Practice and Evidence of Scholarship of Teaching and Learning in Higher Education
Vol. 6, No. 2, October 2011, pp. 110-134

The Impact of Team Formation Processes on Curriculum Alignment in Communication Courses in an International Context

Caroline Brandt
College of Arts & Sciences
Petroleum Institute, Abu Dhabi
cbrandt@pi.ac.ae

Abstract

This paper reports on research into instructional practices aimed at developing undergraduates' team competencies in communication courses at an engineering university in the Arabian Gulf. Following reports from students of several difficulties, the research set out to investigate the team work experience from students' perspectives. Qualitative data were gathered via several instruments from 42 teams and were analyzed and synthesized to optimize opportunity for familiarization, understanding and comparison via collation and annotation. It was found that team formation processes can have a major effect on the quality of the student experience of teamwork. While self-selection was identified as the most popular approach among students and instructors, the influence of several classroom management factors frequently results in teams that are not fully self-selected. This can lead to unevenness in task completion, with motivated students compensating for others' lack of effort. In this situation, some students find themselves overloaded to the detriment of their overall performance, while others are able to sidestep or participate less fully in some key course components. For some students therefore, instruction, assessment and outcomes are not fully integrated. Following Biggs' (1999) concept of the "constructively aligned" curriculum, in which all components serve the same goals and support each other, recommendations aimed at enhanced curriculum alignment are made, while accounting for cultural dimensions identified in the context.

Keywords: teamwork competencies; self-selection; communication; Arab culture; constructive alignment

Introduction

Teamwork competencies are generally recognized as essential requirements for any graduate, primarily because it is assumed in many organizations that teams of employees can complete tasks more efficiently and with better outcomes than may be possible by individuals working alone. The formation of work teams is also often seen as useful for enhancing employee satisfaction and engagement, leading to improved output as a result of team bonding and reduction of work-related stress; teams may furthermore provide professional development opportunities as members learn from each other and experience various roles over time throughparticipation in different teams. Many organizations therefore now view teams as key workplace structures, and there is an associated interest in both the competencies needed to function effectively within them, and in how undergraduates should acquire these competencies in preparation for the workplace and continue to develop them once employed.

Many writers have investigated the need for students to develop such competencies in terms of target employment (e.g. Bowen, Alvaro, Mejia &Saffi, 2004; Spinks, Silburn&Birchall, 2007)while others have investigated the teaching of such competencies at universities (e.g. Baer, 2003;Hansen, 2006; Lipson, Epstein, Bras & Hodges, 2007). Less research, however, appears to have been carried out into the experience of learning these competencies.This paper explores the development of female undergraduates' teamwork competencies in required first year communication courses at the Petroleum Institute, an engineering institute in the United Arab Emirates. The outcomes reported below raise issues for those concerned with the development of team work competencies in higher education, and alsofor those whose interests lie in transition intouniversity culture or the development of academic competencies in international contexts.

While several issues were identified in extensive data gathered longitudinally and reported elsewhere, this paper focuses on team formation processes. It was found that students prefer self-selection as a means of identifying team members but that classroom management issues frequently lead to a self-selected team being persuaded to include another or others, such as a latecomer to the class. This in turn was found to be a possible factor in reports of unfair workloads and grades.

Responding to these understandings, it is proposed that approaches to team formation shoulddraw on the collective dimension of Arab culture. It is further proposed that some of the issues identified in the research can be addressed by ensuring that the development of team competencies takes place through an aligned approach, in which all components are integrated, serve the same goals and support each other (Biggs, 1999, 2003). Various means for achieving thisare proposed.

Teamwork competenciesin engineering education and workplace

Technical knowledge and skills are clearly indispensable for those entering engineering fields, but much research indicates that competencies such as creative thinking, communication and team skills are equally valued (De Graaff&Ravesteijn, 2001, Hedberg, 2003). Teamwork competencies are particularly necessary, as estimates suggest that engineers spend between 60% and 80% of their time engaged in teamwork (Martin, Maytham, Case &Fraser, 2005).

Investigating non-technical skills and attributes required of engineers working in teams, Bowen, Alvaro, Mejia and Saffi (2004: 2) emphasized the importance of being able to communicate and interactwith non-technically oriented people and function in a multidisciplinary team. Though the outcomes are tentative, the authors were nevertheless able to identify 27 skills and 22 traits required for effective teamwork in industry. Of particular relevance here are verbal communication; flexibility; adaptability; collaboration and cooperation; an appreciation of others' perspectives and acceptance of others' ideas, and participation (pp.3-4).

Standards of good practice in engineering undergraduateeducation take account of such industry expectations. The UK's Quality Assurance Agency (QAA) for Higher Education benchmark statement, for example, includes the following among its expected characteristics of engineering graduates: "In order to operate effectively, engineering graduates thus need to possess the following characteristics. [….]. They will be professional in their outlook, capable of team working, effective communicators, and able to exercise responsibility" (QAA, 2006). Likewise the US-based Accreditation Board for Engineering and Technology (ABET) recognises the need to develop the required competencies through Program Outcomes 3d ('an ability to function on

multidisciplinary teams') and 3g ('an ability to communicate effectively') (ABET, 2010, p.3).

The Petroleum Institute offers undergraduate degrees in engineering majors related to the oil and gas industry. While itprimarily follows a North American system and employs faculty from a wide range of countries and education systems, it is located in the United Arab Emirates and approximately 80% of its students are Emirati, with a significant proportion of the remainder coming from within the region. In keeping with Emirati tradition and culture, undergraduate education in the UAE is segregated, and students enrolled in the 'Women in Science and Engineering Program' form the focus of this study. Unlike its North American counterparts, this program takes place in a facility designed to ensure that students are segregatedthroughout their studies and extra-curricular activities. Several cohorts of two 18-week freshman courses, *Communication 101* and *Communication 151*provide the data for this study.

Forming teams

One of the main aims of *Communication 101* and *Communication 151*is to develop students' team competencies.Accordingly, a key activityin the early stagesof each course is student team formation, which instructorsmay choose to accomplish as they wish. In practice, instructors were found to employ one of four means: self-selection (i.e. allowing students to form their own teams); random assignment; common interests (i.e. encouraging students to form teams according to common topic interests); and skills optimisation (i.e. encouraging students to form teams with a view to optimising distribution of skills among members). The data indicated thatinstructors tend to employ self-selection in both courses.

Some researchers have suggested that a random approach best corresponds to workplace practice (Blowers, 2003), as employees normally have little influence over the choice of workgroups they are assigned to. From a pedagogic perspective a random approach also has the advantage of being efficient to implement and of being perceived as equitable. However, because random group composition relies on chance it may actually be unfair, as it will in some instances generate groups whose members are

incompatible, or lack diversity of skills or common interests (Chapman, Meuter, Toy Wright, 2006, p.560).

Self-selection, on the other hand, although being relatively straightforward to implement, can lead to groups that lack cohesion as students first form friendship partnershipsbut maythenbe obliged to invite others to join them to form an acceptable team size. Invitations may be made on the basis of familiarity or competence, or both: a student who is known to the group as a hard worker or high achiever will likely be in demand. However, the approach may result in a small number of students who are not invited to join any group, in which case they will be assigned by the instructor. These students may find it particularly difficult to fully integrate as a team. The approach may also therefore be potentially inequitable, an observation that is supported by the outcomes described below.

There appears to be little research into the advantages and disadvantages of the different team formation approaches in undergraduate education. Feichtner and Davis (1985), reporting on their study of students enrolled inspeech communication and business policy courses at two large universities in the US, found that students were more likely to report positive experiences when teams were formed by instructors, concluding that to allow students to form their own groups is to create the conditions for failure (Feichtner& Davis, 1985: 70). Others have found however that self-selection is associated with positive team experiences (e.g. Mahenthiran&Rouse, 2000). Investigating these conflicting results, Chapman, Meuter, Toy and Wright (2006)tested how team formation approach affects group dynamics, attitudes towards the experience and outcomes, finding that when allowed to self-select, friendship played a less influential role thanexpected and also that self-selected groups may in fact approximate more closely to the workplace experience than randomly assigned groups, noting that in practice "*it is highly unlikely that a team in the workplace would be selected on a completely random basis."* Although they found that self-selected teams are more likely to have time management issues, they concluded that overall self-selection appears to add more value to students' team work experiences as it enhances communication, enthusiasm and pride, leading to a more positive attitude toward team work.

This research did not set out to compare and contrast different approaches to team formation in the context in question, though it would certainly be instructive to do so.

Instead, utilising data gathered during the normal course of instruction, the experience was examined from the students' perspectives, with a view to identifying emic issues that could prompt improved institutional and instructional practice if and as required.

Method

Participants

Qualitative data were gathered via several instruments from 117 female students aged 18 – 20 enrolled in *Communication 101* and *151*, both of which require student teams to complete at least one research-based project. 87% of the respondent group were Emirati, with the remainder coming from Palestine, Egypt, Morocco, Tunisia, and, in one case, Bosnia. Apart from the latter, all were speakers of Arabic as a first language, and all had achieved a composite TOEFL score of at least 500. All participants stated that they had had some previous experience of working in teams in an educational setting, either in high school, in the program offered by the institute to prepare students for degree-level study or, in some cases, both settings.

The students worked in teams of 3 - 5 members in all cases, forming in total 46 teams, 42 of which contributed to this study (a small number of students were not willing to participate in the research). Whilea fewcohorts were advised to select team members on the basis of common interest in the project topic, most were allowed to self-select; however, as circumstances required (e.g. to accommodate late arrivals) teams were on occasion split, merged, or asked to accept a latecomer. Data were gathered from 2008 to2010, and no student contributed more than once to the database.

Instruments were not designed specifically for data gathering purposes. Students were asked instead to give permission for all teamwork-related assignments to contribute to the research database. The first advantage of this approach was that course requirements include several formative tasks that require observation and critical reflection on the experience of teamwork, such as self, peer and course evaluations, providing a potentially rich source of relevant data. Secondly, in most cases students were writing for reasons other than for the purpose of providing data, increasing likely

response authenticity. It may be argued that the desire to be evaluated or perceived favourably by instructors could have led to a particular bias in the data. While this may be a possibility in some cases, it should be borne in mind that the aims of both courses include the development of critical thinking and reflection skills, and that students received instruction in both areas, including in particular how to critique one's own performance and provide constructive feedback on others in writing. It was also the case that of the six assignments that provided data for this study, only one was summative, the 'reflective writing' task (see Table 1). All data were gathered according to an ethical framework of 7 criteria (Patton, 1990), including informed participant consent, guaranteed anonymity in dissemination and access to data limited to the researcher. Table 1 below presents the tasks that contributed to the database for both courses examined.

Table 1. Data sources and their contribution to database

Course	No. of teams formed	No. of contributing teams	No. of study participants	Task	Contribution to database
Comm. 101	33 (16 for project #1; 17 *new* teams formed for project #2)	30	63	Self evaluation	Question 2: 'How well do you contribute to the work of your team, both in and out of class? Give an example or examples to support your answer.'
				Peer evaluation	Observations on teamwork
				Internal course evaluation	Question 5: 'Evaluate and comment on your teamwork skills.'
Comm. 151	13	12	54	Self-evaluation	Observations on teamwork
				Peer evaluation	Observations on teamwork
				Internal course evaluation	Question 5: 'Evaluate and comment on your teamwork skills.'
				Reflective writing	Answers to: 'Discuss both the positive and the negative aspects of teamwork by looking back on the teamwork component of Communication 151. Support your views with specific examples from your own experience.'
				Team work survey	All questions
				Project report investigating teamwork	One team only. Final report was used.

Analysis

The large quantity of text generated was analysed and synthesised with the aid of word processing software, with the specific aim of optimising opportunity for familiarisation and understanding (Lincoln &Guba, 1985). A grounded theory 'constant comparison' approach was adopted (Strauss & Corbin, 1990; Miles &Huberman, 1994; Denzin& Lincoln, 2000), involving reading, rereading, identifying relative importance (ranking) of themes (as indicated by frequency and strength of feeling expressed), finally leading to the identification via inductive reasoning of ranked emerging emic themes (Goetz &LeCompte, 1984).

Results

This paper focuses ontwo highly ranked categories, selected for their interrelatedness. Each encompasses several issues, exemplifiedbelow. In relation to examples, it should be borne in mind that the students are all users of English as an additional language. Linguistic errors and their sometimes idiosyncratic way of writing have been retained throughout.

Difficulties with team formation processes

No other issue provoked such strong reactions or such lengthy descriptions in the data. Several students describedphysicalreactions to the request to form a team: "I was devastated to find that I was with my old team from Communication 101 where all the work fell on me. I felt sick at that minute", whileothers drew attention to the stress they experienced, describing aneed to feel at ease with other team members.

Contrary to the findings of Chapman, Meuter, Toy and Wright (2006), friendship appears to have the most influential role in team formation. Students appear to associatebeing with a friend witha greater chance of success, because:

> *We will help each other. If I have to work with someone else, I will not know if they are able to help me or if they will if I ask them to.*

Loyalty and trust, and the ability to communicate on this foundation, are of paramount importance:

> *I chose to work with my very close friends […]. We worked so well together, because of our loyalty to each other and our understanding. This gave us harmony […]. It is a big benefit to work with your friends.*

Self-selection seems to have led to a number of problems. One of these is excluded students, who then become obliged to join an established team of friends. These two quotes, from different teams, illustrate both sides of the experience:

> *My team included 3 members only, so we had to take one more person from another team that was split but no one knew her and we tried to include her at the beginning but in the end we could not. It had a bad effect on our work and next time I will refuse the merging and work only with people with characters that I like and know already.*

> *I arrived late and there were already teams of 4 and 5 so I had to join a team of 4, meaning that I was with team mates who were not my friends. One girl was nice to me but I was always on the outside because they all knew each other from KG. They sometimes met up at weekends and I was not asked to join them and so I could not do good work for them.*

Of the 42 teams contributing to this study, 23 were affected by the addition to their team of a student or students 'on the outside'. It is likely that the number of teams affected by this process is higher, because analysis relied largely on self-reports, and students were not asked specifically about this issue. This represents an area for further investigation.

Self-selection, however, though greatly preferred, does not guarantee a problem-free experience. These students noted that team work with friends did not always lead to higher quality work:

> *Working with my friends was a terrible idea. With friends you are worried about the friendship and so you can't always push for things to be done. Next time I will definitely choose to work with people I don't know because then you can concentrate on the work and not worry always about keeping the friend.*

These results suggest that students' priorities become,after some experience of teamwork, to work with peers in this order of preference:

1. Hard-working friends;
2. Close friends, e.g. those known from school or possibly via family connections;
3. Friends made more recently, possible while at the Institute;
4. Other peers, not classified as friends.

Benefits of working with friends include a sense of feeling comfortable as part of the team, brought about in particular by knowledge of and confidence in the other's personality, skills and abilities, the ability to trust each other, expecting and giving loyalty and communicating freely.The data seem to suggest that, to these students, *knowing* someone is more important than *liking* someone, suggesting a cultural dimension, explored below.

It is clear that while instructors set out to allow students to self-select their teams, in practice the situation is often more complex. Teams are relatively likely to be composed of a core of friends plus one or two 'outsiders', because team formation is affected by class size and composition, in particular the number and nature of friendship pairs or groups within the class, which affects degree and direction of loyalty. There may also be a need to accommodate latecomers. A change of label reflecting more closely the complexity of the situation is proposed at this stage, from 'self-selection' to 'hybrid'. It is suggested that teamcompositions resulting from a hybrid approach may be at the heart of the issues identified in the next category.

Perceived unequal work distribution and grades

A considerable proportion of the data addressed perceived inequalities of labour distribution and grade earned. There are frequent references to resentment and difficulties with team processes caused by students making different contributions to the work. Within teams, in many cases one or two students reported completing a major part of the work with their friends, identifying those who make a lesser contribution as not friends andas "hitchhikers" or "free riders":

> *[…] me and my two pals […], we worked a <u>lot</u> harder than the other two. It was frustrating and next time I will try to make sure to work only with my friends, otherwise you can find yourself with hitchhikers who rely on your friendliness and abuse it for their own benefit.*

It may be that lack of inclusion is a demotivating factor in a student's contribution, as this student appears to suggest:

> *We had a good team but for one person who did as little as possible. At the start I felt sorry for her because she was not part of our group and I tried to encourage her to participate more. […] she told me she felt bad because she couldn't ever be a real part of our team and so couldn't find any interest in what we were doing.*

Several students noted that though work may be allocated fairly, in practice it is sometimes completed unfairly:

> *The work although distributed evenly at the start was done by just a few team members and this resulted in a sense that the team is broken and negative.*

Differing expectations and motivations among team members may lie at the heart of an unequal distribution of labour, with those keen to do well taking on greater responsibility for the quality of their team's work:

> *It is usually the students who want a good grade that will do most of the work and I fall into the category of wanting a good grade so I end up doing a lot of the work.*

Many students described being driven by a sense of duty and pride to compensate for less productive team members. For example:

> *Although I know my teammates should do the work themselves in order to develop their skills, it's insane but I also don't want to let them down when they don't do it. I prefer to do it myself than do work that reflects badly on all of us in my team.*

The extra work taken on by some students affects other courses as well as their time management. Extra work is also generated by the need to try to involve and encourage less hard-working students:

> The worst part was trying to make the fourth member of my team do her part. Every time she was asked to send her part she gave excuses [and] in the end she didn't submit anything on time.

Unexpectedly, there were few references to instructors in relation to this issue, possibly indicating that students felt responsible for the problem and tried to deal with it themselvesand / orwere reluctant to indicate a problem in an assessable area of the curriculum, as this observation suggests:

> *Finally I spoke to [instructor] about these problems, but I didn't like doing that because I felt I was reporting a problem that we should fix it ourselves and also that talking to her would give me and my team poor grades because we weren't working well.*

Unsurprisingly, such issues led to resentment and a dislike of teamwork:

> *Some of the major problems encountered really made me nervous and apprehensive. The noncooperation from some members for example some of the members in my group had an attitude on non-commitment and irresponsibility, like not competing the past of work given to them, doing it superficially without caring about efficiency and quality and because of that we sometimes needed more time to finish a specific task and did not meet the deadline.*

Students feel that further injustice occurs when all team members earn the same or similar grade, despite an uneven contribution:

> *I always try my best and want to get the highest grade that I am capable of and sometimes when I work in a team, I feel I put in 120% effort, while some of the members don't even put in 20% effort. It's not fair when at the end we all get a similar grade.*

To summarise, friendship allegiances play the single most influential role in team formation in this context. While a team composed entirely of friends may be effective, class management issues can lead to a core group of friends being joined by one or two 'outsiders', leading to greater variability of motivation. Such teams are more vulnerable to an uneven distribution of labour, but a sense of duty often compels harder-working students to work on behalf of others.

Discussion

Several researchers have attempted to theorise Arab culture (e.g. Hofstede, 1967-2009; Zaharna, 1995; Hampden-Turner &Trompenaars, 1998). Most recognisethe importance assigned to personal relationships in Arab societies, accounted for by the collectivist end of both Hofstede's dimension of'Individualism'and Hampden-Turner and Trompenaars (1998) dimensions of 'Individualism / Collectivism', for example.Hofstede(1967-2009) described societies with collectivist tendencies as those "in which people from birth onwards are integrated into strong, cohesive in-groups, often extended families (with uncles, aunts and grandparents) which continue protecting them in exchange for unquestioning loyalty."

Integration into strong, cohesive in-groups and the requirement for unquestioning loyaltywould seem highly likely tocontribute to students' desire to form teams with friends, as well as to the sense of duty towards others which leads some to compensate for others' lack of effort. It seems reasonable to suggest that family, tribal and national identities and allegiances will take priority in this context. However, this may lead to threeparticular difficulties.

First, it may be that instructors from non-Arab cultural backgrounds fail to appreciate the strength of influence of this allegiance on team formation processes. Consequently they may beill-equipped or reluctant to accommodate it, possibly even disrupting it by applying other team formation approaches. Second, those students who make less effort to cooperate and collaborate as part of their teams may sidestep key components of the curriculum, of concern to instructors whose tasks include ensuring that all students receivecomparableinstruction in terms of opportunities, guidance and feedback. Third, those students who feel obliged to compensate for their less hard-working peers may not only experience resentment but also find that their work in other courses suffers.

Instructors might reasonably be expected to take steps to prevent the last two difficulties from occurring. However, there werenoticeably few references in the data to instructor involvement. Students may be reluctant to draw attention to these difficulties, believing that this could lead ultimately to a penalty at some stage of the course. This suggests a conflict between the formative and the summative elements of the course, in that fear of

penalty could lead students to resist seeking help required to develop the skills in question.

There is also a significant lack of reference to instructor intervention in the form of assessment of team competencies development. This is supported by examination of the syllabus, which suggests that targets of assessment are primarily the products of team processes and that comparativelylittle assessment of team processes themselves takes place. However, the data indicated that students were more absorbed by team formation and processes than by any other single issue during the courses.

Suchissues aresuggestive of a lack of alignment between learning outcomes, the support provided to enable students to develop the required competencies, and the assessment of these competencies. The term“constructively-aligned curriculum” was first coined by Biggs (1999), who drew on the work of Tyler (1949) and others in identifying the ideal of a curriculumwhich recognises that students construct their own learning and so must take responsibility for it, supported by a learning environment that is designed to scaffoldthem in this process. It is the instructor’s responsibility to develop such an environment by defining what students need to be able to do as a result of learning, expressed in the form of objectives or learning outcomes, and by setting up activities that will enable students to achieve these outcomes, ensuring that assessment instruments correspond to the learning outcomes. Lack of such alignment, Biggs argued (2003: 26), leads to “Imbalance in the system [which] will lead to poor teaching and surface learning. Non alignment is signified by inconsistencies, unmet expectations, and practices that contradict what we preach.”

The recommendations below are suggested as a guide towards greater constructive alignment in this context and other comparable contexts.

Recommendations

Team formation

Thoughself-selection may be preferred by students and is possibly instructors' default approach, in practice its application is made more complex by a range of classroom management issues. Students themselves ideally willeventually move towards takinggreater responsibility for their own team formation, but need to do so while supported by processes that arelikely both to enhance constructive alignment between outcomes and instruction processes and take account of cultural dimensions.

The following recommendations may go some way towards achieving enhanced alignment in this area:

1. Individual responsibility for the welfare of all class membersshould beemphasised. Drawing on the strong sense of allegiance and loyalty to the group that is present in the culture in question, a collective approachto team formation focusing on the welfare of the entire class can be promoted at the outset, supported by the followingprotocol:

   Task: Form yourselves into teams of 4 – 6 members.
   Protocol for team formation - In doing this you have several responsibilities. You must ensure that:
   - All members of your class are satisfactorily assigned to a team.
   - No team has fewer than 4 or more than 6 members.
   - No student is ever without a team.
   - Any latecomer to the class is accommodatedand welcomed by a team.

2. Instructors should highlightthe different team compositions that may emerge as a result ofa hybrid approachand the various associated issues, and encourage discussion of strategies for adapting, with a focus on ensuring a more balanced participation among team members.

3. The complexity and reality of situationsthat arise in practice should be made explicit and available for discussion, and not obscured by a belief that self-selection is a straightforward approach to team formation in classroom contexts.

The syllabus

Four recommendations in relation to the syllabus would be likely to enhance alignment:

4. As the development of team competencies in thefirst yearof undergraduate study often takes place within a broader syllabus that aims to teach a range of academic competencies, including academic reading skills, it would be possible to require students to read academic texts about the competenciesthat they are expected to develop. Such reflexivity of approach leads to improved alignment, as the reading material at once provides students with examples of academic texts whose content reinforces the skills being developed (see Brandt, 2010).

5. The learning outcome “work effectively in teams” should be described in more detail, i.e. in terms of required competencies,enabling students to see more explicitly the competencies they were expected to demonstrate. These would be regularly assessed.

6. Students would be encouraged to regularly reflect upon and self-evaluate their development of the required competencies.

Assessment

Currently, students are assessedcontinuously by means of 20 instruments(Communication 101) and 17 instruments (Communication 151) (see Appendix). In Communication 101, 19 are designed to test products of the research project; such as a source evaluation and literature review. Only in the final examination arestudents currently required to reflect upon their experience of the course, including their experience of working as a team (this examination was the subject of significant modification during the time of data gathering and so this material did not contribute to the database). In Communication 151, of the 17 instruments, one, reflective writing,

provides an opportunity for students to reflect upon their team competencies, but takes place towards the end of the course.

It may be argued that the primary purpose of these courses is the development of students' academic literacy skills and that team work is the vehicle for this development; as such it should make only a small contribution to overall assessment. In support of an argument against this view however is the fact, apparent from the data, that team processes form the stage on which all else takes place and they have a likely influence on the quality of nearly every piece of work submitted. Consequently, assessment requirements will ideally "mirror the curriculum" (Biggs, 2003: 210); that is, the significance of teamwork during the course will be reflected in assessment, leading to recommendation 7:

7. The significance of team competencies development and their weighting as a component of the syllabus should be reflected in assessment.

Collaborative teaching

The results suggested that after the initial team formation phase instructors' influence in team processes appears to be minimal, a situation which is desirable in many respects. Instructors however are very well placed to influence students via the example that may be set through team or collaborative teaching. These instructors have the opportunity to demonstrate team competencies themselves, making these a subject for discussion and example. Such an influence would be largely indirect, considered ideal in a situation in which student responsibility and independence is sought. This may be accomplished by means of various permutations, such as two communication instructors (particularly suitable in the case of discipline-heterogeneous classes) or a communication instructor and a subject instructor (particular suitable in classes composed of discipline-homogeneous students). Teaching assistants could perform a similar function. Fingerson and Culley (2001) explored the value of undergraduate teaching assistants (UTAs), a frequently used collaborative model in undergraduate education, in their qualitative investigation. In particular, they established that students can benefit from being supported by a UTA who is knowledgeable in the syllabus, more approachable and less intimidating than their instructor.

Opportunities are also presented by the organisation of large numbers of students into parallel sections of the same course. In such circumstances it is usually necessary for instructors to collaborate closely to ensure that students receive comparable instruction, and advantage may be taken of such collaboration in a number of ways, for example, by making explicit to students thevarious methods used by the group of instructors to communicate and collaborate, with details of the decisions made and how they were made.

This leads to a final recommendation:

8. Instructors teaching team competencies should do so via collaborative approaches to the classroom, such that they demonstrate the skills they teach, providing both example and reinforcement. This is not to say that demonstration should be forced but rather than greater attention should be given to making more explicit those teamwork or collaborative processes that occur naturally when instructors teach collaboratively.

Conclusion

While students prefer to form teams by self-selection, classroom management issues, such as the need to accommodate a latecomer, frequently lead to hybrid teams. The inclusion in a team of an imposed student is a likely factor in students' reports of unfair workloads, with motivated students compensating for lack of effort on the part of other team members, leading to a situation in which it is possible for some students to sidestep or participate less fully in course components, while those who compensate for this behavior can find that they are overloaded with work to the detriment of their performance in other courses.

This situation suggests that for somestudents, instruction, assessment and outcomes lack full alignment. Responding to this, it is suggested that alternative approaches to team formation, which harness the collective dimension of Arab culture and requirestudents to participate in achieving a solution that accommodates all class

members, could lead to a more even distribution of instructional opportunity for students.

The research also identified threefurtheropportunities presented by current practice which could lead to enhanced alignment.The first suggests that instructors teaching team competencies should actively demonstrate such skills themselves through collaborative teaching. The second suggests that team competencies should be elucidated in the syllabus and that these should be mirrored in assessments. Thirdly, the opportunity to include academic reading matter in the curriculum on the subject of team processes is presented, which would at once exemplify academic texts and provide content of immediate relevance.

Such measures would go some way towards enhancing constructive alignmentas this requires that all curricular components '*address the same agenda and support each other. The students are 'entrapped' in this web of consistency, optimising the likelihood that they will engage the appropriate learning activities'*(Biggs, 1999: 64).

This preliminary study suggests severaldirections for further research, including opportunities to investigate:

- The application of the same methodology to male students for purposes of comparison and further understanding.
- The extent to which the issues that predominated in this study apply to students from other cultures (particularly non-collectivist cultures), in other contexts, and studying other disciplines.
- The performance of students in self-selected teams compared to those in teams to which they had been randomly assigned.
- The reasons why students prefer to work with their friends, with a view to determining the extent to which this is culture-specific or universal.

References

ABET (2010). 2010-2011 Criteria for accrediting engineering programs, effective for evaluations during the 2010-2011 accreditation cycle. Retrieved 6 December 2010 from

http://www.abet.org/Linked%20Documents-UPDATE/Criteria%20and%20PP/E001%2010-11%20EAC%20Criteria%201-27-10.pdf

Baer, J. (2003). Grouping and achievement in cooperative learning.*College Teaching*,*51*(4), 169-174.

Biggs, J. (1999). What the student does: Teaching for enhanced learning. *Higher Education Research & Development*, *18*(1), 57–75.

Biggs, J. (2003). *Teaching for Quality Learning at University – What the Student Does* (2nd Edition). Buckingham, UK: SRHE / Open University Press.

Blowers, P. (2003).Using student skill self-assessment to get balanced groups for group projects. *College Teaching*,*50*(3), 106 – 110.

Bowen, D., Alvaro, M., Mejia, D., &Saffi, M. (2004). Team skills of engineers – do we teach what industry wants? *International Conference on Engineering Education*, Gainesville, Florida, US.

Brandt, C. (2010). Reading between the lines of enquiry: Introducing first-year ESL university students to scholarship through literacy skills development, *Asian EFL Journal,* 44, 20 – 42.

Chapman, K. J., Meuter, M., Toy, D., &Wright, L. (2006). Can't we pick our own groups? The influence of group selection method on group dynamics and outcomes.*Journal of Management Education, 30*(4), 557 – 569.

De Graaff, E.,&Ravesteijn, W. (2001). Training complete engineers: global enterprise andengineering education. *EJEE*, *26*(4), 419–427.

Denzin, N. K., & Lincoln, Y. S. (Eds) (2000).*Handbook of qualitative research.*USA: Sage Publications Inc.

Feichtner, S. B., &Davis, E. A. (1985). Why some groups fail: A survey of students' experiences with learning groups. *OrganisationalBehaviour Teaching Review,9*(4), 58 – 73.

Fingerson, L.,&Culley, A. B. (2001). Collaborators in teaching and learning: Undergraduate teaching assistants in the classroom. *Teaching Sociology*, *29*(3), 299-315.

Goetz, J. P., &LeCompte, M. D. (1984).*Ethnography and qualitative design in educational research.* Orlando, FL, USA: Academic Press.

Hampden-Turner, C.,&Trompenaars, F. (1998).*Riding the waves of culture: Understanding diversity in global business*, (2nded.). US: McGraw-Hill.

Hansen, R. S. (2006). Benefits and problems with student teams: Suggestions for improving team projects. *Journal of Education for Business.*September/October, 11-19.

Hedberg, T. (2003). The impact of the Bologna declaration on European Engineering Education.*EJEE*, *28*(1).

Hofstede, G. (1967-2009). *Geert Hofstede: Cultural dimensions*. Retrieved 31 May 2010 from http://geert-hofstede.com/**.**

Lincoln, Y. S., &Guba, E. (1985).*Naturalistic inquiry.*Beverly Hills, CA, USA: Sage Publications.

Lipson, A., Epstein, A. W., Bras, R., &Hodges, K. (2007). Students' perceptions of Terrascope, a project-based freshman learning community. *Journal of Science Education and Technology*, *16*(4), 349-364.

Mahenthiran, S., &Rouse, P. J. (2000).The impact of group selection on team performance and satisfaction.*International Journal of Education Management, 17*(2), 253 – 259.

Martin, R., Maytham, B., Case, J. & Fraser, D. (2005). Engineering graduates' perceptions of how well they were prepared for the workplace. *European Journal of Engineering Education, 30*(2), 167-180.

Miles, M. B., &Huberman, A. M. (1994).*Qualitative data analysis: A sourcebook of new methods*. Beverly Hills, CA, USA: Sage Publications Inc.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*. USA: Sage Publications Inc.

QAA (2006). Subject Benchmark Statement - Engineering: *The Quality Assurance Agency for Higher Education*.

Spinks, N., Silburn N. L. J., &Birchall, D. W. (2007). Making it all work: The engineering graduate of the future, a UK perspective. *European Journal of Engineering Education*, *32*(3), 325–335.

Strauss, A.,& Corbin, J. (1990).*Basics of qualitative research*. London, UK: Sage PublicationsLtd.

Tyler, R. W. (1949) *Basic Principles of Curriculum and Instruction.* Chicago, US: University of Chicago Press.

Zaharna, R. S. (1995). Bridging cultural differences: American public relations practices & Arab communication patterns.*Public Relations Review*, *21*, 241-255.

Appendix 1. Communication 101 Course Objectives, Topics and Assessment Instruments

Objectives

- Formulate a research question
- Distinguish between quantitative and qualitative data
- Identify the variables in a research question and how these might be measured
- Construct and administer a simple survey and an evaluation matrix
- Interpret data and make recommendations based upon the data
- Read and think critically
- Evaluate academic reading material
- Take notes and synthesize information from a variety of sources
- Analyze a problem and offer logical solutions to it
- Write academic reports and other project documents
- Work effectively in teams
- Evaluate self and peers
- Give Power-point presentations directed at a specific audience

Topics

- The writing process
- Research questions and scientific method
- Survey design and administration
- Interpretation of quantitative data
- Project proposals
- Recommendation reports
- Power-point presentations
- Project planning
- Time management

Appendix 2. Assessment

	Instrument	**Individual (I) or team (T)**	**Weighting (% of total)**
1	Citation quiz	I	3
2	Portfolio	I	3
3	Report Introduction	I	6
4	Source evaluation	I	5
5	Survey	T	5
6	Proposal presentation	T	5
7	Proposal	T	5
8	Methodology 1	I	3
9	Methodology 2	T	2
10	Results 1	I	3
11	Results 2	T	2
12	Source summary	I	3
13	Literature review	T	4
14	Evaluation matrix and description	I	3
15	Evaluation matrix quiz	I	3
16	Results draft	T	3
17	Discussion and recommendations	T	7
18	Project presentation	T	10
19	Project report	T	10
20	Final examination	I	15

Appendix 3. Communication 151 Course Objectives, Topics and Assessment Instruments

Objectives

- Evaluate academic and technical reading material
- Prepare and write literature reviews
- Lead/Participate in a seminar based on academic / technical reading materials
- Take notes and synthesize information from a variety of sources
- Analyze a problem
- Evaluate the strength of evidence and argumentation
- Write academic/ reports and other project documents
- Apply knowledge to new contexts
- Work effectively in teams
- Improve Individual Writing
- Evaluate peers
- Give presentations using an appropriate medium

Topics

- Written and oral reports and documentation
- Project planning
- Time management
- Electronic portfolios
- Effective listening
- Small group communication
- Interpersonal communication
- Intrapersonal communication
- Intercultural communication

Appendix 4. Assessment

	Instrument	**Individual (I) or team (T)**	**Weighting (% of total)**
1	Minutes of meetings 1	T	1
2	Individual writing 1	I	2
3	Source evaluation	T	4
4	Minutes of meetings 2	T	1
5	Proposal	T	2
6	Individual writing 2	I	5
7	Individual writing 3	I	5
8	Progress report 1	T	2
9	Individual writing 4	I	5
10	Draft report	T	10
11	Progress report 2	I	2
12	Final report	T	10
13	Storyboard	T	4
14	Reflection	I	7
15	Final presentation	T	15
16	Personal development	I	5
17	Final examination	I	20