Team Creation in a Problem-Based Learning Class

**Abstract:**

When using problem-based learning in class, one of the potential failures occurs when the teams do not have a full range of problem-solving skills. Since these teams are going to be dealing with complex and realistic problems, the teams must be created to ensure they have the potential to be high-performing teams. Otherwise, problem-based learning is like being in permanent white water (Vail,1989). When this doesn’t happen, the students become frustrated and struggle with the problem presented. This session introduces an assessment tool to assist in getting the right students on the problem-based learning bus and in the right seats.

Keywords: Problem-based learning, Team Creation, Selection Tool

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**Introduction**

According to Allen, et. al. (2011), in a problem-based learning (PBL) class, students working in collaborative groups learn by resolving complex, realistic problems under the guidance of faculty. The idea of problem-based learning was pioneered at the medical school at McMaster University. In 1974 Howard Barrows (Barrows and Neufeld,1974) a faculty member at McMaster University Medical School coined the term problem-based learning.

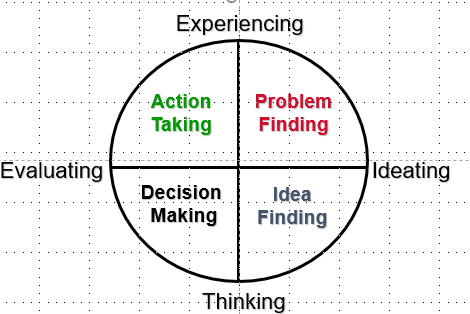
Barrows (1996) identified some of the specific characteristics of problem-based learning. He posited that in problem-based learning the learning is student-centered in that the student must take responsibility for their own learning. Second, the learning happens in small groups of students where they share their individual learning with each other developing a collective body of knowledge. Third, the instructors act as facilitators. They ask questions and raise issues to guide the students to a better understanding of the problem at hand. Fourth, the problem itself creates the environment for learning. When the problem is compelling it stimulates the students to want to learn in order to solve the problem which further develops the students’ problem-solving skills.

Ungaretti et. al. (2015) in their article extending PBL to management education said one of the challenges is identifying the most common points of failure when using problem-based learning. One of the biggest problems that I have discovered is the creation of problem-based teams. As Collins (2023) points out we need the right people on the team bus and in the right seats to have an effective team experience. Since problem-based learning is fundamentally about students being able to work together to solve complex realistic problems, it would seem evident that one criterion for team creation would be to pick team members around their problem-solving skills. Katzenbach and Smith (1993) identified in their seminal work that highly effective teams had team members with strong problem-solving skills. This session will introduce an assessment that will aid the instructor in forming potentially effective problem-based learning teams.

**Theoretical Foundation**

Basadur et. al. (1990) created an assessment tool that would identify each person’s problem-solving preference. It is not a personality measure because as person learns the profile can change. Basadur (1995) sees problem-solving as a circular process that as a team acts on one problem new problems arise which starts the team back at the beginning. One dimension of the assessment measures an individual’s preference for gaining knowledge. According to Senge, (2006) team learning is the process by which a group of people learns how to work together effectively and help each other reach their shared goals. In other words, solve the problems the team is facing. In this assessment represented by the y-axis at one end of the continuum, the preference is to gain knowledge through thinking such as reading and formal learning. At the other end of the continuum, the preference is for gaining knowledge through experiencing such as experimenting or trying something. This is a compression of Kolb’s (1984) experiential learning model. The other dimension measures an individual’s preference for how they use knowledge. In this assessment represented by the x-axis at one end of the continuum, the preference is to use knowledge to ideate such as thinking of new alternatives or raising questions about future problems. At the other end of the continuum, the preference is to use knowledge to evaluate such as determining which alternative is the most feasible or determining the best course of action for a specific alternative. This dimension is based on Guilford’s (1957) concept of divergent and convergent thinking both of which are necessary in problem-solving. The model then presents a four-quadrant process for problem-solving. Each quadrant has a designation that helps define what that quadrant does in the problem-solving process. Figure 1 is a representation of the total model.

Figure 1 – Basadur Problem Solving Model



**Learning Objectives**

* To introduce the Basadur Problem-Solving Preference tool
* To have the participant complete the Basadur profile
* To show the participants how I would create the problem-based learning teams using them as potential members of a problem-based learning team

**Exercise Overview**

The assessment can be used in a wide variety of classes: OB, management, leadership, etc. It is better in face-to-face classes but can be adapted to online. The time needed can vary depending how much the instructor wants to discuss about the assessment tool besides using it to form the teams; I have used a 75-minute class session to form the teams and discuss the problem-solving model and why different people have different preferences for parts of the problem-solving process. As part of this discussion, I share the findings of Basadur and Head (2001). They found that teams made up of all four problem-solving preferences were less satisfied early on in the team formation process but in the end out performed teams that did not have a balanced team. I remind the students what Senge says about team learning. It is not just learning to solve the problem but also learning s how to work together effectively (Senge, 2007).

During the session, I will introduce the participants just as I would in my class. They will complete the assessment and we will discuss what different quadrants mean as part of the problem-solving process. Then I will demonstrate how I would form the teams using the assessment data created by the participants who attend. We will conclude the session by discussing if there are other tools that could be used to effectively form the teams.

**Session Description**

I am requesting a 75-minute session.

The following is the timeline for the session:

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| --- | --- |
| Timing | Topic |
| 10minutes | Welcome and Greeting (ask what participants hope to get out of the session) |
| 25 minutes | Complete Basadur Problem Solving instrument |
| 25 minutes | Demonstrate creating the problem-based learning teams |
| 15 minutes | Discussion of other assessments that could be used to form the teams and Wrap Up |

**References**

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