

[O32] Do students form, norm, storm and perform? What if they don't: exploring the realities of student project groups

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Introduction

A common assertion in study skills textbooks is that student coming together to work as a group will go through a predictable set of stages – from uncertainty and confusion through conflict and on to stability and productivity – the model of ‘form, norm, storm and perform’ (Tuckman 1965). This model is also routinely applied to all workgroups and has become almost a ‘taken for granted’ description of how a group of strangers might become over time an effective working team. The model’s ubiquity can be demonstrated by a Google search – all the top ten links in response to a search for models of group development specifically described the model as outlined by Tuckman (e.g. Smith, 2005) or offered variations and minor updates (e.g. Atherton, 2003). Other similar models have been described in the literature with varying degrees of empirical support (e.g. Wheelan, 2004, 2005a and 2005b) and there have been various attempts to synthesise different approaches (e.g. Chidambaram and Bostrom, 1997).

So can we accept this model as the best prediction we have of the way student groups are likely to behave? In fact, there may be some good reasons as to why student groups do not follow this process, including familiarity with their peers, substantial experience in working in groups and a very task oriented approach to their work. We must be wary of assuming that groups or teams operate in similar ways in different contexts – for example, there is debate on the similarities and differences between student groups and the types of group and team that exist in the workplace (Hartley, 2005).

However, the way that student groups behave within their group is important because it can affect the way the tutor should monitor the group and intervene to help the group along. If we do accept Tuckman’s model then what does this mean for the tutor? The model does suggest certain steps for the tutor as **Table 1** overleaf illustrates.

But what if Tuckman’s model is not the most appropriate description of contemporary student behaviour? It is also worth remembering that Tuckman based his ideas not on his own original research but on an amalgamation of all the published studies he could find at the time. These studies did not include a representative sample of student groups and this was also true in his later follow-up review.

Systematic studies of student group development are relatively scarce so there is not much evidence to help tutors decide which interventions are appropriate. To complicate the issue further, there are other models of group development which do have some empirical support and which offer different advice to tutors. For example, some authors have suggested that groups may move through the stages in a less predictable sequence than Tuckman so the job for group leaders/tutors is identifying the stage and taking appropriate

Tuckman's stage	What happens in the group	On this basis, the good tutor should ...
Form	Members are confused and hesitant, both about the task and interpersonally; state of dependence	<ul style="list-style-type: none"> • Not expect much productive behaviour • Support social blending
Storm	Conflict over 'what' the group should do and 'how' the members should act towards each other	<ul style="list-style-type: none"> • Make sure that the conflict remains within manageable limits • Intervene if it looks like the group is going out of control or in danger of splitting up
Norm	Norms and roles develop	<ul style="list-style-type: none"> • Check that the group is on track regarding the task • Make sure there is no aftermath from the conflict stage
Perform	Group performs to capacity	<ul style="list-style-type: none"> • Provide expert advice and support

Table 1: Advice to tutors following Tuckman's model

Alternative models	What happens	Tutors should ...
Punctuated equilibrium	Start straight away Mid-point crisis	<ul style="list-style-type: none"> • Check first few days/week to make sure that the group really does understand the task and has adopted an effective approach • Halfway review to make sure group is still on the right track
Alternating stages	Groups flip between stages in no set order	<ul style="list-style-type: none"> • Monitor continuously • Intervene relative to state of the group

Table 2: Alternative Models of group development

steps. For this study we used descriptions of group types based on common theories of group dynamics: the detached group where apathy is the dominant aspect; the defensive group where the members seem to focus on self-protection and avoiding criticism; the dependent group which is looking to the leader figure to 'get it right'; the dramatic group which seems to be responding over-emotionally; and the performing group.

Another theory which has been specifically tested on student groups suggests that groups are likely to start seriously engaging with the task much earlier than Tuckman's model allows. Connie Gersick's model of 'punctuated equilibrium' suggests that groups start in their first meeting by establishing a 'framework of givens' (Gersick, 1988). This may not be explicitly discussed (assumptions may rule and these may be incorrect or misleading!) but the group develops a shared approach to the task (and their understanding of it) and settles into fairly stable patterns of interaction. These patterns are likely to continue for the first half of the group's life cycle. In studies with both student and work teams, Gersick found that, at the halfway point, there was often a critical moment for the group. There was a transition point – often a meeting which was 'different' in character from the ones that had gone before – preceded by a break in momentum. This led to the group re-assessing its progress and moving into a second phase with new ways of working and often a change of leader.

These different models have very different implications for tutors, as **Table 2** summarises.

This study aimed to investigate how student groups see themselves behaving over time to see if this offered a useful mechanism to support tutor intervention and to see if any of the models described above can offer reliable guidance to tutors. Our long-term aim is to repeat this form of study on a broad range of student groups and to incorporate some observational measures to check the reliability of student self-reports.

Methods

The group exercise chosen for this was a level 3 poster exercise that one of the authors (NJL) has run for several years. The exercise runs over a single semester and contributes 25% of the module mark of which 15% is for the group component and 10% is for an individual summary of the poster. The students are randomly divided in to groups of 5 and assigned a topic by the tutor.

There were three timetabled contacts with the tutors responsible for the exercise.

Week 2

- All students were briefed as to the nature of the exercise the aims and learning objectives. They were also informed as to the rationale behind the structure of the exercise. In order to facilitate communication within the groups they were instructed that there should be a minimum of at least 3 group meetings and minutes of each meeting should be taken. These had to be handed in but did not contribute to the assessment.

Week 7

- A formative meeting was held with one of the two members of staff who were to mark their poster. As a result of this meeting the group had to produce an action plan to demonstrate how they would incorporate the formative feedback. This had to be handed in but did not contribute to the assessment

Week 12

- Poster assessed by two members of staff in a day long poster presentation session

Group communication was facilitated by the formation of Blackboard E-Mail groups for the students and the tutor.

A 30 question questionnaire (examples of the items are shown in **appendix 1**) was given to all students at the start of the exercise. They were asked to fill in their responses to this questionnaire at two week intervals throughout the semester. All groups submitted responses with all members of the majority of groups submitting a response. This high level of response was facilitated by regular e-mail reminders. The questions were designed to reflect three separate descriptions of group behaviour – based on Tuckman, based on the similar model by Wheelan, and using a typology of groups based on work by Sparks - and to allow for the self-reporting of how the students perceived their performance in this exercise.

Data was analysed using ANOVA with SPSS.

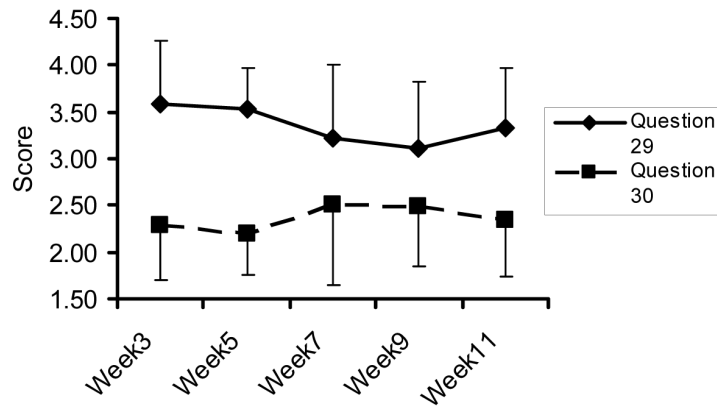


Figure 1: Comparison of responses to Q29 and 30

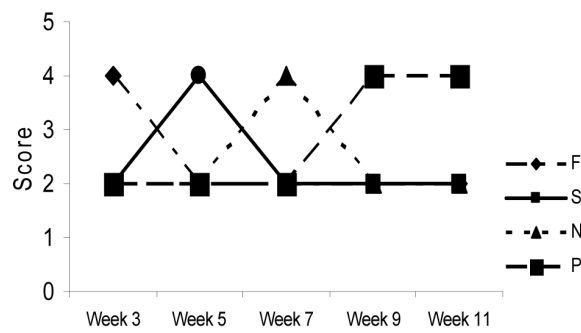


Figure 2: Predicted Tuckman response

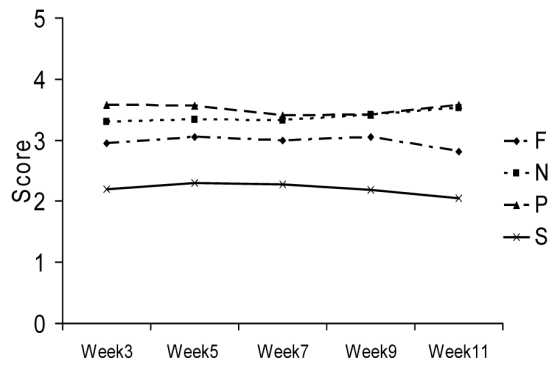


Figure 3: Actual Tuckman response

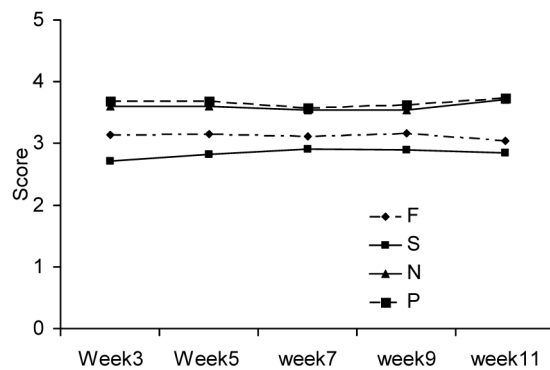


Figure 4: Wheelan response

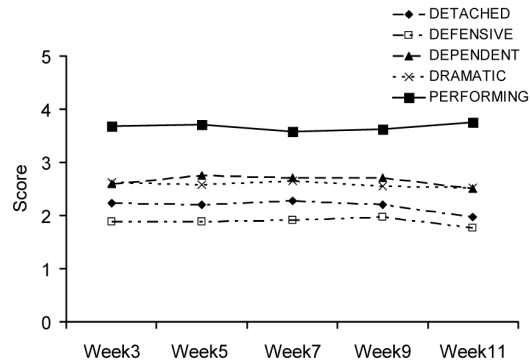


Figure 5: Sparks response

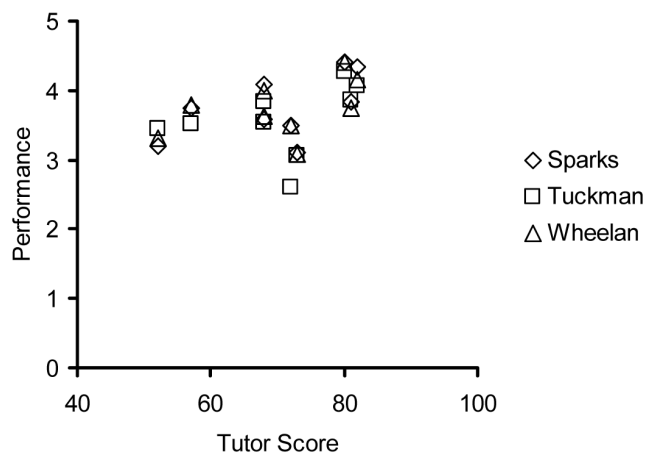


Figure 6: Correlation between perception of performance and real performance

Results

Initial analysis of the data examined the evidence for punctuated equilibria by comparing the responses to questions 29 and 30 with the results being shown on **Figure 1**. Whilst there was a slight decline in agreement with the question 'We decided what we needed to do at our first meeting and we have stuck to it' (Question 29) and a concomitant increase in agreement with the question 'We have just had a crisis where we reconsidered what we were doing and changed direction' (Question 30) these changes are slight and not statistically significant. It is also to be noted that overall students are more in agreement with question 29 than question 30.

If the Tuckman model of group behaviour applied to student groups then we would expect a sequential peaking of the various group attributes as shown in **Figure 2**. However no evidence of peaking of the self-perception of any of the group behaviour traits was seen (**Figure 3**). These values were typically seen in each group, however two groups showed an effect after intervention; one showing a positive benefit the other an apparent negative effect.

When the scores for forming, storming, norming and performing based on Wheelan's model are analysed no real evidence of peaking of the self-perception of any of the group behaviour traits is seen (**Figure 4**). These values were typically seen in each group, however two groups showed an effect after intervention; one showing a positive benefit the other an apparent negative effect.

The pooled results for the group type scores (**Figure 5**) show high performing scores but low scores for the detached and defensive scores; the latter two characteristics are those that would be expected of dysfunctional groups. These values were typically seen in each group, however two groups showed an effect after intervention; one showing a positive benefit the other an apparent negative effect.

Figure 6 shows the correlation between the perception of performance and the outcome of the assessment. Higher performing scores appear to correlate with increased mark. The only exception is a group whose questionnaire responses suggest an apparently poor effect of intervention.

Discussion

These results provide little support for the idea that the dominant model of group behaviour, forming storming norming and performing, applies to the behaviour of these student groups. A number of factors may affect this: firstly these groups form for a short period of time to achieve a specific task; secondly the student cohort, although randomly formed into groups, have undertaken many such exercises and should have become skilled in the rapid formation of groups to achieve specific tasks; and thirdly that the groups never function as teams with a high degree of interdependence, although anecdotally this does not appear to be the case.

However this study does not provide substantial evidence to support the alternative model of punctuated equilibrium. At week 7 there is a dip in the agreement with the question 'We decided what we needed to do at our first meeting and we have stuck to it' and an increase in the response to the question 'We have just had a crisis where we reconsidered what we were doing and changed direction'; overall these are slight, although individual groups showed marked responses. All groups had a formative session in week 7 which raises the possibility that the mid-point crisis is tutor-induced.

Again the data shows little evidence of significant change in group type. The groups generally class themselves as high for performing and low for dysfunctional characteristics suggesting that they come together early to concentrate on the task and that their self perception of the group is that they are functioning well as a group. The correlation between outcome of the assessment and the self-perception of performance suggests that students have a realistic perception of their performance.

Conclusions

From the theoretical point of view, this study suggests that the dominant models of group development do not look very robust when applied to specific student groups. But we must be wary of the limitations of self-report (and this is an area for our future research).

This raises significant practical issues for tutors associated with substantial student group projects. If there is no really reliable model of student group behaviour, then how can tutors plan their interventions and support? We suggest that the best strategy is 'play it safe' and use a schedule and style of tutor contact which accommodates the very different pattern of responses we observed. This would include:

- Early monitoring of group assumptions and progress, as this is essential if groups are following the 'punctuated equilibrium' sequence

- Halfway review, to check on groups which might be experiencing a transition and to check on groups who are making more gradual progress (but also do some follow-up as this halfway meeting can have negative impact)
- Intervention based on an appropriate diagnosis of the particular group's progress and position

Items based on Tuckman	CATEGORY
We communicate in tentative and polite ways	F
We do not have very clear goals but we have not tried very hard to clarify them	F
There is very little disagreement or conflict in the group	F
Members wait to be told what to do	F
We appeal to our leader for direction	F
We allow our leader to do most of the work	F
We seem to be getting clearer about what we have to do	N
Members of the group are becoming more active	N
We are getting much clearer on what we have to achieve	N
We are working to build a group structure that will help us to achieve our goals	N
We are becoming more trusting of each other	N
Each of us is highly committed to the group goals and tasks	P
We effectively manage our time	P
Members communicate directly and honestly	P
Members tend to stay focused on the task	P
We can resolve any conflict effectively and quickly	P
The leader is being challenged	S
We often interrupt each other	S
We often engage in open conflict	S

Appendix 1: Examples of items from the questionnaire

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