Use of personality type as a means of team building

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Introduction

As the pressure to develop better products faster and more cost effectively increases, the need to adopt a product development methodology becomes more pressing. However, this methodology will never be more efficient than the people who implement it and use the tools that support it.

Many factors affect team composition such as product complexity, design methodology and design environment, to name a few. A team assembled to develop a complex product using a concurrent engineering methodology in an international setting will be very different than one put together to design a simple product, in-house, using a more classical sequential approach. As more and more products are created in the conditions described in the former example, the emphasis on instilling good teamwork skills to our students becomes greater.

This paper reports on a teambuilding method, based on personality type as defined by Myers-Briggs, which has been implemented as part of a first year, first semester course on Computerized Product Development. The next section introduces the concept of personality type followed by a section on how it can be used in the context of teamwork. The third part describes the course while the fourth section concentrates on the team building activities per se. The emphasis is placed on means of avoiding conflicts before they arise within the team.

Throughout this paper, the word conflict is used to depict a situation where people not only have divergent opinions but where antagonists harvest feelings against one another, where strong irritants are present. It is the type of situation which usually undermines the effectiveness of a team when left unresolved. It is to be contrasted with a disagreement which, through proper discussion and exchange of points of views, can lead to improvements.

Personality types

Type theory takes its origin in the work of Carl Jung. After having juggled with a few theories which he found too limiting, he eventually elaborated a unifying theory encompassing his own earlier work and views of some contemporaries such as Alfred Adler and predecessors such as Sigmund Freud [1].

Jung speculated that our personality is shaped by four basic functions, functions being ways of knowing and interacting with the world around us, helping us negotiate the transactions of every day life. These four functions are:

- *sensation (S)* and *intuition (N)* as means of collecting information resulting from direct experience, i.e. of perceiving the world;
- *thinking (T)* and *feeling (F)* as ways of organizing experience rationally, of making decisions, i.e. of judging.

Starting in the 1950's, a mother-daughter team, Katherine Briggs and Isabel Briggs-Myers refined Jung's model. Contrarily to Jung who viewed the four functions as independent, Myers-Briggs grouped them two by two, realizing that some of the functions cannot be active at the same time. To distinguish which function is active at a given moment, they added the concept of attitude.

Attitudes depict ways of negotiating the gap between self-determination and the expectation of others. The four attitudes are:

- *introversion (I)* and *extraversion (E)* . These primary attitudes distinguish the perspective from which we experience our functions. Introversion refers to our inner-self while extraversion is used in our relationship with others. The primary attitudes had been recognized by Jung but not fully integrated into his model;
- *perception (P)* and *judgment (J)*. These secondary attitudes indicate which group of functions we preferably use when we relate to the outside world, when we function in an extroverted mode. We either prefer to perceive or to judge.

The resulting model is depicted in Figure 1.

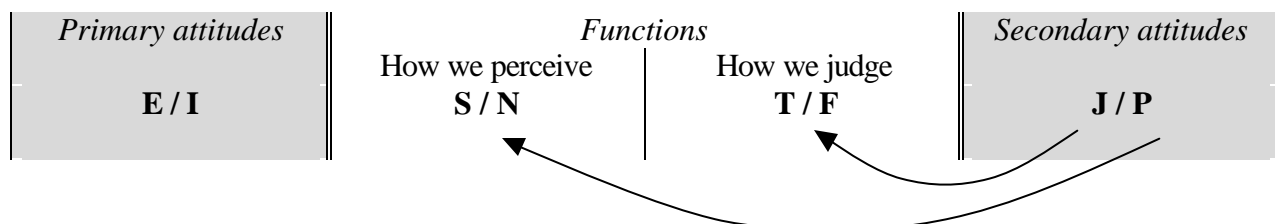| *Primary attitudes*	*Functions*		*Secondary attitudes*
	How we perceive	How we judge	
E / I	**S / N**	**T / F**	**J / P**

Figure 1: The Myers-Briggs model of personality types

The grouping of attitudes and functions in pairs results in 16 different combinations which define the basic personality types. Certain words of caution are in order.

- Type indicates preferences, our preferred mode of functioning. We are born with the capacity to use all attitudes and functions but our natural inclinations, the opportunities we encounter, the experiences we live and even social expectations all contribute to shape our personality and we only develop a few combinations.
- No combination is better or worse than another, they only reflect how we apprehend and deal with reality. Each has its advantages and disadvantages.

To make these concepts a bit more tangible, Tables 1 and 2 list a series of characteristics often associated with each type.

Primary attitudes		Secondary attitudes	
Extraversion	*Introversion*	*Judgment*	*Perception*
sociable	reserved	make decisions	gather information
expansive	quiet	control	adapt
think out loud	think inwardly	time = limit	time = opportunity
act	think	push for closure	consider alternatives
energized by people, situations	energized by being alone	goal oriented	process oriented

Table 1 Characteristics associated with attitudes [1-5]

Perceiving Functions		Judging Functions	
Sensation	*Intuition*	*Thinking*	*Feeling*
direct sensory experience	situation's potential	clarity	harmony
details	trends	objectivity	subjectivity
specialist	generalist	impersonal	personal
reliance on past experience	reliance on ingenuity	firm	warm
concrete	abstract	justice	mercy

Table 2 Characteristics associated with functions [1-5]

Another contribution of the Myers-Briggs team is the psychometric test known as the Myers-Briggs Type Indicator (MBTI), administered to roughly 2 000 000 people annually in the United States alone. Although there is a large body of literature supporting the test[6-8], it does have its detractors[9-11] who usually question the validity of the test, not the underlying model and theory.

Teamwork and type

Effective teams are characterized, amongst other things, by: effective leadership, good intra-team communication, cohesion and heterogeneity of skill, knowledge and personality types.

Heterogeneity is however a sword with two edges. One the one hand, viewing a problem from different perspectives almost always results in more innovative and creative solutions or outcomes [12,13]. It may take more time to complete a project, but the quality is better. On the other hand, it increases the risk of unresolved conflicts, arising from difficulties to communicate and leading to a decrease of cohesion.

This breakdown in communication has at least two sources: specialization and differences in personality.

Specialization   Multidisciplinary teams are composed of professionals originating from different disciplines, each coming to the drawing table with his/her own

theoretical and methodological scheme of reference, specialized vocabulary, etc. One way of overcoming this difficulty is by embracing an explicit and recognized engineering method which leads to the adoption of a common vocabulary and methodology. It also becomes easier to distribute roles and responsibilities. Each member can refer to the method to understand the relationship between one's work and that of other team members. Finally, the documents produced can more easily be shared and discussed by all.

Personality   Conflicts arising from personality differences are more subtle and less easily overcome. All too often, although we sense that the people we are discussing with do not quite see things as we do, but we are unable to "put ourselves in their shoes", to talk their language, to understand their issues.

By knowing ones own personality type and by acknowledging that there are other ways of apprehending reality, team members are more respectful of one another, a first step in conflict avoidance. Even better results can be achieved if team members share their personality type: better understanding of personal differences and preferences leads to better communication and better decision making. Communication pitfalls are avoided if people are able to talk "each others language".

An added benefit of type sharing is that tasks and functions can be distributed according to natural individual preferences, thus lowering stress and increasing satisfaction. For example, INs can perform well in solitary, written brainstorming while ENs will be more comfortable in a group vocal brainstorming session. TJ will be excellent in planning projects while TP will be better at modifying the original plan if something goes wrong along the way. People with a strong S function will gladly write the methodology and results section of a report while N's will prefer to compose the introduction and conclusion. IFs make good moderators.

Description of Computerized Product Development course
In the fall of 1999, the mechanical engineering department at École de technologie supérieure (ÉTS) introduced a new course on Computerized Product Development. This is a compulsory course taken at the first semester. It is attended only by mechanical engineering students . The main objective of this course is to introduce students to methodological aspects of product development, as well as tools and skills to support the methodology.

The students are exposed to 6 hours of in-class instruction every week, composed of 2 three-hour blocks. Their workload in completed by 6 hours of personal or team work. Roughly half the in-class time is devoted to teaching/learning the theory underlying modern Computer Assisted Design software and to master the basic Pro/E modules. The other half is devoted to design methodology and skills. Among the skills promoted are project management, creativity, active communication and teamwork.

Towards half semester, the students are assigned a project which they must complete in teams of three to five members. Throughout the project, they practice the tools and skills acquired while following the proposed methodology (problem analysis using the first house of quality, solution generation, choice of solution, detail design). At the end of the semester, each team presents its

solution to the class and hands in a report containing a fully assembled CAD model of their solution along with detail drawings. Examples of projects assigned in the past are: a device to help lawyers carry their documents to court, an artifact for cold water rescue, a means of helping African women in providing drinking water for their families, etc.

A few words on the educational background of students attending ÉTS are in order here. ÉTS is francophone. It is also the only engineering faculty or school in the province of Québec which has the mandate to educate technicians to become engineers. Upon entering the mechanical engineering program at ÉTS, students have received a 3 year post high school (college) level vocational training in areas as diverse as HACV, airplane maintenance, N/C machining, naval architecture etc. In many cases, they have practiced their trade before entering university.

Prior to project inception, the students are asked to fill a questionnaire where they specify:
- their name
- if they study full or part time
- their trade
- the college where they studied their trade
- the year their training ended
- if the have industrial experience and if so, how many years
- if they know any computer assisted drafting and/or design software, and if so, their level of expertise.

Desiring to tap into this diversity and simulate as much as possible a concurrent engineering environment, the instructor uses this information to create teams as diverse as can be. Whenever possible, teams have no members with the same academic background or similar work experience, nor is it composed of students having attended the same college. Team composition is thus imposed by the instructor, i.e. students are not free to choose their team mates. This also has the advantage of levelling the playing field.

Team building activity
The first project activity relates to teamwork. Through a series of exercises, each team is asked to identify
- the advantages and disadvantages of teamwork,
- the characteristics of an efficient team.
The results are then discussed by the whole class.

The class is then given training on ways of overcoming obstacles to efficient teamwork among which emphasis is put on communication, running well-organized meetings and conflict avoidance through personality type. The rest of this section will concentrate on this last subject.

The in-class activity on personality type is structured as follows:
- each student is asked to establish his/her personality type by filling out a 16 question form. This is followed by a short class lecture on type theory, a presentation of anecdotes to illustrate the different types as well as by a discussion on possible sources of conflict arising from type differences;

- each student is encouraged to share his/her type with fellow team members. Although this is non compulsory, the non-threatening environment in which it is performed encourages students to participate. To date, no student attending the author's classes (over 200 students) has refused to participate in this exercice;
- each team member then identifies potential conflicts with each other member. These possible obstacles to efficient teamwork are discussed within the team which tries to identify ways of avoiding these likely sources of unnecessary tension;
- each team member is asked to determine how they can best contribute to the team, given their personality type;
- each team is asked to fill out and sign a team contract which contains:
  - o   name and personal information (telephone number, e-mail address) of the members,
  - o   personal requirement of each member in order to function well within the team (for example: all members must arrive on time at meetings; team members must talk respectfully to each other; each member must commit themselves; etc.)
  - o   personal quality each member brings to the team
  - o   team objectives,
  - o   team conduct and ethical rules.

It should be noted that this exercise in not meant to curb discussion, quite the contrary. It is often by resolving differences in points of view through discussion that innovative solutions arise. It is however a means of having this discussion while respecting our partners and by relating to them. It is a means of creating an environment where a discussion can be had without creating animosity.

 Once a week, at home, every student is asked to evaluate the team performance as a whole, his or her own performance within the team as well as that of the other team mates. During scheduled in-class periods, team members share their results and establish a team evaluation of the team's performance and that of individual members. At the end of this exercise, students establish new personal goals. During the same period, the instructor visits every team, checks individual and team evaluations for discrepancies and discusses any problems the team is encountering.

The short term results of the team building exercise are three-fold:
- teams quickly develop a team spirit, an *esprit de corps*. Within a few hours, almost complete strangers form a team, set common objectives and are ready to tackle the project at hand;
- by investing some time to know each other at the onset of the project, most of the teams avoid innuendo and situations creating lasting hard feelings. They spend most of their time performing the tasks at hand rather than bickering;
- the number of teams running into functional problems is low. We found the signing of the contract to be very important in this aspect. During one semester where the contract was not made mandatory, the number of teams experiencing unresolved problems nearly tripled compared to other semesters.

Although the following statement cannot be substantiated as the relevant statistics are not yet available, this new course, and possibly the team building activity, has increased the perseverance rate among first semester students. The author believes that the strong team spirit developed during the course offers an explanation for this phenomenon.

Notwithstanding the activity's effectiveness, the author is aware that the actual means of evaluating personality type needs improvement. Alternatives range from:
- using the French version of the official MBTI test. This solution has important financial consequences : cost involved in training the teaching staff to use the test, form fees, evaluation fees if outsourced, etc.
- using an existing web-based or pencil and paper self-evaluation test. This solution rises a language issue as no such tests are currently available in French.

Conclusion

As part of a new course on Computerized Product Development, students in mechanical engineering at École de technologie supérieure are given some training on effective teamwork. One of the activities is centered on conflict avoidance through sharing of personality type. Students establish their own type, share it with team members, discuss potential sources of conflict and possible ways of avoiding these conflicts. Team performance is monitored weekly by each team member individually and as a team as well as by the instructor. Numerous benefits arise from this activity, amongst which is the quick establishment of team spirit and the low number of dysfunctional teams.

References

1. Thomson, L. (1998). Personality type – An owner's Manual. Boston: Shambala.
2. Bradley, J.H. and Hebert, F.J. (1997). The effect of personality type on team performance. Journal of Management Development, 16(5): 337-353.
3. Ryder-Smith, J. (1998). The secret of good conversation – investing in success. Health Manpower Management, 24(1): 38-39.
4. Bak, C.A., Vogt, L.H., George, W.R. and Grentree, I.R. (1994) Management by team. Journal of Services Marketing, 8(1): 37-47.
5. C. Charney (1991) Time to market: Reducing Product Lead Time. Society of Manufacturing Engineers.
6. Thompson, B. and Borrello, G M. (1986). Second-Order Factor Structure of the MBTI: A Construct Validity Assessment. *Measurement and Evaluation in Counseling and Development*; v18, no. 4, 148-53.
7. Johnson, D. A. and Saunders, D. R. (1990). Confirmatory Factor Analysis of the Myers-Briggs Type Indicator--Expanded Analysis Report. *Educational and Psychological Measurement*; v50, no. 3, 561-71
8. Aviles, C. B. (2001). A Review of the Myers-Briggs Type Inventory: A Potential Training Tool for Human Services Organizations. ERIC Digest #ED449436
9. Zemke, R. (1992). Second Thoughts about the MBTI. Training; v29, no. 4, 43-47.
10. Pittenger, D. J. (1993). Measuring the MBTI. . .And Coming Up Short. Journal of Career Planning and Employment. Vol. 54, no. 1, 48-52.
11. Gardner, W. L and Martinko, M. J. (1996) Using the Myers-Briggs Type Indicator to Study Managers: A Literature Review and Research Agenda Journal of Management, vol. 22, no. 1, 45-83.
12. Briggs Myers, I. (1980) Introduction to type. Palo Alto: Consulting Psychologists Press.
13. Kroeger, O. and Thuesen, J.M. (1992) Type Talk at Work. New York: Delacorte Press.

Biography

Dr. Sylvie DORÉ is a full professor in the mechanical engineering department at École de technologie supérieure (ETS) where she teaches courses in product development, applied numerical methods and rapid prototyping. She co-developed two web-based distance learning courses, one on the use of multimedia for educational purposes and the other on instructional design. She was awarded the ETS best teacher award in 1999.