The Risks and Opportunities of the University of Science and Technology: The Concept and Application of School Effectiveness

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ABSTRACT

In recent years, subject to changes in the industrial structure, outward manufacturers, the unemployment rate has increased steadily, and the birth rate leads to domestic human structural imbalance, so that universities faced unprecedented challenges. Among the private university of science and technology is the most serious. The crisis probably be divided into the internal factors about school operations and the external factors about social environment.

In this study, we will use Customer Relationship Management (CRM) to investigate the relationship between schools, students and alumni. And try to use a degree cloud management system as a classroom and alumni database that combines CRM concepts. This article will explore its benefits for school development.

Through the database, it could create personalized service and provide scheduled messages by the computer screening. It also could provide the latest information and services instantly. School could establish a Joint Service Center by the database's computer and telephone to enhance connectivity between the school administration and alumni or students to help improve the school service satisfaction. It will also enhance students and alumni's loyalty to the school, And it will establish the school's reputation to enhance competitiveness.

Keywords: technical and vocational colleges, customer relationship management, joint service center, student database

THE CRISIS OF THE PRIVATE UNIVERSITY OF TECHNOLOGY

In the past the education system in Taiwan, private technical and vocational schools play a very important role. It meets the needs of personnel training, and provides educational opportunities to make education universal in the community. In particular, technical and vocational education was the heyday of the early 1970s to the 1980s in Taiwan.

In recent years, subject to changes in the industrial structure, outward manufacturers, the unemployment rate has increased steadily, and the birth rate leads to domestic human structural imbalance, so that universities faced unprecedented challenges. Among the private university of science and technology is the most serious. The crisis probably be divided into the internal factors about school operations and the external factors about social environment. The external factors include:

1. Impact of low birth rate: According to a report published by the Ministry of Education Statistics Department, "the number of college first grade prediction": In 2016, technical and vocational school students about 138,000 people, and dropped to fewer than 100,000 people in 2024, and it will be 85,000 people in 2028 (Jin Yun Wen, 2014).
2. The employment environment: In recent years, youth unemployment is a particularly serious problem. Since employers prefer to hire workers with work experience and job skills. Because Taiwan worsening economic conditions gradually, employers will be more conservative companies. Looking for a job is a big challenge for newcomers to the community. In this situation, the school and the workplace convergence mechanism as well as training youth with employability and competitiveness is more important.

3. Massification and universalization of higher education in Taiwan: According to research conducted in 1973 by Martin Trow, a population aged 18–22 years entering higher education at a 15%–50% ratio represents the mass higher education stage, whereas over 50% represents universal higher education (Kazuyuki Kitamura, 1986; Ikuo Amano, 2003). After the 1980s, because of domestic political factors and education policies, the Taiwanese higher education system underwent massification within a few years, and quickly entered the universal stage within a decade. Many specialized schools have been transformed into the university of science and technology, the collage has transformed into a comprehensive university, and enter the universalization stage in 2005. There are various types of higher education systems in the community. It will compete with other higher education institutions and force innovation in order to survive in the midst of crisis.

4. Interscholastic competition: Schools offer generous scholarships and rewards for enrollment. However, the quality of students is difficult to master because everyone can get the rewards. Such a situation would be bad money drives out good and cause the stereotype for some schools.

5. Failure to implement character education: In Taiwan, both primary and secondary education are or will be confined to academic ability in the past, and diploma doctrine could not improve the quality of education, schools only hope that students increased, but the lack of strict quality control mechanism. There are no high-quality students and the right target education, and therefore cultivated mostly low quality of students fails to meet the social and industry expectations.

Taiwan's declining birthrate, unemployment rising and many other issues, leading to competition in the education market, many private University of Technology facing business crisis. Committed to external incentives (e.g. scholarships) competition, but ignore the importance to enhance the quality of education, incentive payments can temporarily solve the enrollment problem, but not a permanent solution. In addition, many schools is itself a problem. There are many internal problems:

1. Complex administrative processes not only dragged down the overall operation and efficiency of the administration so that each unit can not communicate. School administrators in the traditional bureaucracy are easy to produce laziness or selfishness. These will affect the efficiency and quality of service. Quality and service attitude of administrative staff represents the image of school. It should be regarded as an important part of education and training.

2. In most schools, classes tend to be the basic unit of the school. Many teachers are often saddled with instructor positions, but did not have the ability to classroom management. It makes classroom management can not be implemented, but also affect students' learning.

3. Many schools committed to enrollment activities. They propose various incentives to recruit students, but failed to take into account their quality of education, provide a good education and learning environment so that students couldn’t absorb knowledge and skills in college, and even affect future employment. In the workplace, excellent alumni can enhance the reputation of his alma mater. Focus on vocational education system should be to help students after graduation employment or entrepreneurship. In ignoring the quality of education, putting the cart before the case, the school will be pushing more difficult situation. In the face of competition and challenge, many companies tend to
use a variety of business strategies to achieve the goal or improve operating efficiency. This article will attempt to discuss by customer relationship management and point of view about school innovative business, and as the private university of science and technology to explore object. When the school face the crisis caused by the low birth rate, how the private University of Science and Technology response? How to improve the overall quality of education and performance, build quality schools and increase its competitive advantage? Apart from the crisis into an opportunity, not to elimination by society, the school should be able to have a flexible innovative business way to achieve the purpose of schools sustainable management.

**Application of Customer Relationship Management: The concept of student-centered**

According dual system theory (Owens, 2001), school organization has a loosely coupled system in the teaching system, and in administrative matters (non-teaching system) is bureaucratic model. It is very important how to manage between the two systems in school. We will manage the school which belongs dual system through Customer Relationship Management and database systems.

Customer Relationship Management is a business process and integration of information technology. There are many ways to obtain the efficiency of the customer's information efficiently and sustainable use accurate information from existing customers and potential customers to predict and respond to customer needs, and emphasizes customer-oriented spirit. Swift (2000) considered that customer relationship management is through meaningful communication, understanding and influence customer behavior in order to achieve the increase in new customers, to prevent the loss of existing customers, improve customer loyalty and increase customer profitable way. Bhatia (1999) believes that customer relationship management is the use of software and related technology support for sales, marketing, customer service and support in areas such as automation and improve business processes. CRM application software also integrates customer communication channels, through face to face, telephone, Internet, etc., so that organizations may use different customer's preferred mode. Chen, Wen-Hua (2001) believe that CRM is a large collection of application of information technology, store all the information about customers, analyze useful knowledge, and to use this information to aid decision making and planning related business activities.

In CRM, with particular emphasis on data processing and applications which can be broadly classified data or information collection, storage, sorting and applications (Liu, 2008). CRM focuses on implementing "Customer Knowledge Management", by the accumulation of customer information, and thus the use of data warehousing, data mining and other technologies for data analysis, looking for relationships between different variables in order to facilitate better marketing people originally given marketing policies.

In CRM, special emphasis that the use of quality of service to enhance customer loyalty. Loyal customers should be three levels, including: very satisfied users, who will buy again users and will recommend to others not only buy their own users. (1) Get new customers: After obtaining the customer can follow the CRM related services. (2) Remain existing relationships: This is a core part of CRM. Enterprise is committed to enhancing relationships with existing customers in order to maintain the interaction between them. (3) Create new customers by the original customer: Refers to the customer's own results. Assuming the customer as we would expect to continue to use after using, it will recommend to others. As long as the average a person let another person to use, the revenue growth will be doubled. CRM benefits also from part of the onset of action and caused huge benefits.
The third level of the customer "create new customers by the original customer" is CRM target groups, because these people bring more benefits than the other two type people. Companies will have a closer relationship with loyal customers with customer relationship management. After experiencing higher education market, most schools tend to put himself in the position of the service provider to provide quality services and learning environment for all students. Schools as a central theme with "students to meet", pursuing "social-oriented" services, and focused on meeting the needs of individual students to achieve educational mission. If the school wants application of CRM on school management, their students are often treated as "customers." It became "Student Relationship Management" in order to maintain and expand the relationship between students and school. It will develop three levels: enroll new students, leaving students and create reputation.

1. Enroll new students: the school should promote enrollment activities to expand the sources of students and maintain the school operations. Especially in the context of declining birthrate, interscholastic competition is more intense. Many schools have resorted to various rewards, tuition remission or scholarships to attract students studying. Because the low birth rate is the future trend, the effect of benefit policies often does not ensure the long. Therefore, the school should strengthen leaving students (second stage) and reputation marketing (third stage) to get endless of potential students.

2. leaving students: The school tend to be leaving students after they have been recruited to the students, in order to avoid students transfer as well as other schools lure them away. For example, the use of mentoring to control the situation or organize activities to increase the classroom teachers and students' centripetal force and so on.

3. Create reputation: Schools may committed to enhancing students relationships when the enrollment pressure is less. The school can improve The school reputation by enhancing the learning environment and teaching quality and improve school's services. Students or graduates can feel the advantages of the school, and then recommend to peers or underclassmen, so that the subsequent school enrollment is more smoothly.

Generally, the third stage is often the most difficult to fulfilled. In addition to enrollment, but need to strengthen the work of leaving students. In higher education, school classes constitute the basic groups, so make good use of customer relationship management and proper operation of class membership. It is a long-term development of the school management goals that enhance the school's operating efficiency by loyal customers- loyal alumnus.

Operating from the inside: classroom management and classroom database

Class is the most basic of small groups in the school, but also a small community with a complex nature. Among the classes, students' academic achievement, social interpersonal skills and healthy personality development are affected by the teacher's classroom management effectiveness. Now the
University has been universalization, and schools have become a stage for student learning and life. University tutors are the first line of student campus counseling. Classroom management of tutors had a great impact on student learning, classroom climate and school life. Successful classroom management and a good teacher-student relationship are conducive to teaching and learning, and further affect students' sense of identity for the school.

**The importance of classroom management and tutors**

Tutors work is an important part of campus administrative work and listing as the first line of student counseling in each Taiwan university. It is one of the most important work of student affairs work items. So the tutor who is most closely students in daily life how to strengthen the interaction between teachers and students, classroom management and mentorship is the focus of the work and mission tutors (Lai Ying-Xu, 2011). To the school, the most important purpose of mentoring is to promote school affairs. Because Taiwan's educational environment facing declining birthrate, industrial restructuring and other issues. The tutors system "retain students rate" is more valued by many private college when students shortage. In fact, dismissal or retention of students (including transfer, suspend their schooling and stop studying) is closely linked with the quality of schools' and teachers' education. Operating teacher-student relationship also helps students identity for school. Fine Teacher - student relationship operations allow students to identify with schools, thus generate loyalty schools, and eventually will be satisfied with the experience of studying and willing to share with others attending university or recommended to others (Ding Xue-Qin, Wang Hui-guan, 2011). School students for higher degree of recognition, but also more able to focus cohesion to help schools improve the deletion. It helps to enhance the quality of the school. The interaction between tutors and students include counseling, care and guidance. Class just likes a small of society. The tutor, teachers of different subjects and students each have different backgrounds. The class is with individual differences so contains many uncertainties.

University tutor with class often difficult perform their functions because the complex structure of the class, the alienated relationship between the tutors and students and limited to the impact of various aspects of the system. The tutor system is intentioned but difficult to play its role.

**Class database applications - for example with VIdegree**

If we can make good use of CRM and class students database, we can understand the students' background, learning situation and the attendance rate. It can organize and analyze the complex and alienated members of the class, and make tutors can easily understand each student. Teachers can retrieve information through database and enter information in the database. Tutors can send messages to students who have specific information needs by database functions. The database could help tutors get started in a short time, facilitate tutors work and share work pressure. It enhances the service quality and efficiency for tutors. Class database also help implement tutorial system and conducive to the future development of the school. For students, students receive messages that meet their specific need because database can send message which pre-filtered. Students can also use database tools to provide feedback or comments to the school or teacher. The class database creation convenient channels of communication between teachers, schools and students.

This study attempts to use VIdegree cloud management system as class database, combined with the above concept of CRM, integration management of classroom tutors. VIdegree is a cloud based Customer Relationship Management (CRM) system. Different from general business-process-focused concept, Videgree designed as a customer-centric solution for SMEs to build great connection with customers. Aim at providing differentiate services, customized tagging function and various of marketing...
tools tailored specific market segments; moreover, provide different levels of services. The function of
class database in VIdegree, including:

(A) Customize the client data fields: For better record of each of our client, the information form can
be set according to our type of business and client. Tutors can customize the data items required for class
database. (B) Assign work items: through data retention mechanism, the system can record student-related
events and establish work logs. (C) Information sharing: The tutors can open up some rights to the subject
teachers, login student learning conditions, so that tutors can clearly grasp the learning of students in the
class, to facilitate counseling and advice. (D) Customizable tag system: Tutors can customize the data
items which required for class database. tutors can set a specific keyword tagging students. (E) Customer
map: Tutors can use the map features customers understand students' accommodation situation for safety.
(F) Personal Network Chart: database can be used to identify potential customers through personal
connections analysis. Tutors can exploit potential relationships chain to assist the advisory or enlisting
students. (G) Note and job assignment: for better record of each of our client, the information form can be
set according to our type of business and client. It is available for tutors to review, reflect and share
experiences with classes.

If it properly used under the rules by the teachers, VIdegree could operate the class relationships
effectively although it mainly used for enterprise customers manage. Technology always comes from
human nature. Use of technology information systems, tutors can effectively enhance classroom
management.

Operating from the outside: the operation and improvement of alumni relations

The Latin word alumnus means a son or ward. When extended to education, it refers to school
graduates (Li Li, 2009). The relationship between alumni and their alma mater is long term and dynamic.
Although school life influences the relationship between alumni and a school, a school can maintain and
improve the quality of their relationship through continued operation and management (Yu Hui-Fen,
2006).

1. Alumni resources

Alumni resources refer to the human, financial, and material resources associated with alumni. Information and other social relationships influence the value of these resources. According to their functional classification, alumni resources can be divided into image or brand, information, financial, media, and educational resources (Lai, 2008). Alumni are not only a living sign of a school, but they also connect a school and a community. Because alumni come from various industries and geographic areas, are sources of different types of information, and can financial and business school feedback functions, they are extremely valuable to a school.

Several approaches exist to establishing strong alumni relationships (Deng, Ren and Yang,
2009; Yan, 2012): (A) Maintaining linkages between alumni and their alma mater. (B) Establishing sound
management organization of alumni relations. (C) Strengthening personalized alumni services. (D)
Strengthening emotional communication between alumni and a school. (E) Enhancing comprehensive
assessment and feedback mechanisms.

Schools should set up appropriate refresher courses and provide alumni with opportunities to return
to their alma mater and participate in adult education to update their knowledge and skills, increase their
opportunities for advancement through education, and improve their competitiveness. To manage alumni,
foster an emotional connection, and enhance the educational quality and continuous operation and
management of a school, alumni organizations, databases, community platforms, event invitations, and
other methods of enhancing alumni identity are also essential.

2. Customer relationship management and alumni database applications

When students graduate and become alumni. School education does not end when a student graduates. Lifelong education also includes alumni services. The relationship between a school and its students should uphold the concept day of alumni, lifelong alumni." Alumni also have to improve the school's reputation marketing function. Alumni also have to improve the school's reputation marketing function. It is a subject that CRM applied to alumni relationship management, which is very important to strengthen the links between the school and the alumni of both to achieve win-win situation. After graduation, class database will inevitably have to transition to the alumni database. It continues to extend its functionality and carry alumni relationship management integration. VIdegree functions that were applied to the alumni database included:

A. Customizing the following customer data fields.
B. A comprehensive data retention mechanism for records and alumni-related matters was used to establish a working log.
C. The “tab settings” were used to classify the nature of the alumni.
D. Customer service staff can use comprehensive database systems built for call centers to access customer information and consumer history. In an alumni setting, staff can immediately access alumni information.
E. Through the database analysis system, the alumni database can be used to recover alumni contact details, increasing the completeness of alumni resources.

Personal service is crucial to CRM. Customer demand for personalized service content strengthens the relationship between enterprises and customers. Schools can also categorize alumni by using alumni database labels through personalized messages transmitted through Internet communities or email. Tailored information services increase alumni interest in an alma mater, strengthening the relationship between a school and its alumni. By using an alumni database and VIdegree, a school can provide appropriate personal services to alumni by applying database analysis. Schools can communicate a personal dynamic message, the latest industry news, employment information, and surveys to collect appropriate feedback and suggestions to facilitate school development. For example, the system can send a questionnaire to alumni who have completed a course to inform them of school curriculum planning. The system could analyze the situation based on alumni responses to assist the curriculum department or teachers. To promote adult education, an alumni database can reach more set up and promotion programs and personal initiatives.

A. Recommending personalized curricula: An alumni database with data collection and data integration capabilities can provide more efficient and accurate data analysis and automatically assess the personal suitability of information and effective use of discriminant function integration and database personalization. It can be used to understand how alumni courses fit with other programs, promote degree courses, provide advice, and recommend suitable courses to alumni.
B. Actively promoting adult education: An alumni database can be used to analyze individual requirements, statistics, and appropriate course integration. It can also be used to recommend appropriate courses to alumni, thus promoting adult education.
C. Implementing lifelong learning with a lifetime warranty: School education does not end when a student graduates. Lifelong education also includes alumni services. The relationship between a school and its students should uphold the concept day of alumni, lifelong alumni." Schools should provide various educational opportunities for personal career development, using several database
functions to promote the relationship between students and a school. At any time, alumni can enroll in training courses or return to school to maintain workplace competitiveness. Through adult education a school can continue to maintain graduate quality and improve the personal growth and career development of students.

**Joint Service Center: Create internal and external communication channels**

In School, complex administrative processes not only dragged down the overall operation and efficiency of the administration so that each unit couldn’t communicate. It is not only makes the students, teachers, vendors, alumni and other clients feel at a loss, but also reduce administrative and service quality and impact of external perception. Reorganization as the objectives of the reform should be "convenient service program, including: (A) Simplifying administrative processes. (B)The integration of Services window: promoting full-function counter and single window services. (C) Automation and self-service by technology systems: on the one hand let the administrative work to information technology and improve work efficiency. (D)Setting regulations and processes of standardization work.

In CRM, special emphasis on the importance of customer service centers. It advocated the use of customer service centers as the company with the customer dialog window. Through customer service center to help customers solve problems in a short time, and the information recorded in the database, to help understand the customer (ARC, 2001). Trend in the new generation of CRM, call center is a powerful customer contact points, as the service sector growth, a variety of industries through the call center must interact with customers to maintain its business scope. This is representative of the corporate brand, but also the most critical customer relationship management a central role (liu, 2008). Schools may create a single service window as the communication between the school and the alumni bridge. In addition to offering alumni help and service, schools may also glean information on alumni. And provide alumni feedback pipeline, strengthen alumni loyalty.

Through Computer Telephone Integration function, increase customer service information system support functions, such as screen show call basic information capabilities to help customer service staff immediately have enough information to handle incoming calls, in order to strengthen the links between schools and alumni and improve service satisfaction.

The establishment of a single service window, aimed at simplifying complex administrative, combined with the power of information technology to improve service performance. When alumni use the Internet or telephone consultation, customer service personnel available database data quickly understand alumni, quickly give the most appropriate replies to the questions, as to those who couldn’t answer immediately, the customer service staff can also use the work assigned functions assigned to the relevant staff, and track progress through the system records and log function. It is not only improve work efficiency, but also enhance alumni perception of administrative services for the school. The use of call center records, can be used as school improvement or improve service quality reference, or as one of the ways to confirm alumni latest developments.

**CONCLUSION**

In recent years, the development of the private university science and technology under pressure because of the social and policy impact of low birth rate, the imbalance of educational resources, open education markets. To improve the operating status, schools have produced this coping strategy, but many strategy and policy couldn’t solve the problem. School management should uphold the philosophy and
purpose of the education with quality. The management strategy should make improvement plans for disadvantages.

In the past, the private technical and vocational school operating mode mostly focused on the recruitment of new students, and often ignore the importance of leaving students and reputation marketing. Private university of science and technology more need to consolidate the foundation of the school because intense competition now. In addition to enhance the school's educational quality, but also must be careful management class management. On the other hand, alumni can provide resources to their alma mater, such as financial contributions, but they can also provide employment opportunities for students and build the reputation of the school. Therefore, it is crucial for schools to maintain strong alumni relationships. This is the customer relationship management theory emphasizes "quality follow-up services" to create the concept of "loyal customers." Customer Relationship Management in the past only for commercial. In the fierce competition between universities now, schools should uphold the "student-centered" service philosophy, committed to improving educational quality of the school. Schools should give students the proper teaching environment, teachers and curriculum, so that the school can be sustainable and students are able to reach knowledge, affection and skills acquisition in order to achieve a win-win goal. Because the school is nonprofit, they can transform the concept of customer relationship management and expand related services "Student Centre" under the law and in line with the norms of education conscience. It includes classroom management, student management and alumni relationship management. By the assistance of technology to reduce tutors and administrative staff's burden and establish a good quality of service. It can give efficient customer service, enhance operational efficiency and increase the school's students or alumni satisfaction to support the school loyalty and sense of cohesion. Promote the school's brand building with good service quality and stable foundation for the development of the school, so that schools can overcome social competition test, to achieve the goal of sustainable development.

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