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Research Article

Level of Awareness on Internet of Things (IoT) Among College Students of LSPU-SPCC: Basis on Technological Advancement

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ABSTRACT

This study aimed to assess and determine the level of awareness on internet of things (IoT) among college students of Laguna State Polytechnic University - San Pablo City Campus (LSPU-SPCC). The increasing significance of IoT in various aspects of life, including education, has led to a growing need to understand the awareness level of college students regarding this technology. The study was limited only to the Selected Students of Laguna State Polytechnic University. One hundred thirty (130) respondents were represented the study. The research methodology used in this study is a descriptive quantitative approach, with a survey questionnaire as the primary instrument for this study. The researcher used an online questionnaire-checklist and distributed online to the participants. The collected data was tabulated, interpreted and analyzed by the used of statistical measures. The study aimed to gauge the awareness level of students on IoT and its potential applications, identify the factors that influence their awareness, and provide insights for technological advancement in education. The findings of this study will help faculty members and administrators to develop strategies to enhance student awareness and equip them with the necessary skills for innovation and technological advancement. The survey collected data using Likert-scale questions. The data was collected through frequency and percentage distribution, mean and standard deviation. The analysis is done using descriptive analysis (mean and standard deviation) and correlational analysis (Pearson r Product Moment Correlation Coefficient which aimed to assess awareness of IoT among college students and its relationship with technological advancement. The regression model shows how IoT Role, Characteristics, and Importance predict Technological Advancement. Only two components are significant predictors: The three subcategories under the level of awareness on IoT (Role, Characteristics, and Importance) have a significant relationship with the level of technological advancement when correlated individually.

Keywords: Level of Awareness, Internet of Things, College Students, Technological Advancement.

INTRODUCTION

A new paradigm called the Internet of Things (IoT) has transformed traditional living into a high-tech lifestyle. These changes brought about by IoT include smart cities, smart homes, pollution control, energy conservation, smart transportation, and smart industries and even in education. Many important research projects and investigations have been carried out in an effort to advance technology through IoT. IoT devices such as intelligent whiteboards, tablets, and laptops can facilitate real-time communication and collaboration between teachers and students, as well as between students themselves. A new area of study with significant technical, social, and economic implications is the Internet of Things.

Internet connectivity and robust data analytics are being incorporated into consumer goods, durable goods, autos, trucks, industrial and utility components, sensors, and other commonplace items, potentially transforming our job, lifestyle, and leisure activities. Remarkable forecasts have been articulated regarding the impact of the Internet of Things on the economy and the proliferation of connected devices. Nonetheless, the Internet of Things poses significant challenges that may hinder the realization of its potential benefits. Public interest has been aroused by sensational news on the hacking of Internet-connected devices, surveillance concerns, and privacy issues (Rose, K., Eldridge, S., & Chapin, L. (2015).

The phrase "Internet of things" (IoT) refers to embedded devices (things) that have Internet connectivity and can communicate with other IoT devices, services, and users on a global scale. By facilitating better information access, this level of connectivity can boost dependability, sustainability, and efficiency. Smart grids, home and building automation, and environmental monitoring could be linked together to communicate information

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between related systems. Increasing the understanding of these systems can increase their productivity, dependability, and sustainability. The Internet of Things (IoT) has the potential to overtake people as the primary producer and consumer of information on the Internet due to the vast number of applications it supports (Mukhopadhyay, S. C., & Suryadevara, N. K. (2014).

The concept of monitoring and managing things with networks, computers, and sensors has been around for a long time. But as a result of the current convergence of many technological sector developments, the Internet of Things is getting closer to becoming a ubiquitous reality. These include widespread use of IP-based networking, computing economics, miniaturization, the rise of cloud computing, ubiquitous connectivity, and improvements in data analytics. Schools can now monitor important resources, increase information availability in the classroom, and improve campus safety thanks to the growth of mobile technology and the Internet of Things. Instead of using the conventional stoic lesson plans, teachers can instead employ this technology to build "smart lesson plans." Students are increasingly using tablets and laptops instead of printed books, especially in college. Students can now learn at their own pace and have an almost comparable educational experience at home and in the classroom since they have access to all the information they need. Zhao, S., Li, S., and Xu, L. D. (2015).

This is a potential study abstract:

Title: Level of Awareness on Internet of Things (IoT) among College Students of LSPU-SPCC: Basis for Technological Advancement + IoT Importance: very high positive correlation (r = 0.882)

1.1 THEORETICAL FRAMEWORK

Internet of Things (IoT) devices are being utilized extensively in domains that require large-scale sensing data, such as smart cities, smart grids, environmental monitoring, and Internet of Vehicles. IoT research on compute power and storage is still in its infancy, nevertheless.

The game theory turns the interaction between two Internet of Things devices into a game in which the equilibrium conditions of the game are used to resolve the conflict. In IoT networks, game-theory-based solutions are suggested. ideas and classify popular game models so the reader can easily grasp them. It focuses on evaluating suggested solutions for network security, node selection, task scheduling, resource allocation, and quality of service. Additionally, it outlines research challenges and suggests avenues for future investigation (Chi, C., et al., 2021).According to Lanotte and Merro's (2018) Semantic Theory of the Internet of Things (IoT), smart devices with embedded technology automatically gather data from shared resources (such as physical devices, Internet accesses, etc.) and combine it to offer end users new services. IoT systems often use the following "things": sensors to identify physical changes in the environment, actuators to transmit information to the environment, and RFID tags for unique identification. Smart devices are arranged in networks based on the common communication protocols of the Internet architecture in order to give appropriate communication capabilities.The Internet of Things (IoT), which is based on the Design theory, modeling, and application for the Internet of Things by Tian et al. (2020), allows us to perceive the physical environment and find items in it by applying IoT-related enabling technologies. IoT enabling technologies can assist in obtaining real-time data required for controlling enterprise business processes, in contrast to traditional information systems. An IoT system ought to be capable of more than just combining existing information systems and enabling technologies, which are limited to accessing environmental data. A overview of the literature on IoT-related topics and an explanation of the distinctions between IoT and traditional information services open this paper. Three guidelines are put forth for designing IoT services from the perspectives of compatibility, coordination, and service classification.

In their 2015 paper Interface Theory for the Internet of Things (IoT), Lohstroh and Lee establish an interface theory for a component architecture for IoT applications using interface automata. It specifically looks at an architecture for Internet of Things applications in which so-called "accessors" operate as an actor-oriented stand-in for "things" and services. An accessor responds to input stimuli and generates outputs that can elicit responses in other actors or accessors, in accordance with the ideas of actor models.In his Grounded Theory on the Internet of Things (IoT), Ghaffari et al. (2020) point out that although there have been previous studies on the growth of the IoT, they have mostly concentrated on the difficulties that come with its evolution. Therefore, determining the needs for IoT development as a complex phenomenon where the difficulties would be addressed is still a worthwhile but understudied area of research.

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2. PROBLEM STATEMENT AND RESEARCH QUESTIONS

The purpose of this study is to assess and determine the level of awareness on internet of things among college students of LSPU-SPCC which will serve as basis for technological advancement of Selected students at Laguna State Polytechnic University- San Pablo City Campus.

Internet of Things (IoT) is very significant, especially at present, which is why it has attracted the attention of researchers due to its importance in human life. Through it, students can do several things easily, accurately, and in an organized manner. Hence, this study explored the following research questions:

1. What is the level of awareness on internet of things (IOT) among college students of LSPU-SPCC in terms of?

I. Level of IoT Role

1.1 Tracking devices

1.2 Smart boards and textbooks

1.3 Research and study programs

II. Level of IoT Characteristics

2.1 Interaction

2.2 Identification

2.3 Connectivity

III. Level of IoT Importance

3.1 Recording electronic lectures

3.2 Modern presentation

3.3 Digital simulation

Which IoT level of awareness greatly affects the technological advancement of LSPU-SPCC college students?

2. Do the following IoT level of awareness among college students significantly relate to their technological advancement?

3. RESEARCH METHODS

3.1. Research Design

A descriptive method in this study is used through a researcher-made survey questionnaire. In treating the collected data, the quantitative approach is significantly helpful in this study in which the researcher will design and control data collection and analysis. The correlational approach is employed to find out if any relationship exists between variables, that is how variables vary with one another.

3.2. Research Instrument

A researcher made survey questionnaire is used as the main instrument in obtaining the quantitative data using Likert-scale surveys. Data are gathered through frequency and percentage distribution. Descriptive analysis such as mean and standard deviation will also be utilized. Pearson r Product Moment Correlation coefficient will be used to determine the relationship of the variables.

To determine the level of awareness on internet of things among college students, the researcher used the frequency and percentage distribution.

To determine the level of awareness that greatly affects the technological advancement of LSPU-SPCC College Students, the researcher used weighted mean and standard deviation.

To find out if this IoT level of awareness among college students significantly relates to their technological advancement, the researcher used the Pearson r Product Moment Correlation Coefficient.

4. RESULTS AND DISCUSSION

Descriptive statistics for each indicator and scale are made, with remarks on these statistics. The data were examined and interpreted to generate conclusions and recommendations from the study. Statistical details for the indicators were presented individually and as a whole, asserting that the respondents have a favourable perception of their online environment and online learning experience.

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4.1. Level of IoT Role

Table 1. Level of IoT role in Tracking Devices

The level of IoT role in tracking devices....	Mean	SD	Verbal Interpretation
1enable students in visualizing 3D objects as computer models.	3.97	.751	Agree
2provides appropriate data and evaluate it for quality and relevance.	4.10	.706	Agree
3facilitate real time communication and collaboration between students and teachers	4.21	.733	Strongly Agree
4 allow students to create self-supporting devices that can communicate with each other and users in real time.	4.18	.735	Agree
5encourage curiosity as it opens us to different ideas and innovations.	4.24	.727	Strongly Agree
Over-all mean	**4.15**	**.593**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 1 shows the respondents' perception concerning the role of IoT in terms of tracking devices. The majority of the respondents "strongly agree" that IoT role in tracking devices encourage curiosity as it opens us to different ideas and innovations with a Mean= 4.24; SD=727).

Moreover, respondents "strongly agree" that IoT role in tracking devices facilitate real time communication and collaboration between students and teachers. Likewise, respondents "agree" on indicators 1, 2 and 3 statements that IoT role in tracking devices provides appropriate data and evaluate it for quality and relevance, facilitate real time communication and collaboration between students and teachers and enable students in visualizing 3D objects as computer models.

Table 2. Level of IoT Role in Terms of Smart Boards and Textbooks

The level of IoT role in smart boards and textbooks.....Mean	SD	Interpretation
1 support teachers deliver material in a more interactive lesson. 4.50	0.61	Strongly Agree
2manage students more efficiently in using textbooks. 4.42	0.50	Agree
3aid students to have a better learning experience. . 4.50	0.56	Strongly Agree
4help in tracing citations to unlock the scholarly conversation. 4.36	0.59	Agree
5increase the likelihood of participation and class involvement. 4.56	0.50	Strongly Agree
Over-all mean **4.47**	**0.55**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 2 exhibits respondents "strongly agree" that IoT role in smart boards and textbooks support teachers deliver material in a more interactive lesson with a (Mean=4.24; SD=.684). Likewise, indicator 3 states that IoT role in smart boards and textbooks aid students to have a better learning experience with a verbal interpretation of "strongly agree" (Mean=4.23; SD=.731).

However, most of the respondents "agree" on indicators 2, 4 and 5 stating that IoT role in smart boards and textbooks help in tracing citations to unlock the scholarly conversation with (Mean=4.15; SD=.721), manage students more efficiently in using textbooks with (Mean=4.09; SD=.727) and that that IoT role in smart boards and textbooks increase the likelihood of participation and class involvement with (Mean=4.04; SD=.796).

Table 3. Level of IoT Role in Terms of Research and Study Programs

The level of IoT role in research and study programs.....	Mean	SD	Verbal Interpretation
1 aim to increase the achievement rate through quality research.	4.10	.775	Agree
2 enhance the responsibilities to promote an advanced method of conducting research.	4.15	.762	Agree

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3stimulate the research work in the form of publications or presentations.	4.12	.752	Agree
4motivate academics to improve university research performance.	4.15	.728	Agree
5promote research output that leads to high-quality research.	4.21	.725	Strongly Agree
Over-all mean	**4.15**	**.660**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 3 reveals the perceived level of IoT in research and study program with an overall mean Mean=4.15; SD= .660) interpreted as "agree'. This shows that the respondents promote research output that leads to high quality research. Moreover, both indicators 2 and 4 shows that the level of IoT role in research and study programs enhance the responsibilities to promote an advanced method of conducting research. Respondents also agreed on indicators 1 and 3 that the level of IoT role in research and study programs stimulate the research work in the form of publications or presentations with (Mean=4.12; SD=.752) and aim to increase the achievement rate through quality research with (Mean=4.10; SD=.775).

Only indicator 5 "strongly agree" that the level of IoT role in research and study programs promote research output that leads to high quality research with (Mean=4.21; SD=.725).

4.2. Level of IoT Characteristics

Table 4. Level of IoT Characteristics in Terms of Interaction

The level of IoT characteristics in interaction….	Mean	SD	Verbal Interpretation
1enables the implementation of student cloud logs.	3.96	.694	Agree
2provides attendance in tracking methods.	4.17	.731	Agree
3facilitate interaction through smart microphones to enhance lesson delivery.	4.07	.721	Agree
4provides automatic test- checking capabilities.	4.01	.724	Agree
5allow students to either monitor or configure IoT devices.	4.04	.727	Agree
Over-all mean	**4.05**	**.601**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Based on Table 4, all statements relating to the perceived level of IoT characteristics in terms of interaction have the same "agreed" verbal interpretation with mean scores ranging from Mean 3.96 to 4.17 and SD .694 to .731.

Respondents both agreed that the level of IoT characteristics in interaction enables the implementation of student's cloud logs. It also provides automatic test-checking capabilities. Respondents agreed that level of IoT characteristics allow students to either monitor configure IoT devices. It facilitates interaction through smart microphones to enhance lesson delivery and provides attendance in tracking methods.

Table 5. Level of IoT Characteristics in Terms of Identification

The level of IoT characteristics in identification……	Mean	SD	Verbal Interpretation
1support teachers deliver material in a more interactive lesson.	4.17	.732	Agree
2 enables students to communicate with each other in the same or different environments.	4.16	.758	Agree
3collect, process and exchange data via a data communication network.	4.16	.742	Agree
4supports the network for exchange of the data online.	4.15	.730	Agree

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5allows access to information from anywhere at any time on any device.	4.15	.732	Agree
Over-all mean	**4.16**	**.632**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Based on Table 5, all statements relating to the perceived level of IoT characteristics in terms of identification have the same "agreed" verbal interpretation with mean scores ranging from Mean 4.15 to 4.17 and SD .732 to .758. Respondents both agreed that the level of IoT characteristics in term of identification support teachers to deliver material in a more interactive lesson: (mean = 4.17;SD.732) enables students to communicate with each other in the same or different environments (Mean =4.16;SD=.758) collect, process, and exchange data via a data communication network: (Mean 4.16;SD=.742) supports the network for the exchange of data online:(Mean= 4.16;SD=.730) allows access to information from anywhere at any time on any device (Mean= 4.15;SD=.730) agree with the role of IoT in this aspect. Overall, the mean score of 4.16 indicates an agreement on the characteristics of IoT in identification.

Table 6. Level of IoT Characteristics in Terms of Connectivity

The level of IoT characteristics in connectivity.....	**Mean**	**SD**	**Verbal Interpretation**
1improves communication between connected electronic devices.	4.20	.705	Strongly Agree
2permits transfer of data over a connected network which can save time and money.	4.19	.694	Agree
3collects large amount of data from multiple devices.	4.14	.699	Agree
4reduce the amount of data that needs to be sent to the cloud.	4.10	.729	Agree
5improves the quality of services and reduces the need for human intervention.	4.14	.713	Agree
Over-all mean	**4.12**	**.575**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 6 reveals the perceived level of IoT characteristics in terms of connectivity with an overall mean Mean=4.12; SD= .575) interpreted as "agree' .Indicator 1 "strongly agree" improves communication between connected electronic devices:(Mean 4.20;SD .705) moreover indicator 2,3,4,5 interpreted as" agree" on the level of IoT characteristics in connectivity permits the transfer of data over a connected network, saving time and money(Mean 4.19=SD=.694) collects large amounts of data from multiple devices (Mean = 4.14;SD=.699) reduce the amount of data that needs to be sent to the cloud (Mean = 4.10;SD=.729).

4.3. Level of IoT Importance

Table 7. Level of IoT Importance in Terms of Recording Electronic Lectures

The level of IoT importance in recording electronic lectures.....	**Mean**	**SD**	**Verbal Interpretation**
1offers students learning from educational institution or home with various IoT sources online.	4.20	.719	Strongly Agree
2permits instructors and professors to give lectures in the form of different videos.	4.14	.767	Agree
3allows meeting websites and apps by using the IoT or smart devices.	4.21	.729	Strongly Agree
4delivers students adapted learning resources thoroughly integrating context.	4.12	.752	Agree
5offers students better access to everything from learning materials to communication channels and they give teachers the ability to measure student learning progress in real-time.	4.18	.722	Agree
Over-all mean	**4.17**	**.632**	**Agree**

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Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 7 presents the level of agreement on the importance of IoT in recording electronic lectures for various aspects Offers students learning from educational institutions or home with various IoT sources online: (Mean 4.12; SD=.752) offers students better access to everything from learning materials to communication channels and providing teachers with real-time progress measurement (Mean = 4.1801; SD=.722) agree with the importance of IoT in this aspect.

Table 8. Level of IoT Importance in Terms of Modern Presentation

The level of IoT importance in modern presentation…….	Mean	SD	Verbal Interpretation
1enhances interactivity, personalization, feedback and data visualization.	4.19	.721	Agree
2introduce software that can communicate and exchange data over the internet.	4.15	.758	Agree
3provides data- driven insights and improved operational efficiency.	4.12	.736	Agree
4connects physical devices from the Internet to the network and gives them new features.	4.14	.724	Agree
5provides a wide range of benefits for both students and teachers in terms of accessibility, interactivity, and collaboration.	4.14	.751	Agree
Over-all mean	4.15	.643	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 8 presents the level of agreement on the importance of IoT in modern presentations Enhances interactivity, personalization, feedback, and data visualization (Mean = 4.19;SD=.721) introduce software that can communicate and exchange data over the internet (Mean 4.15;SD=.758) provides data-driven insights and improved operational efficiency(Mean=4.12;SD=.736) connects physical devices from the Internet to the network and giving them new features (Mean 4.14;SD=.724) provides a wide range of benefits for both students and teachers in terms of accessibility, interactivity, and collaboration (Mean = 4.14;SD=751) .

Overall, the mean score of 4.15 indicates an agreement on the importance of IoT in modern presentations.

Table 9. Level of IoT Importance in Terms of Digital Simulation

The level of IoT importance in digital simulation……	Mean	SD	Verbal Interpretation
1unlock new learning opportunities in education	4.21	.729	Strongly Agree
2provides connected classrooms to smart education for transformative potential of IoT and wireless data	4.19	.722	Agree
3empower students through wireless data plan to enhance learning.	4.12	.759	Agree
4revolutionize education with new learning experiences.	4.14	.761	Agree
5improve overall student engagement using innovation.	4.19	.745	Agree
Over-all mean	**4.17**	**.658**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Based on the table above, respondents strongly agree that the level of IoT importance in digital simulation unlock new learning opportunities in education with a (Mean=4.21;SD=.729) However , most of the respondents agree on indicators(2,3,4,5) provides connected classrooms to smart education for the transformative potential of IoT and wireless data(Mean=4.19;SD=.722), empower students through wireless data plans to enhance learning: (Mean = of 4.12=;SD.759) revolutionize education with new learning experiences (Mean =of 4.14;SD=.761) improve overall student engagement using innovation (Mean = 4.19;SD=.745) on the importance of IoT in this aspect.

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4.4 Technological Advancement

Table 10. Level of Technological Advancement in Terms of Instructional Technologies

With the technological advancement of IoT, the instructional technologies.....	Mean	SD	Verbal Interpretation
1improves learning and performance for students of all ages and in a wide range of settings.	4.19	.766	Agree
2reduce waste by eliminating the need for unnecessary duplication of materials.	4.17	.730	Agree
3improve efficiency, safety, and productivity	4.18	.787	Agree
4collect and process large amounts of data in real-time.	4.17	.758	Agree
5facilitate online interaction between students and teachers.	4.19	.739	Agree
Over-all mean	**4.18**	**.634**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Based on Table 10, all statements relating to the perceived level of IoT characteristics in terms of interaction have the same “agreed” verbal interpretation with mean scores ranging from Mean 4.19 to 4.17, and SD 7.66 to .730 improves learning and performance for students of all ages and in a wide range of settings (Mean = 4.17; SD=.730) improves efficiency, safety, and (Mean = 4.17; SD7.58) facilitate online interaction between students and teachers (Mean= 4.19; SD.739) agree with the importance of IoT in this aspect.

Overall, the mean score of 4.18 indicates an agreement on the importance of IoT in instructional technologies.

Table 11. Level of Technological Advancement in Terms of Mobility Applications

	With the technological advancement of IoT, the mobility applications.....	Mean	SD	Verbal Interpretation
1	advances communication and collaboration skills.	4.19	.766	Agree
2	advances informatization, not only teachers who support learning but also students will be able to acquire knowledge and skills of IT devices.	4.17	.730	Agree
3	allows students to help each other and work together across to better understand the material.	4.18	.787	Agree
4	provides students with a more immersive, engaging experience that enhances student learning.	4.17	.758	Agree
5	increase student motivation, increased social interactions, positive outcomes, enhanced student learning, and enhanced student engagement.	4.19	.739	Agree
	Over-all mean	4.18	.637	Agree

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

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Table 11 presents the level of agreement on the importance of IoT in advancing mobility applications for various aspects. Most of the respondents agree the importance of IoT in these aspects. Advances communication and collaboration skills: (Mean= 4.19;SD=7.66) Advances informatization and enabling students to acquire knowledge and skills of IT devices: (Mean 4.17;.730) Allows students to help each other and work together to better understand the material: (Mean = of 4.18;SD=7.87) Provides students with a more immersive, engaging experience that enhances student learning: (Mean 4.17;SD7.58) Increase student motivation, social interactions, positive outcomes, enhanced student learning, and enhanced student engagement: (Mean= 4.19;SD=.739) agree with the importance of IoT in this aspect.

Overall, the mean score of 4.18 indicates an agreement on the importance of IoT in advancing mobility applications.

Table 12. Level of Technological Advancement in Terms of Research Computing

With the technological advancement of IoT, the research computing.....	Mean	SD	Verbal Interpretation
1 minimizes human effort in research	4.19	.766	Agree
2automate mundane of task in making research	4.17	.730	Agree
3arrange reports and analysis accurately	4.18	.787	Agree
44. delivers wide variety of smart system	4.17	.758	Agree
55.provide intelligent devices and sensors in conducting research	4.19	.739	Agree
Over-all mean	**4.18**	**.637**	**Agree**

Legend: 1.00-1.49=Strongly Disagree; 1.50-2.49=Disagree; 2.50-3.49=Uncertain; 3.50-4.49=Agree; 4.50-5.00=Strongly Agree

Table 12 shows all statements relating to the perceived level of Technological Advancement in Terms of Research Computing have the same "agreed" verbal interpretation, minimizes human effort in research: (Mean = 4.19;SD=.766) automate mundane tasks in research: (Mean 4.17;SD=.730) arrange reports and analysis accurately: (Mean = 4.18; SD=.787) delivers a wide variety of smart systems: (Mean = 4.17SD=.758) provide intelligent devices and sensors in conducting research: (Mean 4.19;SD.739) agree with the importance of IoT in this aspect.

Overall, the mean score of 4.18 indicates an agreement on the importance of IoT in advancing research computing.

Table 13. Regression Analysis on IoT Level of Awareness and It's Technological Advancement of LSPU- SPCC College Students

DESCRIPTIVE STATISTICS			
	Mean	**Std. Deviation**	**N**
OVERALL, TECH ADV	4.1571	.60276	311
IOT ROLE	4.1501	.56792	311

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CHARACTERISTIC	4.1233	.57543	311
Importance	4.1627	.60998	311

Table 13 presents the Regression Model as how The IoT Role, Characteristics, and Importance predicts the value for the Dependent variable on Technological Advancement. Based on the results, only the IoT Role and IoT Importance Components from the independent variables were found to be a significant predicting factor on the respondents' technological advancement level. With this, the corrected regression model is described as:

$$y = 0.237 + 0.241\ x_1 + 0.637\ x_2$$

Table 14. Correlation on IoT Level of Awareness Among College Students and It's Relation to their Technological Advancement

Correlations					
		Overall Tech Adv.	IoT Role	Characteristics	Importance
Pearson r	Overall Tech Adv.	1.000	.802	.799	.882
	IoT Role	.802	1.000	.837	.811
	Characteristics	.799	.837	1.000	.848
	Importance	.882	.811	.848	1.000
Sig. (1-tailed)	Overall Tech Adv.	.	.000	.000	.000
	IoT Role	.000	.	.000	.000
	Characteristics	.000	.000	.	.000
	Importance	.000	.000	.000	.
N	Overall Tech Adv.	311	311	311	311
	IoT Role	311	311	311	311
	Characteristics	311	311	311	311
	Importance	311	311	311	311

Based on the table above, the three subcategories under the level of awareness on IoT have been found to have significant relationship on the level of technological advancement when correlated individually. For the IoT Role, it has found to have a very high positive correlation (r = 0.802) to the level of technological advancement. It is also the same for the IoT Characteristics (r = 0.799) and IoT Importance (r = 0.882).

5. CONCLUSIONS

This study on the level of awareness on Internet of Things (IoT) yielded the following conclusions:

1. Based on the result of the study there is a strong level of awareness among LSPU-SPCC College students in their level of IoT role, IoT characteristics and IoT importance.
2. There is high level of awareness among LSPU-SPCC that greatly affects their research and extension.
3. The level of awareness is significantly related in the conduct to their technological advancement.

6. RECOMMENDATIONS

Based on the conclusion of this study, the following recommendations are hereby presented:

1. Provide trainings and education programs that emphasize the significance of IoT in technological advancement that will develop the necessary skills and knowledge to leverage IoT technologies effectively.

2. Regular monitoring and evaluation of IoT performance can help identify areas for improvement and optimize the use of IoT technologies to drive technological advancement.

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3. Implement programs that can harness the potential of IoT to drive technological advancement and stay competitive in today's rapidly changing technology landscape.

4. Generate research endeavours focused on a deeper understanding of the level of awareness among college students regarding IoT technology and its potential impact on their academic and professional lives.

5. Researcher could design and develop an online platform that provide students with interactive learning experiences focused on IOT Technology potentially incorporating gamification, simulation, or other engaging activities.

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