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Ethnic and Gender Diversity, Process and Performance in Groups of Business Students in Sweden*

Umans. T., Collin, S-O. & Tagesson, T.

ABSTRACT

This paper investigates the complex interrelation between ethnic and gender diversity, process and performance in groups of business students. The paper is based on an empirical survey of business students working on a complex assignment in groups of two to five in a small Swedish university. The results indicate that gender diversity leads to positive group outcomes, while ethnic diversity appears to create negative group outcomes. Intervening process variables, such as group communication, conflict and problem solving were found to be strongly influenced by diversity, or to strongly influence group outcomes. While the non-influence of intervening variables can probably be explained by methodological difficulties, the negative outcome for ethnic diversity indicates a need to help students better manage ethnic diversity in order to reap its benefits.

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Department of Business Studies
Kristianstad University College
SE-291 88 KRISTIANSTAD
SWEDEN

Phone: +46 44-20 31 06
Fax: +46 46 44 20 31 03
http://www.hkr.se/templates/Page_1011.aspx
e-mail: e@hkr.se

Introduction

Student groups have become an integral part of the instructional process (Watson *et al.*, 2002) and have been frequently used as an instructional method in the institutions of higher education. For instance, team learning (Michaelsen *et al.*, 1982) and cooperative learning (Johnson and Johnson, 1992) have attracted scrutiny in recent research. With increasing cultural and gender diversity in the classroom, group assignments serve as a golden opportunity for the exploitation of this diversity that has become a reality in higher education today.

This article tries to draw conclusions on how this diversity can be assessed and managed in higher education. The aim of the study described here is to make theoretical, methodological and practical contributions to research about cultural and gender diversity in learning teams. The *methodological* contribution of this article is represented by the alternative operationalisation of ethnic diversity, expressed not only in terms of race, which has become a tradition in ethnic diversity research (e.g. Watson *et al.* 1998; McLeod and Lobel, 1992), but in terms of nationality and national origin as well as self-identification. The *theoretical* contribution of this article is an attempt to inquire into the intervening group processes, a fairly unexplored area because of its presumed complexity. A *practical* contribution of this paper is the guidance on how to manage cultural diversity both from the educators' and students' perspective. The structure of the paper is as follows: a review of the literature on the ethnic and gender diversity in teams and the interrelations with group process and outcomes is followed by sections on method, analysis, subsequent conclusions and suggestions for future research.

Literature review

Ethnic Diversity in Teams

Scholars actively working within the demographic composition model, where processes remain in the 'black box' and the direct connection between diversity and outcomes is investigated, claim that ethnically diverse teams are able to perform better in turbulent and complex environments (Shaw, 1981), where the group members' cultural diversity serves as a drive for flexibility, and receptiveness to environmental change and turbulence (Wagner, 1995). Ethnic diversity in groups and teams leads to a higher quality of decisions (McCarrey, 1988) and ideas (McLeod and

Lobel, 1992). This positive outcome streams from the variety of viewpoints provided by differences in cultural backgrounds, which subsequently indicates that ethnically diverse groups outperform ethnically homogeneous groups (Buller, 1986).

In studies of learning teams, Watson and colleagues (Watson and Kumar, 1992; Watson *et al.*, 1993) generally came to the conclusion that during the early stages of team life, ethnically diverse teams perform less effectively than non-diverse teams (Watson *et al.*, 1998). However, over time not only do these differences wash out, but they may become an asset for team results (Wagner, 1995). These findings come from teams that work together and receive feedback on particular team tasks (Watson *et al.*, 2002). According to Michaelsen and Watson (1987), at the end of the learning team's life cycle, the advantage of multiple viewpoints due to cultural diversity has been shown to result in higher performance, which is in line with the demographic composition model. By working within a limited time frame, and having the results of their work evaluated and counted towards their final grades, learning teams are put into complex environments. Moreover, the tasks learning teams usually perform are complex in their nature due to demands in terms of creativity and analytical approach, that are required in order to attain a higher grade on the team assignment. Based on the foregoing discussion, we propose that:

Proposition 1: Increasing degree of ethnic diversity in a learning team will have a positive influence on team performance later in the team project life cycle when handling complex problem solving.

Researchers on intervening models, where processes are being extracted from the black box for study, have been much more divided regarding the effects of ethnic diversity on both process and performance of teams. From one side, it is claimed that culturally diverse teams offer diversity of values, resulting in effective group discussions that ultimately lead to enhanced group performance (Hofstede, 1984; McCarrey, 1988). Moreover, cultural diversity of groups leads to more cooperative choices (Cox *et al.*, 1991) and better performance in comparison with homogeneous groups in identifying perspectives of the problems and generating solution alternatives (Watson *et al.*, 1993). The voices from the other side of the argument, however, are louder and supported by more empirical evidence. Researchers who

claim negative effects of cultural diversity on process and outcomes maintain that cultural diversity in teams results in interpersonal problems and communication difficulties (Triandis, 1960), misunderstandings and threats to team cohesiveness (O'Reilly, Cardwell, and Barnett, 1989). Generally, many researchers have come to the conclusion that cultural diversity has a negative effect on processes taking place within the team such as communication (Triandis, 1960) and result in emotional (Pelled, 1996) and competitive conflicts (Kirchmeyer and Cohen, 1992). These conditions in turn lead to lower performance when compared to the ethnically homogeneous learning teams (Watson *et al.* 1993), since ethnically diverse team members are likely to have fewer shared experiences, less in common, and more difference of opinion, usually leading to conflict within the team (Pfeffer, 1983) However, several authors have claimed that ethnically diverse teams will be superior to ethnically homogeneous teams in complex problem solving (Shaw, 1983), which will in turn result in increased performance (Lott and Lott, 1961). Hence, this leads us to the following three propositions:

P2: Increasing degree of ethnic diversity in learning teams will have a negative effect on communication.

P3: Increasing degree of ethnic diversity in learning teams will have a positive effect on the degree of conflict.

P4: Increasing degree of ethnic diversity in learning teams will have a positive impact on the effectiveness in complex problem solving.

It is argued that efficiency of communication as well as effectiveness in complex problem solving will have a positive influence on team performance (Smith *et al.*, 1994). Eisenhardt and Bourgeois (1988) found that teams that experience internal strife or conflict decline in performance. This is supported by findings of Jehn (1997) who claims that conflict constrains creative problem solving and influences performance negatively. Moreover, Elron (1997) in her study of top management teams found that small teams with less social cohesion and ineffective communication will be negatively related to group performance. Thus, we propose:

P5: Effective communication in learning teams will have a positive effect on teams' performance.

P6: Increasing degree of conflict in learning teams will have a negative effect on teams' performance.

P7: Effective complex problem solving in learning teams will have a positive effect on performance.

Gender diversity in learning teams

It has also been noted that group and outcome are influenced by the complex composition of diversity dimensions, rather than isolated dimensions of diversity (Jackson *et al.*, 2003), and the team and organisational outcomes may be determined by the configuration of team members' demographic and/or identity profiles (Frale, 1997). Gender, as one of the demographic variables, has been accorded special attention in research due to the increasing number of women entering organisations, including the increase of female students entering institutions of higher education. For instance, a meta-analysis by Wood (1987) showed that mixed-gender groups tended to perform better than homogeneous-gender groups. It was also noted that the behavioural differences between men and women in mixed-gender groups may be especially influenced by a group's gender balance (e.g. Johnson and Schulman, 1989). Gender diversity influences the team's performance in higher education since females tend to perform better than males (Byrne, Flood and Willis, 2001), implying that with an increased number of females in a group, the group might perform better. However, a team homogeneous in gender will be restricted in input variety and opinion diversity, thus reducing performance in a complex assignment or/and complex environment (Dess and Beard, 1984). Therefore, it is not the proportion of men or women, but the mix that influences performance. Thus, we propose that

P8: Increasing degree of gender diversity in learning teams will increase the performance of the group when subjected to complex problem solving.

Results have been mixed on the influence of gender composition on team process (Watson *et al.*, 1998). However, research indicates that gender diversity tends to

affect behaviour, communication, and individual experience within groups, while it does not affect group performance per se (Smith-Lovin and Brody, 1989). According to Wood (1987) gender-balanced groups would have more positive interaction, including communication and conflict reduction, compared to predominantly male or predominantly female teams. Moreover, experimental studies by Stringer (1995) have shown that gender-balanced groups are more consensus-seeking, a characteristic that improves communication within the group and reduces conflict. Kanter's study of minority/majority grouping shows that groups with a 'token' member (e.g. one female and three males, or one male and three females) would likely be more subject to stereotyping and marginalization than gender-balanced groups (1977). When it comes to gender, it is believed that men and women have different perspectives on how tasks should be performed and goals achieved (Stringer, 1995). According to Mannix and Neale (2005), the extent to which groups are diverse in their perspectives positively influences problem solving and performance. Based on the foregoing discussion we propose:

P9: Increasing degree of gender diversity in learning teams will have a positive effect on communication.

P10: Increasing degree of gender diversity in learning teams will have a negative effect on the degree of conflict.

P11: Increasing degree of gender diversity in learning teams will have a positive impact on the effectiveness in complex problem solving.

Method

Participants

The sample consisted of 102 participants (57 males, 56% and 45 Females, 44%) who enrolled in the corporate strategy course at a university college in southern Sweden. The 29 self-arranged teams each consisted of two to five individuals working on the case study, representing 20% of the final individual grade, which made the results of teamwork important to each course participant. The course was included in an international business programme offered to foreign exchange students and Swedish

students. Hence, the class was composed of students from Sweden and other countries.

The complexity of the environment was achieved (a) through combination of students both from abroad and from different study programmes within the department and who had never studied together before; (b) by a tight time schedule; and (c) by the importance of the case study for students' final grades. Completion of the group assignment took approximately 15 hours of group work.

Measures

Dependent variable

Team performance was measured based on a written analysis of the case study. Students were evaluated on a number of criteria such as case presentation, theoretical model application, analysis, conclusion and use of external sources. Maximum possible grade for the case was 20 points. In order to insure blindness of the evaluation process, the names of group members were removed, so that only group number and number of students in the group were known. Thus the evaluator could not discover the identity of the people in the group.

Mediating variables

Process variables were measured on a self-reporting basis, where respondents were asked to mark on a 7-point Likert scale the degree of a certain process, such as problem solving. Communication in the group was observed through three questions on constructiveness of discussion, informality of communication and effectiveness of communication flow. A reliability test of the three variables indicated acceptable reliability (Cronbach's alpha = 0.70). They were summed and divided by three in order to make them comparable with the other two process variables. Conflict was measured by asking the respondents to indicate the degree of conflict present in the learning team while working on the assignment. Problem solving was measured by self-evaluation of the group members. In order to construct a total degree of communication, conflict and effectiveness of problem solving for each group, a proportional approach was used, where the sum of each team member's answers was proportionate to the highest possible degree of these three process variables per group. This approach was based on Blau's seminal work, *Inequality and*

Heterogeneity (1977), which argues that proportion of majority/minority membership in the group helps to determine the quality of relations between demographically different groups. The strength of the proportional approach, according to Mannix and Neale (2005), is that it allows a focus on relative differences, recognizing that a diverse group with a minority of one is qualitatively different from a group with more balanced proportions.

Independent variables

Ethnic diversity was measured as a combination of different variables such as nationality, ethnic self-identification, country of birth, native language, native language and country of birth of both the mother and father. This particular measurement of ethnic identity differs from previously used methods (e.g. Cox, *et al.*, 1991; Watson *et al.*, 1998) where one particular variable such as race or nationality was taken as equal to ethnicity. Since ethnic identity is believed to be a multifaceted phenomenon (Campbell, 2000), it is beneficial to assess ethnic diversity in terms of different aspects (Hecht, 1993). The complexity of ethnic identity is diminished by putting it into just one self-identification variable (e.g. race) while researchers acknowledge that ethnic identity could be conceived in terms of four frames: personal, enactment, relationship and communal. (Stephan and Stephan, 2000). Thus, the degree of ethnic diversity was measured as a proportion of people *dissimilar* to others in the group (Blau, 1977) with respect to the ethnicity dimensions mentioned earlier. Gender was measured by self-identification by the group members and as a proportion of people dissimilar to others, in terms of gender, in the group.

Control variable

Size of the group was considered to be a control variable. When evaluating the performance of the group, the number of students who influenced the performance had to be considered. A group with more students would perform better (*ceteris paribus*) and receive a higher grade if the evaluator did not consider group size. Thus, if the evaluator is not capable of considering the influence of size, we expect a positive relationship between size and performance.

Analysis

The descriptive statistics of the variables are presented in Table 1

Insert Table 1 about here

The values for dependent variable *Grade* show that the groups received 15.04 points on average with rather small deviation, thus indicating a compressed grading (minimum grade given was 10 and maximum was 18). The group size, ranging from 2 to 5, was on average 4.6, and the deviation indicates that most of the groups contained 3 or 4 students. Gender diversity varied between 0 and 0.5, and the average of 0.126 indicates rather low gender diversity. In fact, about 16 of 27 groups had no gender diversity at all. Ethnic diversity was measured as national diversity, on which we will comment later in the paper. National diversity was higher due to a higher variation of nationality than of gender. The process variables show high average on communication and on problem solving, but lower on conflict.

Inspecting the correlation matrix, grade appears to correlate positively with gender diversity, but negatively with national diversity. The process variables do not appear to correlate with grade, except for the positive correlation of problem solving. Thus, our hypothesis of gender appears to be supported, while national diversity appears to be contrary to expectation. Process variables appear not to be influenced by diversity and appear not to influence performance. Our control variable, group size, is not correlated to grade, which indicates that the grader considered group size when evaluating the performance of the group.

The correlation matrix indicates that we can expect collinearity problems for the process variables since they are highly correlated. No other independent variable appears to present collinearity problems.

Our first analysis is the test of the black-box model, where the diversity measures are directly correlated with the performance, i.e. the grade. Table 2 presents the black box regression.

Insert Table 2 about here

The model is highly significant, being able to explain more than half of the variance. *Gender diversity* indicates support of the hypothesis that increased gender diversity will increase performance. It should be noted that when including proportion of gender diversity, the gender variable showed no significant correlation, i.e. it is not the gender proportion, but the diversity that influences performance. Ethnic diversity, measured according to nationality (i.e. *National diversity*), however, negatively influenced performance, quite contrary to the hypothesis. We considered several other measurements of ethnic diversity, such as country of birth, native language and parents' national identity and language as well as students' self-identification concerning the nation they mostly associated themselves with; but with these measurements the diversity variable was not significant (analyses available on request). We will return to the issue of measurement in the concluding discussion.

Next, we analysed the relationship between diversity and the process variables. Several analyses were conducted, using a model of diversity to explain the different process variables. The regressions with the highest R^2 are presented in Table 3.

Insert Table 3 about here

As is evident in Table 3, none of the diversity variables are correlated with the process variable. The only slight indication that can be found in all regressions on process variables is the somewhat weak significance by national diversity that correlates negatively with problem solving. For example, in this model $p = 0.11$. Thus, there is no support in our analyses for the proposition that diversity influences the process.

The third model is the relationship between the process variables and the performance variable of the grade. Since we found that the process variables created collinearity problems, we could not analyze any model including all three process variables. We present here the most interesting model, but all other models present outcomes that lead to the same conclusions to be drawn from the presented analysis, as can be seen in Table 4. (Omitted analyses can be obtained from the authors)

Insert Table 4 about here

The model does not strongly explain the variation in performance, and the significance is weaker than the model with a direct link between diversity and performance. The model is only weakly significant, and the whole burden of explanation is on the problem solving variable. Thus, we cannot make a strong case for process influencing performance.

The analyses, however, do show that diversity can to a large extent explain performance: gender diversity positively, and national diversity negatively. Only very small indications could be found in support of the intermediating model of process, indicating a negative relationship between national diversity and problem solving, with problem solving being positively correlated with performance.

Discussion

The overall goal of this paper has been to inquire into the relationships between ethnic diversity in learning teams, team processes and team outcomes. The paper has followed two paths of inquiry into the relations. Firstly, we tested the so-called demographic composition model, where we explored a direct relationship between ethnic diversity in learning teams and its influence on group performance, leaving the process variables in the black box. Secondly, we tested the intervening process model, where the relationship between ethnic diversity in learning teams is assumed to influence processes within the team; in this paper, the processes investigated were communication, conflict and problem solving. Then, the processes in the learning teams were assumed to influence team performance. Our analyses indicate that a

demographic composition model, where process remains in the black box, has a better explanatory power with regard to the influences of both gender and ethnic diversity on performance, while the intervening model produces no consistent results.

Even though we have attempted to use a multidimensional approach to ethnicity as pleaded by some researchers (e.g. Millikin and Martins, 1996), it was only national diversity (diversity in nationality) that showed a significant correlation to learning team performance. The finding indicates that objective measurements of ethnicity could be more valid, and that the environment of the individual has more influence on the ethnic identity of the individual than does the ethnic origin of the individual's father and mother. The simplistic questions in the questionnaire could be another explanation of why we did not manage to capture other possible diversity variables.

As for gender diversity's influence on team performance, our analysis supports our proposition that with an increase of gender diversity there will be an increase in performance. This is in line with findings in gender diversity research, where it is believed that differences in task orientation between men and women increase performance of gender-balanced teams (Wood, 1987).

In contrast to our expectations, nationality as one of the measures of ethnic diversity has a negative influence on performance. One possible reason is that nationalities represented in the teams were not very compatible with each other, when looking at them, for example, from Hofstede's cultural dimensions (1984). There could be a possibility that collectivistic and individualistic cultures might not work well together, with individuals seeking communality or privacy, respectively, which would decrease group performance because of differences on specific cultural dimensions (Jehn and Mannix, 2001). Thus, in future studies it would be interesting to observe not merely the degree of national diversity in teams, but also the combination of different nationalities in the group, graded by their cultural dimension indexes; these could be combined into a group's total score to enable comparison with other groups, or to examine in-group behaviour and its influence on group performance. According to Ely and Thomas (2001), ethnic diversity can result in lower comparability to the outcomes of ethnically homogeneous teams outcomes, due to the lack of training and development initiatives. It can be assumed that students in our sample were relatively

inexperienced and not trained in ethnic diversity assessment, and that they lacked the understanding of problems that could arise from this diversity since the majority of them were first-year students and had not been exposed to work with students of different ethnic backgrounds prior to the course. Another explanation of the negative influence of nationality on performance could be the relatively short team life, which was only four weeks for the teams in our sample; this is supported by findings of Watson *et al.* (1998) and Keck (1991), who claim that diversity benefits become apparent as the group's tenure increases.

Our expectations concerning gender and ethnic diversity in its influence on processes have not been realised. There could be several reasons for our prediction failure. Firstly, the problem could lie in the measurement of the process variables. Secondly, it can be assumed that even if the process variable and processes representing the variable were measured correctly, the problem of leading to no result may lie in the self-reporting technique employed in this research. Making an assumption that students can be their own observers and interpreters is very optimistic, but questionable. Thirdly, the problem may originate in our assumption based on previous research (Smith *et al.*, 1994) that diversity has a direct influence on processes. Several authors (e.g. Ely and Thomas, 2001; Larkey, 1996) argue that the demographic diversity– process relationship could have a moderating variable such as common values and beliefs, or shared goals that would bare the instrumental importance of the mediator between the two. Thus there might be a possibility that the intervening model we attempted to test lacked the moderating variables that could influence the relationship between ethnic and gender diversity on processes. Fourthly, the problem may lie in the operationalisation of the diversity variable (Pitcher and Smith, 2001); however this is highly improbable in light of the very strong significance between national diversity and performance discovered when testing the demographic composition model.

The problems of methodology, which are believed to be the drive for the inconsistencies and non-results in diversity research (Pitcher and Smith, 2001), can also be put forward as one of the explanations for our data not showing the influence of processes on performance. Thus, one possible option, though not a panacea, could be the use of qualitative methods such as case study research. This could enable one

to inquire into the black box of processes, which some researchers argue could bring new insight and better understanding of the black-box complexity and its possible correlation with group diversity and group outcomes (Ruigrok and Tacheva, 2004). A combination of interviews to identify process variables and the use of survey data to test derived process conceptualisation could be one of the ways to make studies of processes more focused and possibly allow more precise and clear definitions of process variables.

Practical implications

Our findings have several practical implications, both for students involved in multi-ethnic group work and for teachers using multi-ethnic groups in their courses. The first implication is that we could tell students that in order to achieve higher results they should form gender-balanced and nationally homogeneous groups. While that naturally would be an easy way to interpret our findings, nevertheless our studies show that diversity has to be managed since ethnic diversity is on the increase in almost every part of our society.

Accordingly, as educators we should encourage our students to form ethnically diverse teams for the sake of their future success in a diverse world. In order to manage diversity from within the group, students who want to achieve higher performance in ethnically diverse groups should consider and learn to build social ties or bridges with their team members. According to Mannix and Neale (2005), the point in social bridging is to emphasize what is similar among team members rather than simply what is different. In order for national diversity in groups to improve outcomes, and to make differences work towards innovative creativity, educators might encourage ethnically diverse group members to discuss what they have in common, as well as what each team member brings to the group, all of which could promote bridging and subsequently increased performance. This idea is also supported by the findings of McGurty and Silova (2000), who suggest that social bridging in various forms helps students to overcome certain stereotypes and prejudices and increase various team outcomes. One of the more ambitious ways of dealing with diversity in learning teams and diversity in institutions of higher education is a desirable change in organizational culture, shifting from the traditional methods of dealing with diversity ('discrimination and fairness' and 'access and

legitimacy') to a more progressive and learning-based view (Ely and Thomas, 2001). The learning approach to diversity can be expressed in the creation of an environment in the institutions and classrooms of higher education that would emphasize the benefits of gender and ethnic differences for organizations; for it is through differences of opinion, value and belief and through similarities in aims and task-related values that organizational and team ambitions of innovativeness and higher performance can be achieved.

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Table 1.
Descriptive statistics and correlation matrix (n=27)

Variable	Mean	Std dev	2	3	4	5	6	7
1. Grade	15.04	2.609	0.15	0.42*	-0.58**	0.08	0.08	0.38*
2. Group size	3.56	0.641	X	0.07	0.07	-0.04	0.24	-0.05
3. Gender diversity	0.126	0.162		X	0.10	-0.09	-0.16	0.16
4. National diversity	0.287	0.352			X	-0.10	-0.06	0.30
5. Communication	0.829	0.104				X	-0.61**	0.72**
6. Conflict	0.427	0.198					X	-0.53**
7. Problem solving	0.790	0.154						X

†p<.1; *p<.05; **p<.01; ***p<.001

Table 2.
Result of black-box regression analysis (n=27)

	Beta	SE
2. Group size	0.640	0.549
3. Gender diversity	7.610**	2.179
4. National diversity	-4.697***	1.001
Constant	13.151***	1.982
Adj R ²	0.532	
F	10.864***	

†p<.1; *p<.05; **p<.01; ***p<.001

Table 3.
Result of diversity explaining the process variable of problem solving (n=27)

	Beta	SE
3. Gender diversity	0.184	0.183
4. National diversity	-0.139	0.084
Constant	0.807***	0.043
Adj R ²	0.054	
F	1.737	

†p<.1; *p<.05; **p<.01; ***p<.001

Table 4.
Result of process variables explaining performance (n=27)

	Beta	SE
2. Group size	-0.011	0.047
6. Conflict	4.897	2.873
7. Problem solving	9.927*	3.591
Constant	3.795	4.198
Adj R ²	0.172	
F	2.800 [†]	

[†]p<.1; *p<.05; **p<.01; ***p<.001