to each other, many of them having worked together on the Trials in previous years. The Trials' organisers were also well known to the examiners as they had also worked on the Trials before and had experience in the administration of surgical practice.

This study did not include any observations of the interactions between candidates, who spend a considerable amount of time together waiting for their examination or viva sessions. Candidates were advised not to inform each other of the content of the exams and vivas. It is not known how the relationships between candidates changed over the course of the Trials and how any support they offered each other might have affected their performance as the Trials progressed.

## Opinions on the Fellowship Examinations

Examiners offered differing opinions on the content and procedures of the RACS examinations and on the value of the Fellowship exams in ensuring the maintenance of high standards of vascular surgical practice. Only a brief summary of the various issues raised will be given here. It should be noted that there was no evidence during examinations and vivas that the examiners were affected by, or were unable to suppress, any reservations they may have had about the format, value or content of the Fellowship exams.

**The Fellowship exam does not assess candidates' skills in the context of everyday practice.** It attempts to do so by covering many elements of practice but the environment and stresses are too different for the exams to be of value. The counter argument was also given, on the basis that the exam does give an indication of how people will behave in practice as Trial examiners assess a candidate's performance by asking themselves whether they would be confident in letting the candidate carry on by themselves if the candidate phoned an on-call surgeon with the clinical summary, diagnosis and suggested treatment being offered in the examination.

**There is too great an inconsistency in the supervision of candidates during their training.** Although candidates need to have performed the appropriate range of procedures in order to be able to sit exams, there is no accepted standard for determining competence. Supervisors are also not consistent or firm in proposing people for or discouraging them from the Fellowship exam, as the final arbiter is not the supervisor but the exam process.

**The training and examination of vascular surgeons does not necessarily provide the 'right' sorts of surgeons.** The question was raised as to whether the exam, or the broader training program, helps select the sort of people who would make good vascular surgeons. Perhaps the training and exam process just select the highly motivated medical professionals, given the length of time taken to reach the stage of being able to apply for Fellowship.

**There is no connection between exam stress and stress in clinical practice.** Given the stressful nature of the exams and the feeling that some people who have all the requisite technical skills and practical experience do not pass the exam, it was argued that the stressful nature of the exam prevented some candidates from showing their full potential. There are two points of view here. Firstly it could be argued that vascular surgery is a stressful occupation and that the exam is helpful in determining people's capacity to deal with stress while maintaining the ability to access the appropriate suite of knowledge and skills. The counter argument holds that the type of stress is very different in the two situations as the motivations of the practitioner and the consequences of failure are very different – adverse effects on one's patient versus a setback to one's career plans.

## *Discussion*

Overall, the Trials gave the impression of being the result of careful thought and extensive planning on the part of the Convenor, examiners and organisers. Every eventuality had been considered and a variety of contingency plans were in place. The ongoing success and conduct of the Trials had been evaluated in previous years with improvements made on the basis of feedback, discussion and experience. The positive outcomes of the Trials required the good will of examiners, patients, hospital staff and university personnel and these people were treated with courtesy and professionalism. The examiners and others who volunteered their time for the Trials were made to feel valued, and supported the notion that the Trials provide examiners with the opportunity to reflect on and contribute to their profession as vascular surgeons.

The verisimilitude between the Trials and the Fellowship exams and the form, timing and individual nature of the feedback imply that the Trials provide a valuable and effective educational experience for the candidates. That the Trials prompted candidates to decide to shelve their intention of sitting Fellowship exams at the earliest opportunity is indicative of the role of Trials in assisting candidates to an increased awareness of their own skills and knowledge.

The feedback provided to candidates was evidence of best practice in assessment, being immediate and targeted to the individual's knowledge and needs. With assessment linked to learning through feedback and the learning taking place in an authentic environment, candidates have a clear opportunity to increase their knowledge and skills in the context in which the knowledge will be used and applied – in the Fellowship exams. Candidates were provided with suggestions on how to extend their learning through preparing for the Fellowship exams during their normal clinical practice. It might be important to discover what candidates do to ensure they learn or change on the basis of the feedback they receive. This year saw changes to the way in which feedback is recorded and summarised and thus might provide an important opportunity to begin to evaluate the use candidates make of the feedback.

The feedback sessions are a key element of the Trials, exemplifying the nature of the Trials as focused on assisting the candidates' learning. While it is possible that, through the informal nature of the feedback sessions, the candidates become more accustomed to the characteristics of each examiner and to the format of the Trials, levels of nervousness and concentration remained high throughout the Trials. Furthermore, candidates who performed strongly in the early sessions tended to maintain that performance in the sessions on the final day, and candidates who struggled early in the Trials continued to struggle in the latter stages.

The learning in the Trials is fostered in two ways, through offering the chance to practice being in an exam setting, and through the feedback received from the examiners. This allows candidates to develop an awareness of what the exam contains and of how they respond to the exam setting. The opportunity to experience an exam setting depends on the extent to which candidates and examiners are able to maintain the notion that the Trials are 'real'. It seemed that all participants were able to continue 'playing the game', as one of the examiners phrased it.

The trials are focussed on the candidates as learners, enabling them to become aware of their own knowledge and behaviour and to develop the tools and techniques needed to succeed in the Fellowship exams. The Trials support the notion that people learn better by doing and reflecting on their actions than by being told. The feedback at the end of each session was tailored directly to each candidate and to how the candidate had recently performed. The summary feedback at the end of the Trials was similarly specific to each candidate's knowledge, performance and needs.

While some of the candidates took up advice given during feedback (eg. to keep talking until stopped by the examiners) there was inconsistency in this, with candidates not able to maintain the new behaviour through all subsequent sessions. This reversion could be caused by nervousness, tiredness or challenging questions that might have led to the realisation by candidates that they had a gap in their knowledge or experience. There was, however, some evidence that candidates were able to incorporate feedback from earlier sessions into their presentation. For example, one candidate who had previously been criticised for going into too much detail away from the main point of the question or condition, was able to stop, saying 'I'll leave it there'.

It would appear from discussions with some of the examiners that the grading given to each candidate is mirrored in the Fellowship exams. This might imply that that the Trials are not helpful in changing candidates' prospects. This similarity in the assessment of the Trials examiners and that of the Fellowship examiners could also be seen as confirming the verisimilitude of the Trials. However, if candidates do not seem able to improve on their Trials performance this could indicate that the Trials have low educational value, or that the feedback received was not helpful, or that the candidates do not make sufficient use of the feedback. Perhaps candidates do improve in areas in which they were weaker during the Trials, moving from a marginal 8.5 to a strong 9.0 or 9.5. Feedback from candidates after the exam might clarify this issue.

If the Pathology and Imaging tutorials in the midmorning session of the pathology and operative surgery examinations cover areas that might be touched on in the exams, candidates might not have the opportunity to test their ability to recall the information, having the details fresh in their minds from the tutorial. Nonetheless, candidates would still need to

be able to use this information appropriately and as only a part of their overall discussion of the cases on which they are being questioned.

The linking of learning and assessment is absent in the Fellowship exam, which seems to provide feedback of too general a nature. The underpinning educational approach of Trials and Fellowship exams is thus very different. The differences between the Trials and the Fellowship exams can be seen in terms of the difference between summative and formative feedback. The Fellowship exams provide a single, simple and final pass/fail assessment of a candidate's knowledge (and skills in the exam situation), while the Trials, through feedback and an authentic context, promote assessment as forming skills, knowledge and attitudes.

It might be valuable to determine the extent to which the candidates and examiners see themselves as learners – as being part of an educational experience rather than merely part of a simulation. The candidates did not take extensive notes, perhaps assuming that they would remember the advice that was given. The questionnaire seeks to investigate how attendance at the Trials changes the way the candidate approaches the Fellowship exams. Candidates' reflection on their learning through the Trials might be facilitated through instituting a means for candidates to record changes in their attitudes and knowledge as they progress through the Trials – as they experience the feelings of achievements at a good performance or the disappointment of realising that they had under-performed or were not prepared for the Fellowship exams.

A mechanism for assisting examiners to remain aware of any changes in the questions and approach of the Fellowship examiners might be of value to the examiners and to the Trials as a whole. Furthermore, Trials examiners could be provided with the means to record and share their commitment to maintaining the demeanour and rigour of Fellowship examiners. At present the verisimilitude of the questioning in Trials and Fellowship exams seems to be a matter of experience and informal discussion. A more formalised concentration on the examiners' needs and expectations from their participation might provide a greater opportunity to acknowledge the substantial commitment of time made. It should be noted that this observation is not made on the basis of any comments or suggestions by examiners. Rather it is made on the basis of educational theories that emphasise that learning is an interactive process, in which both teacher and learner are participants. If education is not a one-way flow of information from knowledge holder to knowledge recipient, the 'knowledge holder' is also changed through the process of 'teaching', and becomes a more effective teacher by seeing themselves as learning too.

## *Recommendations*

Some questions that might assist evaluation by the convenor

**What are the key indicators of the success of the Trials?** Extent to which candidates improve their performance in the Fellowship exams compared to the Trials? Numbers attending the Trials? Proportion of Fellowship candidates in Australia and New Zealand who attend the Trials? Verisimilitude between Trials and Fellowship exams? Willingness of examiners to take part? Feedback from the College or from others in the profession? Ability of organisers to adapt to feedback and improve the Trials from year to year?

- Establish a mechanism for assessing the conduct and underlying philosophy of the Trials.

**What steps do you want to take to assist candidates to embed the lessons from the Trials?** Is the approach, 'we provide the opportunity for learning and the rest is up to them, after all these are experienced and motivated people'? Do candidates have sufficient support from the supervisors and colleagues? Do you wish to play a greater and ongoing educative role with post-Trials support and mentoring?

- Establish a mechanism for assisting candidates to embrace the advice they are offered.

**Why do candidates attend the Trials?** Are you sure that the candidates' reasons (or range of reasons) match the intentions of the convenor and the examiners? How is this determined? Are they seeking (and do they value) information on how to pass the Fellowship exams? Or are they looking for a dry run to hone their skills, or for the chance to work with new and different specimens and patients? Do they see the Trials as valuable networking, providing the opportunity to be noticed by experienced surgeons?

- Establish a mechanism for discovering candidates' expectations of the Trials and the extent to which these expectations are fulfilled or changed.

**Do you wish to compare these Trials to similar courses offered in other surgical disciplines or other places?** An investigation of similar Trials might provide an opportunity for benchmarking, improvement or publicity for the Adelaide Trials.

- Establish a mechanism for benchmarking the Trials.

**Why do the examiners attend the Trials?** Clarity on and monitoring of the motivations and expectations of the examiners and observers might assist the provision of further support for the examiners, improve their exam technique and How much support do you wish to provide to the examiners?

- Establish a mechanism for ensuring that the needs and expectations of examiners are met or extended.

**Is there a need for new sessions in the Trials?** Are any sessions not needed? Is there a need for support/guidance on written elements of Fellowship exams? Could someone with knowledge of the issues associated with exam stress, or other performance stress, offer advice on panic avoidance, relaxation, nutrition, or final preparation?

- Establish a mechanism for reviewing the content of the Trials in the light of the information gathering processes suggested above.

### Some general recommendations

- Be aware of differing responses to the ages of the Trials examiners, especially if Fellowship examiners are all older, more experienced surgeons.
- Keep copies of the advice given to candidates and note the common issues. Capture all the tricks and hints the examiners give during the feedback sessions. Use this advice given verbally, or summarised in the final feedback session, to develop lists and give these lists the candidates before the Trials. The lists can then be referred to in the feedback sessions or at one of the tutorials so the candidates can see how they did or didn't use a few of these basic techniques. Use the list as the basis of the tutorials on exam techniques – some candidates seem not to feel the need to take notes. This list of common or frequent advice can also be used to assist candidates with what may seem like contradictory comments during feedback (eg. 'keep talking' vs. 'don't dig a deeper hole for yourself').
- Make a video of, or role play, an example of exam technique, highlighting and discussing afterwards the common mistakes, and why it is that anyone can make the mistakes.
- Include a successful candidate from a recent exam, not as a trial examiner but to liaise with and support the candidates so there is no examiner/candidate barrier. This recently qualified Fellow could also assist the examiners to adopt the techniques and questions of the Fellowship exams.
- An unsuccessful candidate from a recent exam, if willing to participate, might provide useful advice on the pitfalls that await candidates.
- Use external observers, who are experienced as Fellowship examiners (perhaps past examiners or observers), to support Trials examiners by confirming that the questioning technique and types of questions are useful and realistic.

- Formalise feedback and discussion among examiners to investigate the consistency and different styles and to ensure that a full range of possible approaches and techniques is being covered.
- Gather information on Fellowship exams to determine whether attendees at the Trials had a greater level of success than general population of candidates. This information could be correlated with changes in the content, timing or format of the Trials. The number of candidates is however small and care should be taken with any interpretation of trends that seem to emerge.

***Possibilities for following up with candidates after the Trial, if such is possible or desired by the candidates, convenor or examiners:***

- Assist candidates to be aware of, capture and extend their best performance in the Trials.
- Discover what candidates do to ensure that they learn or change on the basis of their performance at the Trials.
- Pre-post questionnaire – how they think they'll benefit, what they think will happen vs. what they do learn.
- What do candidates say to each other, what support do they provide, how is the similarity or difference in feedback to each candidate shared and discussed?
- Formalise networks between candidates and facilitate the maintenance of contact between candidates, perhaps through initiating fixed times for discussion of issues around preparation, by phone, email or discussion list.

## *Conclusion*

The Adelaide Vascular Fellowship Examination Trials provide an effective educational experience for the candidates, in that the Trials enable candidates to demonstrate their knowledge, and to increase their awareness of the subject matter and of their behaviour in an exam setting. The examiners provide the candidates with feedback that includes an assessment of what the candidates know and how the candidates present that knowledge, while providing an opportunity for the candidates to change and learn during and after the Trials.

This report includes a number of questions for consideration by the Convenor and the examiners, notably concerning the establishment of mechanisms for an ongoing evaluation of the aims, conduct and successes of the Trials.

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## *Appendices*

Appendix A – full trial program

Appendix B – draft questionnaire for candidates

Appendix C – samples of comments during exam sessions.

Appendix D – feedback comments to candidates in the final summary

Appendix E – the situative perspective on learning

## *Appendix A*

### Program of the Trials

## *Appendix B*

### Questionnaire

## *Appendix C*

### Comments in exam and viva sessions

A representative sample of the comments given in the exam sessions.

#### ***During examination, examiners to candidates:***

You're pointing to something else.

Tell us what you're thinking as you look at the screen; tell us what you're looking for.

You are sure that is one of the more common ones you encounter here?

Do you think there could be some other explanation?

I'll draw your attention to this.

#### ***Candidates:***

This would be my preference but it is not traditional.

I'll leave that there, I don't want to take the next step

#### ***Comments by examiners to candidates***

It is difficult when you are nervous to realise what the case is here for.

The case is not a moment in time; it's a progression, like surgery

Keep talking, if you stop that gives us a chance to ask you a question

Take a moment to think through your answer

Continue to relate the answer to the patient, not the textbook

Try to make answers more concise

You need to follow the examiner's lead, but you know they will challenge your position; the next question will be Why?

You should say the safe option; we shouldn't have to drag it out of you.

Develop a system, a routine for approaching the clinical examination of the patient

I would struggle to get you anywhere near a pass.

Don't keep making it more complicated

Cases can be simple but made more complicated through questions

There were errors that were irretrievable.

This is money for jam – you just have to know it.

There are some standard questions – be prepared for them.

Remember to refer to the specimen/patient

One of the tricks you can use is to work out the regions – you'll get quite a simple list

Listen to what you're being told; we're not trying to trick you, we're trying to get you going.

We're giving you a 9.0 – we don't want to be too generous in these Trials.

Present all options – that shows us you know it all

Look at both examiners – this might be a minor technical point but it might make a difference

I don't want to give you too much confidence but if you keep going you'll be OK

You should know your pathology better than the examiners

There are probably half a dozen operations that they are going to ask you – prepare for those

***Comments by examiners to each other***

Discussions of the differences in how the examiners would have approached a case – there are differing interpretations and sometimes not one right answer.

Knows his/her stuff but is not flowing yet.

You get the impression he/she had never actually been there.

That's the best I have heard him/her over the past three days

***Comments by examiners to researcher***

The Trial is setting standards for the candidate – it can be more frightening than the actual exam.

Frankly, I think this person is dangerous

We ended up teaching her/him – informing him/her

## *Appendix D*

### Comments in final feedback

A representative sample of the comments used in the final feedback session with each candidate.

#### ***Examiners***

We tried to mimic the exam but there was no review of scores of 8.5

The marks indicate areas to pay attention to

You do lots of reading rather than addressing the scenario

Read 4<sup>th</sup> year Clinical History – it's the basic stuff that lets you down

Certain scenarios will come up

The question is a lot easier to answer when you've thought of it before; then ask yourself, 'What if...?'

Focus on your core knowledge and pick up the peripheral stuff around that

Refine your language, some of your terminology is antagonistic

This was practice, not the last exam

Four weeks of intense practice will make an enormous amount of difference – do this with someone who will be hard on you

It's difficult to get the thoughts out properly

Be conservative in the exam - going for the latest and greatest is not necessarily the best option

When we applied a bit of heat to you, you fell apart

You must become bullet proof

We have no doubt that when you sit you'll be a very good candidate

You may well dictate where the examiners go - don't go where you don't want to go

Look for examples of short cases, build a mock situation

Many of the candidates gave the wrong answer when they were nervous

Practice – see lots and lots of patients

Follow a recognised protocol

During the second set of cases you were a little bit calmer and had more of a system

Do not hurt the patient

Tell the people you work with to stop being nice

Treat every time you present with a new patient as a long case – time it and write it up

Be analytical and be observant

Don't leave anatomy to the last – you can't just cram it in the end

You are marginal in operative surgery – that shouldn't be, that's what you do every day

I think you're a really good candidate

The core knowledge is there – it's a matter of getting it out in a structured way

It's about presenting

Who do you work with? Is he giving you some attention?

Be hard on yourself, practice with time pressure

You have to say it out loud; talk to yourself

I don't think you've got far to go

If you were a footballer I'd say get off the paddock and come back and play next week

When you're good, you're good, but when you are bad you put your foot in it

Two of the best candidates tried to take a pulse on an artificial leg

You are very well organised – it helped you to get over the nervousness

Your tendency to be flippant will lose you sympathy

There is no right and wrong in operational surgery

You performed very well, with a very wide knowledge base when it is black and white, but when there are choices you can go astray

They are going to examine you on the sorts of things that are around the wards

If you are organised you won't get led

People who pass think they had an easy time – those who fail do it to themselves but think they were out to get me

I think you are very hard on yourself – sometimes that creates some anxiety

There are three good candidates and you are one of them

You are vulnerable when you have options

Get your presentation bullet proof

Don't waste time on things you don't need to go into – expand only when the examiner asks for it

You have the capacity but are vulnerable if you are led down the wrong way

Sit back and organise your thoughts before speaking like a machine gun firing

You found it difficult to pull back in the short case

People fail the exam because they don't perform as they did as fourth year medical students

We weren't here to be nice to you

It can be difficult when someone is as senior as you are to tone down

The worst thing to do is to sit the exam before you're ready

Your performances were creditable – you did pass some – don't go out of here thinking that this is hopeless

We tend to be nervous when we don't feel prepared

We would be most surprised if you did not pass

You are not up against the others – this is not a competition

### ***Candidates***

You've pointed it out to me very well

This was a super course

The candidates feel that we do long cases every day. We should do more short cases and operatives

[Sitting exam in September] I wanted to see how I would go

I think the exam process is perfect

For some stupid reason I said ...

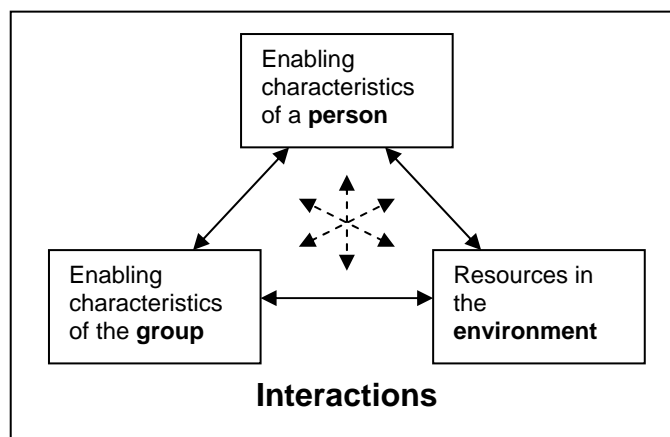
It's better to be a bit tough, I'm not going to remember the things that go right.

## Appendix E

### Situative perspective on learning

Seen from the point of view of each individual participant, the Trials involve interactions among and between the individuals, a range of examiners, candidates and organisers, and various resources (for example, the patients, the specimens and the Fellowship exam).

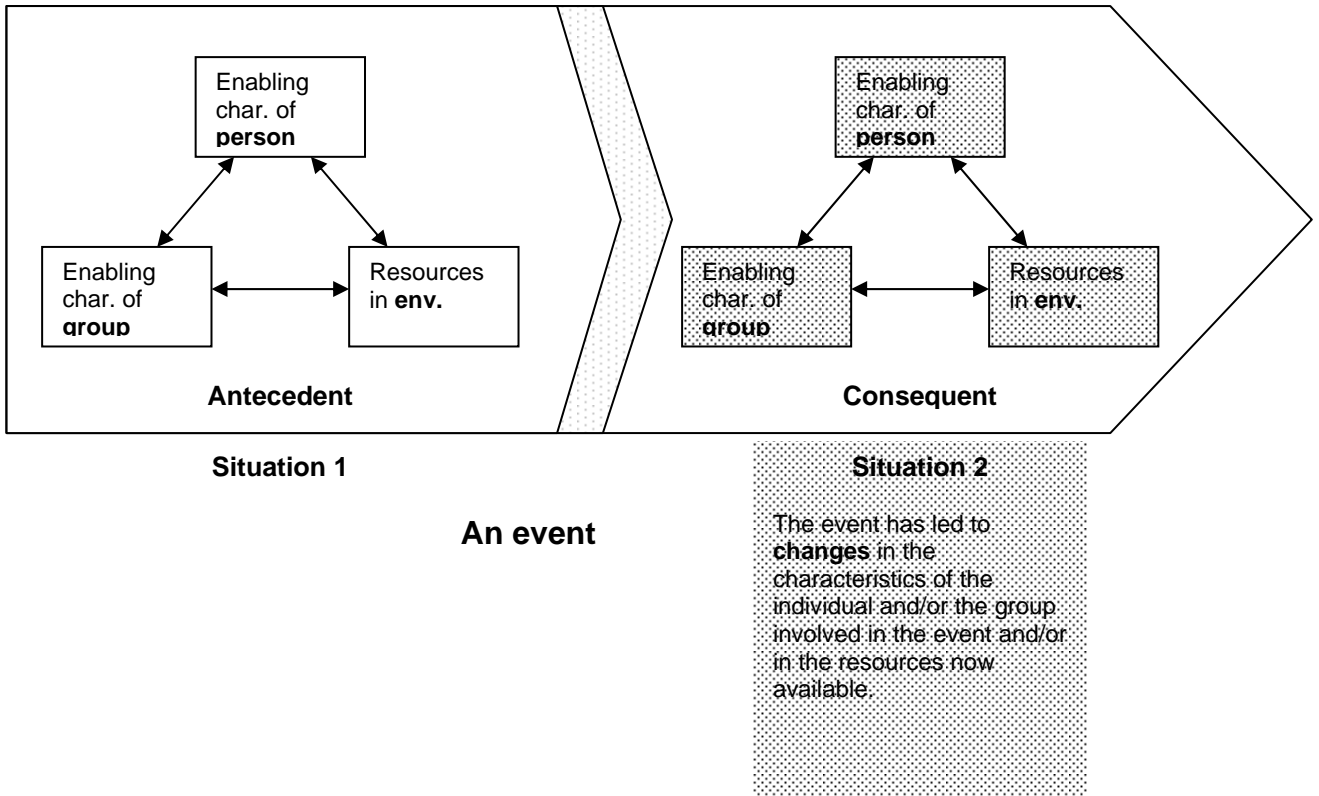
The interactions between individual and group characteristics and environmental resources



may include any one of these elements affecting and being affected by the interaction of the other two; for example, a person's characteristics may affect and be affected by the ways in which the characteristics of the group of which they are a member interact with environmental resources. Thus the diagram above shows not only the interactions between the three boxes (solid arrows), but also between each box and the interactions (solid arrows) of the other two boxes (dotted arrows).

The Trials as an educational activity can be categorised in terms of a series of events – activities and interactions that lead to and include candidates' performances, feedback from examiners, learning by candidates and examiners and preparation for the Fellowship exams. Through this series of activities and interactions candidates and examiners transform their knowledge and attitudes.

At the start of an event (a session in the Trials, say), each individual has particular characteristics, as does the group. There are or have been certain resources available to the people in the session. There are certain interactions between these elements as discussed previously. The session begins with a particular situation (Situation 1). Through the format and conduct of the session, aspects of the individual or group characteristics or of the environmental resources (or the interactions of these elements) are changed, resulting in a new situation (Situation 2).



The event (session) **affords** the changes. The format and outcomes of the meeting are **constrained** by the relations between the three elements.

Note that the way the meeting is conducted, called, attended or completed reflects aspects of the relations between the three elements. Successful participation in the meeting requires **attunement to the constraints**.

The development and operation of the ASMS is then a series of these events. Some events include only a subset of the participants in the School. Some participants may or may not agree with, be informed of, or be party to the decisions reached, or the changes that result. They may or may not be **attuned to the affordances**.

The Trials can thus be perceived as an amalgamation of a series of these events, as shown below.

