200002256-6

24 APR 2000

PROJECT BASED EDUCATION SYSTEM

Field of the invention

This invention relates to project based education and refers particularly, though not exclusively, to a project based education system where a structured programme is provided to enable students to learn while at the same time producing commercial products.

Definitions

Throughout this specification, a reference to a product is to include a reference to a service.

Throughout this specification, a reference to a student is to include a reference to a full time or part time student at any level or in any form including primary, secondary and tertiary, no matter their age, and includes such a student undergoing training or retraining.

Throughout this specification, reference to a teacher is to include a reference to professor, associate professor, lecturer, tutor, laboratory supervisor and laboratory technician, both within and outside the relevant education institution, as well as a more senior student acting in the capacity of a teacher;

Reference to person is to include a reference to persons, bodies corporate, bodies politic, educational institutions, and unincorporated organizations.

Background to the Invention

The present education system in Singapore in particular, as well as the world in general, has been developed to the stage where although excellent statistical results are achieved, there are many problems.

The present system produces very able students. There is no problem producing a large number of straight A's students. In fact, the average score of students is getting better year after year. This is very productive, but there is lack of creativity amongst the students. They are examination smart students, but not creative.

There is too much focus on academic knowledge and skill and very little attention in creative ones, such as the Art subjects including art, music, dance and so forth. Art is taught until the level of Secondary 2. Music is confined to those skilled and talented in music. There is little space for creative thought and activities after that. The present system gives students the feeling that Art, Social Studies or "creativity" is not so important.

The school syllabus is rigid. There is no fun in taking subjects. Everyone is expected to study hard for a better grade. If you are smart enough, you can do well in it, whether you like it or not. Most students do not enjoy doing a subject for the subject itself. It is possible to create games in subjects, eg, mathematical games, but this is not encouraged.

There is no interactivity in the current education system. Only a "one-way" communication from the teacher to the student, and not vice versa. Students do not provide feedback to teacher and teachers do not learn from students. Also, there is little interaction between subjects so that what a student learns in one subject may not assist them in any other subject.

The present system does not cater to the growing mind of the young. Students try to seek challenges and excitement, constantly letting their inner selves out in another form. This can result in social problems such as, for example, creating vandalism, causing fights in schools, and hacking into computer systems. Furthermore, it is not in touch with Nature. There is so much we can learn from Nature. The changes in it, and how our lives are effected by Nature.

Retraining is needed for our workers to stay able and productive. Similarly, our school syllabus should also stay relevant with our time. This should be explained to students to let them understand the need to adapt to new environments.

Most students are under so much pressure and stress to achieve good grades. After their usual time in school, parents may force them to revise their school work, have additional tuition for the same subjects. Students become tired of it and their minds can become stagnant. Students also try to escape the stress by getting into bad company, creating social problems, and trying to get in touch with the latest trends.

The present education system works by teaching in large numbers. No attention is given to groups, or individuals. Any smart individual may be overlooked. There is no monitoring of the IQ and EQ of individual students. Their IQ and EQ levels are not tested. This should be done at least once a year, as different people develop at different stages. There is no attempt to study the student's individual ability or talent and what they are good at, and are interested in. The student's potential, their inner ability, should be developed.

There is no emphasis on teamwork resulting in the regular situation of one individual dominating over the rest, thereby suppressing individual expression.

Quite often, there is no rapport between the teacher and the student. There is no trust. The barrier between the student and teacher is significant.

There is little training on presentation of results. Submitting just raw data stifles capability, and can hinder improvement and future development. There is no depth and angle to the objective of most school syllabus, only studying systematically.

The only examinations are at mid year and year end. Students should be taught to carry on a project from beginning until the end, and to nurture their work with responsibility. There is a lack of understanding of a lesson's applicability in the real world. This should be taught at a more practical angle. There is also a lack of recognition and appreciation for the majority, except for the top students. Every student need to be appraised for their good work, and be guided and developed from there.

In many years, tasks assigned to students include projects. These projects have been many and varied, with projects quite often being repeated from year to year. Although performing the project may result in the student learning something about the subject of the project, the student would not learn about the practical and commercial implications of the subject of the project. Furthermore, the selection of project subject was quite random and there has been no structure in place to select appropriate projects that would allow students to not only learn about the content of the project, but to also learn at the practical level, and consider commercial implications (including business) of the subject of the project.

Also, most projects are discarded after assessment and therefore the project itself is forgotten after a relatively short time. Projects do not continue after the student or students hand the project to a teacher for assessment. There

is no ongoing assessment, and the project cannot continue beyond a short, defined period.

Most schools use work experience as a project. Students are sent to varying workplaces to gain experience of the "real world". Some students go to factories where they may be on a processing line; or to a automobile workshop; or an office. The knowledge gained is superficial, and there is no common ground to grade students as teachers do not know where the students went, what they did, the knowledge gained, or the competency of the student's work. In the end, it is a waste of time, trouble and effort.

It is therefore the principal object of the present invention to provide a project based education system wherein a technique and structure are provided to enable students to learn while at the same time producing commercially viable results.

Summary of the Invention

With the above and other objects in mind, the present invention provides a project based education system including an administration person to oversee and administer the system, a project leader having expertise in an area of study in which a project is to be performed, at least one educational institution to host the project, at least one teacher to organise and run the project, and at least one student to run the project, the project being related to an educational course of the student and the at least one educational institution; wherein the project leader instructs the at least one teacher in the area of study and how to run the project, and the at least one teacher in turn instructs the at least one student in the area of study and how to implement, run and operate the project, and

supervises the at least one student in the implementation, running and operation of the project; any results of the project being passed to a marketing person for commercialization.

Preferably, the administration person and the marketing person are the same person. Alternatively, they may be different.

Advantageously, the project leader first submits an outline of the project to the administration person prior to commencing to instruct the at least one teacher.

The commercialization may include offering the results for sale. The offering for sale may be over a wide area network. The wide area network may be the internet.

Upon the results of the project being sold, the profits from the sale may be passed to the administration person for distribution. The distribution may be to the administration person, the marketing person, the project leader, and the at least one school. A part of the distribution to the at least one school is preferably passed to the at least one teacher, and the at least one student.

The instruction of the at least one teacher is preferably organised by the administration person, and the at least one teacher is preferably employed by the school. The at least one student is normally studying at the at least one school, and the at least one teacher regularly teaches the at least one student in the area of study.

The instruction of the at least one teacher by the project leader, and the at least one student by the at least one teacher, are normally in different locations and at different times.

The project may be run across at least two tiers of an education structure. The education structure may include primary, secondary and tertiary education.

Preferably, the project produces intellectual capital. If desired, the running of the project and the intellectual capital may be transferred to an incorporated body. The incorporated body may be a public company.

If desired, a student undergoing tertiary education may be the project leader for a project at the secondary or primary education tier, and the student may also be involved in the project at the tertiary tier.

Additionally, a student undergoing secondary education may be the project leader for a project at the primary education tier, and the student may be involved in the project at the secondary education tier.

Description of the Drawings

In order that the invention may be fully understood and readily put into practical effect, there shall now be described a preferred form of the present invention, the description being with reference to the accompanying illustrative drawings in which:

Figure 1 is a representation of the structure of the present invention;

Figure 2 is a representation of one of the elements of the structure of Figure 1;

Figure 3 is a flow chart depicting the operation of the element of Figure 2; and

Figure 4 is a flow chart of the transfer of knowledge.

Description of Preferred Embodiment

To first refer to Figure 1, there is shown a structural chart for the structure of the present invention. An organization company is responsible for the organization of the structure. The organization company provides the training of teachers in the implementation of the present invention. The organization company is managed by a board of councilors.

This system inculcates the use of content knowledge into life long learning through creativity, thinking and skill development. Through this process, systematic project work is carried out and commercially viable products or inventions will be produced.

The system is based on the untapped intelligence and abundance energy of the total education system – students, their parents, the teachers, the schools and institutions, and society as a whole. It is at an early stage, when their physical brain is developing rapidly and able to absorb new knowledge and information from wherever and whoever possible, that younger minds quite often ask the question "why don't we". The invention's system will enable them to answer many such questions by themselves.

By channeling all relevant information and knowledge to the students, it is possible to nurture them as they grow, and to guide their raw energy and drive to focus on what they are good at, and what they like best. It is the constant challenging of their inquisitive young minds, the proper guidance of their footsteps, and the sharing of their goals and ambition of the young individual, in a mutually respectful environment, which can lead to meaningful results and individual development.

With the system, the organization company ("Company") will select a project leader who is the initiator and or business manager to implement the proposed idea. The Company will study the idea by its board of council members in terms of educational benefits, creativity, entrepreneur skills, practicality, commercial values, social values, and other potential values. The Company will manage the project like a business. All selected teachers will access the area of discipline in which it is believed they can make a contribution. The selected students will participate in the particular discipline as project work that will be assessed like a subject. These students will be graded with a new composition by the commercial returns and consumer applicability, particularly through the internet.

Auxiliary participants are also welcome. These may include parents, members of the public or volunteers from the industrial, commercial or academic arenas, it is preferred for the project to be conducted as much as possible through the internet, and the final products or services are preferably ones that can be marketed through the internet.

The Company will operate as an incubator for creative ideas, cultivate new entrepreneurs from participant students as early as from the primary school level through to tertiary levels. The Company will be able to identify talent early, groom them and keep them in their home country, as their growth will be continuous, and exposure to the latest technologies borderless world may be unlimited. Foreign talent will be invited and attracted to the system. They will work and interact with the Company from an early age, physically or virtually.

Market demand will be identified on a global scale. Projects may be initiated by those already involve or from anyone, anywhere. These ideas will be passed for assessment by the board of council members in the terms already outlined above.

All selected ideas will be put into action. A business unit is then established, with the idea creator preferably being the project leader. They will be given all necessary assistance to carry out the idea from initiation to fruition. The idea will be the property of the Company.

All schools in the system will be bound on a contractual basis with a profit sharing agreement. The teachers come from the schools, and the teacher may also enjoy a return from the commercial returns of the system. The schools will need to pay a fee to participate in the project. The schools may also need to pay for all the materials used, plus a consultancy fee for the project.

The project leader will be responsible for the training of the teachers, students and supervisors and to supervise them throughout the program. The training of the teachers will be in the technology of the project area, how to impart that knowledge to the students, and the correct implementation, running, and assessment of the project. The technology training may require significant tertiary-level studies by the teacher to learn the advanced techniques required for more senior students. Therefore, the technical knowledge of the teacher is advanced.

In the case of orchid hybridization, this may include basic training such as gardening principles, pollination biology and the genetics of breeding. Further training in more advanced science areas such as, for example, aseptic plant tissue culture may also be taught.

Other aspects for teacher training may include the use of computers and the internet, marketing of products, sales, project management, and the like.

After graduation from training, the teachers then return to their schools and start to impart their knowledge to the selected students. These students will have to use their newly acquired knowledge creatively and aggressively.

A point system may be incorporated in the system. The students will be graded on the project work based on creativity, entrepreneur skills, risk level taken, practicality, commercial returns, social benefits, its extensiveness for the products or services to be able to reach consumers (particularly worldwide), and the utilization of the internet. Teachers and schools will also be graded on these aspects.

The Company will preferably create a new portal for the system. All participating members will preferably subscribe to this new portal for access to the internet. In return, a profit sharing package will be arranged for all traffic using the portal. These additional charges will be shared among all concerned, including the relevant telecommunications company and/or internet service provider.

Each project's duration may last for less than two years, or from two to five years. The students may also carry the project from primary to secondary to tertiary levels or beyond. There should be no time limit to the evolution of what the students are expected to achieve and learn. All participating members are given a choice to bring their project to their next educational level, lead the project, start another one with a fresh new idea, or to return to an earlier educational level to lead a project in which they were previously involved. For example, at the primary level, the project may be the breeding of new orchid varieties. By secondary level, the project could become more adventuresome and more complex varieties bred. At the tertiary level, the project could involve genetic cloning and manipulation to produce even more exotic varieties.

All participants' particulars and performance will be kept confidential. This acquired information tracks their ability and skills, performance and knowledge, intelligence and perspective of the subject within and without, from their first inception and progressively, for future endeavours. A monitor system tracks all projects, their development and success and application.

The Company will give research and development administrative backup support to all participants, and will update them with the latest event in the area of the projects and connect them with anyone specializing in that discipline. For example, a Singapore secondary school student may work interactively with a Mathematics Professor in the USA, and vice versa.

The Company with its council members, affiliated and non-affiliated teachers can refine the product and services together with the project initiator before and after its commercialization phase. All members can participate in this refinement process interactively.

Products or services may be "spun off" to run on their own like a business unit, where the project initiator will be the business manager and partner of the new entity. The Company may also assist the business to go for public listing, if additional funding and expansion is required. All commercial returns will be shared and be returned to the operations of the system. The Company offers management and administrative support whenever necessary.

By using the internet, anyone in the world can also access the system to advise if they have a task on hand and wish to use the system to solve their needs. For individual products or services, the global customer can input how they want the product, and the Company will access this from its database and prepare the product. In the case of a new hybrid orchid, for example, this may be a new colour, pattern, size or any combination of them. The final product will be

shipped to the client with a CV of the plant, its creator, a photograph of the plant, a certificate for the plant, and be named after a person. The plant may also have a DNA fingerprint ensuring the customer that his unique plant is customized to their request, and is the only one available in the world.

The database can be opened to orchid growers that want to buy from existing stock, or to place an order to create a new plant. This selection may become a cut flower reproduced for the mass market.

The training of the teachers and then the students will initially, be in the basic principles of gardening, then pollination biology and the genetics of breeding. They can learn the techniques (from basic to advanced) of aseptic plant tissue culture, and be able to observe the germination of new orchid seeds in a test tube. In this way, the knowledge of the teachers is increased, as is the knowledge of the students.

The Company can cater to a B2C (Business to Customer) market and B2B (Business to Business) market. According to analysts, close to 95% of all B2C businesses are predicted to fail. The remaining 5% will flourish. The Company with its global members, and new global customers, will stand a greater chance of becoming a major global market player.

It is preferred to have every student in the project based education system. They should be working through the portal for its content, learning interactively with a mentor over the internet in a broad base of subjects towards a commercially applicable product. It allows them a place to learn at their own pace, constantly motivated by their own ability, and for them to be engaged in our society and the commercial world from a young age. This will attract them into the system, and maintain their presence thereafter.

Invited talent will be tasked to lead in selected fields. The Company can support that person with all the administrative assistance throughout the entire duration of the project, and can keep a database of all the schools, teachers and students. This database will be able to cater a large user base of, for example, 600,000 users. The project leader will be teamed with selected teachers and students to participate in the project.

Project centers will be set up in various locations using existing school's amenities. The school members will provide all the support needed for the project, based on the Company's standard set-up operating procedures and guidelines. Several schools may be grouped in a specific location for economy of scale, preferably at a better equipped school.

The project initiator/leader may not even have to be physically at the school for certain disciplines, eg, IT, graphics.

The initiator will ensure that a project continues correctly and will monitor progress. They can give the project initiator full autonomy, after observation. Due to the speed of technology development, it is important that the initiator keep up to date in their area of discipline, and remain ahead of their peers.

The Company, together with the school, will administer the resultant products and services. They will make the products/services available through the internet for the B2C and/or B2B market. The school will be able to assess the teachers/students based on their school's guidelines.

All profit will be shared among the participants such as, for example:

Initiator	15 - 20%
School	25 – 50%
Company	30 – 60%

The distribution to the school may include a distribution to the teachers and/or students. Such a distribution is preferably not in cash but in kind such as, for example, book vouchers, scholarships, travel vouchers (domestic and international), attendance and conferences and seminars, new equipment such as computers, sports equipment and so forth.

The increment of share will be based on the number of projects or success of the project, completed by the Initiator and School (Teachers/Students).

All project initiators will be given the option to spin off the project into a start up company to explore the full potential of the shared results. They will be given the chance to be the Chief Executive Officer of the new company, if the 12 council members so decide.

The projects' success will not depend on the existence of a single initiator. The Company may ensure that there will be a supporting leader from the board of councilors to take over the lead when the need arises, or to bring in new members. If the project involves teachers and students, the Company can decide if it needs to appoint a student as the project leader.

It will help the students to start off on projects relevant to the commercial world. Students will also initially learn the simple techniques of the technology of the project. The Company can set up several centers in different locations to disseminate this teaching concepts.

The profits from the sales can be channeled back to the respective school for sponsoring and upgrading the students' programmes or projects on a sharing basis with the Initiator.

Parents can also join in the project as volunteer members. This may help lighten workloads.

By adopting this system, there is a systematic approach to education by a structured programme of projects over all levels, rather than the ad-hoc manner that is used at present. Being a team based project, students and teachers interact to enable them all to learn from each other as the project progresses. In this way, a teacher can gain a far more accurate assessment of the abilities and capabilities of an individual student. Furthermore, the nature of the project and the work to be performed can be tailored to the expectations of the participants, particularly the school, as well as their varying needs. This may include the quality of the work and products produced, and the quality of work performance by the students. In addition, the teachers will know what the students need to learn from the project, and what the student have learnt this last aspect is most important.

As the students learn not only the technology or other skills for a project but also the practical application of that technology/skill in producing commercial projects, they can see that what they are learning has application in the real world.

Furthermore, they do this in what to them is a familiar environment in conjunction with their friends and classmates. This contrasts with the present system of sending student to the workplace for "work experience".

As the results of the project are sold, there will be feedback from customers so the appraisal of the results is not only from teachers, but also the consuming public. This creates an interactive environment where all can learn from each other. There will also be relatively uniform standards applied to all participants.

It also encourages an entrepreneurial approach, particularly in the use of the internet, and the use of the creativity of the individual student, as well as the collective creativity of the team. As the results of the project are to be sold, the

students have to accept the responsibility for conducting the project in a proper, correct and timely manner. This also results in them becoming aware of the basics of running a business, and the moral, social and team responsibility that goes with it.

The team will have to approach any problem they encounter as a team and solve the problems. All members of the team can contribute.

Although a project must be run in a proper manner, there is flexibility in how each team can reach its objectives. Furthermore, as the results must be commercially acceptable, the presentation of the results, and the communication of the results, will be improved.

Therefore, students can enjoy what they are doing as it is a real life situation, not a mere academic exercise. This enables students to face challenges, and to appreciate the application of new technologies. The speed of change of technologies will also be better understood by students.

Each school principal will be able to see a difference in the school having control of project work instead of this being the responsibility of employers at whose businesses the students are sent. The school will also have a grading system to configure to meet ability driven education requirements and guidelines.

* C L M S *

The Claims

1. A project based education system including an administration person to oversee and administer the system, a project leader having expertise in an area of study in which the project is to be performed, at least one educational institution to host the project, at least one teacher to organise and run the project, and at least one student to operate the project, the project being related to an educational course of the student and the at least one educational institution; and wherein the project leader instructs the at least one teacher in the area of study and how to run the project, and the at least one teacher in turn instructs the at least one student in the area of study and how to implement, run and operate the project, and supervises the at least one student in the implementation, running and operation of the project; any results of the project being passed to a marketing person for commercialization.

2. A system as claimed in claim 1, wherein the administration person and the marketing person are the same person.

3. A system as claimed in claim 1, wherein the administration person and the marketing person are different.

4. A system as claimed in any one of claims 1 to 3, wherein the project leader first submits an outline of the project to the administration person prior to commencing to instruct the at least one teacher.

5. A system as claimed in any one of claims 1 to 4, wherein the commercialization includes offering the results for sale.

6. A system as claimed in claim 5, wherein the offering for sale is over a wide area network.

7. A system as claimed in claim 6, wherein the wide area network is the internet.

8. A system as claimed in any one of claims 5 to 7, wherein upon the results of the project being sold, the profits from the sale are passed to the administration person for distribution.

9. A system as claimed in claim 8, wherein the distribution is to the administration person, the marketing person, the project leader, and the at least one school.

10. A system as claimed in claim 9, wherein a part of the distribution to the at least one school is passed to the at least one teacher, and the at least one student.

11. A system as claimed in any one of claims 1 to 10, wherein the instruction of the at least one teacher is organised by the administration person.

12. A system as claimed in any one of claims 1 to 11 wherein the at least one teacher is employed by the school.

13. A system as claimed in any one of claims 1 to 12, wherein the at least one student is studying at the at least one school.

14. A system as claimed in claim 13, wherein the at least one teacher regularly teaches the at least one student in the area of study.

15. A system as claimed in any one of claims 1 to 13, wherein the instruction of the at least one teacher by the project leader, and the at least one student by the at least one teacher, are in different location and at different times.

16. A system as claimed in any one of claims 1 to 15, wherein the project is run across at least two tiers of an education structure.

17. A system as claimed in claim 16, wherein the education structure includes primary, secondary and tertiary education.

18. A system as claimed in any one of claims 1 to 17, wherein the project produces intellectual capital.

19. A system as claimed in claim 18, wherein the running of the project and the intellectual capital is transferred to an incorporated body.

20. A system as claimed in claim 19, wherein the incorporated body is a public company.

21. A system as claimed in claim 17, wherein a student undergoing tertiary education is the project leader for a project at the secondary or primary education tier.

22. A system as claimed in claim 21, wherein the student is also involved in the project at the tertiary tier.

23. A system as claimed in claim 17, wherein a student undergoing secondary education is the project leader for a project at the primary education tier.

24. A system as claimed in claim 23, wherein the student is involved in the project at the secondary education tier.

25. A project based education system having a systematic, predesigned technique to enable all knowledge required to operate the project to be able to be reproduced in all those persons involved in the operation of the project, the project being able to produce a commercially viable result.

26. A system as claimed in claim 25, wherein the knowledge is of a project leader who passes the knowledge to at least one teacher.

27. A system as claimed in claim 26, wherein the at least one teacher passes the knowledge to at least one student.

28. A system as claimed in claim 27, wherein the at least one student provides feedback to the at least one teacher to provide increased knowledge by the at least one teacher.

29. A system as claimed in any one of claims 26 to 28, wherein the at least one teacher provides feedback to the project leader to provide expanded knowledge by the project leader.

30. A system as claimed in claim 28, wherein the increased knowledge is passed to the project leader by the at least one teacher.

31. A systems as claimed in claim 29, wherein the expanded knowledge is passed to the at least one teacher, who in turn passes it on to the at least one student.