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To cite this article: S. Niemantsverdriet, C.P.M. van der Vleuten, G.D. Majoor & A.J.J.A. Scherpbier (2006) The learning processes of international students through the eyes of foreign supervisors, *Medical Teacher*, 28:4, e104-e111, DOI: [10.1080/01421590600726904](https://doi.org/10.1080/01421590600726904)

To link to this article: <https://doi.org/10.1080/01421590600726904>



Published online: 03 Jul 2009.



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WEB PAPER

The learning processes of international students through the eyes of foreign supervisors

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ABSTRACT *Semi-structured interviews were conducted with external supervisors of international electives undertaken by Dutch undergraduate students, in order to gain insight into student learning processes during these electives. The interviews served to triangulate information on these learning processes that was obtained from students' self-reports. The results of the case study reported in this paper were largely consistent with findings from prior studies of international electives in which learning processes and sociocultural differences were examined: experiential learning processes appeared to dominate and sociocultural differences occasionally seemed to blur productive learning, especially when the differences between the national cultures of host country and student home country were substantial. It is recommended that students' experiential learning from international electives should be supplemented with 'guided' and 'self-directed' learning with a focus on the sociocultural dimension.*

Introduction

There is a growing demand for higher education from a global perspective. Within this framework, in 1999, 29 European countries, including the Netherlands, signed the Bologna declaration, in order to enhance transparency and international competitiveness of European higher education by the introduction of an undergraduate–graduate system (Van der Wende, 2003). The global demand for higher education definitely applies to medical education as well. Eckhart (2002) showed that the number and distribution of medical schools around the world were not well matched with the available numbers and distributions of physicians or with predicted population growth patterns.

Other important globalization considerations are globalization in the field of healthcare and the recognition of the worldwide effect of globalization on population health and the delivery of healthcare (Unwin *et al.*, 1998; Bateman *et al.*, 2001; Schwarz, 2001). Clearly, there are many reasons why medical education should take account of internationalization issues (Edwards *et al.*, 2001; Eckhart, 2002).

Educational internationalization can be achieved by internationalization of the curriculum, by student mobility and by staff mobility (De Wit, 2001; Knight, 2001). Internationalization of the curriculum may entail: inclusion of courses in the regular medical curriculum given in English; inclusion of topics on (imported) tropical diseases; inclusion of topics on international healthcare systems; facilities for

Practice points

- Students' self-reports concerning their learning processes on international electives are largely consistent with external supervisors' descriptions of students' learning processes.
- The vast majority of students' learning processes that occur during international electives turn out to be 'experiential' learning processes.
- It is recommended to enhance learning from international electives by 'guided' and 'self-directed' learning and a clear focus on the sociocultural dimension.

foreign-language learning; facilities for skills training for dealing with patients from different cultural backgrounds (Majoor & Willemstein, 1996).

Student mobility (i.e. students going abroad for part of their training) is the most common approach to internationalization in education (Van der Wende, 1996; Teichler, 2001; Niemantsverdriet *et al.*, 2006). Studies of what medical students have learnt from international health electives (Godkin & Savageau, 2001; Thompson *et al.*, 2003) have described various outcomes, including 'cultural sensitivity'. Cultural sensitivity may be defined as: being sensitive to the fact that patients possess diverse health values that may be based on culture, and that neither the healthcare provider's nor the patient's culture offers a preferred view (Azad *et al.*, 2002). The limitations of these studies consisted of measuring instruments that were not properly validated or the limited number of variables considered. As Thompson *et al.* (2003) demonstrated, learning from international electives remained to be examined further.

Previously, we used a holistic and inductive approach to explore *what* undergraduate medical students learned from international electives (Niemantsverdriet *et al.*, 2004). We found that some students performed very advanced tasks, whereas others had very limited (hands-on) learning

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experiences. What students learned (an elaborate overview of learning outcomes) proved to be unrelated to year of study, type of elective or country visited. The observed differences between students in the nature and quantity of learning outcomes might be explained by experiences with unwilling and/or incompetent supervisors, which some students mentioned in connection with unfulfilled learning potential. The results also suggested that students' learning processes might (at least partially) explain the differences (Niemantsverdriet *et al.*, 2005).

The nature of the learning processes reported by students was categorized using current educational insights described under 'New Learning' by Simons *et al.* (2000). 'New Learning' is characterized by a shift from traditional 'guided learning' towards more 'experiential' and 'self-directed learning' (in the educational literature, self-directed learning is also termed 'action' or 'active' learning.). Guided, experiential and self-directed learning processes differ in the way they are structured. In 'guided learning' the teacher structures most of the learning functions (preparatory, executive and closing functions), whereas in 'self-directed learning' the student does so. In 'experiential learning', learning is an unstructured side effect of activities (Van Hout-Wolters *et al.*, 2000). Even with fully self-directed learning, supervisors may still play a role, e.g. as coaches, experts, consultants and role models.

In an earlier study (Niemantsverdriet *et al.*, 2005), 'experiential learning' emerged as the dominant learning process in international electives. The fact that, in experiential learning, learning is an unstructured side effect of activities may (at least partly) explain the observed variety in the nature and quality of student learning outcomes. A minority of students seemed to use 'self-directed' learning styles, whereas 'guided learning processes' were confined to 'regular international clerkships'.

Another finding of this earlier study (Niemantsverdriet *et al.*, 2005) was that sociocultural differences between students and supervisors sometimes appeared to interfere with productive learning, which was interpreted as a socio-cultural mismatch in students' and supervisors' experiential interface (Volet, 2001).

Our earlier studies explored undergraduate medical students' learning experiences from international electives by semi-structured in-depth interviews with students (Niemantsverdriet *et al.*, 2004, 2005). Indications of the importance of the role of external supervisors, i.e. supervisors at the sites of international electives, in student learning prompted us to select external supervisors as an additional data source for triangulation. Our research questions were: (1) 'What is the nature of undergraduate medical students' learning processes from international electives?' and (2) 'Do sociocultural differences influence these learning processes?' Although the first research question was explored in prior studies, we addressed it again, because of indications that nature and quantity of learning outcomes may (at least partly) be explained by the nature of the learning processes.

We added the second research question because of indications that sociocultural differences between students and supervisors could hamper productive learning (Niemantsverdriet *et al.*, 2005). We derived a theoretical approach to this phenomenon from studies by Hofstede (1986, 1996), who described four dimensions of differences

between national cultures: individualism (as opposed to collectivism), power distance (less or more), avoidance of uncertainty (less or more) and masculinity (as opposed to femininity). Hofstede (1986, 1996) showed that these dimensions can also be used to characterize the 'teacher-student' role pair. In a so-called 'collectivist society', for instance, students will expect to 'learn how to do things', whereas in an individualist society students will expect 'how to learn things'. As for power distance, in a so-called 'small power distance society' students are allowed to contradict or criticize their teachers, whereas in 'large power distance societies' this behaviour is unacceptable. Plotting country scores on the four dimensions on the indexes of two dimensions (e.g. a power distance by an individualism-collectivism plot) showed that power distance and collectivism were disparate factors which nevertheless were jointly associated with national wealth. Consequently, the power distance by using an individualism-collectivism plot clearly separated Third World countries from rich countries. In other plots (e.g. the masculinity-femininity by avoidance of uncertainty plot), countries were scattered differently and no association with national wealth was present.

Method

We used a case study design, because we were investigating a contemporary phenomenon (learning from international electives) within an authentic context without clear boundaries between phenomenon and context (Yin, 1994). A multiple case study, replication design was set up. Replication of the three cases was directed at the socio-cultural differences within the context of the elective sites:

- Case 1 encompassed a 'Rural and Remote Medicine' elective in Broken Hill, NSW Australia.
- Case 2 encompassed electives in urban areas in Sydney and Melbourne, Australia.
- Case 3 encompassed electives in non-Western countries, i.e. Kenya, Mexico, the Philippines.

The Australian cases were chosen because the Netherlands and Australia were considered comparable as to 'national culture' dimensions (individualism, power distance, avoidance of uncertainty) as well as national wealth (Hofstede, 1986, 1996). Different Australian settings were selected to reflect the huge differences between urban and rural areas (outback). In the outback, students are far more likely to come into contact with indigenous (aboriginal) patients.

The countries of the non-Western case (Kenya, Mexico, Philippines) were chosen for the differences from the Netherlands in 'national culture' dimensions and national wealth, which was lower compared with that of the Netherlands (Hofstede, 1986).

The research methods were semi-structured interviews and direct observations.

Selection of cases

Case 1: Australian outback. The 'Rural and Remote Medicine' elective at the Department of Rural Health, University of Sydney at Broken Hill was selected because: (1) it was popular with undergraduate students of Maastricht

Table 1. Overview of three cases ($n = 17$ interviewees).

Job title	Residence	Work organization	Member check
Case 1: Outback Australia			
Director of Emergency	Broken Hill	Base Hospital	X
Medical Doctor			
Director of Clinical Training			
Senior Lecturer			
Consultant Physician	Broken Hill	University of Sydney/Base Hospital	X
Haematology			
Nurse Unit Manager			
Emergency Department	Broken Hill	Base Hospital	–
Nurse Unit Manager			
Medical Ward	Broken Hill	Base Hospital	–
Acting Nurse Unit Manager			
Orthopaedic Nursing	Broken Hill	Base Hospital	–
Associate Clinical Lecturer			
Senior Medical Officer RFDS	Broken Hill	University of Sydney/Royal Flying Doctor Service (RFDS)	X
Rural Attachments			
Programme Coordinator	Broken Hill	University of Sydney	X
Recruitment & Retention			
Manager of Health Services			
PHC Aboriginal Health	Broken Hill	Maari Ma Aboriginal Health Corporation	X
Director of Nursing and Executive Officer	Wilcannia	Wilcannia Health Service	X
Registered Nurse	Wilcannia	Wilcannia Health Service	X
Case 2: Australian urban area			
Medical Director	Sydney	University of New South Wales	–
Diving & Hyperbaric Medicine			
Professor of Neurology	Melbourne	University of Melbourne	X
Medical Director	Melbourne	Monash University	–
Professor of Paediatrics			
Case 3: Non-Western countries			
Former Director Community Programme	Monterrey/Mexico	Universidad Autonoma de Nuevo Leon	–
(past) Chair Department of Preventive, Family & Community Medicine	Manilla/Philippines	University of Santo Tomas	X
Head of Department of Immunology	Eldoret/Kenya	Moi University	X
Senior Lecturer			
Professor of Paediatrics	Eldoret/Kenya	Moi University	X

University Medical School, the Netherlands (in the academic years 2001–02; 2002–03 and 2003–04, it was undertaken by five, seven and four students, respectively); (2) students were able to learn about the health status and health needs of people living in remote rural areas and about cross-cultural perspectives in aboriginal health; (3) the language of the electives was English; and (4) the coordinator of the ‘Rural Attachments Programme’ offered to assist in scheduling appointments for interviews with a range of supervisors, when she was contacted by email by the principal author (Table 1).

Case 2: Australian urban areas. External supervisors of electives in Australian urban areas were selected by two ‘exchange student’ coordinators of Maastricht University. The selection criterion was having supervised at least four Maastricht undergraduate medical students in recent years. Three supervisors (1 × Sydney, 2 × Melbourne) met this

criterion and consented to being interviewed after email invitations by the principal author (Table 1).

Case 3: Non-Western countries. Five external supervisors of Dutch undergraduate medical students were selected from the participants in the 2003 ‘NetworkTUFH’ (Towards Unity For Health) conference with the help of two ‘exchange student’ coordinators from Maastricht University. The selection criterion was the same as for case 2. The supervisors were invited by email to participate in an interview. The principal author interviewed four of them (2 × Kenya, 1 × Mexico, 1 × Philippines) at the 2003 ‘NetworkTUFH’ conference in Australia (Table 1).

In all three cases we assumed that by selecting external supervisors in this way we would select ‘indigenous’ supervisors. Although we did not directly check this out, there were no indications that we failed to select ‘indigenous’ external

supervisors who were true representatives of the sociocultural dimensions described by Hofstede (1986, 1996).

Semi-structured interviews

The semi-structured interviews commenced with short questions on factual data, such as the type of elective supervised, job title, and the number of Dutch students supervised. The subsequent topics were: the supervisor's motivation for supervising Dutch students; the actual supervisor role (activities undertaken with exchange students); critical incidents involving Dutch students, related to a learning situation during the elective; cultural differences that may have played a role in these incidents; overall evaluation of Dutch students' international electives. The supervisors were asked to describe the most positive and the most negative event involving Dutch students. For this part of the interview the critical incidents technique was used, with interviewees being asked to describe incidents (events and behaviour) rather than their perceptions of them, which has the advantage of producing information that is less pre-interpreted (Flanagan, 1954).

The principal author interviewed the supervisors in the period from September to October 2003. The interviews lasted 40 minutes on average (range 25–75 minutes). The supervisors were interviewed at their work sites (cases 1 and 2) or in a quiet spot at the NetworkTUFH conference (case 3).

Direct observations

The principal author paid several field visits to elective sites and interviewed the Australian supervisors at their work sites. The field visits allowed for personal observation of university departments, hospitals and their surroundings. She stayed for one week at the Department of Rural Health, Sydney University, at Broken Hill. Financial constraints precluded field visits to case 3 sites.

The principal author's unstructured direct observations provided additional information on the topic under study (Yin, 1994). The conference posters in the corridors of the Department of Diving and Hyperbaric Medicine, in Sydney, for instance, bore witness to Dutch students' involvement in departmental research projects. Street life in Wilcannia (Australian outback) revealed the high percentage of Aboriginal people living there, as well as their poor living conditions. These observations provided the context for the analyses of the interviews.

Analyses

The interviews were tape-recorded and transcribed verbatim. Transcripts were analysed using the Atlas-ti (Version 4.1) computer software package. (The Atlas-ti computer program is specially designed for qualitative analyses.)

First, the interviews of each case were analysed separately. Analysis involved line-by-line scrutiny of the transcripts, with keywords being assigned to text fragments (open coding). For each interview, categories and themes were identified, tested and refined in a cyclic process, involving repeated analysis of both previous and following interviews (axial coding). This type of analysis resembles the open coding and

axial coding phases of grounded theory (Strauss, 1987; Wester, 1995). These analyses served as the basis for interview summaries, which were used for pattern matching and member checks.

Pattern matching involves comparing an empirical pattern with a predicted one (Yin, 1994). It was used in two ways:

- Pattern-matching involved (a) categorizing the learning processes described by the interviewees as guided, experiential or self-directed learning processes (within each of the three separate cases) in accordance with the definitions given in the introduction. The findings of our earlier study (Niemantsverdriet *et al.*, 2005) had led us to expect that most of the learning processes would be categorized as experiential learning.
- Pattern-matching involved (b) making an inventory of the 'cultural differences' described during the interviews (within each of the three separate cases). Because of the relatively close resemblance between the Netherlands and Australia on three 'national culture' dimensions, i.e. individualism, power distance and avoidance of uncertainty, we expected case 2 to yield few instances of cultural differences. Case 1 was expected to reveal more effects of cultural differences, because of the likely encounters with indigenous (Aboriginal) patients. The likelihood of establishing an effect of cultural differences was considered greatest in case 3, because these electives were set in host countries that differed most from the Netherlands in 'national culture'.
- Finally, cross-case analysis was conducted, involving comparison of the findings for the three different cases.

Quality checks

To enhance the 'trustworthiness' of the results, i.e. to diminish subjectivity, several quality checks were performed (Lincoln & Guba, 1985).

Member checks involved asking interviewees whether the summaries accurately reflected interview content. Of seventeen interviewees ($n=17$), 11 responded and accepted the summaries as accurate. Five of them suggested minor corrections (e.g. spelling, subheadings). Six interviewees did not respond, even after two reminders (see Table 1).

Pattern matching was used for a quality check of the interview analyses. The principal author and one of the co-authors performed this independently for each of the three cases and discussed the results in bilateral meetings. Disagreements were few, particularly regarding the categorization of learning processes. The pattern matching of the sociocultural differences yielded a slightly higher number of differences between assessors. Consensus was easily reached after mutual adjustments.

Results

The results of the pattern-matching of learning processes and sociocultural differences will be described for each case. Illustrative citations from interviews will be given in particular for sociocultural differences, because these concepts were less clear cut than the definitions of the learning processes.

Case 1: The Australian outback

Learning processes. The six-week clinical elective at Broken Hill was undertaken by students in Years 3 to 6. Students spent some four weeks in different departments of Broken Hill Base Hospital (Emergency, Haematology, Surgery), approximately two weeks at Wilcannia Health Service and some days at Aboriginal Primary Healthcare Services (Broken Hill) or ambulance service. Ten different supervisors described learning processes that were all categorized as experiential learning. One supervisor, i.e. the programme coordinator, who was the only non-clinical supervisor, described a learning process that was categorized as guided learning. The programme coordinator played a key role in the sociocultural integration of Dutch students. Some of the critical incidents mentioned by supervisors may have involved self-directed learning. Although supervisors were positive about how students had designed these learning processes, they gave no indication of having actively stimulated self-directed learning.

A pair of Dutch students that have worked with me on the ward came back after two weeks of work in Wilcannia and presented a report on their experience. It was among the most professional assessments of the scene in Wilcannia that I've ever received. These people were able to prepare and present to a group of senior colleagues the results of their experiences within a culture which is so foreign to where they come from, that it should have been a challenge to anybody. (Supervisor 9)

Sociocultural differences. All supervisors were very positive about the Dutch students. They said the students fitted in well with (ward) routine and had excellent diagnostic, communication and social skills. The lack of complaints from nurses and patients was mentioned as an indication of the Dutch students' excellent functioning.

They do the procedures we need them to do, quite competently, but there are many smaller examples of how the Dutch students fit in well, they have the right skills to be able to fit in well with the ward routine, good knowledge base and very good command of the English language. (Supervisor 9)

Nine supervisors recalled no negative critical incidents involving Dutch students, although some of them recalled negative critical incidents with Australian students who were rude or did not treat nurses or patients with respect and cases of arrogant students from other countries.

The supervisors mentioned that Dutch students picked up regional language differences with ease and experienced the same language problems as Australian students from non-English-speaking backgrounds or from the Australian cities.

The supervisors had noticed no substantial cultural differences between Australia and the Netherlands, but acknowledged that there were large sociocultural differences in relation to indigenous Aboriginal people. However, the Dutch students showed a good understanding of Aboriginal culture and it was mentioned that they fitted in better with

Aboriginal culture (and in Wilcannia) than a lot of Australian students from the cities.

I think sociocultural differences play a large role. There are many different cultures in the Aboriginal communities and a lot of white, city-born people don't appreciate or understand that... I think the Dutch people are probably much better on that road than a lot of Australian medical people, that's just my feelings. (Supervisor 7)

Several supervisors mentioned the first two Dutch students who came for an elective, who had set a good example in many respects (language, integration, skills) and seemed to have cleared the way for the Dutch students who followed them.

Finally, two negative critical incidents were disclosed by the programme coordinator. One arrogant Dutch student had disrupted the ambulance elective by taking over from Australian students (who did not want to do the elective) and, because the student failed to report the swap, insurance-related matters had caused considerable trouble for the coordinator afterwards. The other incident concerned a Dutch student from an Asian background, who had too much difficulty with the English language. (The fact that none of the other supervisors mentioned this as a negative incident may have been due to them not having realized that this student was Dutch, due to her Asian appearance.)

Case 2: Australian urban areas

Learning processes. The electives at Australian urban sites consisted of three-month science projects in Diving and Hyperbaric Medicine in Sydney undertaken by students in Years 4–6, and six-week clinical electives in Neurology and Paediatrics, respectively, in Melbourne by students in Years 3–6. The learning processes during the science projects and the clinical electives were categorized as guided learning and experiential learning, respectively. The supervisors of the clinical electives mentioned critical incidents involving processes that might be described as self-directed learning, but, despite their clearly positive views of how students had designed these learning processes, the supervisors in no way indicated that they had encouraged these processes.

Many of our students can be very passive and these six Dutch students took a very active role in their learning.... These six were able to work so efficiently without much supervision, without any supervision really. (Supervisor 3)

Sociocultural differences. The three supervisors unanimously regarded the Dutch students as very active. They had not noticed substantial sociocultural differences, although one supervisor mentioned that some Dutch students did not have a sufficient command of English to appreciate the subtleties of what patients were trying to tell them.

Let's say you have about twenty and you have two of them whose language wasn't good enough.... We can have a conversation, but when they talk to patients they may miss the subtlety of what they are trying to say to them. (Supervisor 1)

None of the supervisors recalled any negative critical incident involving Dutch (Maastricht) students.

Case 3: Non-Western countries

Learning processes. The case 3 elective sites offered six-week clinical orientation electives in community-oriented Paediatrics and Tropical Diseases (Kenya), community-oriented Public Health (Mexico) and community-oriented Obstetrics and Gynaecology (Philippines).

The supervisors described learning processes that were categorized as experiential learning processes. Some critical incidents may have involved self-directed learning processes but, despite taking a positive view of these learning processes, supervisors made no mention of having stimulated them.

They informed me that they were coming to the hospital as well; they didn't only stay in the community. They did not abandon the Health Centre; they sometimes worked 24 hours, because they were willing to do so. (Supervisor 18)

Sociocultural differences. The Kenyan supervisors said that, because of their many years of experience as students in Europe, they had no difficulty communicating with Dutch students. The supervisors acknowledged that Dutch students might experience culture shock, although this never caused serious problems. One supervisor tried to overcome culture shock by giving students a short introduction to sociocultural differences, for example the use of drinking-water supplies, and by introducing foreign students to indigenous students who had been abroad. Poverty could be a shock to students as well.

The only sociocultural problems that I met with them, is that sometimes they are over-thrilled when they see patients. They get a shock because maybe three patients are sharing a bed and sometimes they would like to take a photograph. (Supervisor 20)

Both Kenyan supervisors mentioned as a very positive quality of Dutch students that they were compassionate and committed to patients and people in general.

They are very compassionate; they also asked me to show them where the orphanage for children is so they come with a mind of human nature. (Supervisor 20)

The Mexican supervisor saw the Dutch students as active students who behaved respectfully towards patients and had only occasional communication problems due to poor command of Spanish. To illustrate sociocultural differences, he mentioned that Dutch students learned a lot from the much warmer and stronger family ties in his country.

When she left she said that the first thing she would do when back home was to tell her father how much she loved him, because seeing my secretary treating her father and seeing how the relationship was so warm, she thought of herself as being quite distant.... (Supervisor 18)

The Philippine supervisor illustrated sociocultural differences with the example of the professor whose jocular style in

talking about a gynaecology subject had been interpreted by Dutch students as sexual harassment.

We did not think of sexual harassment as we knew the professor's joking style. While we are conservative too, we were not intimidated. Perhaps because we just don't pay attention to the particular professor when he jokes in class. We just keep quiet and so he stops joking. (Supervisor 19)

All supervisors mentioned that Dutch students were very active. The Philippine supervisor mentioned additionally that international students seemed to belong to a special group of bright and strongly motivated students. The Mexican and Philippine supervisors both regarded Dutch students as very eager to get hands-on learning experiences.

Again the supervisors did not recall any negative critical incidents involving Dutch (Maastricht) students.

Cross-cases

We will now present a comparison of the findings from the three cases.

Learning processes. As expected, experiential learning proved to be the dominant learning process in each of the three cases. 'Guided learning' processes were described twice: for an elective involving science projects (case 2) and by a non-clinical supervisor (case 1). Interestingly, the other electives were all clinical electives described by clinician-supervisors.

Self-directed learning may have occurred in a few instances within each case, but it was never actively stimulated by supervisors.

Sociocultural differences. Case 1 yielded the expected sociocultural differences. Dutch students fitted in well with the organizational structure of Australian healthcare. Although relating to (Aboriginal) patients was mentioned as a potential difficulty, Dutch students managed to deal respectfully with (indigenous) patients.

As expected, there were almost no sociocultural differences in case 2.

Case 3 yielded the greatest number of sociocultural differences, which was as expected. The potential danger of culture shock was mentioned and sociocultural differences were related to the organizational structure of medicine, medical education, the student/teacher relationship and personal relationships. A good example of a difference on Hofstede's Power Distance dimension (1986) was given by the Philippine supervisor (no. 19) to illustrate that teachers in the Philippines were never contradicted or publicly criticized, whereas in the Netherlands this is quite acceptable.

Language was mentioned as a source of sociocultural differences in all cases. Case 1 and 3 yielded instances where language problems were explicitly mentioned as a cause of communication problems.

Supervisors in all cases recalled hardly any negative critical incidents involving Dutch students. Social desirability may have coloured supervisors' responses. There was, however, countervailing evidence that arose during the principal researcher's visit to Broken Hill where two Dutch Year 6 students were offered jobs in the Emergency Department.

This clearly reflected the supervisor's appreciation of the students' work.

Discussion

The aim of our study was triangulation using findings from earlier studies on learning from international electives and findings from another source, i.e. external supervisors. We explored two research questions: 'What is the nature of undergraduate medical students' learning processes from international electives?' and 'Are sociocultural differences experienced during these learning processes? Our findings showed that the vast majority of students' learning processes as described by external supervisors were best characterized as 'experiential learning'. The findings also suggest that the greater the cultural differences between the elective site and the Netherlands, the higher the number of sociocultural differences reported by supervisors. Presumably, the greater the differences between national cultures, the greater the likelihood of such differences standing in the way of productive learning.

The results of this study were largely consistent with our earlier findings on learning processes from students' self-reports (Niemantsverdriet *et al.*, 2005). Students described slightly more learning processes as being self-directed. This is probably due to how we defined the learning processes, with self-directed learning requiring active stimulation by supervisors. Thus some students' learning processes that were categorized as experiential may actually have constituted self-directed learning that was not supported by the (external) supervisors. The point we wish to make in this respect is that not all students are capable of designing their own learning processes and many will need support from supervisors to achieve self-directed learning (Simons *et al.*, 2000). Students and supervisors will need additional skills to facilitate self-directed learning. Student strategies to effect a shift towards 'self-directed learning' include goal-directed learning, diagnostic learning and reflective learning. These strategies require process-oriented instruction focused on the development of processes such as self-regulation of learning and thinking integrated in regular domain-specific instruction. In process-oriented instruction, processes and skills are modelled by teachers (and fellow students) with teachers also acting as external monitors of students' learning, thinking and regulatory activities. Gradually, teachers withdraw these monitoring activities and other kinds of teacher control, as students' abilities to work increase independently. This is referred to as scaffolding (Simons *et al.*, 2000).

The results of this study are largely consistent with our earlier findings from students' self-reported experiences of sociocultural differences between them and their supervisors (Niemantsverdriet *et al.*, 2005). The dimensions of national cultural differences as developed by Hofstede (1986, 1996) were useful in predicting and explaining sociocultural differences.

So far there appears to be no consensus on any extras that international electives should deliver to undergraduate medical students. However, there is no denying that the sociocultural dimension might potentially offer added educational value. Thus we recommend exploration of ways to transform sociocultural differences between students and supervisors from a potential barrier to the effectiveness of

learning into an integral part of student learning experiences. This might be achieved by having students prepare, elaborate and reflect on critical events relating to sociocultural differences between them and their supervisors.

The results of this study do not elucidate whether experiential learning processes are typical characteristics of international electives only. International electives might be seen as a comparable learning environment to regular clinical rotations. Recent Dutch and American studies concluded that learning during such rotations appeared to be an unstructured, rather haphazard process (Van der Hem-Stokroos *et al.*, 2001; Daelmans *et al.*, 2004; Hoffman & Donaldson, 2004). An Australian study (Lyon, 2003) on learning in surgical clerkships showed that students reporting that they found theatres to be useful learning environments had (among other things) a measure of social competence, and opportunity, to negotiate an active part in the team as a legitimate learner in the training queue (behind the intern, the resident, the registrar and the surgical fellow). The importance of the supervisor role in regular clinical rotations is also stressed by students (Dolmans *et al.*, 2002a, 2002b). Finally, it is also acknowledged that healthcare is rarely delivered in a mono-cultural context (Prideaux & Edmondson, 2001; Wear, 2003). Hence it seems safe to assume that a comparison between undergraduate international clinical electives and regular clinical rotations will reveal more similarities than differences.

In 'New learning', Simons *et al.* (2000) advocate a balance between 'experiential learning', 'self-directed learning' and 'guided learning'. We agree with them that students should be enabled to use all these learning processes in an iterative way. In a prior study, we recommended more self-directed learning, because students who used more self-structured learning processes were found to be more successful in achieving their learning goals (Niemantsverdriet *et al.*, 2004b). The results of the current study suggest that we should also recommend more 'guided learning', particularly in preparing students to cope with sociocultural differences (during international electives) and to elaborate and reflect on these differences.

More research is needed to evaluate the effectiveness of international clinical electives. It will also be a challenge to control for the myriad of confounding factors that may play a role in this field (Thompson *et al.*, 2003; Edwards *et al.*, 2004). A worthwhile subject for further study might be indications from prior studies that students going on international electives may be a self-selected group (Godkin & Savageau, 2001; Niemantsverdriet *et al.*, 2004). New insights into this subject may be obtained by comparing the characteristics of students who do and students who do not go on international electives. Such a study should focus on student learning styles and cultural sensitivity. In addition, it would be helpful to strive for consensus on the intended outcomes that international electives should deliver for undergraduate medical students.

The limitations of this study are the small numbers studied and a potential effect of social desirability on interviewees' statements. However, we included several quality checks in the study. The positive outcomes of pattern-matching may be taken as a measure of the study's internal validity (Yin, 1994).

Acknowledgements

The authors thank all respondents for giving their time for interviews. We thank the people from the Department of Rural Health, University of Sydney at Broken Hill, Australia, for their kind help with the organisation of the interviews and their warm welcome. We like to thank Mereke Gorsira of the Department of Educational Development and Research, University Maastricht, the Netherlands, for advice and suggestions on the English language used in the manuscript.

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Note

- [1] All the authors contributed to and participated in the writing of this paper. The manuscript was reviewed by all the authors. There was no external funding for this study. There was no ethical approval sought for the research described.

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