# Competitive Learning: A Model

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## 1. Introduction

Learning is mainly associated with the classroom and is often competitive, but **competitive learning** is often motivated by a competition and is basically an extra curricular activity which develops creativity and problem solving skills.

Piaget's model of learning is interactive such as reading, listening, and exploring, this theory has practical applications for students who confront an onslaught of information outside the classroom, where they have the chance to conduct their own research and synthesis, therefore competitive learning could assist educators in discovering students' abilities and creativity.

In this paper we intend to present a model for competitive learning through successful models such as Mathematical Olympiads. We will also discuss downsides and obstacles. The digital era also has enforced new ways of teaching and learning which will be considered in this model properly.

## 2. Types of Learning

There are various ways and styles of learning such as group work or individual work. Also learning could be through teacher

instruction with worksheets and firm directions, or self motivated research projects. Individual learning is achieved when any single students is independent and separate from other students and it implies skills and assets that teachers can transfer to the learner. This type of learning is teacher centered, since teachers provide most sources of information, assistance, criticism and feedback. Students work alone and should have access to resources and materials. Assessment is commonly judged against a set of criteria and learning aims to be individually beneficial.

Co-operative learning occurs when students work collaboratively toward a common goal, which they are working in small clusters or groups and are correlated with each other. Co-operative learning would cause:
- Positive interdependence, a feeling of connection with other members of the group as they accomplish a common goal.
- Individual accountability, every member of the group is held accountable for the group's achievements.
- Face to face interaction, group members engage at close range and are influenced by each other's verbal communication.
- Social skills, students become aware of the human interaction skills involved in effective group cooperation.
- Group processing, groups may reflect and discuss how well they are functioning as a unit and how effective their working relationships are.
- Effective cooperative learning relies on group management techniques, social skills training and student-centered teaching methods.
- Collaborative learning provides a vehicle for social constructivism, where students are in control of their own learning and ultimately, the outcome of their learning.

### 3. Competitive Learning

Competitive learning is a type of learning which is motivated by participation in a competition. Competitive learning could be between individuals (such as International Mathematical Olympiad) or between groups (such as acm International Colligate Programming Contest). Competitive learning is usually an extra curricular activity which can cause improvement of the educational system.

There have been many criticisms of this type of learning. These criticisms include:
- Because there is only one winner, all other students must fail
- May be linked to high anxiety levels, self-doubt, selfishness and aggression
- May promote cheating
- Interferes with the capacity of problem solving

As to these criticisms, it should be identified that what kind of competitive activities would be constructive or destructive.

Groups can be arranged to host interpersonal competitions separately from one another. This is one strategy to maximize the number of winners.

Inter-group competition can be seen as an appropriate competitive strategy as it maximizes the number of winners.
It is also important to ensure homogeneous grouping to maximize the chance of winning for all groups.

Homogeneous grouping allows the groups to be as evenly matched as possible to provide a challenging environment for competition. This involves ranking groups from highest to lowest in achievement through cooperative learning and through interpersonal competition in clusters. The highest achieving member is then moved up to the higher ranked group, and the lowest ranked member is moved down to a lower ranked group.

Competitive learning can also be a cooperative activity when the students formulate their own term and rules of the contest, giving them ownership of the activity.

## 4. A Model

Students may learn in various ways and they may have their own individual styles. Some enjoy group work, others may enjoy individual work. Some may prefer teacher centered instruction, some others may be interested in self generated research projects. Competitive learning mainly is organized as an extra curricular activity and some sort of project based learning, it can cause motivation and satisfaction which will accomplish through problem solving and creativity.

Competitive learning will be organized according to the following concerns:
  - Competitive learning is motivated toward participation in a contest.
  - Competition platform should be organized.
  - Competition could be considered as an individual effort or team work.
  - Participation in a contest would be highly motivational.
  - Competition would cause high level creativity.
  - Competition would generate some challenges which could be pedagogical.

There could be obstacles and criticisms on competitive learning as:
  - It may cause selfishness and aggression.
  - Losers may receive a shock.
  - May promote cheating.
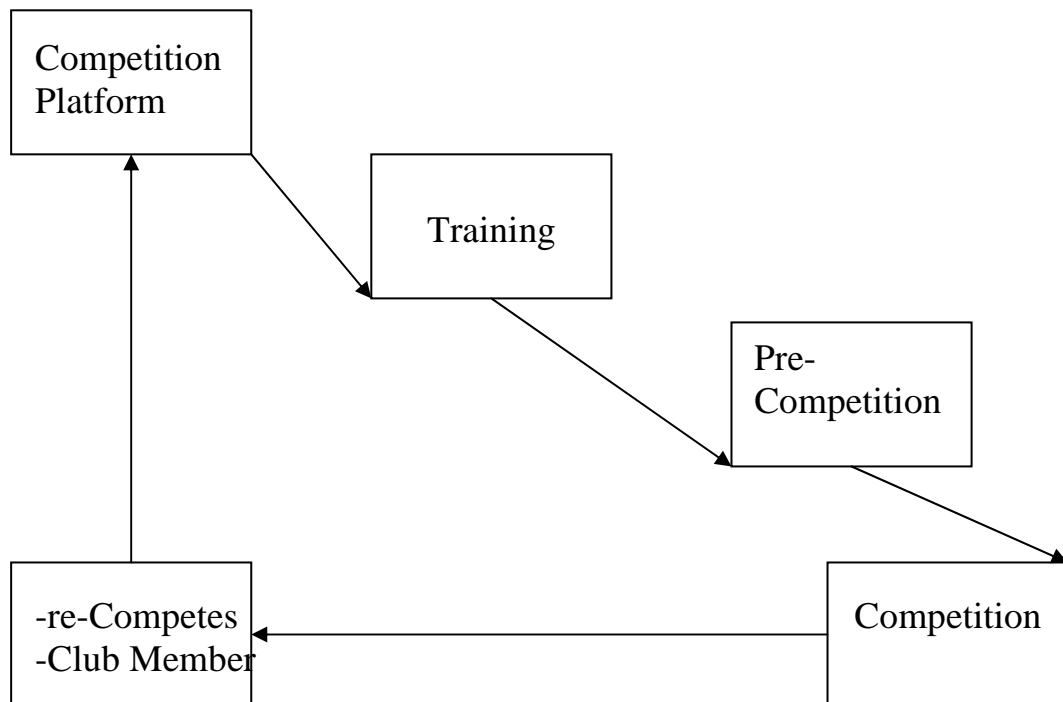  - May interfere with problem solving ability.

As to above downsides, policies may optimize criticizism; we may consider policies as:
- Constructive and destructive competitions should be figure out.
- Group work would be a priority, it would maximize number of winners.
- Training sessions could bring equal opportunity for contestants.
- Homogeneous grouping will match groups for a suitable environment.
- Group ranking and inter group ranking would minimize obstacles.
- Team work would initiate social skills and managerial abilities.

To promote competitive learning, some methodology such as the following should be considered properly:
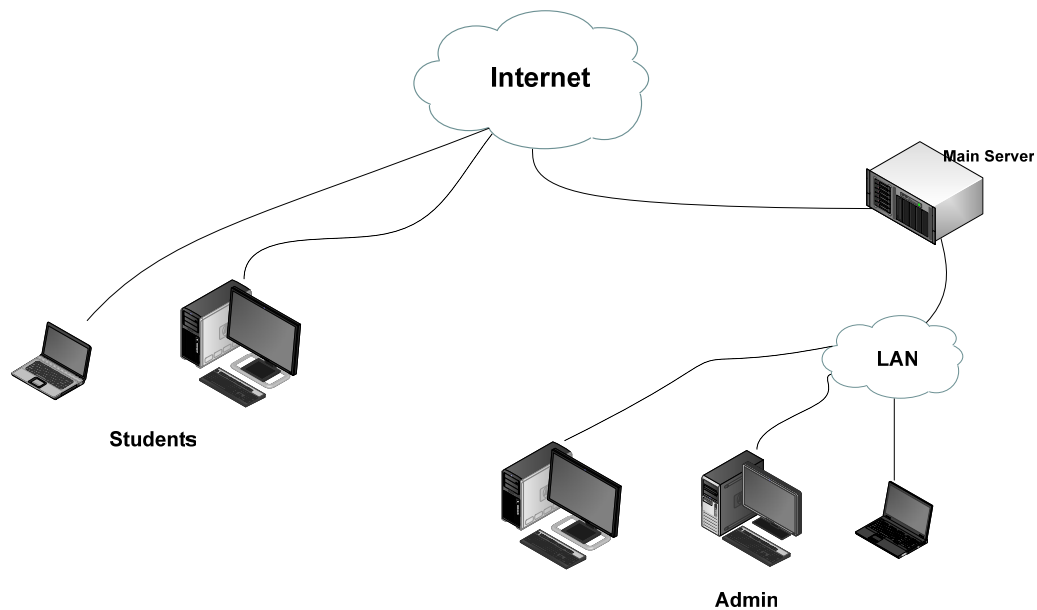
- Create a competition platform.
- Impose motivation for group and cluster works.
- Set up a training program.
- Support managerial issues among the group members.
- Organize pre-competitions widely.
- Keep certain environment for competition.
- Group ranking to maximize winners.
- Keep chance to re-compete for the contestants.
- Organize clubs for contestants for more future cooperation.
- Keep opportunity for contestants to run the future contests, and be a member of the club.

Such methodology could be seen in the following diagram:

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┌──────────────┐
│ Competition  │
│ Platform     │ ─────────┐
└──────────────┘          ▼
      ▲              ┌──────────────┐
      │              │ Training     │ ───────┐
      │              └──────────────┘        ▼
      │                              ┌──────────────┐
      │                              │ Pre-         │ ──────┐
      │                              │ Competition  │       ▼
      │                              └──────────────┘  ┌──────────────┐
┌──────────────┐                                       │ Competition  │
│ -re-Competes │ ◄─────────────────────────────────────│              │
│ -Club Member │                                       └──────────────┘
└──────────────┘
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## 5. Digital competitive Learning

In this digital era, we may consider network capacity to develop competitive learning as widely as possible. In this regard a portal will be needed which will keep educational material, e-Learning system, discussion forum, and virtual competitions will support competitive learning. We may consider the following system:

In this platform the following items will be provided:
- Development of resources based on a Wiki system
- Discussion forum
- Problem corner for problem solvers
- Problem corner for problem creators
- Virtual Competition (Periodically)

Digital opportunities would be very fortunate to popularize competitive learning world wide.

# References

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