Cognitive Styles Matching: Expanding the Efficacy of Group Work in MPA Courses

Jeremy L. Hall
University of Texas at Dallas

ABSTRACT

This essay describes a unique approach to assigning Master's of Public Administration (MPA) students to groups in order to enhance the value of the overall classroom team experience. The relevant mechanism of interest is the Cognitive Styles Matching (CSM) group-selection process, combined with a brief explanatory session. Many instructors utilize groups for various reasons, without considering that the selection process can be altered to maximize relevant learning and interpersonal skills development. In this approach, a Myers-Briggs Type Indicator within a CSM process is used to configure groups for semester-long course projects. The essay takes the additional step of examining the approach's performance, by using a post-only evaluation design that considers academic performance and a survey of student perceptions regarding the CSM treatment and potential alternatives. The benefits associated with the CSM process — product consistency and learning to work with others in a collaborative public service environment — suggest a meaningful role for broader use of the CSM selection process in the MPA curriculum.

INTRODUCTION

Public affairs programs are challenged to prepare students for careers in public service with a curriculum that is matched to current trends and demands from the public and nonprofit sectors. Programs are attuned to these demands and the curriculum has developed accordingly. Moreover, the pedagogy has adapted to meet these expectations. In MPA programs, students are asked to complete assignments that are applied in nature. The capstone course has replaced the thesis in many programs, or is the students' dominant choice in others. We also subject students to group assignments to simulate the collaborative work experience that most of them will encounter at some point during their careers — what Kahn (1995) refers to as experiential learning.

Public managers require skills that include the ability to communicate and interact with others and, increasingly, to do so across traditional organizational boundaries. As McGuire (2006) observes, networks take on broad tasks that

extend beyond concurrent actions by independent organizations. Because problems do not regard the boundaries into which we attempt to categorize them, "no bureaucracy, however conceived or designed, can encompass any problem that matters" (Kettl, 2006, p.15). The capacity needed to work in networks is different than that needed to work within a single organization (Agranoff & McGuire, 1998). To be successful, managers engaged in collaborations will come to rely on such skills as team-building, conflict-resolution, and problem-solving to reach and employ mutual understanding (Agranoff & McGuire, 1998).

The use of groups in MPA programs is now fairly common, and the literature presents pedagogical techniques and ideas for incorporating group work into courses (Kahn, 1995; Schumaker, 2005; Reineke, 2001). What has gone unnoticed in such prescriptions for real-world experience is that the effectiveness of working together in a group depends on group composition and participant characteristics. The selection process matters in terms of how individuals interact with one another. It most likely affects work output quality, and it certainly influences student satisfaction with the course, as well as the process of conducting group work in classroom settings. Instructors should weigh the purpose of group effort in the classroom against the costs and benefits associated with potential processes for assigning group membership.

There are many ways of assigning students to groups. While the method used may be tied to an inherent goal, each has its pitfalls. For example, students may self-select their groups. This method caters to student satisfaction — people select persons they prefer to work with — but in the real world we do not always get this opportunity. Instructors may opt for random assignment, which caters to our deep concern for equity, but ignores the potential benefits of purposeful assignment. Arbitrary assignment also may be used to achieve diversity (e.g., gender, race, age) in each group, but these differences are external. Our internal differences may affect mutual work to a greater extent. There are many ways to assign groups, and instructors use approaches that meet their underlying process goals, or that minimize their effort both at the time of assignment, and during the course of group effort.

While MPA programs seek to train various types of public servants, our focus is on preparing public managers — persons who not only will be working in groups, but who also will have the opportunity to create and manage groups within their institutions in the future. Clearly we view group pedagogy as something more than a process to convey content, or we simply would ask students to work independently. During the process of developing and implementing syllabi for classes at a new institution, I encountered a general latent frustration that many students seemed to have with group work in any format. In order to understand this frustration, I began to consider ways to make the group process more meaningful. As a result of this learning process, I

have come to view the use of groups, and the group-selection method, as fundamental components of the broader MPA curriculum.

This essay first provides background on the relationship between individual cognitive style and group or organizational performance. I then describe the process of Cognitive Styles Matching (CSM) by using a Myers-Briggs Type Indicator (MBTI) to assign student groups in MPA courses. I continue by discussing the method's usefulness for developing management skills (like developing conflict resolution in peer relationships; Heimovics & Herman, 1989), and I evaluate the method's efficacy — using a post-only evaluation methodology. Surveys evaluate student satisfaction with the CSM method, and its value for helping them to do better work with others. An evaluation of survey findings also addresses the effect of inherent goal conflict, and weighs the importance of student satisfaction against learning objectives in pedagogy.

Background: Cognitive Styles and Group Performance

Research in psychology has examined the role of personality in organizations and work settings (O'Conner, 1992; Simon, 1987). The subfield has grown and includes journals expressly or predominantly dedicated to the topic (e.g., *Educational and Psychological Measurement,* the *Journal of Psychological Type,* the *Journal of Personality Assessment,* and *Group & Organization Management*). Personality tests have been used extensively by organizational consultants to help people more effectively work together, and several organizations provide training to administer the official MBTI instrument (e.g., Personality Pathways, the Center for Applications of Psychological Type, the American Management Association, the Association for Psychological Type, and Type Resources of Effectiveness Enhancement, Inc., to name a few). On the Internet, it is easy to find quick personality tests to determine your type and profile, as well as your compatibilities and conflicts with other types. Popular attention notwithstanding, there is a clear evidence-base documenting the utility of cognitive style assessment.

Cognitive style refers to "a person's preferred way of gathering, processing, and evaluating information," which "influences how people scan their environment for information, how they organize and interpret this information, and how they integrate their interpretations into the mental model and subjective theories that guide their actions" (Hayes & Allinson, 1998, p. 850). Understanding our own cognitive style clarifies our preferred way of interacting with the world and defines the nature of our interactions with others. While no style is better or worse than another, some styles are predisposed toward certain tasks. For example, extravert/perceivers are more comfortable than introvert/judgers when making presentations where hard questions will be asked. We all have natural comfort zones and proclivities that shape our approach to tasks. For example, intuitive persons look for connections and

linkages that explain the big picture, while sensing persons are attentive to detail and substantiating facts.

The effects of cognitive style on individual and organizational performance have been the subject of previous research. Armstrong (2000) investigated the effects of cognitive style on individual academic performance. Among students in an undergraduate management program, those with analytic cognitive styles outperformed those with non-analytic styles on specific tasks, and in their overall degree grades. Individuals from different backgrounds drew upon their pools of tacit and explicit knowledge to contribute to group work. In fact, the tacit dimensions of their knowledge base (including cognitive style) made these individuals especially valuable contributors to group projects within organizational or inter-organizational settings (Leonard & Sensiper, 1998, p. 117). Without interaction among those with varied cognitive styles — which group activities stimulate — unique perspectives based on such tacit knowledge will fail to coalesce (Leonard & Sensiper, 1998).

Hayes and Allinson (1998) examine the interaction between individual cognitive style and organizational performance. Specifically, they explore how cognitive style provides a basis for designing interventions that will improve learning and performance in organizations. Among the interventions they consider are matching the learning demands of the job/task to individual preferences, and managing group composition to promote effective learning. The former addresses the allocation of tasks within the organization according to preference; the latter addresses the composition of groups to shape the way they interpret information. There are two methods of managing group composition—seeking diversity and seeking homogeneity.

Seeking and managing diversity involves assigning individuals with different cognitive styles to the same group, in order to promote synergy. To be successful, this approach requires the manager to "increase awareness about communication difficulties that can arise from differences in cognitive style and help organizational members recognize the value of contributions by others who have a different approach to thinking" (Hayes & Allinson, 1998, p. 865). The authors add that it is essential for managers to play an integrating role to ensure sharing of information and interpretations, and to keep employees from forming cohesive subgroups with unique views of the world. Teams may continue to respond well in the face of change, as long as they include some members whose information-processing style corresponds to the information-processing demands of the new situation (Hayes & Allinson, 1998).

A danger associated with homogeneous groups, on the other hand, is formation of a shared mental model that encourages stereotypical thinking (Hayes & Allinson, 1998, p. 866). "If all individuals in the group approach a task with highly overlapping experiential backgrounds, they may be subject to 'groupthink,' i.e., a comfortable common viewpoint leading to closed-

Figure 1.
The 16 MBTI style preferences

ISTJ	ISTP	ISFJ	ISFP
INTJ	INTP	INFJ	INFP
ESTJ	ESTP	ESFJ	ESFP
ENTJ	ENTP	ENFJ	ENFP

Note. Letters indicate elements of the four dimensions: Introverts and Extraverts (I/E), Intuiting and Sensing (N/S), Thinking and Feeling (T/F), and Judging and Perceiving (J/P).

From "Myers-Briggs Type Indicator," *by I.B. Myers and M.H. McCaulley 1985, Manual: A Guide to the Development and Use of the Myers-Briggs Type Indicator, (2nd ed.). Copyright 1962 by the Consulting Psychologists Press.*

mindedness and pressures toward uniformity" (Leonard & Sensiper, 1998, p. 118). As Volkema and Gorman (1998) note, heterogeneous group composition according to cognitive style can moderate the effect of problem formulation on performance (p. 117). In other words, the heterogeneous group arrives at multiple objectives that frame or define the problem they are tasked to address, which leads to more consistent outcomes than a homogeneous group.

Because the tasks confronting each group are identical in a specific MPA classroom setting, I elected to assign groups with the goal of seeking cognitive-style diversity. With proper attention to the construction of groups, students should appreciate the connection between cognitive style and task demands well enough to understand the value of purposeful group assignment. As future managers, this topic is highly salient to MPA students. Managers can encourage better exploitation of tacit knowledge by paying attention to the environment they are creating and by encouraging respect for different thinking styles (Leonard & Sensiper, 1998, p. 126). Managers and human resource practitioners have a crucial role to play in optimizing individual performance within organizations, and a precondition for managerial action is an understanding of the basis of style and its practical implications (Sadler-Smith & Badger, 1998).

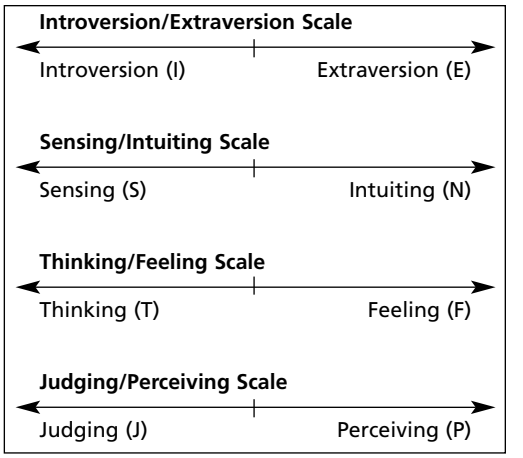
Cognitive Styles Matching: The Group Assignment Approach

Cognitive Styles Matching (CSM) is not difficult to use in constructing groups, but the technique takes more time and effort than random assignment or self-selection. This section briefly describes how to implement the CSM procedure. The first step is to ask students to complete a very brief (10-12 minutes) questionnaire that produces a four-letter Myers-Briggs Type Indicator (MBTI). The particular questionnaire used is not important, as long as it is reliable. To enhance reliability, it is best if all students use the same questionnaire. (The questionnaire I use is proprietary, and cannot be reproduced here. Nonetheless, various Jungian or MBTI questionnaires are readily available in print and on the Internet.)

When students have finished the questionnaire, the second step is to record their four-letter type (of which there are 16 total) and divide them so as to ensure that each letter is represented on each team. (*See Figure 1.*) In other words, eight

different letters should be present to adequately cover both ends of the spectrum for each of the four dimensions: Introverts and Extraverts (I/E), Intuiting and Sensing (N/S), Thinking and Feeling (T/F), and Judging and Perceiving (J/P). Figure 2 reflects the four dimensions that comprise the cognitive-style assessment. *(See Figure 2.)* The selection method creates inherent conflict, as opposite types (e.g. N/S and T/F types) tend to approach tasks or interact with others very differently. Figure 3 presents the outcome of a group assignment process for one class. *(See Figure 3.)* Provided for consideration are the four-letter configurations resulting from the questionnaire for each student, and each student's specific score on each dimension.

Figure 2.
The four cognitive style dimensions



Note. From "Myers-Briggs Type Indicator," *by I.B. Myers and M.H. McCaulley 1985, Manual: A Guide to the Development and Use of the Myers-Briggs Type Indicator, (2nd ed.). Copyright 1962 by the Consulting Psychologists Press.*

Building groups can be challenging, and group size affects the instructor's ability to ensure representation of students' cognitive styles. For example, to attain representation in groups of two, each pair of students would need to be exact opposites, which virtually never occurs. An ISTJ would need to be matched with an ENFP. Larger groups are easier to work with if the goal is to ensure that each style is included. In a group of four, for example, only one individual need have any particular style. For example, the styles might be ISTJ, ESTJ, ENTJ and ENFP. In this configuration there are three Es and only one I, three Ts and only one F, and three Js with only one P. In this case, the total amount of direct interpersonal conflict is diminished because there are only two individuals with exact opposite styles, while all other combinations of individuals share some characteristics. Even so, balance is preferred. In large classes with large groups, it still can be difficult to achieve balance. For example, in one class of 30 students I found 11 Is and 19 Es; 21 S's and 9 Ns; and 22 Js and 8 Ps. Of those 30 students, 3 had the type ISFJ, and 4 were ISTJ. Another was IS_J, equally balanced between T and F. So, about 27 percent of class members were IS_Js. When I find significant duplication in a single style, I usually begin by assigning each person with that style to a different group, and then build the group membership around them by adding the person with the most opposite style in the next slot. For each group's third member, I examine the combination to see if any attribute is missing, and then add a person with

Figure 3.
Assignment of students into groups according to cognitive style

MBTI	E I	S N	T F	P J	Group #
E S F P/J	7 2	4 3	0 7	4 4	1
I N T/F J	0 7	2 3	2 2	3 4	2
E S T J	5 4	5 1	6 2	4 5	3
I S/N F J	0 8	3 3	3 4	3 6	4
E N F J	6 1	1 6	3 6	3 4	4
E/I S T J	4 4	6 0	7 3	2 6	1
E N F P	6 1	1 6	4 6	7 0	2
E S/N T J	5 3	4 4	8 3	3 5	2
E N F P	7 0	1 6	1 7	6 1	5
E S T J	6 1	8 0	5 2	2 6	5
I S F J	4 5	7 0	1 6	1 7	2
E N T P					5
E S T J	6 1	8 1	8 0	4 5	5
E/I N F P/J	4 4	1 4	3 4	4 4	1
E/I N F P	6 6	0 6	2 9	7 5	3
E S F P					4
I N F J	0 8	0 6	3 6	2 5	3
E/I S T J	4 4	6 0	6 2	1 7	1
E S T J	6 1	6 1	8 1	3 5	2
E/I S T J	4 4	4 3	10 0	2 5	3
I S F J	4 5	3 2	1 6	1 7	5
I S/N F P	1 6	4 4	2 5	7 1	1
I N T P	2 5	1 6	5 4	6 2	3
I S T J	3 6	7 1	6 2	3 5	4
E N F P	6 1	2 5	3 6	4 3	4

Note. The two students missing scores were not present during the in-class exercise and completed the assessment independently at a later time. These students reported only their dominant cognitive styles, without the scores that comprised them, and were assigned to groups on that basis.

that attribute. Sometimes it still is necessary to add missing attributes with the fourth group member, but usually by that point the focus shifts to balancing the styles as well as possible. That is, make sure that I and E are well-balanced, and that S and N are well balanced, and so on, given the initial distribution of cognitive styles present in the class.

The inclusion of conflicting preferences has the potential to generate more-consistent work output, as group members balance the big picture with details or balance analysis with emotion. As noted above, this potential can be stifled by the conflict that is created by communication differences among the styles. Learning to overcome these differences to generate an agreeable product is a valuable learning objective in its own right.

To achieve this learning objective, the assignment method requires additional explanation. Upon completing the questionnaires and group assignments in class, the third step is to explain what the cognitive styles mean. I devote about one hour to provide examples and clues about how the styles prefer to interact, and how they process and communicate information. During the first meeting of a semester — after reviewing the syllabus — is an ideal time to conduct these activities, because initial meetings are less useful for discussing course material. When group work commences during the semester, I pick a proximate time to remind students about the important stylistic differences, and I offer brief reminders prior to group tasks.

This method provides an opportunity for students to understand themselves and why they prefer some tasks over others, and to understand the perspectives of those they work with in managing problems. When an extraverted student realizes that a very introverted team member isn't participating, the process can be structured to allow equal participation. In this case, for example, students could be writing thoughts before sharing them one at a time around the table. So, although conflict is present and is a key part of the process, students are provided with an explanation of the expected conflicts that may arise, and how to address them. This explanation serves as a tool to help students overcome conflict and manage their interactions more effectively. Armed with this knowledge, students become much more attentive to the people they interact with, and also consider the possibility that they simply view the world through a different lens. A public manager who is better able to manage employee interactions in the workplace generally, and on teams in particular, will be an asset to an organization.

Once scores are assessed, students are assigned to groups, and styles are explained, the fourth and final consideration when using CSM is the nature of the group work. One assignment of limited scope provides an introduction, but offers little interaction and thus little opportunity for the cognitive-styles understanding to be reinforced. I have found greater success with this technique when it is applied to a semester-long project, with multiple components that

require the groups to meet and function in order to produce outputs a multiple number of times. When possible, the interaction is reinforced by asking the same groups to work together on in-class exercises. The best use of the technique also is demonstrated when the assignments exercise multiple cognitive-style dimensions. For example, both oral and written products are useful, as are questions that call for both analytical thinking and value-based judgments.

The process is not so much about getting students to work together more cooperatively. It is inherent in the nature of the CSM process that students within a group will have varied styles that necessarily conflict with one another. Rather, the purpose is intended to generate increased understanding of how people differ, why they differ, and, with that understanding, how to work more effectively and generate better work products given those differences. Such understanding will better equip students to function in teams at the workplace, for they become aware of latent differences in cognitive styles, and find ways to capitalize on them.

Evaluation

The literature examining group-selection techniques is sparse. This paper adds to that literature by reporting findings from an evaluation of the CSM technique and its effectiveness. This post-only evaluation includes two parts: (a) examining group project scores and class average final grades, and (b) a survey of students who have been subjected to the CSM group-assignment technique in three MPA classes.

Post-Only Evaluation: A survey was developed during fall 2006 to assess student beliefs about group assignment in MPA courses, their satisfaction with particular assignment techniques, and their perceptions about equity and outcomes associated with various techniques. The instrument was administered during the semester's final week of classes, in order to capture as much of the group process in each class as possible. A convenience sample of three classes provided the initial study group. Students enrolled in two concentration courses (Program Evaluation and Economic Development) were subjected to the CSM selection technique by the author in fall 2006, and students in a core public policy class were added in spring 2007. The four personality-type dimensions and their characteristics were explained to these treatment groups, and students were assigned to groups in such a way that both ends of each dimension were represented in each group, as described.

Evaluation Questions: The survey included questions to collect a variety of information about respondents, and their attitudes and perceptions about group-selection processes. The substance included (a) demographics, (b) beliefs regarding selection-process equity, (c) preferences for selection methods, (d) group experiences, (e) beliefs about general group effects on course outcomes, (f) beliefs about specific course outcomes resulting from group assignment, (g)

content knowledge from the selection process, (h) recommendations for future use of the method, and (i) previous exposure to cognitive-style assessment.

The CSM method was developed and utilized to provide students with substantive experience in working with individuals who they were not likely to select on their own, and whose preferred manner of interaction and information processing differed substantially from their own. This evaluation seeks to determine the following: (a) how well the method performs with regard to its impact on student performance in group projects, and in class overall; (b) how well it prepares students to work on and manage teams; (c) how students compare it to alternative group-selection techniques; and (d) whether it adds an element to the students' training that otherwise would not be provided.

FINDINGS

To assess the performance of the assignment method, I draw upon two sources of information: student assignments and course grades, and student surveys. Table 1 presents a side-by-side comparison of student scores on group assignments, and their final scores in two courses that were taught by the same instructor, but that alternately used the CSM method. An introductory policy course and a specialization course in evaluation methods are the two subjects compared. In each pair-wise comparison, whether it is of the assignment or the final grade, the scores for each class using and not using CSM are similar, with some higher and some lower. However, in each case where CSM was used, the standard deviation of the score was smaller than when it was not used, which indicates more consistent outcomes. For example, in the evaluation course, the standard deviation for student scores on assignment two — when CSM was not used — was 6.11, compared to 2.67 when CSM was used. The evaluation course involved more frequent group interaction on multiple tasks, and provided greater opportunity for the lessons of CSM to be reinforced, than did the policy course. (Note: the economic development course also provided more

Table 1.
Comparison of Assignment and Course Grades With and Without CSM.

	Introductory Policy Class		**Specialization Evaluation Class**			
	2006	**2007**	**2007**		**2006**	
			Assign. 1	**Assign. 2**	**Assign. 1**	**Assign. 2**
Selection Method	**Self-Select**	**CSM**	**Self-Select**	**Self-Select**	**CSM**	**CSM**
Group Score Mean	89.98	89.18	87.75	93.0	91.86	91.86
Std. Deviation	5.28	5.08	6.11	5.81	2.67	2.97
Final Course Grade Mean	88.21	87.87		90.46		91.15
Std. Deviation	10.88	7.94		6.56		3.12
	N = 40	*N = 22*	*N = 7*	*N = 7*	*N = 7*	*N = 7*

Note. CSM = Cognitive Styles Matching

Table 2.
Student Perceptions of the Group Selection's Effect on Grades

Course	N	Can Group Assignment Affect Course Grades?	Did Group Assignment Affect *This* Course Grade?	CSM Improved Group Grade	CSM Improved Course Grade
Program Evaluation (Mean)	7	100%	28.6%	42.9%	42.9%
Positive			42.9%		
No Effect			42.9%		
Negative			14.3%		
Economic Development (Mean)	10	90%	30.0%	50.0%	40.0%
Positive			50.0%		
No Effect			30.0%		
Negative			20.0%		
Public Policy Process (Mean)	22	90.9%	9.5%	31.8%	22.7%
Positive			42.9%		
No Effect			23.8%		
Negative			33.3%		

Note. All % = % of Students Who Responded Yes

frequent group interaction, although it is omitted in this table because the CSM technique was used each time the course was offered, thus providing no comparison data for consideration.) *(See Table 1.)*

There does not appear to be a substantial impact on grades, except that grades are more consistent across the groups when CSM is employed. Following the literature noted earlier, this probably suggests more consistent problem-definition and objective-framing as a result of the group assignments. Turning to survey responses, students receiving the CSM treatment were asked to provide their perceptions of the method's impact on their assignment and course grades. These survey results are reported in Table 2. All in all, responding students believe that group assignments can impact their grade in a course. In the three classes surveyed, more than 90 percent of students indicated that their group assignment could impact their course grade. Further, when asked how their group assignment in that particular course affected their grade, most indicated that their group assignment had a positive effect (from 43 to 50 percent) or no effect (from 24 to 43 percent), while fewer reported a negative effect on their course grade based on their group assignment (from 14 to 33 percent). Students then were asked about the CSM method in particular, and its effects on group grades. Between 32 and 50 percent of respondents indicated that the CSM improved their group assignment grades, while 23 to

Table 3.
Student Perceptions About the Value of CSM and Cognitive Styles for Public Service Training

	Program Evaluation	Economic Development	Public Policy Process
People in Groups Affect Work Quality*	4.7	4.8	4.5
Value of CSM Information to Your Public Service Training**	3.7	4	3.1
CS Matching Improved My Ability to Work with Others on Class Projects	57.10%	80%	54.50%
CS Intro Improved My Ability to Relate to Others in Group-Oriented Work Settings	71.40%		77.30%
CS Intro Enabled Me to Work With My Group in This Class	71.40%		72.70%
CS Intro Will Enable Me to Manage Team Efforts as a Public Manager			90.90%
	N = 7	*N = 10*	*N = 22*

*Note. *1 = No Effect; 5 = Very Strong*
***1 = Not at All Valuable; 5 = Very Valuable*
All % = % of Students Who Responded Yes

43 percent thought it did not affect their course grade. On average, most students found that their group assignments resulting from the CSM process had positive to neutral effects on grades. *(See Table 2.)*

A second outcome of interest is the content-knowledge students gained, regarding cognitive styles and working with others, as a result of the CSM assignment and group process. Table 3 presents students' perceived value of the CSM method for their public-service training, and the value of their introduction to cognitive styles in terms of ability to work with others.

Students receiving the CSM treatment were asked to indicate how much the individuals that comprised a group's membership affected work quality. On a scale of 1 to 5, with 5 being the strongest effect, students in each treatment group reported that they believed group membership affected work quality. *(See Table 3.)* Ranging from 4.5 (public policy) to 4.8 (economic development), students readily acknowledged that their group membership affected the quality of their work. Students next were asked about the value that cognitive styles information provided to their public-service training. Response options ranged from not valuable to very valuable, on a scale of 1 to 5, again with 5 being very valuable. Students in each class responded that the value of the information to their public-service training was above average. Scores ranged from 3.1 (public policy) to 4.0 (economic development). Students were asked to indicate (yes/no) whether the CSM process generally improved their ability to work with others

on class projects. Again, most students responded yes, with about 55 percent giving that response for public policy, 57 percent for program evaluation and 80 percent for economic development.

The economic development course was surveyed first, and more questions were added to the instrument before it was distributed to subsequent classes, in order to enhance the quality of information regarding this outcome. Students in program evaluation and public policy courses were asked if the introductory material improved their ability to relate to others in group-oriented work settings, and whether the introductory material enabled them to work with their group in that class, specifically. Both groups responded yes to both questions, with favorable responses ranging from 72 to 77 percent. Students in public policy were asked an additional question: *"Will the introductory material enable you to manage team efforts as a public manager?"* Ninety-one percent of students in this class responded positively to the question. In each instance, students acknowledged the importance of group membership and indicated that the method and accompanying material were valuable to their work in class. They also acknowledged the value of the method to their role as future public managers.

I next asked a series of questions that assessed student satisfaction with the CSM technique by itself, and relative to other selection methods for group work. These results are presented in Tables 4 and 5. Do students perceive the CSM method to be fair? Again, students rated the method above-average on a scale of 1 to 5. Students in public policy courses rated the method at 3.8, while those in program evaluation rated it at 4.0, and students in economic development rated CSM at 4.1. When asked if the method should be used in future courses, students were less agreeable, though still above average. Scores on this question varied from 3.4 to 3.6 on a scale ranging from No (1) to Definitely (5) in the three treatment classes. To obtain more detailed information about student recommendations, five more-specific alternatives were posed, and respondents were asked to indicate which approaches they advocated (responses were not limited to only one alternative; students could select multiple responses as they deemed appropriate). The five alternatives posited were (a) to discontinue use of the method, (b) to continue the approach with less information and explanation, (c) to continue with more information and explanation, (d) to continue with a subsequent review of material later in the course, or (e) to continue the method with no change. The results in Table 4 show that only 14.3 to 30 percent of students recommended discontinuing the method altogether. Very few (from 0 to 14.3 percent) recommended continuing with less information. Most students recommended adding additional explanation and information (20 to 43 percent) or doing so at a later point in the course (10 to 41 percent). A fair number of students also recommended continuing the approach with no change (14.3 to 40 percent). *(See Table 4.)*

Table 4.
General Student Perceptions About CSM and Its Use

	Program Evaluation	Economic Development	Public Policy Process
Is CSM an Equitable Assignment Technique?*	4	4.1	3.8
Should the CSM Technique Be Used in Future Courses?**	3.4	3.6	3.4
Discontinue	14.3%	30.0%	18.2%
Continue With Less Information & Explanation	14.3%	0%	0%
Continue With More Information & Explanation	42.9%	20.0%	22.7%
Continue With a Later Review of Material	28.6%	10.0%	40.9%
Continue With No Change	14.3%	40.0%	27.3%
Previous Exposure to Cognitive Styles			
Never Exposed/Exposed Only Through Personal Research	71.4%	60.0%	54.5%
Exposed During Undergraduate or Graduate Educaton	28.6%	40.0%	45.5%
	N = 7	*N = 10*	*N = 22*

*Note. *1 = Not; 5 = Very*
***1 = No; 5 = Definitely*
All % = % of Students Who Responded Yes

The argument that this method is valuable, or that students would recommend its use, is weak — unless one knows to what extent students have been exposed to, or are familiar with, cognitive styles. Students in each treatment group were asked to disclose whether they had been exposed to cognitive styles prior to this course. Available responses included the following: (a) never exposed, (b) exposed through personal research, (c) exposed in undergraduate courses, and (d) exposed in graduate courses. Students could select as many choices as were applicable. Assuming a qualitative dimension to exposure from different sources, I grouped responses into two categories: (a) those who were never exposed or only learned about cognitive styles on their own, and (b) those who learned about it in a college class as an undergraduate or graduate student. Here, the responses suggested that most students did not have substantial knowledge about cognitive styles prior to taking one of the treatment classes. A range of 55 to 71 percent of students in each class had never heard of cognitive style or had merely looked into it on their own. Only 29 to 45 percent had been exposed in an educational setting. If the technique is useful to understanding how to work with others and how to manage team efforts, and most students otherwise have no formal

introduction to the material, it stands to reason that its incorporation into one or more classes in the MPA curriculum would be of value.

To add further insight into students' sentiments toward CSM and its continued use, an open-ended question enabled them to provide specific justifications for their recommendations regarding future use of the CSM group-selection method they experienced. They were asked, "Why did you make that recommendation regarding the selection method used in this course?" In the next section, the responses are reported verbatim. To make the comments more salient, they have been organized according to the positive, negative, or neutral character that they convey. These comments, especially on the positive side, demonstrated the understanding that students developed during the course. The negative comments tended to draw out the tensions experienced, but in doing so, some of the comments conveyed the content provided through the method, and readily acknowledged that different personalities did conflict. Most of the negative comments seemed to focus on a general dislike for group projects.

Treatment Group Responses

Positive:

- Could see different personality styles that complemented other group members.
- The level of comprehension was different between my group members and me, which produced better results.
- Gives a better idea about teamwork when someone with a very different nature is your partner.
- Unique and equitable.
- Everyone in the group was not alike, so you can get alternative views.
- People have different levels of cognitive strengths, and in our group they complimented [sic] each other.
- I believe that personality dynamics are important to group work, and this method accounts for these dynamics and their possible negative impacts.
- Everyone in our group had different styles to contribute, but we were all the same with how focused we were. Except one member.
- The group fit well together; everyone did their part. There were no conflicts.
- In a setting where there is little knowledge of classmates and working styles, it works great.
- Seems more logical than pure randomization.
- This was the easiest, most efficient group I have worked with. Might be CSM or might not …
- Because a person has to learn to work with different people from diverse backgrounds with various perspectives...

- It seemed to allow students to keep focused on the task at hand. When it got broad, others could bring it back into focus.
- Not many instructors or students know how to utilize this method.
- I know some groups found it helpful. In my group, everyone (except the slacker and plagiarizer) contributed equal and quality work.
- Never had a group project run so smoothly.

Negative:

- Too Hard [sic] due to scheduling and limited time of grad students.
- It could match "like" personalities, but work still must be done, so regardless of personalities, the team must produce.
- I feel group projects create more work and should not be used. If you must use them, just use random assignment.
- I would prefer not to participate in group projects.
- For whatever reason, this ended up being the worst in group demands I have had — and I liked the members of my group on a personal level a lot. So I can only say that self-selection has worked better for me
- Easier to work with individuals who I am more comfortable working with and those who have similar styles.
- I know my classmates and I would not have chosen a slacker.
- Just seems like over-thought. There are other factors to take into account (i.e. scheduling).
- It was challenging to work with different personality types.
- I personally had a negative experience; however, this does not mean that every time CSM is used, my experience would be negative.
- I don't like any type of group work and I think it is unnecessary at the graduate level.
- Equity.

Neutral:

- It depends upon the alternative. It is better than random or systematic selection, but about equal with self-selection.
- Group projects are tough regardless of how they are selected.

Before accepting the method outright, it is useful to compare it to alternative approaches. Treatment group students were asked to compare the equity of the CSM method to alternative selection techniques. *(See Table 5.)* Students were asked whether CSM was more (+1) or less (-1) equitable than five alternative-selection approaches, or whether each pair was neutral with regard to equity (0). A positive response indicates agreement that CSM is more equitable than the alternative; a negative response indicates that the alternative is more equitable than CSM. For each class and each alternative-selection technique,

Table 5.
CSM's Equitability Relative to Alternative Selection Techniques

	Program Evaluation	Economic Development	Public Policy Process
CSM Is More/Less Equitable Than:*			
Self Selection	0.71	0.30	0.09
Random Assignment	0.14	0.30	0.05
Seating Proximity	0.86	0.50	0.09
Past Academic Performance	0.71	0.50	0.41
Systematic Assignment	0.67	0.20	0.23
	N = 7	*N = 10*	*N = 22*

*Note. *-1 = Less Equitable; 1 = More Equitable*

the average score is positive, indicating that students who have experienced the CSM technique find it to be more equitable than the alternatives presented, including self-selection. Scores are lowest for the public policy courses, ranging from 0.05 to 0.41, while scores in the two specialization courses are higher, from 0.14 to 0.86. This difference could be the result of maturation, as students in public policy were in their first year of the program, while other students generally were in their second year of the program.

Another concern that should be addressed before wholeheartedly endorsing the method is the presence of conflict. We can recall that the CSM method generates inherent conflict between individuals in the way they collect, analyze, interpret, and communicate information. The explanatory material was intended to help students recognize and overcome these differences; this was the central goal of the method. Students were asked to identify several common conflicts that arose in group project settings, including interpersonal conflict with another group member, scheduling conflicts, under-performing members, over-performing members, no conflicts, or other conflicts not listed. In the last case, students were asked to describe the conflict in an open-ended response. Students also were asked whether all group members participated equally. Table 6 presents the results for each treatment class. *(See Table 6.)*

Interpersonal conflict was relatively low, ranging from 0 in program evaluation to only 36 percent in public policy. This was a very favorable outcome, given the expectation of conflict generated by the CSM process itself. Scheduling conflict was the single greatest problem confronting the treatment groups, experienced by 50 to 71 percent of the students in each class. The free-rider problem always rears its head in group assignments, and 29 to 59 percent of each class experienced a free-rider in their group. To address this concern, I integrated an anonymous group-evaluation process into all group projects that

Table 6.
Student Reports Regarding Conflicts Experienced

	Program Evaluation	Economic Development	Public Policy Process
Interpersonal Conflict With Group Members	0.0%	10.0%	36.4%
Scheduling Conflict With Group Members	71.4%	50.0%	54.5%
Others Put Forth Too Little Effort	28.6%	30.0%	59.1%
Others Put Forth Too Much Effort	28.6%	30.0%	13.6%
No Conflicts Noted	28.6%	30.0%	27.2%
Equal Participation?	57.1%	60.0%	50.0%
Other:	14.3%	0.0%	22.7%
	N = 7	*N = 10*	*N = 22*

Note. All % = % of Students Who Responded Yes

enabled group members to rate their colleagues' performances. These average participation scores then were subjected to a formula, along with the project grades, to determine each individual's score. In my experience, students generally seemed to be very conscientious in their assessments of others' work.

Somewhat surprising was the observation that group members put forth too much effort. The appearance of leadership or over-exertion may be a manifestation of an individual's cognitive style, or it could be the result of differences in individual academic goals. A range of 14 to 30 percent of students experienced an over-achieving group member. Only about 30 percent of students experienced no form of conflict across the groups in all three classes. And, 50 to 60 percent of students indicated that all group members contributed equally. One never knows where conflicts may arise, and while no students reported "other" conflicts in the economic development courses, 14 percent in program evaluation listed "other" conflicts, as did 23 percent in public policy. The conflicts identified were not directly related to CSM, but they provided insight into the tacit dimensions of the experience that affected group performance. The additional conflicts identified were, verbatim, as follows:

- Working style affected the output.
- Couldn't agree on the final work.
- Group member turned in section late.
- Group member did not come to any meetings. The same group member who did not contribute.
- Lack of communication.
- Language barrier. Opposing ideological values.
- One group member gave no effort at all.

Discussion

As Posavac and Carey (2003) note, surveys that seek to assess satisfaction have a place in program evaluation, but "such surveys cannot provide a sufficient means to assess the degree to which the program was effective. Some people are very satisfied with worthless treatment because they feel respected and valued by the people offering the service" (p.65). Given this difficulty, I shall attempt to consider satisfaction and value distinctly in interpreting the findings of this study. While satisfaction with the CSM method seems generally high, and while most students recommend its continued or expanded use, these observations are less important than the underlying curricular value associated with the method. Though not definitive, the results of this evaluation supply reasonable enthusiasm to continue use of CSM in an MPA program. Given the absence of problems resulting from the group-selection method itself, the continued use of CSM depends mostly on the instructor's willingness to implement it and to gain sufficient understanding to effectively communicate personality-type differences.[1]

The reported results should be viewed in light of certain qualifications. First, although the survey questions emphasize the selection process itself, students completing the questionnaires may not have been able to distinguish their views concerning the group-selection process, and its attendant rationale, from their composite group experience in the course. Second, as revealed by the open-ended comments, many students show a general distaste for group assignments that may be latent in the findings. Future research should attempt to isolate student preferences regarding group work (versus independent assignments) from the group-selection method and the assignment content. The curricular benefit of the CSM process to public service education must be weighed as well. Students learn about their own preferences for collecting, processing, and communicating information. They learn how to work with others whose preferences differ, and they gain insight into the role of organizing and managing team efforts either internally, or through external networks.

To what extent should the CSM process be used in a public service graduate program? It certainly is not necessary to use the CSM method in every graduate course. Yet, repetition in different groups may improve and reinforce students' understandings and their ability to interact with others. To be most effective, the CSM procedure should be used in at least one core course, so as to expose all students in the program at least once. Well-attended, general courses have the added benefit of creating larger groups that better represent all eight ends of the cognitive-styles spectrum.

References

Armstrong, S.J. (2000). The influence of individual cognitive style on performance in management education. *Educational Psychology, 20*(3), 323-339.

Agranoff, R., & McGuire, M. (1998). Multinetwork management: Collaboration and the hollow state in local economic policy. *Journal of Public Administration Research and Theory, 8*(1), 67-91.

Hayes, J., & Allinson, C.W. (1998). Cognitive style and the theory and practice of individual and collective learning in organizations. *Human Relations, 51*(7), 847-871.

Heimovics, R.D., & Herman, R.D. (1989). The salient management skills: A conceptual framework for a curriculum for managers in nonprofit organizations. *American Review of Public Administration, 19*(4), 295-312.

Kahn, W.A. (1995). Group process checkpoints for team learning in the classroom. *Journal of Policy Analysis and Management, 14*(2), 310-326.

Kettl, D.F. (2006). Managing boundaries in American administration: The collaboration imperative. *Public Administration Review, 66*(Suppl.6), 10-19.

Leonard, D., & Sensiper, S. (1998). The role of tacit knowledge in group innovation. *California Management Review, 40*(3), 112-132.

McGuire, M. (2006). Collaborative public management: Assessing what we know and how we know it. *Public Administration Review, 66*(Suppl.6), 33-43.

O'Conner, S. (1992). Patterns of psychological type among health care executives. *Hospital and Health Services Administration, 37,* 431-447.

Posavac, E.J., & Carey, R.G. (2003). *Program evaluation: Methods and case studies* (6th ed.). Upper Saddle River, NJ: Pearson Education, Inc.

Reineke, S. (2001). Teachable moments: Teaching teamwork through research. *Journal of Public Affairs Education, 7*(3), 153-160.

Sadler-Smith, E., & Badger, B. (1998). Cognitive style, learning and innovation. *Technology Analysis & Strategic Management, 10*(2), 247-266.

Schumaker, A.M. (2005). In search of a model for effective group projects: From the MPA student perspective. *Journal of Public Affairs Education, 11*(1), 21-34.

Simon, H.A. (1987). Making management decisions: The role of intuition and emotion. *Academy of Management Executives, 1*(1), 57-64.

Volkema, R.J., & Gorman, R.H. (1998). The influence of cognitive-based group composition on decision-making process and outcome. *Journal of Management Studies, 35*(1), 105-121.

Footnotes

[1]There are numerous training programs that provide certification in the official Myers-Briggs Type Indicator and its use; they range from around $1,000 to $2,000. I do not use the official instrument in my course; I use a shorter version to save time. I had the added benefit of learning the technique in one of my graduate courses and have used it extensively since. Those who have not had this benefit may find an official weekend training course to be the best approach to quickly adopting the method.

Author Note

I wish to express gratitude to Dr. Edward T. Jennings of the University of Kentucky for comments on the research design, and to Jim Slack and Akhlaque Haque, of the University of Alabama at Birmingham, for allowing me to use their classes as comparison groups to inform the study. This study was approved under UAB IRB protocol #X061120005. Preliminary findings were presented at

the 2007 NASPAA conference in Seattle, WA. Correspondence concerning this article should be sent to Jeremy L. Hall, Ph.D. at 800 West Campbell Rd. WT17, Richardson, TX 75083-0688 or Jeremy.Hall@utdallas.edu.

Jeremy L. Hall, Ph.D., is Assistant Professor of Public Affairs at the University of Texas at Dallas. His research focuses on issues at the nexus of public policy, economic development, and public management — including public sector performance and capacity. His research has earned awards from NASPAA and the Southeastern Conference of Public Administration.