

**Improvements in the Academic Satisfaction of University Students
Through the Effective Use of Learning Management
Systems and Pedagogical Innovations**

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The fast speed of technology has meant that the educational environment has altered characteristics of its environment, making it difficult for various colleges and professional schools to understand the need to incorporate these changes into their educational offerings. In today's interconnected world, a curriculum based on the development of professional competencies and scientific research cannot prepare oblivious students for professional success whether nationally or internationally. Students participating in diverse programs require a flexible curriculum that helps them identify and develop the knowledge, skills, and mindset they will need to succeed in the global markets in which they wish to work. To better prepare students to compete in global markets, it is recommended that a conceptual framework be built to align education with changes in technology and the global environment.

The overall objective of this study was to investigate how learning management and innovation affect students' perceptions of their educational experience. Quantitative, fundamental-substantive, explanatory, cross-sectional, and non-experimental methods were used. Random sampling was chosen for practical reasons, and 135 university students were selected. The findings showed very high reliability (measured by Cronbach's alpha). Also, multinomial logistic regression examined the data collected after service delivery. Since the tests showed no correlation between the variables, the null hypothesis was accepted and ruled out the significance of the impact of the variable.

Keywords: learning, innovation, satisfaction

INTRODUCTION

The consequences of the pandemic in the educational sector, notably on teachers and students, have led to the realization of learning through different computer platforms that, in most cases, have simply contemplated the transmission of knowledge and not as knowledge management processes. Therefore, educational procedures focused on becoming “functional” and not on conducting, coaching, or advising on learning.

In some university contexts, they have provoked negative results due to the little effort of the student and the teacher because of motivation issues or inadequate management of computer tools. According to research¹, virtual studies involve teacher and student dissatisfaction. Studies showed that the information and tactics provided were developed face-to-face, but not for virtuality, finding a lack of prior preparation for the learning session².

According to official documents of the governing body in the Peruvian education sector, the teacher must manage multiple learning processes, generating activities that encourage critical and reflective thinking in students³. Therefore, learning management requires adjusting educational designs to academic needs.

Likewise, the results of national and international evaluations placed us in disadvantaged places with very high disparities that aggravate the educational problem, where institutional and pedagogical management in basic and higher education institutions has not broken old educational paradigms, where innovation does not reach broad sectors of teachers and students and with the weak managerial skills shown in recent years, does not know how to respond to the great social demands.

Thousands of students attend universities around the world to become excellent professionals; that is, to enhance their learning and describe new academic experiences, especially considering their consequences in growth⁴; thus, they realize their learning from the lessons of their teachers, transferring it to different situations; however, more than 30% of students drop out of university for various reasons, including academic misfortune⁵.

As the research background showed, numerous higher education institutions have worked on five essential characteristics or components and that security, referred to preventing contagion among members throughout the learning-by-doing process, to try to maintain their quality despite the health crisis. To achieve this objective, they used training videos, personalized support during the learning process, online courses, weekly group meetings, and digital evaluations. Digital technology was employed, and the

academic community carried out these initiatives and introduced long-lasting assessment protocols⁶. But, despite different types of education and different levels, they have assumed competence, where the results have supported the widespread lack of knowledge and limited application of these skills due to numerous implementation problems either in the approach or in the various instruments used in their execution and where the tools themselves prevented both general and specialized knowledge⁷.

When educational policies have not taken this mode of management into account, the research also sought to address questions about how social networks participate in the learning process among university participants⁸. The effect of this factor has been examined in other research using a variety of methods. Given that the competency to build is reflection, which directs learning objectives from an inventive and creative standpoint, their findings indicate that it is well suited to the demands of both educators and students. There was evidence of contextualization and responsiveness to pedagogical procedures and social dynamics in their final products⁹. Other researchers have shown that effective educator training requires an emphasis on realism with critical reflection and analysis as central axes of curriculum improvement; as a result, it is recommended that educators adopt a pedagogy of inquiry and action that encourages students to conduct their research and critical evaluation of the best methods to achieve desired educational outcomes¹⁰.

The analysis of college student satisfaction reveals the importance of elements such as faculty, course materials, student-faculty interactions, and learning outcomes. The high reliability ($=0.96$) of the exploratory research indicated that students are satisfied with their college experience in general, but also suggest ways to improve the quality of the education they receive¹¹. Furthermore, student satisfaction was shown to vary depending on whether the focus was on the quality of instruction and learning, the quality of interpersonal interactions, the quality of facilities, or the opportunity for students to develop their unique talents and interests¹².

THE MANAGEMENT OF LEARNING

People's activities have implications for others based on shared beliefs and attitudes. Marzano's concept allows us to learn and develop as individuals while understanding the value of intellectual work¹³⁻¹⁴.

The management of learning processes increasingly requires the use of digital technologies, as they are essential to enhance students' abilities and skills to facilitate meaningful learning. There should be evidence of a wide range of learning from memorization to self-directed study strategies¹⁵. According to Tobón (2008), they are "the processes that the individual initiates to solve problems and perform actions and activities." To achieve their ends, these methods integrate being, knowing, and acting with the necessary independence of thought. The theoretical model is the starting point for developing these skills as it drives the learning process and provides data to make informed decisions on how to proceed¹⁶.

For the cognitive model, they will expand on ideas such as Piaget's genetic theory, Vygotsky's zone of proximal development, Bruner's rediscovery, Ausubel's meaningful learning, and the integrated model proposed by the Zubiria brothers. Neuroscience describes as the study of the brain mechanisms that enable learning and synthesis in "knowing, thinking, feeling and acting." Neuroscience is the study of the brain and nervous system¹⁷.

PEDAGOGICAL INNOVATION

The first step in this direction is for teachers to assess the skills and interests of their students¹⁸. To make improvements and ensure the growth of students' skills, it is crucial to review both concepts and established methods, permanent follow-up, accompany students, planning activities, develop creativity in their context¹³, express itself in various changes and good educational practices, in search of educational quality, practices characterized by innovative methodologies and techniques implemented in teaching-learning processes; all these are hallmarks of quality education¹⁹. Innovation is taking stock of what works and what does not, generating new ideas, molding those ideas into viable plans and programs, putting them into action, and improving educators' skills to guide successful outcomes. To affect change in educational

stakeholders, each novel approach must improve learning management systems. To advance the education system and its goals, a variety of process configurations will need to be implemented²⁰.

ACADEMIC SATISFACTION

It is the natural result of expressing the kind of feelings that make it possible to enjoy life, work toward your goals, and build connections with others. Depression, dissatisfaction with life, and lack of interest in continuing education are possible outcomes of feeling dissatisfied with the educational experience²¹. Accounts for human potential through the ideas of intrinsic motivation and subjective well-being²². It has the freedom to direct your life as you see fit when you have satisfied your basic needs for social connectedness, self-awareness, the ability to manage and compete in your chosen field, and independence within a team environment²²; motivation is a theoretical body factor that can have global, contextual, and situational levels, where the individual with a consistent and reliable personality, while contextual and situational levels refer to concrete activities such as working, living at home, going to school, among others²².

METHODOLOGY

The study used a fundamental quantitative approach that is defined by tasks that assess the research objectives, delineate strategies, and do not alter the study variables²³. Research that combines description with an examination of possible causes is called descriptive-explanatory research. In addition, non-experimental and transactional methods were used, meaning that all data were collected at one time²⁴⁻²⁵.

The research participants themselves are the “unit of analysis,” 318 university students enrolled in the Professional School of Geological Engineering of the Universidad Nacional Mayor de San Marcos made up the study population and their random sampling was 135²⁴⁻²⁵. The pilot study allowed determining the consistency of the three instruments that confirmed the high reliability of the instruments, so they were used in the population under study. Since cross-sectional studies only collect data at a single point in time, they are designed to provide a single result. The data collected were processed in frequency tables for descriptive purposes, while multivariate logistic regression was used for inferential purposes.

RESULTS

The learning management trends of the students of the Professional School of Geological Engineering showed that 48.9% offered a sufficient level; 47.4%, inadequate, and 3.7%, deficient. The trends were also framed in the dimensions of the variable.

TABLE 1
LEARNING MANAGEMENT AND ITS DIMENSIONS: TABLE OF FREQUENCIES

	Learning Management		Attitudes and perceptions		Acquisition and integration of knowledge		Extension of knowledge		Meaningful use of knowledge		Mental skills	
	f	%	f	%	f	%	f	%	F	%	f	%
Suitable	66	48.9	75	55.6	64	47.4	67	49.6	67	49.6	77	57.0
Unsuitable	64	47.4	56	41.5	65	48.1	61	45.2	62	45.9	55	40.7
Inadequate	5	3.7	4	3.0	6	4.4	7	5.2	6	4.4	3	2.2
Total	135	100.0	135	100.0	135	100.0	135	100.0	135	100.0	135	100.0

Trends in pedagogical innovation showed that 41.5% offered a sufficient level; 54.1%, inadequate; and 4.4%, inadequate. The trends were also framed in the dimensions of the variable.

TABLE 2
PEDAGOGICAL INNOVATION AND ITS DIMENSIONS: TABLE OF FREQUENCIES

	Pedagogical innovation		Organization		Strategies		Prospects for change	
	F	%	f	%	F	%	f	%
Suitable	56	41.5	54	40.0	63	46.7	60	44.4
Unsuitable	73	54.1	76	56.3	70	51.9	69	51.1
Inadequate	6	4.4	5	3.7	2	1.5	6	4.4
Total	135	100.0	135	100.0	135	100.0	135	100.0

Trends in student academic satisfaction showed that 48.9% offered a sufficient level; 43.0%, adequate; 53.3%, not very adequate; and 3.7%, inadequate. The trends were also framed by the dimensions of the variable.

TABLE 3
ACADEMIC SATISFACTION AND ITS DIMENSIONS: FREQUENCY TABLE

	Academic Satisfaction		Curriculum		Training and Teaching Skills		Teaching methods and evaluation		Level of student self-realization	
	F	%	f	%	f	%	f	%	F	%
Adequate	58	43.0	75	55.6	85	63.0	58	43.0	67	49.6
Not suitable	72	53.3	56	41.5	50	37.0	72	53.3	62	45.9
Inadequate	5	3.7	4	3.0	0	0.0	5	3.7	6	4.4
Total	135	100.0	135	100.0	135	100.0	135	100.0	135	100.0

The data in the tables revealed that academic success is independent of learning management and innovation. a two-tailed sig. 0.728 of the model fit statistics showed that there are no correlations between the variables; in other words, Pearson's linear correlation coefficient is 0.728; thus, the model could not be relied upon to predict the effect of learning management and innovation. Furthermore, the suggested model is supported by the Nagelkerke test in that it accounts for 0.048 of the variance (0.048) in the dependent variable (academic satisfaction). As such, there were arguments in favor of the conclusion that the independent factors have a negligible effect on 4.8% of the dependent variable. Due to the research findings, the researcher's hypothesis should be dismissed as unfounded. Similar evidence explains the secondary hypotheses.

TABLE 4
HYPOTHESIS TESTING

	System of hypotheses	Log likelihood -2	Bilateral sg,	Nagelkerke index	Incidence rate (x100%)
General Hypothesis	Learning management and innovation influence academic satisfaction	31,275	,728	,048	4,8%
Specific Hypothesis 1	Learning management and innovation influence with the curriculum	30,530	,660	,054	5,4%
Specific Hypothesis 2	Management of learning and innovation influences teaching skills and training	18,241	,109	,074	7,4%
Specific Hypothesis 3	Learning management and innovation influence teaching methods and evaluation	31,977	,745	,046	4,6%
Specific Hypothesis 4	Learning management and innovation influence the level of self-actualization.	32,259	,675	,051	5,1%

DISCUSSION OF RESULTS

According to the logistic regression analysis, the bilateral significance indicated 0.728 and the Nagelkerke index indicated an influence of 4.8%, statistically non-significant, which coincided with the findings of Gonzalez et al. (2018)⁷ supporting the null hypothesis that learning and innovation management does not affect students' academic satisfaction. Also, these findings are consistent with those of Zapata-Ros (2018)⁸, who found that research was more effective than research aimed at answering research questions.

On the other hand, university professors have become mediating actors in learning, serving as vectors for learning growth due to their expertise and conceptual understanding of the topics. When assessing a person's mental capacity and health, the Bar-On instruments were used with a sample size of 597, the results of these instruments indicated a clear correlation with an index of .800, in addition to other significant descriptive items, such as maturity in high school students²⁶.

The idea put forward by Marzano helped them to learn, grow, and value intellectual endeavors. The term "learning management" referred to the process of interaction between the people involved in the teaching and learning processes, including the teacher, students, and other learners.

The potential of one is how some academics describe learning, while others define it as the change of knowledge, attitude, and values through interaction with others. Therefore, 21st century education needs to

include digital tools in the classroom, and the management of learning processes should strive to encourage the development of students' knowledge and skills in this area. It is also important to highlight the many learning methods available, such as memorization, active participation, and self-directed study¹⁵.

The growth of competence depends on the sophistication of the skills required, which students synthesize into a coherent set of problem-solving tools through deliberate practice and reflection. These skills and knowledge areas will align with the various benchmarks the student should achieve by the end of the semester. Consequently, they will provide information for the reinforcement process in the face of deficiencies that are discovered; therefore, the educator acts as a mediator in the education process, collecting data on the growth of cognitive knowledge, skills/skills, and attitudes of students at various points in the learning process.

Competencies are the various processes that each individual initiates to meet challenges and complete tasks, balancing between “being” and “knowing” and “doing,” as appropriate, and exercising the necessary degree of mental independence. The theoretical model served as a starting point for the development of these skills and continues to serve as a framework within which decisions are made to achieve learning¹⁶.

But the teacher is the one who produces the learning; he or she is the one who creates the scenarios and acts as a mediator, and he or she must decide his or her behavior so that students learn to work in groups and to infer, reflect and reason about the multiple situations that arise. Similarly, it is crucial to emphasize that there are no perfect instructional designs; rather, learning contexts are sought²⁷. Therefore, the student will be guided to learn meaningfully in a particular activity by the methods that are applied in the different procedures. The result will be a more open and dynamic system, as well as a system in which teaching and learning are in constant dialectic with each other through communication and a systematic input-output model. Learning involves not only rational and analytical processes but also affective and social ones.

Teachers must motivate and encourage their students to create the best possible emotional and learning climate in the classroom, which is especially important for young people whose development may be diminished by being in an inadequate educational environment¹⁴. For teachers to have a positive impact on their students' attitudes and, in turn, create an enjoyable learning perspective, it is critical that they feel welcome and comfortable in the learning environment. To this end, they must appreciate the importance of the task at hand and have a clear and direct path to completion. Students and teachers have an equal responsibility to deliver on this promise.

Achieving this goal requires combining “declarative knowledge,” which is the understanding of a fact or phenomenon through manifest qualities or attributes, information, data, constructs, and/or general aspects with “learning to do,” also known as procedural learning. To complete this, integration is essential¹⁴. Procedural knowledge involves the acquisition of skills and methods.

To improve their understanding and knowledge, students can benefit from evaluating new information and applying it to the circumstances provided by the teacher in the student's real life. They apply what they have learned through processes of categorization, abstraction, induction, and análisis¹⁴. Likewise, through active participation in continuous processes of comparison that occur in the classroom as part of the learning processes, students take advantage of the opportunity to broaden the topics they study and examine diverse points of view. Because of the importance of the educator's role, the guidance or direction he or she provides can pave the way for in-depth information acquisition.

Students apply what they have learned by trying to solve real-world problems no matter how basic or difficult they may be. Systems analysis, problem-solving, creative thinking, and decision-making are covered. Students need to make connections between new material and what they currently know to progress in their education. They learn to make decisions by integrating their prior knowledge with new information as they progress through the project and deepen their understanding of the subject matter.

All learners, whether critical or creative, establish mental patterns that shape their behavior. These, along with one's attitude and perspective, provide the basis for the development of these habits that aid learning by facilitating the completion of tasks and the acquisition of new skills to the point where one is equipped to handle any challenging situation that arises in school or life.

To innovate, ideas and methods must be reworked to account for changes in the environment and sustain students' skill development over time. Therefore, in the search for educational quality, practices that are

characterized by innovative methodologies and techniques implemented in the teaching-learning processes such as constant monitoring, accompanying students, planning activities, cultivating creativity in their context¹³, and expressing themselves in a variety of changes and good educational practices, are required. Innovating involves analyzing what works and what does not, generating new ideas, developing plans and programs, putting those plans and programs into action, and striving to improve the skills of people who teach program administrators.

This change must begin in the classroom, then spread throughout the institution, and then permeate the entire educational system. This is because the change represents a new perspective on best practices for education that places greater importance on incorporating elements of both distribution and flexibility into the educational process. Such evolutionary change is not linear; rather, it is often disruptive and can affect many sectors at once.

Any novel effort must begin with the creation of means to improve the management of learning because, doing so, it opens the way for new educational actors to emerge. Several alternative process configurations will be required to advance educational objectives and improve the educational system.

It is essential to carry out induction and training processes for staff to renew their intervention strategies with active and recreational activities to achieve new knowledge²⁰. Organization, in this context, refers to the process of integrating the educational activities that the teacher has planned according to the needs of the students.

The more people participate, the better the results, especially if you provide places where people can think deeply, work together and share ideas. By actively participating, educational stakeholders have a better understanding of how their decisions affect others outside the classroom.

Learning sessions should include novel tactics that require the use of cutting-edge technology, approaches, and resources to improve student's skills, processes, and mindsets.

ENDNOTES

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