'*Looking at the glass half full*': Exploring Collaborative Mixed Group Learning as a Transformative Force for Social Inclusion in a South African Higher Education Setting

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Abstract

Among the challenges faced in South African education is the need to transform its face, its function and its folk, drawing the three aspects away from the divisive apartheid past towards a more inclusive, affirming and enabling future. The thrust of transformation underscores the tension between eliminating the inequities of our past and remaining conscious of our people's underlying diversity. Collaborative learning is ideally suited to helping students mediate and explore the tensions of transformation as well as the discomfort of diversity. In this study, data from focus group interviews conducted among a stratified sample of second year medical students and teachers of problem based learning (PBL) was analysed using Mezirow's first phase of the process of transformation. The process poses 'a disorienting dilemma', which refers to a situation in which new information clashes with past beliefs, leading to self-examination, critical assessment of assumptions and to a new perspective. Four major transformational dilemmas are identified. We show what aspects of diversity are operating in our student population and suggest what may be done to maintain a constructive balance between the polarities. In addition, we argue that collaborative learning is an effective way of presenting these aspects to a diverse, heterogeneous student population for their reflection towards personal transformation.

Background

'Nothing in life is constant; everything is variable. Transformation, if properly managed, offers a tremendous opportunity to enhance self-fulfilment for all – in other words, society at large benefits. It is indeed gratifying that there are good practices that have been noted, as some of the institutions that can serve as models for emulation. It should be kept in mind that in the South African context, transformation in the broader sense has become imperative, due to the inequities inherent in apartheid. The task of moving from the old to the new is indeed, both complex and daunting' (*Report of the Ministerial Committee on Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions,* 30 November 2008:119).

A variety of interpretations of 'transformation' arose during the ministerial committee's investigations, starting with the vision of Education White Paper 3 (1997:5) of a 'democratic, non-racial and non-sexist system of higher education'. The committee identified three critical elements: 'policy and regulatory compliance, epistemological change, at the centre of which is the curriculum; and institutional culture and the need for social inclusion in particular' (Report of the Ministerial Committee 2008:36). While acknowledging the validity of these conceptions of transformation, we argue that the idea should in fact comprise more than policy and numerical compliance, and changes in curriculum and institutional social practices. The heart of transformation is surely transformation of the individuals engaged in higher education. Of the 15 'key elements' listed in the Report (2008:36), only four can be related to the individual: a sense of belonging, non-dominance among diversity, non-marginalisation, and sufficient diversity to nurture non-racialism, non-sexism, multiculturalism and multilingualism. We argue further that collaborative learning in diversely constituted groups brings individuals face-to-face with these elements.

'Transformative learning is learning that transforms problematic frames of reference – sets of fixed assumptions and expectations (habits of mind, meaning perspectives, mindsets) – to make them more inclusive,

discriminating, open, reflective, and emotionally *able to change*' (Mezirow 2003b:58, emphasis added). As one of the foremost writers on transformative learning over the last four decades, Mezirow (2003a:1) describes 'the epistemology of how adults learn to think for themselves rather than act upon the assimilated beliefs, values, feelings and judgments of others', and notes that 'influences like power and influence, ideology, race, class and gender differences, cosmology and other influences may pertain'. He lists ten phases in the process of transformation; the first of these is 'a disorienting dilemma': a situation in which new information does not align with past beliefs, and leads to self-examination, critical assessment of assumptions, and ultimately to incorporation of a new perspective. We describe below a number of tensions between opposing viewpoints arising in the course of collaborative learning, and suggest that these represent 'disorienting dilemmas' that may be fruitfully exploited in the pursuit of transformation.

While accepting Dillenbourg's (1999) point that cooperative learning tends to allow division of labour within learning-group members, whereas collaborative learning encourages all members to research all aspects of the topic under discussion, for the purposes of this article we maintain that the principle of learning together non-competitively in small groups is the same. This form of learning has been described as the instructional procedure that affects the head and hand while simultaneously affecting the heart (Johnson *et al.* 2007). The head refers to the intellectual development, the hand to skills development and the heart to the development of appropriate attitudes and values.

Collaborative learning occurs between participants when they share a common goal, shared responsibilities, mutual dependence and open interaction to reach consensus or agreement (Johnson *et al.* 2007). Collaborative learning pits effective learning (in terms of outcome – 'We all learn more together') against efficient learning (in terms of process – 'I could get through this much faster on my own'). Collaborative learning affirms that I learn by teaching you and that your struggle to understand helps me too. As a learning tool consisting of friable strands held in tension, collaborative learning stretches out like a spider's web. However, users of the tool acknowledge that knowledge does not passively drift into the net; those who seek knowledge must shift to gather and construct knowledge actively.

We aim in this paper to examine the findings from a recent study

(Singaram *et al.* 2011) in order to engage with some of the transformation issues highlighted by the ministerial committee, and to illustrate the tensions that our students and staff face. The tensions may give rise to Mezirow's disorienting dilemmas. We highlight the aspects of diversity that are operating in our student population, and suggest what may be done to maintain a constructive balance between the polarities. We also argue that collaborative learning is an effective way of presenting these aspects to a heterogeneous student population for their reflection.

Context

In 2001 the student-centred problem-based learning (PBL) curriculum replaced the traditional medical curriculum at the Nelson R Mandela School of Medicine (NRMSM). In addition to large group resource sessions (similar to traditional lectures), students engage in collaborative group learning in PBL tutorials. Each of the PBL 'themes' is a multidisciplinary learning unit between six and nine weeks long. In the first three years, students meet twice weekly in preselected groups of 10 to12 individuals to discuss relevant clinical and basic science cases using an eight-step method (van Wyk & Madiba 2007). The method was adapted from the University of Maastricht (Schmidt 1983). In brief, this allows the group to explore collaboratively a relevant problem with a facilitator, initially using prior knowledge, sharing insights and brainstorming possible explanations.

Then, after a period of self-study with the aid of lectures and/or practical sessions, students meet again and synthesise information gathered during the week. Facilitators are full- or part-time faculty members who come from a range of medical, allied health, racial and language backgrounds. Prior to being allowed to facilitate, facilitators receive training and are then briefed by subject experts or the theme head on the details of the learning objectives for every week in each theme.

The diverse student population at NRMSM is multilingual and multicultural; with a range of ages, schooling backgrounds and prior educational experiences (some students enter medical school straight after school while others have some tertiary experience prior to gaining a place in medicine). South African schools still differ in terms of resources; infrastructure and methodologies implemented in a variety of public and

private secondary schools. Differences in the schools result in students having different levels of academic preparedness and skills when they enter medical school. The majority of the learners have English as a second or third language, as SA has 13 official languages. The collaborative PBL tutorial groups are mixed based on race and gender in an attempt to balance the diversity in each group; the group members' composition is changed for every 'theme' (i.e. every six weeks).

Participants

A stratified random sample of 20 undergraduate medical students who had at least two years experience working in PBL tutorials was selected, taking into account ethnicity, previous tertiary experience, language, gender and age. Based on these diversity factors, the second year students were divided into homogeneous strata. A random selection from each stratum was selected based on the proportion of that stratum in the student population of that year cohort to form a heterogeneous sample.

The selected students were individually invited to participate in the interviews and were selected after ascertaining their comfort with discussing diversity issues in heterogeneous, as opposed to homogeneous, groups. Eleven PBL facilitators out of the 20 invited accepted an invitation to a focus group interview. In total, two student groups of 10 students were involved and one group of 11 facilitators. Each student group met twice.

Instrument

In semi-structured focus groups, interviews explored the views of students and facilitators regarding the advantages and disadvantages of being in heterogeneous (multicultural, multilingual, multi-educational) PBL groups. The principal investigator (VSS) conducted the focus group discussions for students and facilitator groups. Another investigator (TES) acted as moderator and scribe. The focus groups were held for 90 to120 minute periods. Basic ground rules for the group to prevent potential limitations of focus groups such as dominating students were established at the start of the interview sessions. Discussions were audio taped. Students and

facilitators were each given a specific number prior to the discussion and their inputs were recorded anonymously. In the second round of student meetings, specific issues that needed additional clarification were explored, with students being given a chance to comment further on the issues discussed. Since no new points emerged from the discussions after the second round of discussions, a third round was not necessary. In total, five focus group sessions were held. Summaries of the discussions were authenticated by the students. The second round for the facilitators could not be held due to unforeseen circumstances.

Analysis

The tape-recorded discussions were transcribed literally and uploaded into the ATLAS-ti software program. Using the basic idea of grounded theory, an inductive approach was used to analyse the data as reported in a previous publication (Singaram *et al.* 2011). As outlined by Singaram *et al.* (2011) the data were read and re-read to 'discover' or label variables and their inter-relationships by using open (identifying, naming, categorising) and axial (relating codes or categories) coding (Strauss & Corbin 1998). Initially, the transcripts were read by one researcher (VSS) and a set of preliminary codes was designed. This was then discussed with another researcher (DD) and the transcripts were re-read. A trained assistant then read the transcripts and independently came up with a coding framework. The coding framework was then discussed by three researchers and modified until conformity and verification was reached. Transcripts were then re-read and coded using Atlas-ti. The coded data were then grouped into categories and underlying relationships explored. Hence, the themes and categories were determined or emerged from the data, as opposed to grouping the data into a set of pre-selected categories. Thematic analysis resulted in the identification of nine main themes related to the benefits and challenges of diverse group learning.

In this study the data were re-analysed by two of the researchers independently. Themes were grouped into relevant categories and underlying relationships were explored using Mezirow's first phase of the process of transformation i.e. 'a disorienting dilemma' as described earlier. After verification, four major transformational dilemmas were identified.

Results

1. *Student Selection by Quota—Academic Achievement*

For over ten years, our students have been selected so as to reflect the population demographics of KwaZulu-Natal. Since selection is secondarily based on matric performance, as we select from the top achievers downward, this inevitably means that the spread of ability in any group is inversely related to the size of the group. This then introduces a bias that affects each cohort of students throughout their degree programme. Smaller population groups tend to feature disproportionately at the top of the class, while larger groups, because of their lower average ability, tend to feature to a greater extent at the bottom of the class. As staff members, we have striven to make the point that the competition to secure places in the medical programme ceases once the programme itself begins. The faculty's use of criterion-referenced assessment means that students need to aim to satisfy the criteria, not to do better than others, in order to pass. We also make the point, as illustrated by the comments below, that one of the strengths of collaborative learning is that in working together, each contributes to the building up of individual and group knowledge of the topics under discussion.

Facilitator Perspective

... we've been in the apartheid era for so long and the disadvantaged Black students and Indian students often feel inferior to a White student who comes from a different educational background. In that sense, I feel that the facilitator's role (in the PBL tutorial) is to engage them and tell them that they are on common ground and we don't have any structural differences. 'We don't worry about which background you come from; we are here to learn from each other'.

Facilitator Perspective

When you look at both sides of the situation, where you have a very strong student, perhaps feeling being held back by a group consisting of large number of fairly weak students ….

Student Perspective

… looking at our country, helping to build for example our Rainbow Nation, I think this is what this (mixed) group is doing and it's actually helping us to get to know different people from different cultures. And with regards to the academic work and that sort of thing, it's actually like in a mixed group you get to learn about other people's experiences and you supposed to use your prior knowledge when you go into your first tut, so I think that it is a wonderful thing ….

2. Social Divisions — Tolerance

The diversity of student doctors collaborating, interacting, socialising and problem-solving provides a fertile training ground for their future careers in diverse healthcare teams in the SA healthcare sector. Despite segregational conditioning brought on by the previous apartheid era, the collaborative learning setting in the PBL tutorial encourages students to interact in academic discourse. However, remnants of a bygone era still exist as students segregate along racial, cultural and social class divisions as illustrated in the comments below.

Student Perspective

… but the problem is …. we seem to isolate. . . there is just this isolation amongst students, even in tuts. Even if you can look around now, I don't know what's happening but you'll be sitting in the corner there and even in lectures there is just this isolation. I don't know what the problem is. And it is very difficult for you as an individual to go up to a group of ten people from a different culture and try to be friends with them or try to get information from them. It is very difficult.

Student Perspective

And the other thing is the social class difference because I'm in a group where you can see that the people are wealthy, and they are rich and they have it all, and you can see that they know it, so they sort of belittle the other people and they make you feel small or whatever and I'm not sure if there is a way of overcoming that, and there are times in the tut when you feel uncomfortable because of that un-equalness.

Student Perspective

> Most of the times when you are from a rural area, you are de-motivated from the first day, you just see this place the medical school, you don't understand what is happening and you have these people that undermine you, they look at you like you are inferior, so you don't get into it. Most of the students from the rural areas, they don't get those good marks, because they are de-motivated from the first day.

The following comments illustrate consciousness of overcoming social barriers by developing a tolerant, patient attitude and sometimes even becoming friends as they get to know each other in the collaborative learning tutorials.

Student Perspective

> But maybe that situation breeds tolerance. But also like … ah … what's the word, when you, like, irritated with someone but you let it go … you know what I mean? Its like, I dunno, a personal issue, not like a cultural thing. And you can't change people, people are like the same, you might as well just move on, because worrying about it … well there's just no point to it. To me, the whole point of these mixed groups is that they breed tolerance … but I don't like the word tolerance, but you know what I mean. You don't have to accept what they doing, you just have to tolerate it (or) be patient.

Student Perspective:

> …. you greet people you'd never think you'd greet, you know, and it's like when you come into first year you thinking …. 'I'll never speak to that person' and then you go and sit in tutorials for like, one or two themes and then …. they even know you or your name …. And … sometimes you even meet like out of school and so ja I think it is beneficial socially.

Student Perspective

… I found that I have a keen interest in learning the other languages, 'cause we have people that speak Tswana, there are people who speak Sotho, and I think that as I am trying to learn these languages, I'm actually developing close relations with these people.

Student Perspective

I think there are advantages and disadvantages as such, but I've made a lot of friends of different cultures

3. Cognitive Constraints—Richness

'Cognitive' refers to students' academic and linguistic ability, as they have been inextricably linked in the South African context. The collaborative PBL tutorial provides an opportunity for academic support and development. As students work together in the first tutorial, tapping into prior knowledge, and in the second tutorial, discussing and exploring learning goals and co-constructing knowledge, English second language students benefit from contact with their English first language peers. We find disadvantaged students sometimes not being able to cope in the tutorials, as illustrated below.

Student Perspective

If you are all not on the same level, you find that some people do get left behind. Whether it's language or they don't understand or maybe you are not perhaps from the same Matric school and some people live in the rural areas, there are going to be those people who are going to be left behind ….

Facilitator Perspective

So I am saying it's disadvantageous … when ... the gap between your students is too big ....

The wealth of diversity also provides an opportunity for facilitators to help students address any sense of inferiority, lack of self-esteem or failure of confidence which may hinder their learning. If facilitated well, the tutorial can provide a safe environment for learning, sharing, caring and motivating each other, as illustrated in the comments below.

Facilitator Perspective

I find that by having the right mix of diversity, you have a group dynamic that works. You can't have too many bright students and you can't have too many weak students, it just won't work… It's nice to see the weaker students now coming forward, participating and learning from the brighter students.

Facilitator Perspective

I think the mixed group idea is an advantage in the sense that you cannot separate students and teach them, because that will be wrong. You will get students whose understanding of English is limited, but it will be good to pair them with students who have a good understanding of English. That will give them the idea of understanding from another person's point of view and they will understand the subject well and will be able to explain that well.

Student's Perspective

And educationally, I think that it is better to be with people, even if they are from a different educational background because you need to be with someone who knows more than you to learn from them. If I'm with people who are just as clueless as I am and don't understand English, I will never learn English .…

Student Perspective

... academically you are stimulated to do something when you see someone doing something and you develop something, and you have to go and study more about that thing, then you end up being on that level. So I think that the mixed groups are good.

4. Self Interest — Altruism

The altruism of the academically strong students is challenged, as they are more often than not on the giving end. This tends to frustrate these students, as illustrated in the quotes below. This frustration presents the opportunity to appropriately orientate and sensitise these students to imbalances brought on by past inequities.

Student Perspective

> I'm not sure if it's a language barrier, or lack of knowledge or whatever it is, but sometimes when you have members like that, it frustrates the group and people wanna contribute less to the tuts because its just a factor, when you say something it's explained to the person, and the more is said, the more has to be explained, so people want to contribute less to the tuts.

Facilitator Perspective

> I can think of individuals coming to me at various times and saying, 'You know this is terrible, I'm way ahead of these people and they are holding me back'.

Facilitator Perspective

> Sometimes you get this kinda attitude. 'Well I know this work and I'm gonna sit here and why should I contribute to this process because I'm doing all the work' or something like that. And that becomes quite a problem.

We have heard these expressions of frustration many times over the past years. This is not invariably the response of the more able students, as illustrated below. The thrust to move on at one's own pace is held in tension with the philanthropy of drawing one's colleagues along with one – with the advantage of ensuring that one's own knowledge is actually securely based.

Student Perspective

> What, what this method does do is that, it tells you that, to learn, teach others. Not really teach but try to impart some knowledge, you know. And if you want to explain it to others, that's the best way you'll understand something.

Facilitator Perspective

> I've seen where the stronger student has actually participated and helped in the learning process considerably and that is really rewarding to see …

Discussion and Conclusion

We reiterate our support for changes in policy, epistemology and institutional culture – but these structural alterations do not necessarily change the individuals who collectively *are* the institution. Our argument is that personal confrontation with some of the tensions – or outright contradictions – inherent in a diverse society may be the catalyst that promotes individuals' transformation. That the task of transformation is 'both complex and daunting' is illustrated by the tensions we cite. Students are brought face-to-face with the consequences of 'getting the numbers right' in terms of racial quotas, and with the inequalities of schooling, with social inequalities and the otherness of those they must work with, with differences in language and learning ability, and with the drive of self interest versus the impulse to help others. We argue that these tensions pose the sort of disorienting dilemma described by Mezirow, and that encountering them in the relatively secure environment of collaborative learning plays a part in transforming students' personal viewpoints.

As regards the first tension we describe above: the racial quotas introduced to redress past imbalances in access to higher education are understandable. The consequences are at first glance unpalatable and hard to accept. However, confidently one asserts that all students are equal once they have gained access; the reality is that the very fact of ensuring numerical equity has by the same token ensured academic inequity. This sparked complaints initially, but explanation of the predictable consequences of the quota system led to its acceptance as a fact of life. It is heartening to see that

both staff and students have faced this unavoidable tension and have found positive aspects of the spread of academic ability.

The second tension reminds us that South Africa has laboured for so long under conditions of artificial separation that it is unsurprising to find automatic separations along various lines. The Faculty's policy of forming tutorial groups of mixed backgrounds forces group members to interact. Our respondents evidently found this difficult to deal with, whether the differences they confronted were racial, cultural, socioeconomic or geographical. Some of the responses indicate withdrawal, but in the main respondents found, perhaps with some surprise, that otherness was tolerable, interesting and even amicable.

The third tension introduces a number of comments about language fluency, often linked to perceptions of academic ability – the language in which teaching and learning are carried out is an obvious influence on academic achievement. McDermott (2001) illustrated how the language used in schools can shape the learners themselves, while Howie *et al.* (2007) reported that the low literacy rates in South African primary schools were considerably exacerbated in the case of second-language learners. In their description of a variety of influences on academic achievement, Heugh *et al.* (2007) state that '... teaching, learning and assessment in languages other than home language may have negatively affected learner performance in *all* learning areas' (e.a.). Second-language learners' grasp of the discourse of the field of knowledge may be difficult to distinguish from their grasp of the language of instruction. Nevertheless, respondents recognised that the mix of these crucial differences in fact made for a stimulating group environment of which they could take advantage.

The fourth tension emanates directly from the other three. Having competed for places in school and for entrance to medical school, members of this selected student body might be dismayed to find that, for various reasons, others are not equally gifted or display the same level of enthusiasm. Some respondents evidently felt this keenly. As with the other tensions, the dilemma was resolved at least in some instances, as less able students needing help found a corresponding ability to help in the form of their more linguistically or academically endowed colleagues.

Although separation along racial or social lines impacts negatively on group morale, this presents an opportunity to address uncomfortable

issues in a safe setting. By emphasising the motivational and social cohesion aspects of collaborative group learning, students can be encouraged to leave their comfort zones and address misconceptions about each other. Possibly an equal ill to the forced separation of the past could be forced integration – the pretence that the colours of the rainbow nation could and should blend together. Ultimately, differences must be suppressed for the greater good of society. This idea fails to do justice to the creative interactions that diversity allows. This is one of the areas where the wish to come together and the impulse to separate are held in tension by collaborative learning.

Our facilitator respondents are not unaware of students' expectations in heterogeneous groups. Creating an equitable environment is vital in addressing power issues and inequalities prevalent in diverse groups. The creative resolution of the tensions of diversity and conflict resolution is critical to subdue the pride and prejudice that creep in, and their damaging effects on group effectiveness and student development. Students' reactions to these dilemmas may be misunderstood by group facilitators as individual personality issues, and require acute insight in order to move the confrontation of the dilemmas through the other steps of transformation and allow new perspectives to emerge.

In keeping with those of Singaram *et al.* (2011), our results demonstrate that collaboration of students with diverse backgrounds has two sides; although there are challenges, there are also benefits in heterogeneous collaborative learning. We need to address the challenges more proactively, acknowledging the constraints that come with our prejudices so that we can start to create comfortable open forums to address our biases and deepen our understanding of each other's cultures. It is important to bridge the cultural divide and address the insecurities of students, particularly the disadvantaged. Support of cultural and ethnic diversity should be tangible. We recommend that future studies explore staff diversity training in more detail. In addition, noting the limitation of focus groups and possible constraints relating to dominating individuals and 'groupthink', we suggest that future studies include individual interviews and observational methods.

The *Report of the Ministerial Committee on Transformation and Social Cohesion and the Elimination of Discrimination in Public Higher Education Institutions (30 November 2008:119)* made a clarion call 'for students and their organisations to move from the periphery of university

life to the centre, and to start engaging in meaningful ways with the issues that impede their full participation in university life and, more particular, in the area of learning ... (and) that academic staff … need to become aware of, and learn to understand the students they teach, by being much more sensitive towards these students'. In the light of this need, we suggest that the use of collaborative learning aids transformation towards social cohesion in higher education.

In the Ministerial Report 'students raised socio-economic factors, particularly those pertaining to social class, as an inhibiting factor concerning their ability to not only access higher education opportunities but to take full advantage of the range of opportunities provided'. The committee also found that students who are not English first-language speakers continue to face challenges in many institutions. The need for higher education institutions to provide staff with ongoing training and support to deal effectively with diverse students is highlighted by the ministerial committee's report and supported by our findings.

The powerful effect that student backgrounds can have on the curriculum and its outworking with regard to professional development, particularly in the medical and health science field, needs to be harnessed. We believe that collaborative learning, in which students are working face to face with one another and with staff members, is one way of engaging with the issues that arise rather than avoiding them. We further believe that the miscellany of learners' and teachers' characteristics should be acknowledge-ed, not just for the purpose of transformation in diverse student populations but for academic failure to be addressed, as throughput rates at higher education institutions need to improve.

Universities should be alert to approaches that will improve throughput rates of students. According to Schmidt *et al.* (2009), 'dropout is often explained by Tinto's theory of student social and academic integration. According to this theory, the persistence of students is primarily a function of the extent to which these students involve themselves socially and academically in the university environment. Engaging in direct contacts with peers and faculty would be a major factor in promoting persistence. From this point of view, active-learning curricula are successful because they enable these social contacts through small-groups'. We caution once more against a purely numerical assessment of transformation, while conceding

that the important factors in diversity that are foregrounded by collaborative learning are not necessarily the same factors that influence success in assessments. Collaborative learning inculcates interpersonal skills that are seldom, if ever, formally assessed and therefore do not appear as influences on individuals' academic success or institutions' throughput rates. This is not to say that only certain factors are worthy of attention; it does suggest that students can achieve excellence without necessarily being bound by perceived inequities.

As highlighted by Mezirow (2003b), transformative learning involves critical reflection of assumptions that may occur in group interactions. Our findings support the role of collaborative learning as a transformative force in higher education. Some of us feel very deeply that unity in diversity benefits our collective progress – as enunciated by a future leader, a student doctor:

> Every single bone in me would not go for homogeneous …. [T]wo groups of people will advance at a different rate but if they are mixed, they would advance at an astonishing rate together ….

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