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ABSTRACT

To determine student needs, expectations, and levels of satisfaction with programs and services at Lima Technical College (LTC), in Ohio, a survey was distributed to 123 students, 7 faculty members, 13 staff members, and 9 senior administrators in fall 1994. The questionnaire asked respondents to choose 10 items from a list of needs and another 10 from a list of expectations, and rate LTC's provision of 21 programs and services. The 108 students who responded identified the following basic 10 needs: have an enjoyable occupation; be a productive person; have self-confidence; be able to apply new knowledge; make enough money to support themselves; acquire new skills; be able to help others; have time to relax; improve their self-image; and accomplish something worthwhile. The 10 expectations of LTC identified by students were affordable tuition, knowledgeable faculty, affordable book prices, a degree or certificate, convenient class times, state-of-the-art equipment, relevant programs, financial aid packages, reasonable class sizes, and a safe and clean environment. Administrators, faculty, and support staff all accurately predicted 14 of the 20 needs and expectations identified by the students. Although only 4 of the 21 programs and services matched the student list of needs and expectations, negative rating of these services never exceeded 15.4%. Contains 18 references. The survey instrument is appended. (TGI)

Best Predictors of Student Needs and Expectations: Responding to the Voice of the Customer and Orchestrating Change in a Two-Year College.

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Abstract

Best Predictors of Student Needs and Expectations: Responding
to The Voice of the Customer and Orchestrating Change
In A Two-Year Technical College
Robert A. Casto
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Colleges and universities are open (non-linear) systems with dynamic (complicated) human inputs, subsystems, processes, services, and products. The essential purpose of any system is to satisfy the needs and expectations of its direct customers by providing appropriate programs and services. Three questions exist: (a) what are those needs and expectations, (b) who best can predict them, and (c) what is the best method to determine the types and kinds of programs and services to satisfy customer needs and expectations?

Due to the frequency of contact with student customers, faculty members and front-line student services personnel may be better predictors of student needs and expectations than senior level college administrators. As a result of their predictor abilities, faculty members and student services personnel may be more adept at choosing services to satisfy student expectations than senior college administrators.

In order to determine student customer needs and expectations a survey was distributed to 123 Lima Technical College students. The survey consisted of seven questions. Questions one through six examined student needs and expectations while question seven examined the levels of satisfaction with programs and services designed supposedly to satisfy student needs and expectations. The same instrument was then administered to front-line student services personnel as well as senior level administrators at LTC.

In the student cohort, the mean age of respondents was 27.12 years which is consistent with the mean age of all LTC students at 28.2 years. The range in ages spanned the years 18 to 55. With respect to marriage and gender, 38 respondents were married and 70 were single; 72 respondents were female and 36 were male. Most respondents were from Allen County, Ohio with the second greatest number of respondents from Putnam County, Ohio. This is consistent with the overall college population . . . Allen and Putnam Counties are LTC's greatest suppliers of students. With respect to ethnicity; 89 respondents were White, 8 Black, 2 Hispanic, 1 Asian, 1 American Indian, and 7 undisclosed. Sixty-nine of the respondents had attended LTC only with the mean number of quarters of attendance at 6.12 (range 1 to 24 quarters).

The results of the student surveys showed the top ten basic needs to be:

1. Have an occupation that I enjoy doing/to have an enjoyable job.
2. To be a productive person
3. To believe in self/to have self-confidence.
4. To be capable of applying new skills/to have ability to apply knowledge.
5. Make ample money to support myself/to have a career that pays well.
6. To acquire new abilities/to have a skill.
7. To be capable of assisting other human beings/to have ability to help others.
8. Leisure time/have time to relax.
9. Improved self-image/to feel good about self.
10. Gain something advantageous/to accomplish something worthwhile.

The results of the student surveys showed the top ten expectations to be:

1. Affordable tuition and fees/to have reasonable costs for instruction.
2. Knowledgeable and up-to-date faculty/to have instructors who know their topics.
3. To have affordable book prices/to have reasonable book store costs.
4. To provide a degree or certificate.
5. To have reasonable times for class offerings/to have classes offered at convenient times.
6. To have state-of-the-art equipment/new and up-to-date technology.
7. Relevant programs of study/programs that reflect the work environment.
8. Financial aid packages/student loans, scholarships, and grants.
9. Reasonable class size/classes that are not too large.
10. Safe and clean environment/secure and safe environment.

With respect to LTC employees, all four groups (administrators, faculty members, professional non-teaching student services staff members, and student services support staff members) used the same methodology in completing the survey instrument.

When examining the demographics of the four predictor groups, administrators and faculty members had the greatest number of years at their present positions, 14 and 12 respectively. Student services support staff had only 6.2 years in their present positions but spent 93% of their days working with student related problems and issues, and 66% of the day in direct student contact. The group with the least amount of direct student contact was the administrators.

The results reveal no difference in the predictor abilities of administrators, faculty members, and support staff personnel at Lima Technical College. These three groups predicted the needs and expectations of the students with equal ability. The only difference in predictor ability existed between these first three groups and the professional non-teaching student services staff members.

In the aggregate, administrators accurately predicted 14 of the 20 needs and expectations expressed as priorities by LTC students. When comparing the predictor abilities of faculty members to administrators, they scored higher in their abilities to predict student needs but lower in their abilities to predict student expectations; however, the overall predictor rate was equivalent to senior level administrators. In the aggregate, faculty members successfully matched 14 of the 20 needs and expectations chosen by the students. For support staff members, the ability to accurately predict student needs equalled that of faculty members. Interestingly, support staff members predicted the exact same needs as chosen by faculty members. Both groups shared predictor rates of 80% by choosing eight of the same needs chosen by students. With respect to expectations, support staff members successfully predicted expectations 60% of the time. This predictor rate equalled that of faculty members but fell behind the predictor abilities of administrators at 80%. In the aggregate, support staff members successfully matched 14 of the 20 needs and expectations chosen by students. With respect to student services professional non-teaching staff members, the n for this group was four, which may have affected their group's performance as predictors of student needs and expectations. In the aggregate, this group successfully matched 10 of the 20 needs, and expectations chosen by students.

This study adapted QFD methodologies to LTC. The study did not replicate methodologies or produce the House of Quality; a rather complicated cross-referenced matrix of design requirements, customer attributes, and product features. The study did, however, evaluate LTC's services against anticipated needs.

Question seven of the survey listed 21 programs and services currently provided by the college, which supposedly satisfied some student needs and expectations. Students were asked to review the list and to indicate opinions of how strongly they believed the programs and services satisfied their needs. The

list of services was generated prior to establishing the top ten student needs and expectations. Therefore, only four of the twenty-one programs and services clearly matched an identified top ten need or expectation. In all four cases, student disagreement never exceeded 14.13%. Out of 21 programs and services, disagreement never exceeded 15.38%.

The adapted QFD methodology used by LTC did not produce the kind of information needed to design and implement new programs and services targeted at student needs and expectations. Nor did it help to determine services requiring change or deletion, or produce a group vision of what the college's programs or services should become. The methodology did focus the emphasis in the right place . . . the voice of the customer, which is the drive shaft of the QFD engine.

A process closer to QFD should be employed to translate these needs and expectations into organizational actions. Students should be asked to describe the attributes of the services needed to satisfy a particular need or expectation. For example, what attributes are required to satisfy their need for leisure time or improved self-image? In this way, LTC could design programs and services that meet or exceed the levels provided by other colleges. The levels of service provided by other institutions become the competitive benchmarks for LTC.

Introduction

Problem Definition and Research Area

Colleges and Universities As Systems

Colleges and universities are open (non-linear) systems with dynamic (complicated) human inputs, subsystems, processes, services, and products (Birnbaum, 1988). Such systems have relatively permeable borders.

The essential purpose of any system is to satisfy the needs of its direct customers by providing appropriate processes and services. Processes should be designed to satisfy customer expectations in a quality manner. Quality occurs when customer expectations are met and then exceeded (Wallin & Ryan, 1994). Remember customers can fire an organization by simply taking their money elsewhere. On the other hand, if processes and services are provided because of anticipated needs, which may not exist, valuable resources are incorrectly applied.

The Question and Hypothesis

The Questions.

The questions exist: (a) what are the needs and expectations of students; (b) who can best predict the needs and expectations of students; and (c) what is the best way to select processes and services that will satisfy student needs, in order to maximize quality and resource allocation? The size of the institution and frequency of contact with specific customer cohorts may have a bearing on the ability to accurately predict customer needs and expectations.

The Hypothesis.

Due to the frequency of contact with student customers, faculty members and front-line student services personnel may be better predictors of student needs and expectations than senior level college administrators. As a result of their predictor abilities, faculty members and student services personnel may be more adept at choosing services to satisfy student expectations than senior college administrators. For purposes of this research project, the null hypothesis is: No

difference between the predictor abilities of faculty members and front-line student services personnel when compared to the predictor abilities of senior level college administrators at Lima Technical College. Therefore, the alternate hypothesis is a difference in predictor abilities.

Research Design

According to Hubbard (1993) "Quality Function Deployment (QFD) is a strategic tool that enables an organization to capture customers' expectations and to translate those expectations into organizational language and action" (p. 282). QFD was developed in the late 1970s by the Japanese and transported to the United States. It has been most widely applied to the business community and is starting to be recognized by colleges as a way to determine customer needs and to design products and services to reflect those desires and wants (Hauser, 1988).

In 1992, I began to use a modification of QFD to help determine the products, services, and programs that would satisfy needs and expectations of the various external and internal constituents of Lima Technical College (LTC). The process begins by surveying a customer base to define needs and expectations and ends by matching these needs with internal processes of the college. LTC's student customer base has most recently been surveyed.

Data Collection.

I propose to administer the same instrument, which was used to determine student needs and expectations, to front-line student services personnel as well as senior level administrators at LTC. The data will be analyzed and compared against the hypothesis.

Plan of Presentation

Customers, Needs, and Expectations.

The main body of this paper will include a discussion of customers, in general, followed by a discussion of students as customers of teaching. The argument will be made that the business and industry model of customer can be applied to the collegiate setting. Inherent human needs

and expectations will be defined and then related to customer needs and expectations. The importance of satisfying customer needs and expectations will be discussed.

Survey Results.

The survey methodology and results of four cohorts will be presented: (a) students, (b) faculty members, (c) professional and support staff, and (d) administrators. Demographic data will be presented for the four cohorts as well as a discussion of the results for each cohort, comparisons and contrasts will be offered.

Responding to Needs and Orchestrating Change.

QFD is a tool that has been successfully used by Polaroid, Ford, General Electric, and Texas Instruments to improve product performance. Hubbard (1993) stated that QFD can have the same impact in higher education. QFD will be defined as well as its benefits, outcomes, processes, and applications. QFD will be discussed as a way to determine appropriate products and services for LTC. Results of survey question seven will be presented.

Conclusion.

A discussion of the results of best predictors of student needs will be presented as well as a discussion of QFD outcomes.

Main Discussion

Customers

External Customers

All organizations have customer bases that are both internal and external to the organization (Juran, as cited in Wallin & Ryan, 1994; Thor, 1992). External customers are divided into direct and indirect customers (Lewis & Smith, 1994).

External Direct Customers.

Direct customers are those for whom the organization exists and are the direct beneficiaries of the services or products provided by the organization (Poling, Mowery, & Reavis, 1995). Direct customers provide the purpose for or reason for the existence of the organization.

External Indirect Customers.

Indirect customers are those with some stake in what the organization does or does not accomplish and who may have to live with the consequences of how the organization conducts its business even though not directly using the organization's products or services (Poling et al. 1995).

Internal Customers

Internal customers are those who depend on the organization for information to do their jobs and who the organization is supporting (Wallin & Ryan, 1994; Poling et al. 1995). In short, they are employed by the organization.

Customers of Colleges

The primary external customers of colleges and universities are their students (Thor, 1992. Lewis and Smith (1994) referred to students as "customers of teaching" (p. 65). Many in higher education are not accustomed to viewing their students as customers and dislike the reference. The terminology seems to imply an unholy alliance between student and faculty member that is "anathema to the historic, traditional academic role as the purveyor of knowledge" (Lewis & Smith, 1994, p. 92). In short, faculty members see student input as intrusive rather than a way to include their students in the learning process. Such beliefs exclude students from full participation in their learning. According to Thor faculty should continue to define learning content and subject matter but "students can and should be included in defining the educational process" (p. 12).

The indirect external customers of colleges and universities are diverse and varied and may include employers, other colleges into which students transfer, accrediting bodies, government

agencies, (etc.). Even suppliers of goods and services to the college or university may be considered as indirect customers. Figure 1, shows the customer map of Lima Technical College. External direct customers are depicted by outgoing arrows and external indirect customers are shown by incoming arrows. Internal customers are shown within the outlined box. The map pictorially represents identified customer relationships of LTC.

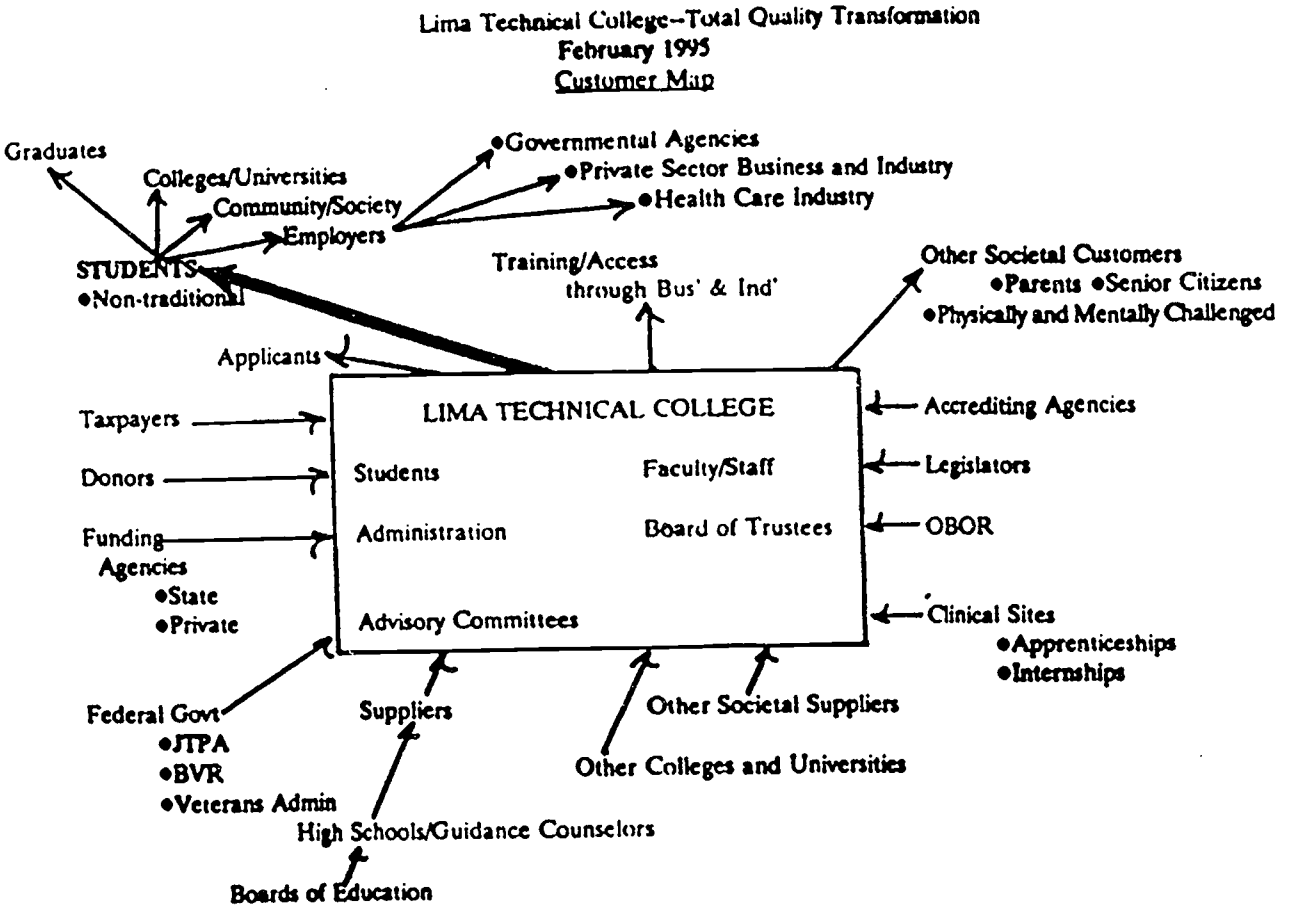
Needs and Expectations

Each customer cohort has inherent (basic needs) and expectations that can be satisfied in whole or in part by educational institutions. Needs arise from within people and are generally viewed as problems that people are trying to solve. Burton (as cited in Coate & Rosati, 1988) stated that there are basic and fundamental needs which are common to all humans such as the need for oxygen or the need for water. Needs are universal, in short all humans have the same inherent needs that are universalizable (Doyal & Gough, 1991). In addition, there are societal needs "those needs without which there cannot be on-going social relationships and harmonious organizations" (p. 37). In short, needs are those conditions or opportunities that are essential to the individual if they are to be functioning members of society.

Needs may depend on one's preference but if pursued as pleasure or enjoyment they are not considered course-of-life or basic needs (Braybrooke, 1987). According to Drewnowski (as cited in Braybrooke) course-of-life needs do not depend on preferences and include such things as the need for nutrition, shelter, health, education, leisure, security (personal and economic), environmental (cultural, social, and physical).

Needs will exist until things are found to fulfill them. Customers exhibit goal directed behaviors until their needs have been satisfied. Doyal and Gough (1991) stated that the word

Figure 1.



Note: Outgoing arrows indicate DIRECT customers (those for whom we exist) of LTC
Incoming arrows indicate INDIRECT customers (those who have a stake in what we do) of LTC.

need is often meant to refer to some kind of a goal. For example, a person needs, and should have the goal of, proper shelter for the winter. According to Braybrooke (1987) a mathematical formula describes the relationship between needs and goals. N needs X in order to Y. Or person N, needs an education X, to get a job Y. If the goal of getting a job is very important to the person then the need for an education becomes very strong. The greatest needs are satisfied first.

Customers have expectations that arise from without. Expectations are assumptions that are made about the fulfillment of needs. Expectations are created by outside influences or entities. Therefore, expectations exist only when customers have had experiences with products or services that have shaped their expectations. "Customer needs arise within the customer, expectations are created by suppliers of products and services" (PQ Systems, 1993). For example, a person may have a need to travel from the east coast to the west coast. That need may be fulfilled by a train, a bus, a car, or even a horse, but the expectation is to make the trip in eight hours or less. The expectation was created by airlines that have successfully flown passengers from one coast to the other in eight hours or less. Or at the end of the trip what we need are a bed and a bathroom but we expect a room with a clean comfortable bed, a bathroom with a hot shower, and a TV with 30 cable channels (Wallin & Ryan, 1994). Please note that needs are satisfied, by fulfilling expectations, through the purposeful activities of a system.

Survey of Needs and Expectations of Students at LTC

A survey was distributed to 123 currently attending Lima Technical College students (see Attachment 1). The survey requested demographic data, as well as student opinions of needs and expectations.

Operational definitions were provided for basic needs and expectations. For purposes of the survey, basic needs were defined as those elements of each student's life that are necessary for their social and psychological existence and support. This definition is consistent with Burton (as cited in Coate & Rosati, 1988). Expectations were defined as those things that are anticipated

as being proper and necessary (things that will likely occur). Students were told that, expectations are usually accompanied by higher levels of confidence than are basic needs. In other words, people expect more than they need. This is consistent with Wallin and Ryan's (1994) discussion of expectations.

The survey consisted of seven questions. Questions one and two were designed as a practice warm-up and were extraneous to the goals of the survey. The heart of the survey was questions three through six. Question three, asked students to choose ten items that best described their basic human needs. Question four, asked students to choose ten items that best described their basic needs as college students. The list of items in question four, were written as synonyms to the list in question three.

By arranging the elements of question four as synonyms of the elements in question three, a measure of consistency was achieved. When a response to a synonym did not receive approximately the same number of replies as the original, it may have been discarded. To determine a total score for an element of question three, the number of replies for its synonym was added to the number of original replies. For example, the score for recreational opportunities in question three was added to the score for sports, hobbies, and cultural events in question four. The same methodology was employed for questions five and six, which presented lists of synonyms related to expectations held by students.

Question seven, asked students to rate services provided by Lima Technical College. Although, the information obtained from questions one and two were very useful and provided insight into what it is like being a college student at LTC, it exceeded the intent of the survey. The data from these two questions is not presented or analyzed for this paper. The data for question seven will be addressed in later sections.

Demographic Data

Surveys were distributed to 123 LTC students with a return rate of 87.8% (n=108). LTC fall quarter 1994 headcount enrollment was 2,583. The mean age of respondents was 27.12 years which is consistent with the mean age of all LTC students at 28.2 years. The range in ages spanned the years 18 to 55. With respect to marriage and gender, 38 respondents were married and 70 were single; 72 respondents were female and 36 were male. Most respondents were from Allen County, Ohio with the second greatest number of respondents from Putnam County, Ohio. This is consistent with the overall college population . . . Allen and Putnam Counties are LTC's greatest suppliers of students. With respect to ethnicity; 89 respondents were White, 8 Black, 2 Hispanic, 1 Asian, 1 American Indian, and 7 undisclosed. Sixty-nine of the respondents had attended LTC only with the mean number of quarters of attendance at 6.12 (range 1 to 24 quarters).

Results of The Student Survey

Question Three and Four

1. Question Three: Which of the following best describes your basic human needs?
2. Question Four: As a college student, which of the following are your basic human needs?

Results of Questions Three and Four.

Results listed in priority.

1. **Have an occupation that I enjoy doing/to have an enjoyable job.**
2. **To be a productive person**
3. **To believe in self/to have self-confidence.**
4. **To be capable of applying new skills/to have ability to apply knowledge.**
5. **Make ample money to support myself/to have a career that pays well.**
6. **To acquire new abilities/to have a skill.**
7. **To be capable of assisting other human beings/to have ability to help others.**

8. Leisure time/have time to relax.

9. Improved self-image/to feel good about self.

10. Gain something advantageous/to accomplish something worthwhile.

Question Five and Six

1. Question Five: As a college student, what expectations do you have for college's in general?

2. Question Six: As a student at LTC, what expectations do you have for Lima Technical College?

Results of Questions Five and Six.

1. Affordable tuition and fees/to have reasonable costs for instruction.

2. Knowledgeable and up-to-date faculty/to have instructors who know their topics.

3. To have affordable book prices/to have reasonable book store costs.

4. To provide a degree or certificate.

5. To have reasonable times for class offerings/to have classes offered at convenient times.

6. To have state-of-the-art equipment/new and up-to-date technology.

7. Relevant programs of study/programs that reflect the work environment.

8. Financial aid packages/student loans, scholarships, and grants.

9. Reasonable class size/classes that are not too large.

10. Safe and clean environment/secure and safe environment.

Discussion of Student Results

Much of the data is consistent with adult re-entry students who expect practicality and concrete returns for their efforts (Strange & King, as cited in Creamer, Creamer, Erwin, Huebner, & King, 1990). Wallin and Ryan (1994) stated that what students need are learning experience sbut what they expect are credentials, employment, successful transfers, and new job skills; all of which reflect the pragmatism associated with two-year college students.

According to Cross (as cited in Creamer, et al., 1990) adult learners approach college with low self-esteem, memories of unpleasant past experiences as well as suspicions of the system in general. On the other hand, it appears that adult learners are no different from traditional age college students who have the need to develop personal identities, competence, autonomy, and purpose (Chickering, as cited in Widick, Parker, & Knefelkamp, 1978). These needs and others are reflected in the top ten choices of LTC students.

Best Predictors of Student Needs and Expectations

Faculty Members

As a control group, seven faculty members were asked to independently review the same list of inherent needs and student expectations as presented to the students. They were instructed to use their experience and knowledge of students to answer questions about students' needs and expectations. In short, they were to guess or anticipate how students might answer the questions about needs and expectations. Operational definitions for needs and expectations were the same as those used by students in answering their surveys.

Demographic Data.

The mean number of years of teaching experience was 12. On the average, 66% of their day was spent in direct student contact with a range of 25% to 95%, or 29% of their day was spent in working with student related problems, issues, or projects (range 5% to 50%). Three faculty rated their personal knowledge of students' needs and expectations as excellent and four rated their knowledge as good (see Figure 2).

Figure 2.

Group Demographics				Administrators	Faculty	Prof' Non-teach'	Support Staff
			N=	9	7	4	9
Mean number of years at present position				14	12	3.75	6.2
Percent of day spent in direct student contact				12.00%	66.00%	60.00%	66.00%
Percent of day spent working with student related problems, issues, etc				50.80%	29.00%	53.00%	93.00%
Personal knowledge of student needs and expectations							
			Excellent	4	3		2
			Good	3	4	4	7
			Fair	2			
			Poor				

Results of Questions Three and Four.

Results listed in priority.

1. Reasonable costs.

2. Gain something advantageous. Make ample money to support me. Have an occupation that I enjoy doing.

3. To believe in self. Get along with others. To be a productive person. Capable of applying new skills. Improved self-image. To acquire new skills.

Results of Questions Five and Six.

Results listed in priority.

1. State-of-the-art technology.

2. Knowledgeable and up-to-date faculty members. Reasonable times for class offerings. To provide a degree and/or certificate of completion. Affordable tuition and fees.

3. Safe and clean environment.

4. Food services. Clear expectations as a student.

5. Fair and timely evaluation. Services that will help me to develop my academic skills.

Student Services Professional and Support Staff Members

The same methodology was used to survey four professional non-teaching and nine support staff members.

Demographic Data of Professional Non-Teaching.

The mean number of years in their present positions as student services professionals were 3.75. On the average, 60% of their day was spent in direct student contact with a range of 30% to 85%, or 53% of their day was spent in working with student related problems, issues, or projects (range 25% to 75%). All four rated their personal knowledge of students' needs and expectations as good (see Figure 2).

Demographic Data of Support Staff Members.

The mean number of years in their present positions as student services support staff members were 6.2. On the average, 66% of their day was spent in direct student contact with a range of 35% to 98%, or 93% of their day was spent in working with student related problems, issues, or projects (range 60% to 100%). Two staff members rated their personal knowledge of students' needs and expectations as excellent and seven rated their knowledge as good (see Figure 2).

Results of Questions Three and Four: Professional Non-Teaching.

Results listed in priority.

1. Have an occupation that I enjoy doing.

2. To be a productive person. Capable of applying new skills. Reasonable costs. Babysitting. To acquire new abilities. Enjoyable environment. Sports, hobbies, and cultural events.

Results of Questions Three and Four: Support Staff Members.

Results listed in priority.

1. To use logic and reasoning to think better. Capable of applying new skills.

2. To be a productive person. To have an occupation that I enjoy doing. Opportunities that challenge my present abilities. To acquire new abilities.

3. Make ample money to support me. To believe in my self.

4. Improved self-image. Gain something advantageous.

Results of Questions Five and Six: Professional Non-Teaching.

Results listed in priority.

1. Safe and clean environment. Close, convenient parking. Reasonable times for class sections. Marketable programs of study. Affordable tuition and fees.

2. Services that will help me develop my academic skills. Affordable book prices. Knowledgeable and up-to-date faculty. Reasonable class size. Financial aid packages.

Results of Questions Five and Six: Support Staff Members

Results listed in priority.

1. Safe and clean environment. Services that will help me to develop my academic skills. Affordable tuition and fees.

2. State-of-the-art technology. Relevant programs of study. A variety of instructional methods (lecture, labs, telecourse, self-paced courses) (etc.). Knowledgeable and up-to-date-faculty members. Programs commensurate with national measures of acceptance.

3. Marketable programs of study.

4. Affordable book prices.

Senior Level Administrators

The same methodology was used to survey nine senior level administrators of Lima Technical College.

Demographic Data.

The mean number of years in their present positions was 14. On the average, 12% of their day was spent in direct student contact with a range of 0% to 70%, or 50% of their day was spent in working with student related problems, issues, or projects (range 0% to 100%). Four administrators rated their personal knowledge of students' needs and expectations as excellent, while three rated their knowledge as good, and two rated their knowledge as fair (see Figure 2).

Results of Questions Three and Four.

Results listed in priority.

1. Have an occupation that I enjoy doing.

2. To believe in self. To be a productive person. Capable of applying new skills. Make ample money to support me.

3. Get along with others. Improved self-image. To use logic and reasoning.

4. Family members who help me reach my goals.

5. Reasonable costs.

Results of Questions Five and Six.

Results listed in priority.

1. State-of-the-art technology. Knowledgeable and up-to-date faculty members. Affordable tuition and fees.

2. Reasonable times for classes.

3. Safe and clean environment. Relevant programs of study. Affordable book prices.

Marketable programs of study. Support services, such as the library. To provide a degree and/or certificate of completion.

Responding to Needs and Orchestrating Change

Having gained some knowledge of student needs and expectations at LTC, a process is needed by which to respond to these needs and to orchestrate implementation of programs and services. Conversely, the college needs a system that may eliminate programs and services exceeding expectations. Organizations are fast recognizing that they can no longer be all things to all people (Gordon, 1995). When services are produced without corresponding needs, the organization may be wasting resources. On the other hand when customer needs are not met with products, programs, or services -- quality suffers and the organization's customers (students) may take their business elsewhere.

Organizations should be sensitive to quality when eliminating products and services, especially in these times of customer defined quality. During the past few years many definitions of quality have emerged. Two such definitions were presented by Schermerhorn, and Wallin and Ryan in 1994. Respectively, Schermerhorn stated "quality means that the customers needs are being met and that all tasks are done right the first time" (p. 44), and Wallin and Ryan stated that a quality organization meets or exceeds customer needs and expectations. Quality is such an important aspect of today's marketplace that Tom Peters (as cited in Wallin & Ryan) called it the very basis for organizational survival.

With respect to colleges and universities the late Dr. W. Edward Deming (as cited in Lewis & Smith, 1994) said, to find out if graduates feel they have attended quality schools simply ask "are you better off having gone to that school" (p. 94)? In a sense Deming believed in listening to the Voice of The Customer (VOC).

The VOC is an acronym used by proponents of Quality Function Deployment to describe customer input. As mentioned, QFD is a process that translates customer needs and expectations

into organizational action (Hubbard, 1993). But it starts with customer input or the voice of the customer. Its origin is, therefore, with the customer and it will help the organization establish a customer focus (Day, 1993).

Customer input can be obtained in a variety of ways. According to Day (1993) focus groups, personal interview, or surveys can be used to obtain the voice of the customer. The study of needs and expectations at LTC used a written survey instrument. In the for-profit corporate sector, the QFD methodology starts with what customers want. These customer requirements are called attributes. In short, the attributes are phrases that customers use to describe products or product characteristics (Hauser, 1988). For example, the car door is easy to open or seats are easily adjusted. Experienced QFD'ers try to preserve exact customer phrases. In short, the methodology produces a list of customer expectations for which engineers try to design creative solutions. Eventually, a planning matrix is produced that compares present company products and services to customer needs and expectations (Shillito, 1994). The matrix helps to determine improvement for current programs and services and the absence of services necessary to satisfy unfulfilled needs. When used, QFD stops an organization from developing products and services based solely on its own impressions (Day).

This study adapted QFD methodologies to LTC. The study did not replicate methodologies or produce the House of Quality; a rather complicated cross-referenced matrix of design requirements, customer attributes, and product features (Shillito, 1994). The study did, however, evaluate LTC's services against anticipated needs.

Question seven of the survey listed 21 programs and services currently provided by the college, which supposedly satisfied some student needs and expectations. Students were asked to review the list and to indicate opinions of how strongly they believed the programs and services satisfied their needs. The list of services was generated prior to establishing the top ten student needs and expectations. Therefore, only four of the twenty-one programs and services clearly

matched an identified top ten need or expectation. In all four cases, student disagreement never exceeded 14.13%. Out of 21 programs and services, disagreement never exceeded 15.38% (see Figure 3).

Figure 3.

Figure 3.

Question 7

In what way does Linn Technical College meet your needs and expectations?

Linn Technical College Provides...

	AGREE	SOMEWHAT AGREE	DISAGREE	% DISAGREEMENT	NOT APPLICABLE
a. Quality faculty members	57	51			
b. Degrees and certificates	80	26	1		1
c. Hands on program experience	55	36	2		
d. Academic advising	59	38	12	12.37%	2
e. Remedial education services	25	48	3		2
f. Quality education experiences	57	60			
g. Parking lots	44	56	11	11.00%	
h. Continuing education opportunities	54	35	9		11
i. A career center	47	31	12	15.38%	14
j. Job placement services	45	41	8		13
k. Campus security	55	46	4		4
l. Campus maintenance	46	32	6		6
m. Handicap accessible facilities	52	26			31
n. Internet access	55	32	7		28
o. Up-to-date equipment	47	45	13	14.13%	4
p. Student awards and recognition	36	52	11	12.50%	11
q. Social clubs and activities	41	41	5		18
r. Financial aid	54	29	11	13.25%	13
s. Cultural events	41	40	6		23
t. Campus safety	41	39	2		7
u. Food service	39	54	11	11.82%	5

Conclusion

Discussion of Results of Best Predictors of Student Needs and Expectations

All four groups (administrators, faculty members, professional non-teaching student services staff members, and student services support staff members) used the same methodology in completing the survey instrument. As previously mentioned, they were to guess or anticipate how students might answer the same questions about needs and expectations. The same operational definitions for needs and expectations were applied throughout the project.

As previously described, two of the three questions to be answered by this research project were: (a) what are the needs and expectations of students and (b) who are the best predictors (other than students) of those needs and expectations? I had reasoned that due to the frequency of contact with student customers, faculty members and front-line student services personnel may be better predictors of student needs and expectations than senior level administrators. The null hypothesis was that there is no difference between predictor abilities.

When examining the demographics of the four predictor groups, administrators and faculty members had the greatest number of years at their present positions, 14 and 12 respectively. Student services support staff had only 6.2 years in their present positions but spent 93% of their days working with student related problems and issues, and 66% of the day in direct student contact. The group with the least amount of direct student contact was the administrators.

The results reveal no difference in the predictor abilities of administrators, faculty members, and support staff personnel at Lima Technical College. These three groups predicted the needs and expectations of the students with equal ability. The only difference in predictor ability existed between the first three groups and the professional non-teaching student services staff members. So, there is no evidence to reject the null hypothesis of no difference in predictor ability. With respect to professional non-teaching staff members the null was rejected, thereby, accepting the alternate hypothesis that a difference does exist in predictor ability.

Administrator Predictor Abilities

Conclusions were based on comparisons of group choices to those needs and expectations chosen by the student group. For example, administrators collectively choose six of the same needs as chosen by students in forming their list of top ten needs. Similarly, administrators were able to duplicate eight expectations as chosen by the student cohort (see Figure 4). Administrators successfully predicted, 60% of the time, the same needs as chosen by students. Likewise, their success rate for predicting expectations was 80%.

In the aggregate, administrators accurately predicted 14 of the 20 needs and expectations expressed as priorities by LTC students. It should be noted, that the order of priorities may have been different within the top choices in each category. For example, students listed their top need as having an occupation that they enjoyed doing. Administrators, predicted this same choice. However, students ranked an improved self-image as number nine in their list of top ten needs, while administrators predicted it as the third priority. It should be noted that administrators predicted four needs and two expectations that did not match any of the top ten listed by students. These four needs did not seem to reflect an administrator's bias; however, one of the two expectations seemed to be emblematic of an administrator's response, e.g. marketable programs of study. The order of priorities was also different in the list of expectations. For example, students ranked reasonable times for classes as their fifth priority, while administrators guessed it as number two.

Figure 4.

Question Three and Four						
Student Choices In Priority		Administrators	Faculty	Prof Nonteach'	Support St.
1. Have an occupation that I enjoy doing.		X	X	X	X
2. To be a productive person.		X	X	X	X
3. To believe in self.		X	X		X
4. To be capble of applying new skills.		X	X	X	X
5. Make ample money to support myself.		X	X		X
6. To acquire new abilities.			X	X	X
7. To be capable of assisting other human beings.					
8. Leisure time.					
9. Improved self-image.		X	X		X
10. Gain something advantageous.			X		X
	Score	6/10	8/10	4/10	8/10
Questions Five and Six					
Student Choices In Priority		Administrators	Faculty	Prof Non-teach'	Support Staff
1. Affordable tuition and fees.		X	X	X	X
2. Knowledgeable and up-to-date faculty members.		X	X	X	X
3. To have affordable book prices.		X		X	X
4. To provide a degree or certificate.		X	X		
5. To have reasonable times for class offerings.		X	X	X	
6. To have state-of-the-art equipment.		X	X		X
7. Relevant programs of study.		X			X
8. Financial aid packages.				X	
9. Reasonable class size					
10. Safe and clean environment.		X	X	X	X
	Score	8/10	6/10	6/10	6/10

I fully expected the group with the least amount of student contact to have lesser predictor abilities. I anticipated an improvement theory that described either: (a) increased student contact or (b) increased communication with those having high levels of student contact. In short, I expected a difference in predictor abilities that could only be remedied by more student contact or better communication with those having a lot of contact.

Perhaps the predictor abilities of LTC administrators are indicative of good internal and external scanning. That is, good communications that maintain awareness of student needs and expectations. Predictor abilities of LTC administrators may also be tied to the size of the institution, e.g. as size decreases predictor abilities increase. Enrollments at LTC are approximately 2,600 students. One might anticipate that predictor abilities of administrators would decrease as institutional size increased. These abilities might be improved through methods or devices aimed at improving communication with persons of high student contact.

Faculty Member Predictor Abilities

When comparing the predictor abilities of faculty members to administrators, they scored higher in their abilities to predict student needs but lower in their abilities to predict student expectations; however, the overall predictor rate was equivalent to senior level administrators. In the aggregate, faculty members successfully matched 14 of the 20 needs and expectations chosen by the students (see Figure 4). However, faculty members listed reasonable costs as the top need of students. Students did list affordable tuition and fees as their top expectation but not as their top basic need. Similar to administrators, faculty members predicted two needs and four expectations not listed by students. These two needs did not seem to reflect a teacher's bias, however, three of the four expectations dealt with some aspect of the teaching domain.

Student Services Support Staff Predictor Abilities

For support staff members, the ability to accurately predict student needs equalled that of faculty members. Interestingly, support staff members predicted the exact same needs as chosen

by faculty members. Both groups shared predictor rates of 80% by choosing eight of the same needs chosen by students. With respect to expectations, support staff members successfully predicted expectations 60% of the time. This predictor rate equalled that of faculty members but fell behind the predictor abilities of administrators at 80%. In the aggregate, support staff members successfully matched 14 of the 20 needs and expectations chosen by students (see Figure 4). As with the other two groups, support staff members did not match the order of listed priorities.

Student Services Professional Non-teaching Staff Member Predictor Abilities

The n for this group was four, which may have affected their group's performance as predictors of student needs and expectations. In the aggregate, this group successfully matched 10 of the 20 needs, and expectations chosen by students (see Figure 4).

QFD Outcomes

The adapted QFD methodology used by LTC did not produce the kind of information needed to design and implement new programs and services targeted at student needs and expectations. Nor did it help to determine services requiring change or deletion, or produce a group vision of what the college's programs or services should become. The methodology did focus the emphasis in the right place . . . the voice of the customer, which is the "drive shaft of the QFD engine" (Marsh, Moran, Nakui, & Hoffher, 1991, p. 44).

A process closer to QFD should be employed to translate these needs and expectations into organizational actions. Students should be asked to describe the attributes of the services needed to satisfy a particular need or expectation. For example, what attributes are required to satisfy their need for leisure time or improved self-image? In this way, LTC could design programs and services that meet or exceed the levels provided by other colleges. The levels of service provided by other institutions become the competitive benchmarks for LTC.

In closing, Hamel and Prahalad (1994) described three kinds of organizations:

1. Those that lead customers where they don't want to go. These companies find the concept of being customer led insightful.
2. Those that listen to customers and then respond to their articulated needs which may already be satisfied by more foresightful competitors.
3. Those that lead customers where they want to go but don't know it yet.

I propose that a combination of two and three would be most beneficial for Lima Technical College. LTC is presently satisfying the second description. It now needs to expand its processes to better match the criteria described by the third description.

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Lima Technical College
Student Survey
of Needs and Expectations

Name: _____
Program of study: _____
Address: _____

Please answer the following questions about yourself.

1. What is your age?_____
2. Female or Male (circle your response)
3. Ethnic Origin (circle your response): [Black, Not of Hispanic Origin]; [Asian or Pacific Islander]; [American Indian or Alaskan Native]; [White, Not of Hispanic Origin]; [Hispanic]; [Non-resident Alien].
4. Married or Single (circle your response)
5. How many dependent children do you have? _____
6. County of residence?_____
7. How many quarters have you attended LTC?_____
8. Have you attended other colleges? Yes or No (circle your choice)

Operational Definitions:

For purposes of this survey, basic needs are defined as those elements of your life that are necessary for your social and psychological existence and support. Expectations are defined as things that you anticipate as being proper or necessary (things that will likely occur). Expectations are usually accompanied by a higher level of confidence than are basic needs. In other words one expects more than they need.

1. Being a college student is:

(Choose only 5. Circle the letters.)

a. fun
b. a lot of work
c. time consuming
d. easy
e. worthwhile
f. difficult
g. expensive
h. a meaningful experience
i. confusing
j. satisfying
k. tiring
l. stimulating
m. a learning experience
n. interesting
o. embarrassing
p. a waste of time
q. will add value to my life
r. will lead to better employment
s. will lead to a bachelor's degree

Being a college student at Lima Technical College is

(Choose only 5. Circle the letters.)

a. fascinating
b. shameful
c. a trite experience
d. is valuable to my personal development
e. will help get a good job
f. will lead to more college after LTC
g. hard
h. costly
i. a meaningful experience
j. frustrating
k. fulfilling
l. exhausting
m. exhilarating
n. a chance to learn
o. enjoyable
p. demanding
q. requires a lot of personal time
r. simple
s. valuable

Which of the following best describes your basic human needs?

(Choose only ten. Circle the letters.)

a. ability to contribute to society in a meaningful way
b. ability to help others
c. feel good about self
d. accomplish something worthwhile
e. have a career that pays well
f. have an enjoyable job
g. be knowledgeable about life
h. be a critical thinker
i. feel physically fit
j. have self-confidence
k. get along with others
l. be a productive person
m. feel a sense of belonging
n. ability to apply knowledge
o. have a skill
p. easy access to physical facilities
q. a caring environment
r. pleasant surroundings
s. a family life
t. recreational opportunities
u. time to relax
v. challenges
w. personal growth and development
x. family support
y. affordable prices
z. child care

As a college student, which of the following are your basic human needs?

(Choose only ten. Circle the letters.)

a. to use logic and reasoning to think better
b. be in physical shape
c. to believe in my self
d. get along with others
e. be a productive person
f. to become a part of what's happening
g. capable of applying new skills
h. competent enough to contribute to the quality of life of my community
i. capable of assisting other human beings
j. improved self-image
k. gain something advantageous
l. make ample money to support me
m. have an occupation that I enjoy doing
n. opportunities that challenge my present abilities
o. to become more mature
p. family members who help me reach my goals
q. reasonable costs
r. babysitting
s. to understand life's meanings
t. to acquire new abilities
u. have fewer physical barriers to buildings
v. concern for my well being
w. enjoyable environment
x. kinship
y. sports, hobbies, and cultural events
z. leisure time

In what ways does Lima Technical College meet your needs and expectations?

Circle one choice for each statement

Lima Technical College provides...

a. quality faculty members	agree	somewhat agree	disagree	does not apply
b. degrees and certificates	agree	somewhat agree	disagree	does not apply
c. hands on program experience	agree	somewhat agree	disagree	does not apply
d. academic advisors	agree	somewhat agree	disagree	does not apply
e. remedial education services	agree	somewhat agree	disagree	does not apply
f. quality education experiences	agree	somewhat agree	disagree	does not apply
g. parking lots	agree	somewhat agree	disagree	does not apply
h. continuing education opportunities	agree	somewhat agree	disagree	does not apply
i. a career center	agree	somewhat agree	disagree	does not apply
j. job placement services	agree	somewhat agree	disagree	does not apply
k. campus security	agree	somewhat agree	disagree	does not apply
l. campus maintenance	agree	somewhat agree	disagree	does not apply
m. handicap-accessible facilities	agree	somewhat agree	disagree	does not apply
n. Internet access	agree	somewhat agree	disagree	does not apply
o. up to date equipment	agree	somewhat agree	disagree	does not apply
p. student awards and recognition	agree	somewhat agree	disagree	does not apply
q. social clubs and activities	agree	somewhat agree	disagree	does not apply
r. finical aid	agree	somewhat agree	disagree	does not apply
s. cultural events	agree	somewhat agree	disagree	does not apply
t. campus safety	agree	somewhat agree	disagree	does not apply
u. food service	agree	somewhat agree	disagree	does not apply

As a student at LTC, what expectations do you have for Lima Technical College?

(Choose only ten. Circle the letters.)

a. safe and clean environment
b. state-of-the-art technology
c. fair and timely evaluation
d. services that will help me to develop my academic skills
e. relevant programs of study
f. campus housing
g. food services
h. affordable book prices
i. a variety of instructional methods (lecture, labs, telecourses, self-paced courses, etc)
j. clear expectations as a student
k. representation as a student
l. non-degree seeking opportunities
m. knowledgeable and up to date faculty
n. course objectives and syllabi
o. programs commensurate with national measures of acceptance
p. close, convenient parking
q. reasonable class sizes
r. reasonable times for class offerings
s. adequate number of class sections
t. marketable programs of study
u. support services, such as the library
v. adequate physical facilities
w. opportunities for social development
x. to provide a degree and/or certificate of completion
y. career advising
z. affordable tuition and fees
a1. recreational opportunities
b1. financial aid packages

As a college student, what expectations do you have for college's in general?

(Choose only ten. Circle the letters.)

a. information and advice on different careers or programs of study
b. reasonable costs for instruction
c. sports, hobbies, and cultural events
d. student loans, scholarships, and grants
e. easy access to parking that is close to buildings
f. classes that are not too large
g. classes offered at times convenient to me
h. enough classes to prevent being closed out
i. secure and safe environment
j. new and up-to-date-technology
k. evaluations that are equally applied
l. developmental courses and lab facilities
m. programs of study that reflect the work environment
n. programs that meet the needs of the market place
o. support services such as student activities
p. sufficient class and laboratory spaces
q. campus clubs and organizations
r. to provide a degree and/or certificate of completion
s. residence halls located on campus
t. places to eat on campus
u. reasonable book store costs
v. a variety of instructional methods (lecture, labs, telecourses, self-paced courses, etc)
w. to know what is expected of me academically
x. someone to watch over my interests as a student
y. non-credit continuing education courses
z. instructors who know their topics
a1. course goals and outlines
b1. strong programs of study