THE MIT IDEAS COMPETITION: PROMOTING INNOVATION FOR PUBLIC SERVICE

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Abstract - The MIT IDEAS Competition is a unique forum for student enterprise and innovation that encourages teams to devise creative methods to resolve community needs. The IDEAS Competition provides a support network for students to develop their innovative ideas to solve a wide range of technical and social problems that face under-served communities and individuals, in both local and international contexts. By providing constructive criticism, mentors, and development grants to all viable projects, and hosting a poster session at the final awards ceremony, IDEAS helps every team to make significant progress with their project and to publicize their work. The IDEAS Competition fills an important niche on the MIT campus by giving students the opportunity to be creative and to take active leadership roles in a nonacademic setting; exposing them to social, ethical, and political issues; and helping to prepare them to be community leaders on a global scale.

Index Terms - competition, enterprise, innovation, public service, social entrepreneurship

INTRODUCTION

The MIT IDEAS Competition challenges students to apply their academic skills in innovative ways to help meet community needs. It was started in the fall of 2001 as a joint venture of the MIT Public Service Center and the Edgerton Center, a multi-disciplinary center that focuses on hands-on engineering education. Halfway through its second year, IDEAS has shown promise as a way to increase student involvement in public service, expand students' understanding of the ways that they can contribute to communities, and teach students about entrepreneurship and invention.

The acronym IDEAS stands for Innovation, Development, Enterprise, Action, and Service. Our five main goals are these:

- to promote student inventiveness and entrepreneurship
- to expose students to real-world problem solving
- to provide resources to implement plans and products that meet community needs
- to increase awareness of community needs
- to empower students with the knowledge that they can make a difference in the world

The greatest motivation for starting this competition was to inspire students’ involvement and interest in the technical aspects of community service work. Too often, college students graduate thinking that community service consists only of philanthropic fund-raising parties and ladling soup; too often, college students remain uneducated about the issues that face the majority of the world’s population; too often, professionals believe that community service is something that people do in high school or college; too often, highly educated, skilled people do not use their specialized abilities to help others. In creating the IDEAS Competition, we wanted to ensure that students learn about the role of innovation in public service and understand the opportunities and responsibilities represented by the cultural, economic, social, and technical issues that face communities, locally and internationally.

BACKGROUND

The most recent comprehensive survey of MIT seniors [1] shows that there is indeed a need on campus for the education and experience provided by the IDEAS Competition. One section of this student survey indicated the level of perceived importance of certain types of knowledge and the level of perceived improvement in those areas. Table 1 shows selected data from this survey in areas where we believe the IDEAS Competition can make an impact.

<table>
<thead>
<tr>
<th>Types of knowledge and abilities</th>
<th>% of students who felt this knowledge type was “very important”</th>
<th>% of students who felt their skills were “moderately to greatly improved”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness of social and political issues</td>
<td>41%</td>
<td>18%</td>
</tr>
<tr>
<td>Awareness of ethical issues</td>
<td>37%</td>
<td>25%</td>
</tr>
<tr>
<td>Creativity</td>
<td>77%</td>
<td>36%</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>87%</td>
<td>40%</td>
</tr>
<tr>
<td>Leadership abilities</td>
<td>71%</td>
<td>50%</td>
</tr>
<tr>
<td>Ability to work as a member of a team</td>
<td>70%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Several striking trends are revealed by this data. First, students attach low importance to awareness of social, ethical and political issues, and their improvement in these areas is lower still. Given the potential of MIT graduates, it...
is troubling that only 37% of MIT seniors believe that it is important for them to be aware of ethical issues. Working in partnership with community organizations can be an effective way to increase this awareness, provide an understanding of its importance, and improve students' ability to face and address such issues [2].

Secondly, there is a clear need to provide more opportunities for students to develop their creativity and self-esteem. The very nature of the IDEAS challenge encourages creativity; a key requirement of IDEAS projects is that they be innovative. The lengthy, eight-month application process fosters a level of dedication that reinforces such creative processes. In addition, the nurturing support network guides students toward the successful completion of their projects, helping to build their self-esteem. The staff of the competition work hard to provide positive, constructive feedback and help to all teams, while the access to mentors helps students feel valued, as does the publicity they experience through IDEAS.

Finally, the structure of the IDEAS Competition promotes teamwork and provides opportunities for student leadership, both as participants in the competition and as organizers.

**The IDEAS Model**

Although IDEAS is set up as a competition, its main goal is to enable students to work on original projects that make a positive impact in the world. Hence, while we modeled the IDEAS Competition loosely on a very successful existing business plan competition—the MIT $50K Competition—there are many substantial differences that allow us to support all teams and keep their focus on innovations that address community needs.

IDEAS projects are evaluated on the basis of innovation, feasibility, and community impact. Apart from these criteria, IDEAS projects can be extremely varied and range from highly technical concepts to purely social innovations. Similarly, the definition of community is left intentionally broad: it might be a single wheelchair user or the 1.1 billion people in the world who lack access to clean drinking water.

In addition, all aspects of the IDEAS Competition, including the application process, the events, the supportive staff and mentors, the judging process, and the web site, provide a level of encouragement and focus that helps students learn to develop their ideas effectively.

**The IDEAS Application Process**

The IDEAS application process has two stages: the initial application and the final proposal. This process has been designed to accomplish two related purposes: 1) to allow teams to receive a high level of support in developing their projects and 2) to create a self-screening and improvement mechanism to enhance the final submissions. In the initial application, teams briefly describe their idea and succinctly explain how their idea meets the criteria of innovation, feasibility, and community impact. Teams can request mentors at this stage to help them with challenging aspects of their project, and IDEAS staff provide feedback to each team on how well their project meets the IDEAS criteria, including suggestions on how to improve their application for the final round.

As part of the initial application, every team can submit a proposal to receive a development grant. Development grants, which typically range from $100-$1000, cover a broad range of expenses such as materials to build prototypes, travel expenses for site visits, or lab equipment for analysis and testing. Any team that submits a reasonable request will receive a grant; in fact, we distribute nearly as much funding in development grants as we do in prize awards. A feature unique to the IDEAS Competition, the development grants allow us to provide financial support to a wide range of community service projects, not just the few teams that win the competition.

Initial applications are accepted in two rounds: the first deadline is in the fall semester, so that teams that would like to be able to travel or make significant progress on their project during MIT’s January Independent Activities Period can do so. The second deadline is soon after the beginning of the spring semester, allowing teams the option to complete their submission for the IDEAS Competition in a single semester.

The final application is due in mid-April and, while we encourage teams to submit an initial application to receive the support it brings, teams are permitted to bypass this phase and submit only final proposals. In this 10-page document, teams explain in detail how their project meets the three IDEAS criteria. Teams are also encouraged to submit project prototypes, which might include web sites, physical models, or videotapes. Table 2 shows the timeline of events for this year’s competition.

**Table II**

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>8 October</td>
<td>Kick-off event</td>
</tr>
<tr>
<td>12 November</td>
<td>Initial applications due for early development grant</td>
</tr>
<tr>
<td>18 November</td>
<td>Early development grants awarded</td>
</tr>
<tr>
<td>23 October</td>
<td>Team-building dinner</td>
</tr>
<tr>
<td>6 February</td>
<td>Information session and team-building dinner</td>
</tr>
<tr>
<td>3 March</td>
<td>Initial applications due</td>
</tr>
<tr>
<td>10 March</td>
<td>Development grants awarded</td>
</tr>
<tr>
<td>10 April</td>
<td>Final proposals due</td>
</tr>
<tr>
<td>12 April</td>
<td>Judges receive hard copies of applications</td>
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<tr>
<td>23 April</td>
<td>Judges meet to select teams for IDEAS awards</td>
</tr>
<tr>
<td>1 May</td>
<td>Final awards presentation and poster session</td>
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<tr>
<td>27-28 May</td>
<td>Leadership retreat</td>
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</table>

**IDEAS Events**

There are a variety of IDEAS Competition events that help to advertise the competition, recruit students and community members, and promote the competition.
participants, and build teams. The first is a fall kick-off event that features an inspiring guest speaker (Mel King, a leader in community activism, and Woodie Flowers, a pioneer in engineering education, spoke at the 2001 and 2002 kick-off events, respectively) and provides a forum for IDEAS student leaders to explain the goals of the IDEAS Competition and the application process. Soon afterwards, a team-building dinner allows students to discuss their ideas for projects, meet community partners, and recruit teammates. An information session and team-building dinner held in the beginning of the spring semester combines these two events, supports existing teams, and attracts new teams to apply to the competition for the second initial application deadline. The dinners each include a hands-on design activity to serve as an icebreaker and to foster networking and teambuilding.

The final awards presentation and poster session celebrates all participants and highlights teams’ innovative work. All teams who submit a final application are encouraged to present a poster at this event, providing them with an opportunity to publicize their work and their idea. We invite faculty, high-ranking administrators, community members, and representatives from foundations to this event, with the hope that they might provide additional guidance, and possibly financial support, to all teams, particularly those with viable projects who may not be competition winners.

The awards ceremony follows the poster session: the IDEAS Competition and the criteria are explained, a guest speaker whose work demonstrates the ideals of the IDEAS Competition discusses his or her work, and then the awards are announced. At last year’s competition, Ashok Gadgil, of Lawrence Berkeley Labs and Water Health International was the guest speaker; this year it will be Dr. David Irvine-Halliday, founder and president of the Light Up The World Foundation.

The last formal event of the IDEAS calendar is a leadership retreat, aimed at helping the winning teams get a jumpstart on their projects. During the retreat there are workshops on team dynamics, leadership skills, resolving conflict resolution, and cross-cultural training. Several sessions are devoted to helping the teams create both short-term and long-term action plans for their projects. Participants also are given a chance to meet with some of the previous winners to gain from their insight and experiences.

Judging

All teams are judged by three criteria:

- **Innovation:** How is this idea different from existing solutions? Projects do not need to be revolutionary, but they must have a certain level of creativity in their approach; they should not be cookie-cutter copies of existing projects or programs.
- **Feasibility:** Will this idea work? Does the team have the capability to implement their idea?
- **Community Impact:** Will this idea help an under-served community appropriately? Does the team show in-depth understanding of the needs of the community they are trying to help?

In order to assess the applications, highly skilled judges from a wide range of backgrounds are invited to read the applications and participate in the judging process. Judges include professors, administrators, and alumni; leaders from local community organizations; and industry professionals. Judges are selected for their diverse skills and experiences, from highly technical knowledge to strong experience working in the developing world, which allow them to make informed decisions about the applications.

Like the other aspects of the competition, the judging process is intended to provide support, by giving useful advice to every team that applies. Therefore, all judges provide written, anonymous feedback to every team, helping teams that don’t win to understand how to improve and progress, and allowing winning teams to understand why they won and how to proceed.

**IDEAS Teams, Mentors, and Staff Support**

The IDEAS team structure itself creates a built-in support system. We require that one third of each team consists of MIT students, but the other two thirds are unrestricted and might include students in varied disciplines from other schools and universities, faculty and staff, community partners, and professionals in a variety of fields ranging from politics to engineering to management. The goal for every IDEAS team should be to bring together the expertise and initiative that will produce the best result. Regardless of the composition of the team, we strongly encourage all teams to work closely with community partners, so that they can effectively understand the complex community needs that they are working to address.

Teams can augment their skills and knowledge by requesting mentors to help them with their project. The IDEAS staff uses their network of relationships to match teams with mentors, and also works closely with MIT’s Alumni Association to find alumni who might be interested in mentoring teams.

The IDEAS staff also serves as resources to teams by answering questions, offering feedback, and helping to identify what other resources might be available in the community and around the Institute. The IDEAS staff consists of two part-time MIT employees and a team of volunteer students, administrators, and alumni.

**Web Support**

A two-part website is instrumental in supporting and publicizing the IDEAS Competition. The site <http://web.mit.edu/ideas> provides information about the competition, application guidelines, an events calendar, previous winning proposals, project summaries, and a match-making service to help projects find teams and teams...
to find teammates. Our on-line application is located at <http://ideas.mit.edu>, a site that allows teams to update and submit their applications, and also receive feedback about their ideas.

**RESULTS OF THE FIRST IDEAS COMPETITION**

Based on a number of criteria, including competition participation, survey results, and anecdotal evidence, the first IDEAS Competition was highly successful. About 150 team members on 31 teams submitted initial applications; a panel of seven judges selected the six winners from the 22 final applications. Most IDEAS events were attended by 30 to 50 people, a turnout that was higher than anticipated. The final awards ceremony attracted a much larger audience, nearly 200 people, and increased campus-wide awareness of the competition.

**IDEAS Teams**

The scope and range of the winning projects demonstrates the variety of ideas that were developed in the IDEAS Competition:

- **1st Place ($5,000):** A program for implementing locally-produced water treatment systems in Nicaraguan communities.
- **2nd Place ($3,000):** An inexpensive system for detecting gasoline leaks in ground water supplies.
- **3rd Place ($2,000 each):**
  - A program for providing scholarships for junior secondary school students in Ghana.
  - A software system for a local homeless shelter that enables the administration to track specific service usage by their clients.

Additionally, two IDEAS awards were given out as Lemelson International Technology Prizes: ($5,000 each):

- A project to develop an improved water filter for Bangladesh, Nepal, and West Bengal combining microbial decontamination with arsenic removal.
- A project to develop a portable premature infant incubator that does not require electricity.

Of the final applications submitted, twelve were student-initiated projects, seven stemmed from class projects, and three came directly from community requests. Further, the types of innovations were quite varied: nine were wholly technical in nature, four were primarily social innovations, and eight were a combination of social and technical solutions.

We have completed a six-month check-in with each of the winning teams, and they are all progressing well, using the funds to implement their projects. For example, the program for Expediting Access to Standard Education (EASE) has developed the infrastructure for identifying and selecting scholarship candidates. Twenty secondary school students in Ghana have already been sponsored and are now attending secondary school.

Both water projects have traveled to their targeted country and pilot-tested their initial prototypes and technology transfer mechanisms. In Nicaragua, the IDEAS team ran workshops to show local potters how to manufacture the ceramic filters and they have identified and trained a technical to monitor the filters once they are installed in the household. In Nepal, the team members have successfully setup a pilot study where 10 filters were installed in two seriously arsenic-affected villages. About 150 people are currently drinking the clean, filtered water. The initial field test results have been very encouraging, with about 99% arsenic removal.

The design and construction of the gasoline leak detection device is complete, however they have had difficulty in finding partners to implement the technology. Petroleum companies are large and slow to act, yet the IDEAS team remains optimistic that the project will move ahead.

The passive incubator team has found that the technical challenges were greater than they anticipated, and therefore the research and development stage took significantly longer than they expected. They have recently had a breakthrough, however, and now expect to move on to the final details and will soon be able to conduct the final laboratory trials.

The IDEAS team that was working with the local Salvation Army shelter has successfully completed their service-tracking system and it is now fully functional and installed. Plans are underway to implement it at other Salvation Army centers around the country.

**Survey Results**

Although surveys were completed by only a small percentage of participants (~20%), the feedback from the surveys and anecdotal comments from the students show that the first IDEAS Competition was a success. The competition had a positive effect (4.0 out of 5) on students’ views about community service because it “provided the motivation to go from ‘idea’ to action.” In addition, students “felt like [they] were making a real difference” and “realized that community service may be done through innovative approaches, both applying new technology and recycling old concepts.” One student pointed out that “It’s common to have people encourage you to help make a better community. I think [the] IDEAS Competition goes the extra mile by offering to fund a worthwhile project or expose it to potential funders.” Participants were also glad that “MIT cares” and is “willing to get involved.”

The surveys indicated that the students were generally satisfied with the resources offered by the IDEAS Competition but suggested that the deadline for the development grant application should be moved up so that teams have more time to use the funds before the final applications were due. Students also expressed a desire to have a more comprehensive mentoring system.
response to the two-stage application process was positive, as they appreciated the opportunity to receive feedback before the final submission. Changes have been made in the competition format that reflect these suggestions, and their success will be determined from assessments at the end of the second year of the competition.

Students found that the context of the competition encouraged them to think critically about their project and to focus on their implementation plans: “The IDEAS Competition encouraged us to think through our project, and helped us convince ourselves that [our project] was indeed feasible.” In addition, students have been very grateful for the help of mentors that they’ve received: “I can't tell you how valuable the contacts I’ve made through IDEAS functions have been to my team’s project and to our team members. They are contacts that will certainly last past this year’s application deadline.”

It is clear from these excerpts that the short-term effects of the IDEAS Competition have been very positive. Continuing assessment will allow us to determine the effect of IDEAS on the students’ overall educational experience and allow us to test whether this effort is meeting the goals described earlier in this paper.

CHALLENGES AND PLANS FOR THE FUTURE

Based on the experience and feedback from running the first year of the IDEAS Competition, we changed a few key elements for the second year. Most importantly, we offered two initial application deadlines and expanded IDEAS to run during the entire academic year, rather than only in the spring semester, which was the case the first year. We hope that this extension will allow teams to take make better use of their development grants. We also maintained a spring deadline for teams that prefer to spend only one semester on IDEAS.

In addition, we revised the judging process in order to expand the knowledge base of the reviewers and reduce the workload for each judge. Hence, we have invited more judges to evaluate the applications, provided the judges with more time to do the evaluations, and given each judge fewer applications to read. Judges now have two weekends to do their reading and, while each judge reviews all of the project summaries, they are required to read no more than 10 full applications. One challenge that we have worked to overcome is maintaining a high level of commitment among students on the IDEAS organizational staff. In the initial year of the competition, we had only four student organizers who remained involved with the IDEAS Competition. This year, we have assembled a team of about a dozen highly committed students, including new faces, former IDEAS team members, and continuing staff members. They bring fresh ideas and energy to the competition and have allowed us to thrive. It is therefore critical that we continue to involve students at a high level by tapping into their eagerness to help and their passion to promote community service on campus.

Another challenge we face is that our initial funding for the IDEAS Competition was grant-based, covering only the first two years of operation. During this time we have developed resources that will allow the competition to continue on an annual basis. We have focused on two types of support: alumni donations and corporate sponsorship. We have established a fund where alumni can donate money to support the competition and have also established a sponsorship structure for corporate donations. While maintaining our funding will be an ongoing challenge, the clear benefits for students and communities alike have made this venture an appealing one for many donors.

As we continue to develop, we hope that the IDEAS Competition will grow on campus and become an established part of MIT’s culture. To a certain degree, this has begun to happen, as is evidenced by the fact that one of the residence halls recently ran a parody of the competition, “The Bad Ideas Competition.” We also have a vision to spread beyond our own campus, encouraging cooperative teams with students from several universities, and by assisting other colleges and universities to set up and run similar competitions.

CONCLUSION

The excitement that students express about the IDEAS Competition suggests that it sparks in them a desire to innovate in the real world, for communities that are truly in need of their help. Communities locally and internationally are beginning to receive valuable assistance and, in the process, they are helping our students to understand their potential. We are forging links between current students, alumni and community partners as they work together to plan and implement their projects. As the competition matures, we expect a stronger partnership to develop among these groups, leading to even more successful projects and more fulfilling experiences for all involved.

The funding that teams receive through the IDEAS Competition is providing them access to real-world problem-solving experiences that they would not otherwise have. In addition, IDEAS is creating a community of students at MIT interested in using their skills to benefit others. It provides a venue for students to showcase their work and to take pride in what they are able to accomplish.

Although in its early stages, we believe that the IDEAS Competition is having a profound and positive effect on the MIT campus. Students are receiving encouragement to make an impact in the world, starting to believe that they can, and taking steps to do so. They are learning first-hand about innovation and entrepreneurship by directly applying their academic skills to help communities around the world.
ACKNOWLEDGMENT

The generosity of the following sponsors has made the IDEAS Competition possible:
- d’Arbeloff Fund for Excellence in Education
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- Silicon Spice Founders Fund
- The Boeing Company
- Ford Motor Company
- MIT Community Service Fund

The authors would also like to thank the energetic and inspiring student staff of the IDEAS Competition—without their help, IDEAS would not be a success.

REFERENCES
