Using the Product Life Cycle Model to Analyze Management of a Part Time Undergraduate Student Program at a Small Liberal Arts University

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Given increased competition for part-time undergraduate students, it's important organizations utilize accepted models for managing new and ongoing programs. This paper first applies the product/industry life cycle (PLC) model to national enrollment data of part-time undergraduate students from 1970 to 2010. The paper then discusses several recommended marketing management concepts traditionally suggested by the model at various stages of the cycle. Next, the paper addresses the management of a part-time undergraduate program over the same time period, focusing on the management decisions contrary to standard PLC recommendations. The paper concludes by developing models testing the impact of not following standard marketing management concepts.

INTRODUCTION

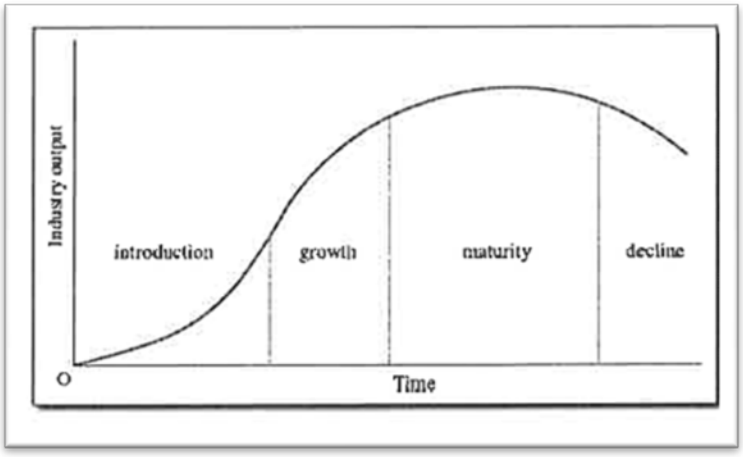
The subject for this analysis is a small Midwestern University with current enrollment of approximately 3,200 full time undergraduate students. The school also has a nontraditional program that caters to working adults, mostly in the business administration program. In spite of national data that indicates growth of the nontraditional market, and although the school has experienced strong growth in full time undergraduate markets, this one-time "cash cow' is experiencing decreasing enrollments. Explanations for the decrease in the part time enrollment for the institution, including questionable management decisions, are postulated based on an analysis of the impact of organizational decisions and their timing given the stage of the product life cycle. Future data, to be collected and entered into the model include internal nontraditional enrollment data, absence or presence of a program manager, level of administrative assistance for nontraditional students, percentage of courses for nontraditional students taught by full time faculty, number of regional competitors, and regional nontraditional enrollment data.

Conceptual Background

Product life cycle analysis is a useful management tool that has been used as "a basis for recommendations about the content of marketing programs at different stages of the life cycle" (Colli and Cook, 1969). Andersen and Zeithaml state that "Research in marketing as well as strategic management indicates that the product life cycle PLC is likely a fundamental variable affecting business strategy." And Day states that the model "has considerable descriptive value when used as a systematic framework for explaining market dynamics. The authors felt it would be a useful model to explain or describe the

decreasing enrollment in a nontraditional university student program while national statistics showed large increases in the size of the market. Following is a brief discussion of the PLC model followed by its specific application to the part time undergraduate enrollment data, the school's program and institutional decisions. The discussion begins with the second phase of the model, industry growth.

GRAPH 1
THE PRODUCT LIFE CYCLE



Industry Growth

The economic and market conditions that typify the second stage of the PLC are: very fast growth, lack of completion, pricing power and few differentiated products. The data show that overall U.S. enrollment in part time undergraduate programs grew by over 100% between 1970 and 1985. (IPEDS cite). The industry was in the fast growth stage of the product life cycle during this time period. For entrepreneurial organizations this presented a prime opportunity to develop programming for students seeking to attend college part time. Since demand exceeds supply, almost any program will be successful. Many institutions that took advantage of the opportunity did so in the lowest cost fashion possible by simply offering night course versions of their day programs. Since there were no additional expenses beyond hiring adjuncts, the programs usually generated large amounts of cash. The result was that as long as you offered courses at a convenient time, even inferior products/programs were successful. This may work up to a point. However, as noted by Peters and Waterman (1984), there is a danger to successful programs at the stage where demand exceeds supply. The danger is that managers often attribute their success in these markets to their own expertise and decision making skills and not to the fact that the market supply/demand discrepancy is the real driving force behind their success.

While still in the growth phase new challenges emerge when a market moves into an area of competitive turbulence/slowing growth. (Wasson, 1964) This phase is typified as continued but slowing market growth, (See part time industry enrollment data from 1985 through 1999) many competitors moving into the market, product differentiation among competitors and increased price competition. This is crucial as the consumer has choices, making a marketing orientation more important. Providing a basic product no longer ensures success. The older competitors often fail to realize the changes in the market, making decisions on what worked in the past and perhaps using financial or production criteria instead of consumer based criteria.

The implications of these changes are enormous for managers as now supply is catching up to demand with the resulting increase in competition and consumer choices. An organization has to now monitor the environment, especially consumer preferences, and can no longer rely on offering a single version of a product. Although this seems to be a straightforward proposition, management oftentimes seems resistant to make a change. This can be attributed to the need to give up 'power' to consumers (who

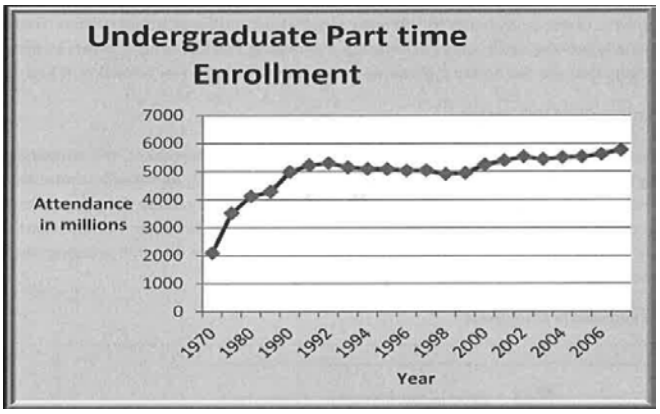
ultimately decide what is to be produced in a competitive market place) and the fact that costs will inevitably increase due to the need to monitor the marketplace and create new programming. Another aspect of this stage of the PLC is that supply not only catches up with demand but often exceeds it and competition becomes fierce.

The Maturity Stage

This stage is typified by the slowing growth and ultimately flattening of industry sales. The data from 2000 -2007 show signs of an early maturity stage with the projected data from 2008 through 2018 clearly indicating a relatively flat enrollment level. Market conditions are usually very competitive as the need to grow, by definition, comes at the expense of a competitor. Organizations that survived the turbulent stage are very savvy and pose significant threats. More money is allocated to new product development and market research to stay on top of changes in the market and promotional dollars are used to protect and maintain market share. Smaller players often leave as they cannot compete or are purchased by larger competitors. Smaller players that do not innovate invest in program development or listen to consumers will simply be forced to abandon the market.

The graph below depicts actual data for undergraduate part time enrollment.

APPLICATION OF THE PRODUCT LIFE CYCLE PRINCIPLES TO THE ENROLLMENT HISTORY FOR NONTRADITIONAL UNDERGRADUATE STUDENTS



Source: U.S. Department of Education, NCES, Digest of Education Statistics

Growth Stage Involvement

During the 1970's and 1980's the university was a pioneer in undergraduate nontraditional programming. Enlightened administrators had recognized the growth of the nontraditional college market and developed evening course offerings that appealed to the part time students. Using the simple tactic of making current courses and programs available at night to working adults, the university was quite successful. To keep the program cheap it was staffed through the use of full time faculty through overloads and not as part of their regular assignment. The course offerings were quite successful with class sizes of 30-40 and free cash flow generated in the $250,000 range. Suggested financial and management strategies would include investment to further growth, increase market share and supply necessary resources to monitor the program. Charging a higher price as there is a shortage of competitors is also a guideline at this point, which the organization did.

In the later growth period of the late 1980's, the industry became more competitive with newer entrants seeking to take part in the growth and profitability of the market. Although the market is growing, there is increased competition. Organizations begin to differentiate their products. National competitors such as the University of Phoenix and Upper Iowa aggressively entered the

market. At this juncture the university noted that newer competitors were using mostly adjunct faculty to staff part time programs. It relied on using full time staff and used the quality of the instruction (full time tenured faculty) as its competitive advantage to differentiate itself. The university had established a niche of having full time professors teach the evening courses in lieu of adjuncts. Despite the increase in competition the program still prospered as part of the market sought out 'regular professors'. Focus groups conducted by the school confirmed that this was a quality that some students sought. They also indicated that the separation of the nontraditional program and traditional student base was a plus. However, there were signs that indicated students wanted more flexible program offerings: such as weekend programs and shortened semesters (6-8 week courses).

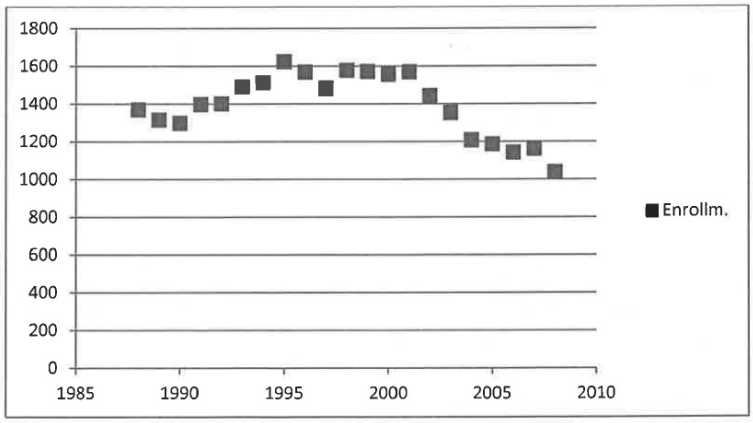
Market Maturity

The nineties offered an even more complex competitive environment, reflecting the later stage of market growth and a maturing market. As the market matured and there was little or no growth in the market to absorb new entrants, competition became fierce with organizations offering multiple programming options for students including weekend programs, lower tuition and in the early nineties promotional items such as free laptops. Survivors of this stage usually are the most adept at offering a changing market what it wants in terms of program attributes. Popular offerings that we see today include even shorter schedules (six weeks) and hybrid courses.

University's Response to the Changing Stages

During the industry growth stage and the University's successful entry into the market, the University initially supported the new programming with assigning a director of part time studies, increased administrative support (advising, longer office hours, etc.). However, beginning in the nineties, just as competition became fierce, the university made management decisions that were counter to conventional marketing management wisdom. The effects on nontraditional enrollment can be seen below. In spite of the mature, but still growing market, enrollment dropped precipitously.

SCHOOL NONTRADITIONAL UNDERGRADUATE ENROLLMENT



First, the university eliminated the director position for part time studies, thus removing specific management responsibility for the program. Without a program manager, no new innovations were forthcoming and there was no one to monitor the market and garner resources to make program changes. The following year, administrative support activity disappeared (shorter library hours, no evening hours at the registrar, etc.) Also, while some competitors differentiated themselves with off-site classes, shorter courses, weekend offerings and increasing online offerings, this university failed to respond to any of these. Management also decided to hire more adjuncts and limit the number of overloads of full time

staff, thus eliminating the attribute for which many part time students sought out the program. As nontraditional enrollment decreased, the university began to combine traditional and nontraditional students in classes to get 'economies of scale'. In essence, the school eliminated any reason, with the exception of geographical convenience, to attend the program. Although the overall industry market was increasing, the decrease in nontraditional enrollment at the university can be seen below.

Model Development

Several models will be developed which link management decisions to the effects on no traditional, part time enrollment at the University. We have developed a time line of management decisions that parallels declining enrollment at the university's part time program while the overall market was growing or at least stable.

One model, which could be called the full model, will use as the dependent variable the university's nontraditional enrollment and the independent variables will be: the absence or presence of a program director; the level of administrative assistance for nontraditional students; percentage of courses for nontraditional students taught by full time faculty; number of regional competitors; and regional nontraditional enrollment data.

Other models will focus on the university's internal decisions, such as the presence or absence of a program director and the level of administrative assistance for nontraditional students and its effects on the university's nontraditional enrollment. Still other models will focus on the impacts external factors have had on the university's nontraditional enrollment.

Models Tested

Model 1

Dependent variable: School part-time enrollment; Independent variable: Percentage of courses taught by adjuncts

Model 2

Dependent variable: School part-time enrollment; Independent variable: Director or no director of part-time program (variable= 1if director in place, = 0 if not)

Model 3

Dependent variable: School part-time enrollment; Independent variable: Presence or absence of administrative assistant (variable= 1if assistant, = 0 if not)

Model 4

Dependent variable: School part-time enrollment; Independent variables: Director or no director of part-time program, presence or absence of administrative assistant, percentage of courses taught by adjuncts

TABLE 1
MODEL 1

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.5252
R Square	0.2758
Adjusted R Square	0.2377
Standard Error	148.3497
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	159273.62	159273.62	7.2372005	0.0144922
Residual	19	418144.95	22007.629		
Total	20	577418.57			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1566.11	71.98	21.76	0.00	1415.44	1716.78	1415.44	1716.78
ADJ	-10.06	3.74	-2.69	0.01	-17.89	-2.23	-17.89	-2.23

TABLE 2
MODEL 2

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.7438
R Square	0.5533
Adjusted R Square	0.5298
Standard Error	116.5180
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	319466	319466	24	0
Residual	19	257953	13576		
Total	20	577419			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1218.71	44.04	27.67	0.00	1126.54	1310.89	1126.54	1310.89
PD	261.64	53.94	4.85	0.00	148.75	374.54	148.75	374.54

TABLE 3
MODEL 3

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.830
R Square	0.689
Adjusted R Square	0.672
Standard Error	97.284
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	397598	397598	42	0
Residual	19	179821	9464		
Total	20	577419			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1147	43.50692	26.36362	1.99E-16	1055.939	1238.061	1055.939	1238.061
AA	323.0625	49.84344	6.481545	3.28E-06	218.739	427.386	218.739	427.386

TABLE 4
MODEL 4

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.900
R Square	0.810
Adjusted R Square	0.777
Standard Error	80.285
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	467841	155947	24	0
Residual	17	109578	6446		
Total	20	577419			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	810.29	117.51	6.90	0.00	562.38	1058.21	562.38	1058.21
PD	201.79	72.51	2.78	0.01	48.79	354.78	48.79	354.78
AA	328.26	71.91	4.56	0.00	176.54	479.98	176.54	479.98
ADJ	11.53	3.83	3.01	0.01	3.45	19.62	3.45	19.62

CONCLUSION

The industry and program enrollment data appear to provide aggregate evidence that the nontraditional undergraduate program at the school was mismanaged. The hypothesized relationships between the variables and enrollment are significant, demonstrating that the PLC model has explanatory power and that management should give serious consideration to the model's general recommendations about the content of its marketing program relative to the stage of the PLC.