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Customizing services to improve operational efficiency: A case study of one educational company from Brazil

Daniel Pacheco Lacerda^{1*}, Rafael Teixeira² and Secundino Corcini Neto¹

¹Department of Engineering, Unisinos University, Brazil.

²Department of Management, Unisinos University, Brazil.

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Production of educational services has presented several concepts and a growing importance within the area of operations; although, few studies have tried to demonstrate the use of such concepts and production techniques for the educational area. Studies in this area are important due to its characteristics of an almost pure service. This article has the objective of analyzing the modifications in the production area of services made by a school. For so much, it has made a theoretical increase concerning the theme, and a case has been analyzed. The authors made some criticisms and finally conclude that production theory can aid the development of the operations in the educational area.

Key words: Service customization, service operations, educational services, operational efficiency.

INTRODUCTION

For many decades, operations management of educational services has been traditionally similar regardless of schools or even countries. Typically, classes are designed by service suppliers; in this case, schools and universities, and students just follow instructions to be in the designed classes. The organization of the school curricula follows the logic of the disaggregation of activities, that is, the classes are organized in different courses and taught simultaneously during the days of the week. On the other hand, from the professor's point of view, there are several classes that professors have to teach simultaneously. To help build our case study, let us assume that a math professor teaches several classes in different schools. In this hypothetical scenario, it is possible to speculate that this professor could have 5 different classes to teach. Assuming that each class has about 50 students, it is possible to verify that such a professor is going to have about 500 evaluations to grade.

From the student perspective, courses are organized in a way that students are exposed to different contents in the same period of time, making him or her learn different

contents simultaneously. For example, this model makes students have 5 different courses in a week. In some sense, some students may have problems in being equally devoted to each course, once they are equally important. Another harmful effect of the traditional model is the fact that in case a student gets sick or has some other type of problem, he or she may have problem in several disciplines. In this case, the student will have to put a lot of effort to learn from the lost classes, especially because there are multiple and different courses to be worried about. These dynamics do not maximize students' and professors' learning and teaching capabilities in terms of better organizing and economizing resources. It is possible to question if there would be other forms of organizing the curriculum and operational processes in order to improve operational efficiency for students and professors alike. Would it be possible through the modification of the educational processes to improve the profitability of the schools once in the current system there is at most two entrances of students a year? In this sense, a school company located in South of Brazil does not provide its educational services according to the traditional logic existent in the pedagogic model, instead it applies the resources optimization logic existent in operations management. In separating the pedagogic logic of the organization, this school elevated

*Corresponding author. E-mail: dlacerda@unisinos.br.

its profitability levels and the students' satisfaction. Our case study is similar to that of Sloan (2008) because we analyzed the effects of changes in the curricula on operational efficiency as well as on the professors and students' performance.

THEORETICAL REFERENCES

Service operations

Service operations can be defined as the activities through which raw materials and inputs are transformed into final services. One function of the service operations management is processing inputs into services that the company sells (Davis and Weckler, 1996). Slack et al. (1999), Roth and Menor (2003) and Moeller (2008) detached the model input-transformation-output by entering inputs into the transformation process, after which the process was altered to obtain products and services. According to these authors, service operations involve two types of resources: (i) transformation of material, information or customers; and (ii) transformation of facilities and employees.

Considering the transformation of resources, it is important to highlight that service strategy is different from that of goods (Thomas, 1975) and the customer, which play a key role during this process (Chase and Tansik, 1983; Frei, 2006; Xue et al., 2007). Customers can be viewed as the raw material for service operations and they are likely to affect service performance outcomes (Zeithaml et al., 1997). Fitzsimmons and Fitzsimmons (2008) call attention also to the importance of supporting facilities for services production. It is fundamental to determine the physical resources involving the the resources and facilities through which services are delivered, because many times these physical resources become tangible indicators customers need to evaluate the quality of the rendered service. Yet, Heskett et al. (2000) claim that employees are important during service systems because services cannot be deployed and produced without some participation of services, and satisfied employees tend to work happier and achieve higher performance.

It is important to point out that the production of services possesses characteristics that differentiate them from the production of goods. One of the basic characteristics of the services rendered is the production and simultaneous consumption (Fitzsimmons and Fitzsimmons, 2008; Karmarkar and Pitbladdo, 1995). In other words, in the installment of a service, the production and consumption happen at the same time. The customer receives the service when it is being produced, and this leads to the second important characteristic, which is the customer has contact with the service producers (Chase and Tansik, 1983; Frei, 2006; Larrson and Bowen, 1989).

The simultaneous consumption production characteristic of service production and customer participation during the production process has implications for operations management. For Chase (1978), more customer contact during the service production process increases the difficulty in controlling the standardization of services, since it is difficult to control the customer's behavior. Lovelock and Mainster (1982) classify services as a function of the degree of customer contact and customization, thereby proposing models of organizing production in (i) professional services, (ii) storage of services, (iii) mass services and (iv) service factory. Schmenner (1986) goes beyond the model proposed by Lovelock and Mainster (1982), proposing some managerial challenges for each type proposed in this model. For instance, mass service providers, with high degree of labor intensity and low degree of customization, should program the manpower to control the leases of great geographical areas and to develop different methods and control.

Heskett et al. (2000) state that employees are decisive factors for a larger profitability of service providers; thus, the authors develop the idea of the service profit chain in which employees' satisfaction leads to the highest productivity and to high added value for customers. Consequently, customers are likely to be more satisfied and become loyal, thereby increasing the profitability.

Several authors propose an industrial approach for the production of services with the objective of increasing the productivity or simply to control the production. These authors mentioned that technologies, equipment and administration tools were used to increase productivity and to reduce the customer's influence. Levitt (1976) proposes the use of administration techniques to program the production, thereby altering in some way the processes for a larger productivity to be reached. In this same sense, Chase (1978) employs a "Taylorist" approach to increase productivity; in such approach, operational tasks can be broken in according to similar characteristics and activities and be accomplished in a wide scale. Likewise, production challenges involving productivity, standardization, administration of the employees' satisfaction and the contact with the customer permeate the organizations of services. Thus, to develop models and managerial methods that work with these characteristics becomes primordial.

Finally, some authors call attention to the variation introduced by customers during the service production process (Frei, 2006; Xue et al., 2007). Customers vary in their needs as well as in their resources and capabilities. These variations are transferred to service operations and they affect service performance and quality (Zeithaml et al., 1997). Also, a recent trend in service supply chains is that customers have a dual role of not only consuming services, but also supplying inputs like information and sometimes themselves for production of services (Sampson, 2000). In fact, there is a trend toward a

concept, which views customers as also suppliers of services (Sampson and Froehle, 2006). In the case analyzed in this study, students can be viewed as a supplier of services because they actively participate in the service co-production by going to classes and performing tasks and activities they are supposed to perform.

Processes

It is important to detach some concepts regarding processes so that one can verify the relationships and systemic connections that can make them happen among the organizational processes of the company (Lacerda et al., 2010).

For so much, it is necessary to define what is inside the organization's process. According to Davenport (1994), the processes would be an ordination of the activities of the work in time and in space, at the beginning and at the end, and at the entrances and clearly identified exits; in other words, it would be a structure addressed for action. Johansson et al. (1995) defines the processes as a group of interlinked activities that receive inputs and transform them to create value to the organization.

Rummler and Brache (1994) and Slack et al. (1999) expanded the concept of processes when visualizing them for production of goods and services. The organizational processes are linked to the necessary activities for the existence of the company. In a certain way, it can be said that a company is as efficient as its processes (Johansson et al., 1995; Rummler and Brache, 1994). Corroborating with this statement, Harrington et al. (1997: 41) argue that processes are the fundamental activities performed to manage organizations. Once the concept of processes is known, it is necessary to identify them within the organization. For this, "THE ONE" that makes a company, and the way it is made should be verified. According to Cerqueira (1994), once the processes are conceived with integral and important forms for the company, the following classification of the processes is established:

- i. Primary processes which affect the external customer directly;
- ii. Processes of support which collaborate so that the primary processes occur properly;
- iii. Managerial processes which exist to coordinate and support the primary processes.

Harrington et al. (1997) and Davis and Wecker (1996) proposed a hierarchization in the processes through the detailing level of the work evaluated. However, the following hierarchization was obtained:

- i. Macroprocess: It usually involves several functions of the organizational structure and it has a direct impact in the way the organization operates.

- ii. Process: It is a group of activities related to logic that receive entrances, link values and give a certain result.

- iii. Subprocess: It is used to unfold the main processes, and when they are related, they compose the whole process.

- iv. Activities: These are things that happen within the processes or subprocess and they are carried out by people or departments in such a way that it produces a specific result.

- v. Task: They are the procedures used to unfold the accomplishment of the activity; it is the most specific level of the work.

The processes inside the organizations are not always totally visible and known. Like this, "the mapping of processes would be an analytic managerial tool of communication that objectively helps to improve the existent processes" (Villella, 2000) or still to implant new processes. This technique still allows the reduction of the costs, better understanding of the activities and better acting of the organization (Hunt, 1996). For Pidd (1998), the modeling of processes helps in the knowledge of the essential components such that the improvements make a difference. However, Villella (2000: 65) opined "the mapping of processes begins with the objectives of the process, followed by the decomposition of the objectives in activities and tasks". This analysis type allows the organization to know one's processes and to have ideas with the base in this decomposition. According to Hunt (1996), the mapping of processes includes:

- i. To expose the details of the process.
- ii. To have conciseness and precision in the description of the process.
- iii. Focus the attention in the interfaces of the process.
- iv. To supply a powerful and consistent analysis of the processes.

Cameira and Caulliraux (1998) argue that one of the points of awareness in the mapping of processes is the aggregation degree that the description of the processes should possess. Santos (2002) corroborate with this argument, when he affirmed that the processes should describe the flow of information clearly, and when this does not happen, the aggregation degree will be defective. Cameira and Caulliraux (1998) also point out the need of standardization in the accomplishment of mapping the organization's processes.

METHODS

This research is characterized by one's descriptive nature. For obtaining the answers to the research subjects presented in the study's introduction, a qualitative approach that aided larger understanding of the studied phenomenon was used. The appropriate technique used to provide answers to the subjects was the case study. The sample was composed of a company, because it is a recent phenomenon and the authors had difficulty in finding

Table 1. The three semesters of the technical course in managerial management.

Semester	Schedules	Monday	Tuesday	Wednesday	Thursday
1 st	19:00 20:45	Theory of management	Strategic planning	Accounting	Behavior organizational
	21:00 22:30	Theory of management	Organization and methods	Accounting	Behavior organizational
2 nd	19:00 20:45	Human resources	Marketing	Economy	Legislation
	21:00 22:30	Human resources	Marketing	Economy	Legislation
3 rd	19:00 20:45	Financial mathematics	Managerial simulation	Financial management	Production and materials
	21:00 22:30	Financial mathematics	Managerial simulation	Financial management	Production and materials

companies with a similar situation. Besides, what motivated and justified the study in this school, specifically, are the reasons for which the same obtained a significant elevation in the number of enrolled students among the different courses between 2002 and 2004. Several instruments, which stand out in historical research, direct observation and in the systematic series of interviews, were used for collection of data (Eisenhardt, 1989; Yin, 2001). This also happened in order to avoid reductionisms and "to capture the reality better" (Summer, 1990: 369) due to the occurrence of these facts. The reports of the students' acting were researched along the years of 2002, 2003 and 2004. The objective of the use of this report was to obtain data about the evolution of the students' acting in relation to the alterations in the teaching-learning processes.

Thirty-two interviews were accomplished in depth; 12 was for the teachers of the school, while 20 were for the students, 8 of which were for those that were students in the year 2002, 5 for students in 2003 and 7 for students in 2004. The interviews were specifically led at the authors' own school in prepared classrooms for this purpose. The data were collected and transcribed so that a form categorization could be accomplished by the assistant in obtaining information. To validate the collected data, a triangulation among the information received by the teachers was done for the students and the entire school. Based on the qualitative analysis of these information, the contributions of this experience to the educational field and also to the field of studies of operations in administration were explicit.

The method of the case study confirmed the results and form of the organization of this institution, knowing the reality and existent relationships of this school. It was also possible to verify the application of the logic of operations for the restructuring of the analyzed school system's curricular, once such system generated significant results in quantitative and qualitative terms.

To follow up the case, much information is given in agreement with the collected data. Soon after, a case of discussion is made starting from two slopes: (i) discussing the traditional model of teaching and its repercussions; and (ii) discussing the model implanted in the presented case. Later, a critic to the model implemented is made starting from the collected data before finally moving to the conclusions.

The case

The net of schools analyzed is located in the cities of Porto Alegre, Gravataí, São Leopoldo and Caxias do Sul. Two of these schools and their head offices are located in Porto Alegre, two in the city of Gravataí, one in São Leopoldo and one in Caxias do Sul. Among these schools, the only one that does not supply technical teaching is one of the two schools located in Gravataí. This net of schools is focused on technical courses that provide professional formation, and are recognized by the Clerkship of Education and the State

Council of Education. This course modality when compared with courses of superior formation became possible for modifications in LDB (Law of Guidelines and Bases of the Education), thereby allowing the students to quickly enter into the job market, even when there are low investment of resources.

The studied school-company possesses two technical courses properly regulated and registered in the State Department of Education of Rio Grande do Sul. The technical course in Computer Science is what possesses more time of activity and is still formatted in the structure of the traditional curricular, that is, it possesses the distribution of the disciplines in the days of the week. This means that on Mondays the students have database classes, on Tuesdays, they have class of programming languages, and so on. As such, the company obtained a significant elevation in the number of enrolled students among the different courses. According to the leaders' depositions, the reason for this was the modification and reorganization of the school operations through the changes of its base curricular. This modification, besides the students' increment, stirred up modifications in the school community's behaviors, composed of students, teachers and employees. To accomplish the comparison among the methodologies, it is important to trace a comparison among the same ones. In this way, Table 1 demonstrates how the schedules were organized before modifications, and it demonstrates the three semesters of the technical course in managerial management. In each one of the schools that possesses the technical course in managerial management, there is a similar format. However, there are variations of that format such that the teachers can deliver a certain matter in another school or such that they can deliver the same discipline in another day of the week. As regards this, the study objectively maximized the teacher's participation and tried to organize it in schedules in a way to use every available schedule; although, this was not possible for all the teachers.

Fundamentally, the economical-financial viability of the organization leads it to a reformulation of its curricular, thereby looking for means to maximize the organization's financial results. In an initial question, a trial was made to understand why there are only two specific moments in a year for students' entrance into the school, and what would be the alternative to this situation. To allow the students several entrances, the leaders of the school made the course look like a group of modules disconnection in such a way that the student could enter into any part of the production process, without a clearly defined order. However, it remained the problem of the sequential operations, that is, in some cases a certain piece is needed to pass a certain process.

According to the leaders of the organization, the discipline of Financial Administration demands that the student is approved in the discipline of Accounting. The students' reproof in a denominated discipline can occur by the pre-requirement of another discipline, causing a delay in every process. As such, this effect can generate so much idleness for the student in his old and new school,

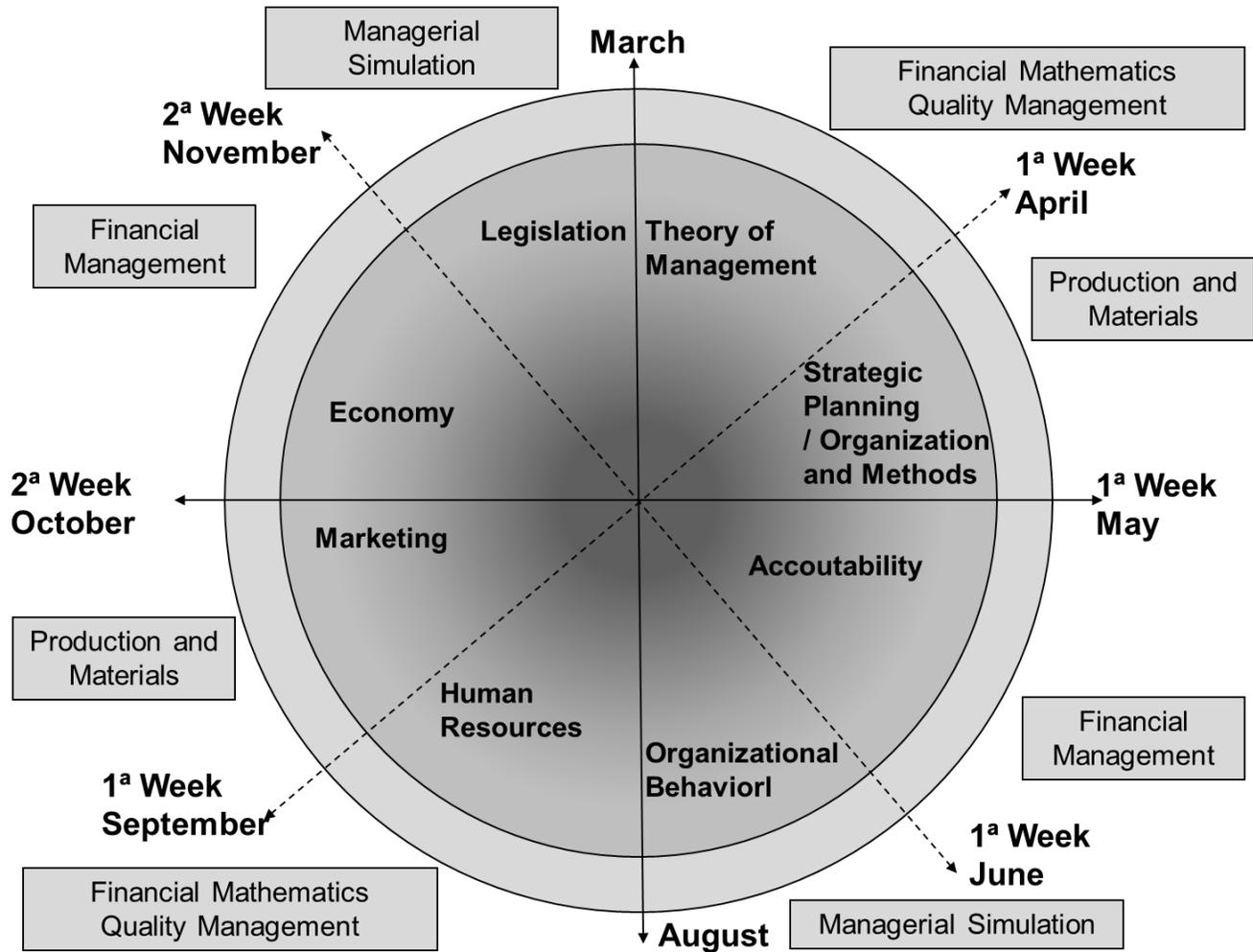


Figure 1. Model employee in Unit 1.

causing operational losses for both parts.

The eventual problem of idleness for the students' reproof in pre-requirement disciplines was solved through the alignment of the discipline and their pre-requirement. In other words, the school organizes the components curricular so that both happen in the same period, avoiding the loss of the student's time, which awaits a new group, and the reduction of the amount of students in classrooms. Figure 1 presents the new teaching proposal and the new forms of organization of the school operations in the studied school. From the figure, it is noticed that the disciplines are not willing to take the traditional form. For instance, if the student begins the learning process in March, he will eventually have knowledge of the General Theory of Administration. After the conclusion of this discipline, he will then study the whole discipline of Strategic Planning, Organization and Methods.

After completing the initial cycle, at the month of March in the next year, the student automatically leaves the main cycle and begins to study a cycle of smaller formation. In this case, the student is not approved to study a certain discipline. As a consequence, he automatically continues in his previous discipline and later changes to the discipline that was reproofed. The school possesses a historical series indicating that only 10% of the groups are criticized, with the exception of those that should be treated.

After drifting and rethinking the organization of the school curriculum, the net of schools decided to disseminate this methodology for other units. However, once the teachers' team was defined in the first unit, one of the problems they encounter is how to maintain the busy schedule of the teachers after they have concluded their modules. This problem is pertinent, because after the commitments they have assumed within a certain group, they become practically exclusive, and tends to go to other schools which do not have this methodology pattern.

DISCUSSION AND ANALYSIS OF THE CASE

The education service model implemented

In agreement with Table 1, it is noticed that there is need to have 3 classrooms in that configuration, as well as 3 teams of teachers so that the operations in several disciplines are accomplished.

It can be argued that although organization curricular was thoroughly used in technical schools for basic and

fundamental teaching, the registrations usually happen in 2 specific periods of the year (the months of February/March and July/August). After these periods, there is no more intake of new students, except for the process of transfers, which is not very common, or students gaining entrance into other schools.

Some considerations should be made taking into account the configuration of the traditional curricular. From the view point of the school, that organization brings some damages. In the first place, students' entrance is normally done twice in a semester, during which the costs for students grow from the beginning to the end of the group. After the beginning of a group, there are few possibilities of new students' intake, while the number of transfers, cancellations and escapes are common due to the most several factors, which empty space from financial difficulties to difficulties of the students' health. For legal demands, the schools need to maintain the groups, although they generate damages differently from the industrial activities in which the companies can discontinue the products that are not profitable. In that way, the traditional model picks in possible increments of costs on repercussions for the economical-financial acting of the institution.

In the second place, the divisions of the disciplines and the schedules group for the organization having many teachers are small. This operational procedure increases the administrative costs of administration, and consumes a small amount of the teachers' schedule, causing salary dissatisfactions. In addition, the need of groups different from teachers and rooms of equipped classes may be maintained. Besides, the development of a fractioned school activity can lead to a sub-utilization of the teachers, thereby generating idleness of resources.

All those factors can lead to a sub-utilization of the whole system, impeding the organization of reaching maximization and optimization of a person's acting. From the teachers' point of view, the traditional organization has been the determining factors. For instance, in case a teacher needs to teach a class in several schools to maintain his level of income, his cost with transport tends to increase significantly. To maintain their level of income, many teachers take several disciplines simultaneously, necessarily planning and preparing several classes for the students. A hypothetical situation in which a teacher has 6 different matters means that he will have 6 class plans, prepare 6 classes, develop 6 different activities and evaluate 6 types of works. In a large part of the school establishments, this work was not remunerated; as such, it was carried out by the educational professionals of 44 o'clock and was accomplished during the week. Still under this perspective, considering that each one of these 6 groups possesses 35 students and that the teacher applies at least 2 evaluations for the school period, means that a volume of 420 evaluations would be generated in correcting the teacher. Consequently, the other factor is the current natural waste

of those displacements which generate a physical waste, thereby influencing the teacher's acting inside the class room.

The traditional model can still cause other problem types related to the competition among teachers for the students' attention. Teachers that supply suave disciplines, and who are easily understood by the students, are frequently compared with those that do not. Historically, they do not give pleasure to all. If, on one side, this favors the linked teachers, on the other hand, it harms them mainly in the moments of evaluations, once the students tend to give study priority to the disciplines they find more difficult. From the students' point of view, the traditional model also has repercussions that deserve attention. In the beginning, the distribution of the disciplines within the week is implicated in the need to study them in equal intensity, demanding multiskill and the students' equal concentration. In a large part of the cases, the students' second deposition which is to render attention and to study in the same way all the disciplines, is a difficult challenge to work.

In the students' opinion, other factors that are weighed in the traditional model are evaluated. For instance, as the school calendar is unified, the proofs and delivery of works happen in a simultaneous way. This forces the students to study all the disciplines in an equivalent way. However, what happens in practice is that the students tend to choose some disciplines and dedicate more time to them in detriment of others. This, in the long period, has an unequal formation, in other words, pseudo-integral.

A lifted up situation for the students is the problem related to the problems of health or trip during the school period. In case the student fails to attend some of the classes for a period of 2 weeks, he will be affected in all the disciplines in that he has registered for all of them, and not just in a certain discipline. According to the information of the school, this corroborates so that the teachers' acting falls reasonably, resulting in reproof in some of the disciplines.

The model of operations implanted

It can be argued that (Slack, 1999) the school is a factory of services where a certain piece, in the case of the customer, is found for several equipment and operations, and is "ready" at the end of the production line. This is a typical approach of the production point of view and operation, presupposing that the student is rebound in operational subjects. In this relationship, the components curricular would be the processes and operations for which the students should pass.

The analyzed company uses the typically productive-operational approach when it alters its structure curricular. It disaggregates the group of disciplines to reach an improvement in the operational results, thereby

maximizing the use of its resources, teachers and students. In this model, it is evident that the school leaves from the beginning, that is, it is the student that learns and not the school that teaches.

In agreement with the literature, the contact degree between the student and the production process is elevated, because this is a service characterized as almost pure, with great part of the service being produced and given by people.

That interaction between the customer and the company will influence the quality perception that the student has for the services of the school. In this case, the use of a reprogramming of the sequence of the disciplines brings significant returns so much for the student's acting as for the acting of the school. According to the analyzed data, the students presented a significant improvement in their school acting.

In the same way, they analyzed the data of the company that show an improvement in operational acting, with a better use of the teachers' hours, as well as a reduction of the idle time used for current displacements of the traditional model. Adopting this methodology in all net cases, the school got to guarantee the full occupation of the teachers' picture. Equally, it eliminated the simultaneity of the three semesters for only two cycles, allowing the school to have a class room at least, and reducing in a third the necessary amount of teachers. As a consequence, the company presented an improvement in the financial results, reducing the costs with resources and managing the maintenance of the revenues.

Another repercussion was the possibility of transferring students of a unit of the school to other schools to continue their discipline in the next module. This provided flexibility in increasing or reducing the capacity of attendance of the market, according to the seasonality of the demand. In other words, when there is need for the school, it can open either to cancel one of the semester's Mondays or that selected from the third groups according to the seasonal picks.

One of the factors that lifted up the competitive advantage for the proprietors and employees of the commercial team is the potentiality of the competitors registering in periods when they are not prepared. According to these reports, along the time, this can cause a "strangle" of the competition once the students that would just enroll in the traditional periods are already registered.

Another benefit was the reduction of the no payments, because the students buy the modules of the course in agreement with their purchase power. The cancellations became also easier once the contractual fines were reduced given the possibility of the school to restore students in the groups along the period. One of the positive points pointed out by the administrators of the net of schools is the possibility to reduce the financial damages with the students' exit, being possible to substitute them along the school year.

The school also tried to stimulate the teachers through allowances at the end of each module, where the index of its roots turns to zero. This way, the school gets to stimulate the teachers at the same time, in that they provide improvement of the services to the customers. Following the concept of profit chain in services proposed by Heskett et al. (2000), the school looks for the employees' satisfaction, because it will be them that will be in daily contact with the customer. This is also important due to the high contact degree between the customer and the company, which is an important characteristic in the production and services rendered (Chase, 1981; Fitzsimmons and Fitzsimmons, 2008; Karmarkar, 1995; Kellog and Nie, 1995; Lovelock and Mainster, 1982; Schmenner, 1986). As the students will be seen daily with the teachers, judging the installment of the services, it is important that the teachers are satisfied for the services they are rendering in the best possible way.

In a similar way, rescuing the concepts proposed by Levitt (1976), the school used techniques of operational administration to reach a better productivity for the company and in rendering better services to the students.

Conclusions

For the imposition of the competition and for the characteristics of the market of vocational teaching, the managers' strategic decision was to adopt a systematic alteration in the operations of the school.

This change in the strategy of operations allowed the occurrence of flotations in the offer of groups with the entrance and exit of students shown in the modules. This model is placed in opposition to the traditional model of teaching that does not admit such flotations in the offer, but only admits the students' decrease in a group and the consequent decrease of the margin of individual contribution of each group for the revenues of the school. On the other hand, this new model allows the new students' addition during different periods in different groups, thereby increasing the margin of contribution of the groups and of the courses.

It should be bore in mind that there is no need to evaluate the didactic-pedagogic situations related to this institution, where students' learning or their formation level reached that of the new work methodology. Such subjects represent opportunities for studies and future studies in a way to contribute more to that debate. In the school, the concern of the area pedagogy is exclusive with students and teachers; however, the form in which the matters are structured and the logistics are involved in them, are directly linked to the section of Services and Operations.

It is verified that the influence of the logic of operations can contribute in a significant way to several sections; besides, it is more conservative, as seen in the case of

education. A new logic that modifies the operations of the company through the use of production concepts in the educational process generated positive results in profitability terms and operation. In essence, the questions that guided the development of that research were answered. At the same time, such questions were to be lifted to raise new questions in relation to the operational practices developed at schools. New studies can try to evaluate the impacts of such changes in the quality and effectiveness of teaching as well as to evaluate other used operational practices.

CRITICISM TO THE IMPLEMENTED MODEL

In agreement with students and teachers' depositions, an inconvenience caused by the model is the speed and volume with which the contents should be passed to the students in a short space of time.

In the teachers' most specific case, the works extra-class had to be rethought and, in some cases, abolished, once the evaluation period becomes reduced.

A negative point is seen in the first groups if they adapt to the rhythm of the first teacher's work, thereby presenting difficulties of adapting to the subsequent teachers' rhythm. Another lifted up factor for the teachers is the communication lack seen among them which generates a reduced change of information for the students, thus restricting mutual learning among teachers.

According to the teachers, there would still be a need for larger integration among the disciplines in such a way that the student will have a wider vision of the field of the supplied study. On the other hand, one of the pointed advantages for the teachers is the reduction in the accumulated evaluations taken mainly from the formulation of the classes just once in a year, perfecting it with those of the passing months.

The subject logistics of the teachers' displacement among the units has been another positive factor to be considered once it is observed that there is no need for the teachers to move around in the city or in different places. For the students, the model became interesting, because they got to ponder only on a discipline and to study it with relative depth, avoiding the focus loss and energy with several disciplines. According to the data collected at the school, in acting terms, the students' average rose from 7.3 to 8.5 in each one of the disciplines, evidencing the students' perception.

Another pointed important factor for the students is the conciliation with the commitments that the same has in the companies in that they work to reduce the damages during the courses. For instance, in case a student has to accomplish a trip in function of his professional activities, he will just lose a module only, but not all the disciplines or the school period.

The students also considered the entrance in different groups along the school period. They argued that it was initially excluded by the group, considering the integration

of the teacher's paper into the school's curriculum as fundamental among the students. This observation is reinforced by the data collected from the school, and it showed that most of the students' activities were cancelled during the school's entrance periods in March and August.

LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDIES

One of the limitations of this study is its exploratory and qualitative nature, disabling a generalization of the results reached. New cases in teaching should be led in way to develop a knowledge accumulation on the theme.

Another limitation is related to the inclusion of the concluded study, because the model was analyzed and implanted under the operational perspective of processes curricular. However, the pedagogic result, which is fundamental for the teaching-learning process, should also be analyzed so that it will be possible to understand the impact of such alterations for the process of teaching in a general way. In spite of the increase in the number of students, an expressive alteration in a person's acting is not enough to generate conclusions under that prism.

New studies should be accomplished by looking for ways to analyze other operational and pedagogic models implanted. With the analysis of new cases, it will be possible to begin an including analysis of the repercussions of alterations in the models' curricular in a good number of schools.

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