Let's Build a College Level Technology Club

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I. Introduction

This paper covers the history of and planning for the formation a Technology Club at the University of Cincinnati Clermont. The idea for such a project was hatched during discussions about existing high technology programs at the college. A club to eventually serve technological inquiry and experimentation across the various curricula was a natural extension of offerings at the college. This project, currently in an early stage of evolution, promises to be a very exciting and challenging undertaking.

UC Clermont was founded in 1972 as an open-access two-year branch campus of the University of Cincinnati. Its service area includes the counties to the immediate east of Cincinnati. The College resides in one those counties, Clermont County. This county has experienced the largest rate of growth in terms of population and industrial development of any county in the state of Ohio. Some of the industries represented in the county such as Structural Dynamics Research Corporation, Ford motor Company and Cincinnati Milacron are on the cutting edge of technology. At its inception UC Clermont offered two-year transfer programs such as liberal arts and business. Technology courses were added later.

Clermont currently offers courses in electrical engineering technology, computer systems support, physics, chemistry, biology and computer information systems. Associate degrees and/or certificates are available in several of these areas. While a technology club would obviously serve these disciplines well, technology really knows no boundaries and can be useful to students in business and humanities too. The club should have something for anybody who has an interest in being involved.

II. An Idea is Born

In traditional technical courses students frequently express interest in topics outside the existing program. For example a couple of students inquired about the possibility of using a PC parallel port to access a data acquisition system. Students from the electrical engineering technology program wanted to use a PC to test some complex electronic circuitry on a breadboard. Computer information

systems students expressed a desire to design user-friendly input/output screens for projects using Visual Basic and/or Visual C++.

Students also inquired about building devices to help the handicapped. This is such a gratifying gesture of good will. Young people do in fact care about the world and its problems and solutions. If the club does nothing else but this one item, it will be worthwhile and have achieved the highest potential.

An assessment of these requests indicated very clearly that students were interested in technology related to, but not explicitly included in, existing courses. Faculty members associated with these programs were absolutely delighted and encouraged participation on an informal basis.

The possibility of a club to serve the growing interest seemed to be an effective method to provide an orderly process to encourage scientific discovery and channel this creativity into a useful purpose.

III.   A Plan for Action

The path to the realization of the club consists of several steps. Some of these are truly giant in size and include:

A. Building a Case for a Club
B. Emulate Other Successful Clubs at the College
C. Addressing the College Commuter Situation
D. Faculty Advisors
E. Completing the Official College Forms
F. Inform the Faculty and Staff
G. Club Objectives
H. Budget Considerations
I. Facilities Needed
J. Equipment Resources
K. Core Participants
L. Let the World Know
M. The First Club Meeting
N. Officially Open for Business
O. Periodic Reviews and Assessments of Operations
P. Conclusions

The remaining part of this paper will discuss each of these items in some detail.

IV.   Building a Case for a Club

To have a functioning club participants will obviously be needed. An informal, somewhat low-key survey was conducted in selected classes over a period of time. The objective here was to confirm that sufficient interest was present to

justify starting a club. Full-scale advertising for open membership would follow later.

Results of the survey were gratifying. Several high scholastic achiever type students, who will probably form the core membership, were anxious to get things going. This energy level will be most helpful and must be directed in the proper channels from time to time.

Several benefits can reasonable be expected to accrue to the student participants. These include:

- Extended contacts with faculty and staff
- Involvement with "real world" problems
- Develop habits for thinking outside of traditional academic boundaries
- Build professional networking
- Work in a team arrangement
- Improve technical skills
- Sharpen critical thinking/problem solving skills
- Experience peer level interactions
- Provide an item for use on resumes
- Obtain discount parts/services/components
- Repair/upgrade own equipment
- Build, rather than buy, own equipment
- Less stressful environment than classroom
- Links with local industry and businesses

With this material in hand, we're "off to the races."

V.   Emulate Other Successful Clubs at the College

Clermont has several outstanding clubs. Perhaps one of the most visible and successful clubs is the Art Club. This group is very active and sponsors a variety of programs throughout each year. We have discussed the operation with the advisors and student officers. A sound club structure, a variety of projects, College support and the desirability to let students run the club are basic operational principles. Publicizing student achievements is vitally important too.

Every College has at least one functioning club that can be copied. Take advantage of it. Also inquire about clubs that have failed. They can provide valuable information about items that should not be attempted. Every college has an ample supply of these clubs too.

VI.   Addressing the College Commuter Situation

Clermont is a commuter school and includes a large segment of students who work at full-time jobs during the day and/or have family responsibilities. These

situations can pose interesting and challenging problems for out of class activities. Having early evening and weekend hours of operation is one possible solution. Access to labs during quarter breaks should be considered. Partitioning projects so that students can work at home if they wish should also be included in the plan.

VII.   Faculty Advisors

Two instructors, Dr. Michael Vislocky and Cecil E. Beeson, have volunteered to "get the ball rolling." Dr. V is an instructor of mathematics at Clermont and brings a wealth of experience in the academic world to this project. Mr. B teaches computer systems support and electrical engineering technology courses and recently came to the full-time faculty from industry. This unique blend of talent should be very useful to provide structure and functionality as we move forward.

VIII.   Completing the Official College Forms

Clermont actually requires only one form and it can be completed quickly. It specifies the name, purpose and proposed bylaws of the group. Names of advisors are also entered. A minimum of five (5) students must be willing to form the nucleus of the new organization. The form is reviewed by appropriate administration personnel and reviewed by the Student Senate.

IX.   Inform the Faculty and Staff

This is a very important item. Faculty and staff can provide several valuable services. Their business and technical expertise can help identify and thereby avoid and overcome obstacles during early planning. They can serve as a fantastic source of advertising. They can provide an advising role. Suffice to say that they are important and must be included throughout the entire process.

X.   Club Objectives

Statement of high-level objectives is actually one of the most important tasks. These form the core of the entire project. Our list includes the following:

- Provide an informal opportunity for student participation in technology
- Stress the uses of technology in "real world" situations
- Emphasize the integration of technology across academic disciplines
- Provide membership to all students who are interested
- Provide tutorials as needed
- Provide opportunities to develop effective teambuilding skills
- Provide opportunities to recognize interdependence of disciplines
- Encourage students to learn through experimentation
- Provide a forum to learn from failures
- Encourage students to realize that every solution is a solution to some problem and that this awareness leads to innovation

- Encourage student and faculty interaction outside of the classroom environment
- Maximize faculty participation
- Build and maintain contacts with industry and businesses

XI. Budget Considerations

We are planning to use existing College equipment. No real initial budget is anticipated. Over a period of time this will certainly change and we will submit an appropriate request.

XII. Facilities Needed

Use of a laboratory type room is the most obvious first facility needed. Tables and access to a wide array of technical equipment will be necessary. Appropriate room security is a must. A method to recognize College owned equipment from student owned equipment must be devised and enforced.

XIII. Equipment Resources

The following equipment represents a minimum requirement:

- Multi-meters
- Oscilloscopes
- PCs
- Simulation and circuit design software
- Access to the Internet
- A variety of tools, e.g., pliers, screwdrivers
- A variety of integrated circuit chips
- Breadboards
- Logic probes
- Small gauge solid copper wire

We fully expect to discover very quickly that something important has been overlooked.

XIV. Core Participants

To get off the ground every club must have core of interested, dedicated parties. These people actually determine the trajectory and set the concept into motion. Every school has this resource available. Faculty must identify a few students and harness this talent and energy. These people also serve a valuable service of advertising. You will get a greater quantity of quality members through this route than any other. Make wise use of it. We also expect to get ample publicity through cooperation of the College Marketing and Public Relations department.

XV.   Let the World Know

At some point this monster that has been created will be ready for the world to discover. We are planning a Technology Awareness Day at the school. We will also participate in the college wide Career Awareness Day. Several student projects and services will be profiled. The emphasis should be on student achievements, not faculty work. Peer attraction is many orders of magnitude higher than faculty attraction. Membership applications will, of course, be available.

A particular project should probably serve as a focal point for the day. For several reasons we have selected a robotic project for this role. Throughout history robots have gained a special mystical quality and are very visible objects. Also construction crosses several academic lines – electrical engineering, mechanical engineering, computer software, artificial intelligence, economics, user interfacing, trigonometry – to name a few.

Flyers will be posted throughout the school. An article will be placed in the College newspaper. A short message will also be added to the TV monitors that are located throughout the College hallways. Marketing and Public Relations will assist us in this arena.

XVI. The First Club Meeting

Finally the first official meeting will be conducted and will be officiated by the advisors. Several important issues must be covered:

- Welcoming "sermon"
- Purpose of club
- Operational details
- Election of officers (president, vice president, treasurer, secretary)
- Meeting schedule
- Lab area safety concerns
- Brainstorming

XVII. Officially Open for Business

With the first meeting behind us the club has achieved an entity status within the College and we're ready to do some really serious business.

XVIII. Periodic Reviews and Assessments of Operations

No project should be started without some mechanism for monitoring operations. This club is no exception. Planning periodic assessments and providing necessary corrective actions will assist us as we evolve.

Parameters that should be checked at the initial 6 month point and annually thereafter include:

- Number of students participation
- Growth rate of student participation
- Results of formal feedback from student members
- Feedback from other faculty members
- Number of projects started/completed
- Budget considerations
- Donations and grants obtained
- Level of participation of area business and industry
- Hours of operation
- Degree of support by College administration
- Level and effectiveness of advertising

If the above are generally positive, we continue going forward and make minimal changes. If there are significant factors, some serious soul searching must be undertaken and immediate corrective actions started.

A formal assessment plan is required by the College and is being developed around the above items.

XIX. Conclusions

The concept of an interdisciplinary technology-based club is very new at UC Clermont. By any standard of measurement it will be both challenging and exciting to plan and develop.

Benefits of a club to students, faculty and staff are many and varied and include:

- Develop a new perspective on the characteristics, relevance and uses of technology in society
- Increase interactions between and among students, faculty and staff
- Assist students with transition from a 2-year college to the 4-year college
- Generate favorable publicity for the College
- Serve as a recruiting tool for new students to the College
- Extend topics covered in the normal classroom environment
- Opportunity to apply classroom knowledge to "real world" projects
- Provide participants with an opportunity to develop new interests
- Become a research laboratory
- Generate new links with area businesses and industry

The idea for a Technology Club was conceived in the Fall 2000. We expect to commence business during the Spring 2001 term.

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