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Project Information Overload & Role of PMIS in Managerial Decision-Making: A Study in Construction Companies of Oman

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ABSTRACT

Most projects fail due to information overload. However, the project management information system (PMIS) and other technological support help the project managers (PM) make better decisions. This study looks at the issues of overloaded project information in Omani construction companies that the project managers must deal with. The study was based on quantitative data. The data is based on a survey through a structured questionnaire adopted from previous studies. The target population was the project managers (PMs) leading different construction companies in Oman, and about 296 PMs were approached. Two-stage sampling approach was adopted to collect the data and use SPSS software to analyse the data. The findings indicated that project managers can benefit from using a project management information system (PMIS), and project information overload had no adverse effects. The information system for project management favourably influences decisions. This research benefits project managers, especially those handling complex construction projects. Multiple factors affect the decision-making process in construction companies; therefore, the research recommends exploring the contextual factors regarding the construction industry in Oman and assessing their impact on decision-making processes and project performance.

Keywords: Construction Management; Project Management Information System (PMIS); Information Overload; Decision Making; Resource-based View

1. INTRODUCTION

Project performance is crucial for the success of construction projects during the project's execution. Numerous academics in the field of project management (PM) have examined critical success factors (CSFs) in construction projects (Tripathi & Jha, 2018; Maghsoodi & Khalilzadeh, 2018). However, the idea of project performance remains to be seen, owing to the disparate expectations for

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Project success across stakeholders in PM. Companies encounter several difficulties due to their involvement in multiple construction projects concurrently. Project managers have unique challenges while managing various construction projects with diverse scopes, complexity, and timelines due to conflict between capital and transportation delays. Inadequate resource results in additional strain on organizations, resulting in low-quality information and longer project lead times.

Therefore, research proclaims that there is a gap in all essential aspects affecting the Performance of construction projects when project stakeholders' perceptions of success are taken into account (Tripathi & Jha, 2018; Maghsoodi & Khalilzadeh, 2018; Khalid et al., 2018). To enable successful project management, among many others, an information system (IS) is critical to complete the project well on time. To guarantee the success of a project, its resources, particularly those involved in construction, can be effectively managed via the integration of project management information systems (PMIS) abilities (Newton, 2018; Halou et al., 2019). Finding the CSFs that contribute to performance measurement for building projects is the main objective of this study. The study's primary contribution is identifying project success determinants and measuring their influence on project performance across all construction projects. Theoretically, the effect of the PMIS on the output of decision-making in the construction industry is to the extent of the researcher's understanding. For theoretical contribution, is study will use Resource-based View (RBV) and Causal Decision Theory? Projects and PMs in construction companies make a significant contribution to the economy. Thus, project managers play crucial roles, and decision-making is essential to avoid losses.

PMIS has developed significantly over the past few decades and is a complete system that can manage complicated projects over their entire life cycles (Ahlemann, 2009). As long as all users can keep track of individual tasks and better understand how the project is doing, the purpose of PMIS is to increase efficiency by making the development process more transparent. Making it more straightforward for project managers and team members to communicate information clearly and concisely is a crucial development. They find that this greatly aids in keeping individuals informed and on target. For a supply chain to be considered "agile," it must be able to react fast to changes in design, supply, production, and delivery (Ahmad et al., 2019).

Applications for distributed, cooperative multi-project planning that can help level resources are replacing single-project management systems in PMIS (Tsurkan et al., 2019). According to surveys, only 20% of the installations currently on the market reference multi-project schemes. Recent trends demonstrate that PMIS is used by workers across a wide range of businesses to manage various project management responsibilities. PMIS can assist professionals in identifying issues before they arise, meeting deadlines, and collaborating more effectively (Eroshkin et al., 2017).

The construction industry in Oman is one of the high-growth businesses prioritised in the country's five-year development plan (2016 to 2020) partly because the government is trying to make Oman more economically diverse (Ali et al., 2017; Malik & Mitchell, 2018). Construction projects in Oman have been pushed back because of poor planning and scheduling, substandard construction, design changes, variances, claims, and material shortages (Alnuaimi & Mohsin, 2013; Muhammad, 2022).

The construction sector in the Sultanate of Oman needs to overcome several challenges and obstacles that adversely influence its production owing to a lack of knowledge and awareness about project management (Dombrowski et al., 2019). Indeed, faults, reconstruction, failures, delays, accidents, and deaths are all examples of these issues. Accidents occurring during construction might also result in human injuries, lowering the customer satisfaction rating (Alfahad et al., 2022; Ahmad et al., 2022).

As construction projects grow in size and complexity, customers require more facilities, standards, and quality for completion impacts not just quality but also productivity, staff happiness, and customer satisfaction in Oman (Ekrot et al., 2018; Ahmad et al., 2018; Wuyokwe et al., 2022). Saleh and Alalouch (2015) took a somewhat different approach to the difficulties confronting Oman's construction industry. In contrast to the traditional emphasis on building and construction, the study addresses that using integrated and automated PMIS can remain a critical success factor in construction projects. Construction companies in Oman desire to expand, but they encounter various roadblocks in the form of new technology installation and project management directly related to an organisation's cash flow improvement. To grow or extend their operations, Oman's construction companies want to outsource expertise and enter new markets (Al Shehhi & Azam, 2019). PMIS is helpful for construction organisations due to its supposed contribution to timely decision-making and project success (Gavshon & Gorur, 2022). Considering the study's goals, context, and objectives, the main research question was, "What is the impact of the PMIS on managerial decision-making in Oman". Therefore, the research Scope is to look at PMIS in the construction companies in Oman. This study was structured and composed of five major parts. The first part is composed of the introduction and objectives of the study. A thorough content analysis was conducted in the second portion, followed by methodological sections and result analysis. The study's discussion, conclusion, and recommendations are offered at the end for further investigation.

2. LITERATURE REVIEW

Managers ought to decide to control operational efficiency and company processes efficiently. Decisions must be taken regularly and timely to support the interests of internal and external stakeholders. To be willing to make decisions, managers require information to be made accessible to them that is suitable for the decision under review. This chapter continues with a philosophical change from knowing the information system for project management. Then the literature will continue to be essential to constructing the framework.

2.1 Information System (IS)

The word can be thought of or applied to technology related to emerging sciences in gathering, storing, processing, and disseminating information in which information, computation, and telecommunications intersect. Beckinsale and Ram (2006) described IS as 'any technology used to help the compilation, retrieval, dissemination and usage of information.' In more detail, information technology (IT) is to be understood as all forms of hardware and software for a wide range of software, electronics, telecommunications, and information processing techniques, applications, and devices used to create, manufacture, evaluate, handle, package, distribute, retrieve, store, and transfer or obtain information electronically in digital formats like computers, e-mail, the internet, blogs, and social networking (Chen, 2022). The realisation and development of IS started in the late 1970s and early 1980s, with the advent of the minicomputer and later the microcomputer (culminating in the personal computer). In the early years, computer technology was the most influential regarding economic creation and advancement. However, information technology (IT) expansion has generated substantial economic opportunities, holding it as a discreet field has not been economically wise and, as such, the value of growing networking technology, as well as information management technologies – a move from IT to IS –, has arisen (Newton, 2018; Galli, 2018). Today, IS shapes every part of our lives and, paradoxically, takes on an extraordinary layer where communication platforms are the drivers of social transformation – taking the cyber and tangible realms together more than ever before in a more complex way. Given the rapid development of IS and government policies and plans in place, the future of information systems is promising in any conceivable sector and region.

2.2 Project Management (PM)

Historically, the PM responded to the need to build high-complex civil and development activities. Project management gained more popularity in the 1950s as preparation and control principles were extended to even more complicated programs such as those of the US Navy and, eventually, NASA space projects. Over the past several decades, PM has evolved as a broad-based enterprise process method in the corporate sector (Jovanovic & Beric, 2018). Owing to the growing complexities of the corporate environment, organisations have begun to look at PM as a study and concentrate on developing discipline. The transition from military to industry is mainly evident after the Second World War when the dwindling surplus of wartime labour required new organisational frameworks. Introducing network diagrams, or PERT diagrams, and the critical path approach gave administrators more significant influence overcomplicated programs. Furthermore, the available technologies permitted the management of multinational, cross-industrial, and large-scale projects. This and the strain on today's businesses to produce success soon contributed to the turn of PM into the modern industry (Mbiru et al., 2020; Joyce, 2016).

PM is a specialised type of management of organisations today, analogous to most functional methods, utilised to fulfil a set of company priorities, strategies, and activities within a well-defined timeline and budget. The essence of PM is to help the application of the competitive approach of the company to achieve the intended result (Kubíčková & Hodžić, 2020; Sane, 2019). In recent years, the scholarly community has significantly developed information on PM tools and techniques. However, the effect of technologies on the Performance of the ventures conducted leaves a void for study (Kubíčková & Hodžić, 2020; Sane, 2019).

2.3 Critical Success Factors (CSFs) for Construction Project Management

Many studies have tried to figure out what makes the construction industry successful. According to research, because different people have different ideas about what makes a project good or bad, it is hard to classify a project as good or bad. A literature review was done to understand how different researchers thought about the same thing. Researchers did a lot of different studies to get CSFs. Tripathi and Jha (2018) examined and ranked the characteristics of success patterns in the construction industry using factor analysis and fuzzy techniques. Maghsoodi and Khalilzadeh (2018) surveyed how much it costs, how long it takes, how safe it is, and how good it is to check CSFs. Liu et al. (2016) used different statistical methods to rank 20 CSFs in the Chinese construction industry. An extensive list of CSFs was made after much research. It shows the types of CSFs in construction management, as shown in Table 1 below.

Table 1: Categories of CSFs

Authors	Sub Factors
Ali et al., (2017); Ahmadi Eftekhari et al., (2022)	Project Manager Experience; Delegates Authority
Alnuaimi et al., (2013)	Skills
Tsurkan et al., (2019); Xia et al., (2022)	Coordination
Danesh et al., (2018); Luong et al., (2021)	Project Quality, Cost and Time
Mbiru et al. (2020)	Continued involvement
Liu et al. (2018)	Changes in the project plan
Ekrot et al., (2018); Herrera et al., (2020)	Project overrun situations
Swar et al. (2017); Bawden & Robinson (2020)	Overload information

2.4 Project Management Information Systems (PMIS)

PMIS has become a "comprehensive system that supports the entire life cycle of projects, project programs, and project portfolios" (Eroshkin et al., 2017; Beckinsale & Ram, 2006). In addition to analysing and reporting, they would assist project managers with planning, scheduling, tracking, reporting, and decision-making processes. According to studies, several key elements make it possible for project managers to adopt PMIS. First, whether or not project managers should use PMIS depends heavily on the quality of the details provided by the PMIS. Second, project managers are more willing to utilise the information system if they have the requisite clarification as to their specifications. Thirdly, the knowledge produced must be confident, easy to comprehend, and accessible for project management to share with team members. Fourth, the PMIS enables ongoing innovation monitoring (Tsurkan et al., 2019). Successful PMIS can have individual impacts from the view of happy consumers and successful usage. Effective PMIS, however, can also have operational implications or effects on how well the project performs regarding budget, schedule, and requirements. Nevertheless, project managers in all industries are increasingly using PMIS. The higher impact the PMIS has on the project's progress is associated with the more considerable influence the PMIS has on the project manager (Obeidat & Aldulaimi, 2016; Buckley & Casson, 2019).

2.5 Factors Affecting the Project

Many construction companies seek to reduce the effect of incorrect decision-making issues. Consequently, with low project success proving to be a significant concern confronting executives, introducing PM offices has become one of the critical deliverables for many corporate management teams. Having appropriate monetary resources limits how many jobs a project manager can oversee at once. Below are the fundamental problems impacting the construction organisation of the project.

2.6 Project Information Overload

O'Reilly (1980) asserts that there is a connection between excessive information and subpar project outcomes. The more information you have, the less effective you will be at making decisions. Too much information can make it hard to choose the correct information because it can be hard to separate the necessary information from the rest of the information available and because distractions can cut down on the time available to process the information (O'Reilly, 1980). People who work on projects have a lot more knowledge than those who work on one thing at a time because more projects are ongoing simultaneously. When there is a lot of project knowledge for each project, it can be a problem in project environments (Swar et al., 2017). In the project environment, there needs to be more consistency in how projects are set up and how well people know how to do them. The more complicated a project is, the more confused project workers become. They need to know what information to give to whom, when, and in what format. Project managers may need help finding good information in some places (Roetzel, 2019).

2.7 Causes of Project Information Overload

Projects are overloaded due to different reasons, especially the interoperability and dependability of the different processes, causing information overloading and affecting the decision-making processes and project performance. For decision-making and smoother project execution, accurate information on the accurate time and fundamental proposition plays an important role (Tsurkan et al., 2019). Moreover, social changes and development are affecting the decision-making processes and project performance, and the most alarming thing is that this information remains overlooked and hidden and does not surface most of the time, affecting the decision-making process and project execution.

Moreover, significant contributors to information overloading are personal factors, information characteristics, characteristics, task and process parameters, information systems and other technological and logistic support, and organisational structure. If the knowledge workers remain current regarding the market trends, needs, demands and other requirements, the decision-making process becomes much more manageable. Similarly, the availability of the correct information at the right time and in proportion to the right people makes the decision-making process more accurate and concise and eliminates the effect of information overloading. In the same way, logical coherence of the processes and tasks and their mapping reduce information overloading. Likewise, the information system has developed the capacity and capability for cognitive processes and shares the burden with PMs and Project leads, improving decision-making processes and reducing information overloading. (Gavshon & Gorur, 2019). Last but not least, the organisational structure (whether centralised, decentralised, or fragmented) plays a vital role in the decision-making processes, provides better logistic, moral and ethical support and reduces the information overloading in the projects.

2.8 Decision Making

Given the vast number of study findings that point to man's failure to make fully reasonable decisions, the reason is nevertheless the company's most predominant and most sought-after point of view. Appropriate behaviour is pursued to such a degree that participants within corporate organisational structures need to mask certain decision-making mechanisms as rational processes to achieve acceptance in thinking and action (Rumeser & Emsley, 2019). The thought of man as absolutely reasonable persisted until the 1950s. Since then, researchers have presented impressive findings demonstrating that man still suffers from many obstacles to free decisions. The failure of our brains to cope with the complexities of important decisions, our prejudice against recent facts, risk aversion, political considerations, and our emotions are factors that influence our decision-making behaviour (Galli, 2018). Given all these observations regarding our natural way of making decisions, we strive to make successful and productive decisions reasonably. The notion of reason in decision-making affects our attempts to reduce resource spending and optimise Performance in operations (Danesh et al., 2018).

However, it is only in recent decades that a theoretical direction has arisen, for which the core issues are how an individual makes a decision and how they can and can be supported in challenging problems of choice. Decision-making issues occur and are considered from unified roles, independent of the fields of the particular application. This query terminology is entirely justified because there is much proof that there are similar features and patterns of people's actions when taking economic, political, social, and technological decisions. The generality of people's actions and the commonality of their behavioural criteria decide the decision-making theory's uniform analytical activities (Dombrowski et al., 2019).

The need for progressive PM to ensure the adequate settlement of problems affecting construction organisations or community is imminent. PM has been a new solution to the group's potential and issue. Consequently, it is essential to review best practices in the management of projects to ensure their progress. Progress of the project relates to better answers to challenges and methods for the execution of the different systems. Such success will boost working standards and the ways of doing stuff. Many ventures have been carried out, and several improvements have been made. Any ventures have struggled to accomplish their target, contributing to the need to interrogate complete or partial shortcomings (Altahtooh & Alaskar, 2018).

Around the exact moment, management decision is taken using various methods. The introduction of management decisions includes the execution of various techniques, as discussed below:

- Most firms use hierarchy in decision-making to structure operations and enhance central management. In organisations, administrators typically assign their power to decide at a stage that is closer to the level at which more information is required and that directly engages in the execution of a specific decision (Mohamed & Jintian, 2018)
- The usage of goal inter-functional communities in decision-making in organisations is prevalent. These goal sets are typically set up on a provisional basis. The representatives are drawn from various divisions and ranks. The goal of forming such groups is to use the unique expertise and experience of the participants of the community to make precise and nuanced decisions (Mohamed & Jintian, 2018).
- Using structured guidelines and processes in decision-making is an essential means of organising behaviour. However, directives and regulations place rigidity on the management structure, speeding down creative procedures and making it impossible to change strategies owing to evolving circumstances (Muhammad, 2022).
- The purpose of the use of spikes in decision-making is to organise the activities of the cent's organisation. Planning is a vital management practice to managers devote much of their time. A method of balancing interests and priorities between various levels has been carried out when drawing up proposals. Control and accounting structures are tailored to the management activities of organisations, and on their basis, strategies are being created (Mohamed & Jintian, 2018; Ahmad et al., 2019).

The project manager, line manager, or another team member may make various essential decisions for successfully implementing projects in the construction sector. This is a question that needs a yes or no answer. An example is when a project manager has to decide whether or not to add more team members. To decide this, there is no middle ground. You need to know this before you make a decision. Is this true? If so, choices on how many people to hire and the nature of the work they should perform may be made. Pros and cons are more critical in this option for project management (Ahmad et al., 2018). These decisions are now being conducted based on the fulfilment of specific requirements. This enables the decision-maker to act after a set of conditions have been satisfied.

2.9 Theoretical Perspective

Theories and models help people understand why they do what they do and how they can improve their actions (Geithner & Menzel, 2016). These ideas help to set up the conceptual framework for this analysis. Previous research has used theories from different fields, like psychology and sociology in PMIS, to help people make decisions. Because of this, much research was done in the literature.

2.10 Resource-based View (RBV)

According to the lens of this theory, firms are considered a collection of resources; the resources can be in the form of men, money, machinery, material, time, and so many other forms (Newton, 2018; Gavriel, 2019). All these resources are coordinated and connected in a logical coherence to generate maximum output and competitive advantages. All the resources, whether they are available in bulk or scarce, their actual utilisation gives competitive advantages to construction firms. All of them are important and become constrained if they are not available or scarce. However, developing human assets and resources needs to be staged as the top priority. The groomed and well-skilled knowledge workers give new directions even to failed projects. Similarly, resource mapping and their proper deployment, extraction (release) and other management results in time and cost reduction. Lean management practices and concepts must be applied while managing organisational resources and should always be maintained on their actual utilisation, management and maintenance. Moreover, projects remain always unique. Therefore, they may not accept some or some specific resources from other projects; therefore, to smoothen their execution at a faster rate, specific resources need to be arranged for the projects. Research also proclaims that the variety and diversity of the resources make the project execution more successful. Furthermore, the PMs should collate the project resources, increasing performance and decision-making processes.

2.11 Conceptual Framework

PM is one of the big problems confronting the global economy. Construction companies that shape the backbone of the economy dynamically alter their nature and thus entail improvements in management practices and systems. One part of these improvements is the Performance of new fast-changing, which varies from the existing strategy. These improvements result in the addition of dedicated project teams to traditional hierarchical systems. PM is also becoming a crucial topic as the value of projects for construction businesses rises. Construction organisations, where decentralised project teams primarily carry out various specialised tasks, are particularly noticeable. A variety of other challenges emerge during the execution of the programs, including human management concerns relating to the construction of project teams, decisions surrounding coordination with the customer, and the process of making market evaluations as well as decisions (Alfahad et al., 2022). Project managers must therefore make judgments that control risk, simplify situations, and are ideally advantageous to the project, even while dealing with these issues (Dombrowski et al., 2019). This can be accomplished as construction organisations typically acquire PMIS to supply top managers with the critical resources that support the decision-making process in choosing, preparing, coordinating, and managing projects and portfolios (Ekrot et al., 2018).

PMIS consists of records comprising project-specific material and procedures relating to data planning, storage, conservation, and use (Geithner & Menzel, 2016). These protocols are used for developing, preparing, and implementing projects within different organisations. PMIS are automated solutions that enable project managers to oversee, document, and regulate their projects from start-up to start-up (Tsurkan et al., 2019). PMIS assists PMs in the preparation, coordination, and monitoring of programs, but also the strategic decision-making of projects. In addition, PMIS allows individuals and teams to monitor project success and offers vital visibility into project-related information, such as plans, budget, personnel, vendors, time, expense, quality, and documentation. PMIS also increases the Performance of projects by allowing the planning times, the extent of execution of activities, and the overall status and success of projects more apparent (Obeidat & Aldulaimi, 2016). In addition, PMIS lets project teams and other contributors keep up-to-date by allowing a coherent flow of information. To enhance decision-making about PM, the PMIS wants to gather information criteria relevant to ability and efficiency indicators from the management team (Swar et al., 2017). The conceptual framework in Figure 2 below has demonstrated how PMIS will boost decision-making in the right direction.

The literature on information overload discusses the main causes and effects and suggests workable solutions to deal with the problems associated with information overload. These countermeasures range from general advice on behaviour to more specialised software solutions that aid in processing vast volumes of data. A summary of the elements (personal, information characteristics, task & process parameters, organisational design, and information technology) mentioned in the reviewed literature can be found in Figure 1.

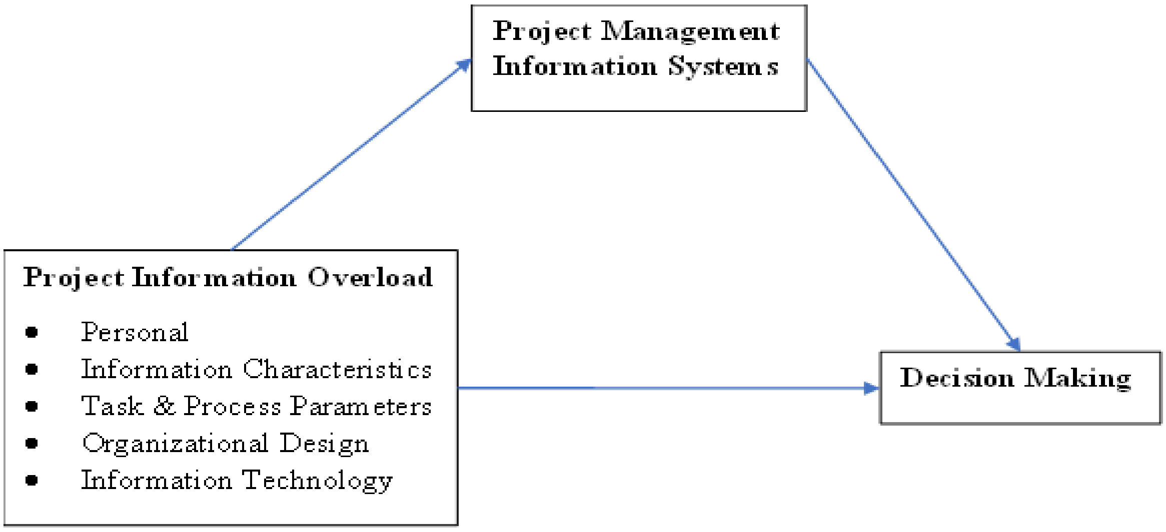

Figure 1: Conceptual Framework

O'Reilly (1980) says there is a link between too much information and poor project results. Beyond a certain point, more knowledge might make it harder to make good decisions. Overloading your brain with too much information can make it hard to choose the most critical information because it can be hard to separate essential facts from the rest of the information available, and distractions that cut down on the time you have to process information (O'Reilly, 1980). The project manager in a project environment gets more information because more projects are going on simultaneously. When there is a lot of project information for each project, it cannot be accessible in a project setting. In a project environment, there is a limited amount of information that people can look at, and there is little good information to look at (Elonen & Artto, 2003). The more complicated a project is, the more people need to know who should get information, when they should get it, and in what format (Elonen & Artto, 2003). Project managers may need help finding reliable information in these places. The below hypothesis formed:

H1: *Project information overload (personal information characteristics, task & process parameters, organisational design, and information technology) has a negative impact on decision-making in construction companies in Oman.*

H2: *Project information overload (personal information characteristics, task & process parameters, organisational design, and information technology) has a negative impact on project management information systems in construction companies of Oman.*

An environment where a project occurs forces the project manager to use the PMIS regularly. If the project manager does not like the information the PMIS provides or how much of it does, there is a chance he will not utilise it again (Raymond & Bergeron, 2008). As an alternative illustration, if the project manager is happy with the PMIS, he or she is more likely to employ the information the PMIS provides.

Raymond and Bergeron (2008) looked into the relationship between PMIS use and project success, but they found no evidence that there was a direct link between them. However, they found that project managers who used PMIS more often made more timely decisions through their work. A study of the link between using PMIS information and making good decisions has yet to be done. Using PMIS data could result in better decisions, especially considering that PMIS data will only be used in a project environment if it has worked well in other projects. The below hypothesis formed:

H3: *Project management information systems positively impact decision-making in the construction companies of Oman.*

H4: *Project management information systems mediating the relationship between project information overload (personal information characteristics, task & process parameters, organisational design, and information technology) and decision-making in construction companies of Oman.*

3. METHODOLOGY

This study utilised a quantitative approach for data collection using survey methods using structured questionnaires adopted from Caniëls and Bakens (2012); Raymond and Bergeron (2008). The target population was the construction companies in Oman. The data regarding the registered construction companies was downloaded from the engineering construction site helped in the recognition and identification of the 2200 project managers. Five hundred questionnaires were distributed to attain the minimum size of 187 for results generalization.

Moreover, due to the geographical location of the registered construction companies, a stratified cluster sampling technique was adopted in the first phase so that all the construction companies could be given due consideration to be included in the study. A simple random sampling technique was applied for the data collection in the second phase. Ethical consideration, no human picture or individual is not discussed in this study. However, data collection permission was obtained from the Tenga Nasional University Malaysia (UNITEN), and respondents were verbally informed about the nature of the study. Also, the purpose of the study was explained. All the respondents are anonymous and could not be linked to any specific individual to protect their privacy and avoid social desirability bias.

The questionnaire used a five-point Likert scale for all of the questions. This study used a five-point Likert scale with values of 1 through 5 (1=strongly disagree to 5= Strongly agree). The questionnaire was distributed in both English and Arabic, keeping in concern the respondents' comfort level but project managers having a good understanding of the English language. All respondents used only the English language response rate of 65%, and 327 responses were collected from the target population; however, after screening the questionnaires for outliers, duplications, missing, and other anomalies, the study left with only 269 respondents. For a more accurate result, the questionnaire was tested in the pilot phase, as it was adopted from other studies, languages, and cultural contexts; however, the Cronbach alpha results were above the satisfactory level, i.e., 0.872. After data collection, the questionnaire was screened for outliers and missing values. So, in this phase, 18 questionnaires were discarded, as they did not qualify to be included in the analysis. Furthermore, Moreover, SPSS was applied to analyse the results. The unit of analysis for the study was individual, i.e., the project manager (a respondent).

4. RESULTS AND DISCUSSION

4.1 Demographics of the Study

The demographics are given in Table 2. The data was gathered from 296 respondents, 82% male participants and 18% female. Following that, the majority of their age group (between 41 and 50 years of era (48%), followed by those between 31 and 40 years of era (29%), with most participants having a Master's degree (43 percent), and followed by a Bachelor's degree (41 percent).

Table 2: Demographic Profile of Respondents

Demographic Factor	Category	Frequency	Percent
Gender	Male	243	82%
	Female	53	18%
Age Range	20 - 30 years old	41	14%
	31 - 40 years old	86	29%
	41 - 50 years old	142	48%
	50 years above	27	9%
Qualification	PhD	9	3%
	Master	127	43%
	Bachelor	121	41%
	Diploma	39	13%

4.2 Descriptive Statistics Analysis

Table 3 contains the results of the descriptive analysis tests for each of the factors that were studied. According to the data in the table, the mean values of all the variables were between 1.92 and 4.35, and the standard deviation was found to range between .337and .84. Based on the collected data, the current study has determined that each of the factors under consideration has a reasonable degree of acceptability.

Table 3: Descriptive Statistics

Variables		Mean	Std. Deviation
Project Information Overload	Personal	4.1189	.42039
	Information Characteristics	4.0895	.33857
	Task & Process Parameters	4.1070	.44680
	Organisational Design	4.3544	.38909
	Information Technology	3.9373	.84556
Project Management Information Systems		2.0054	.47668
Decision Making		1.9216	.41702

4.3 Reliability Analysis

Sekaran and Bougie (2016) have defined reliability as “An indication of the stability and consistency with which the instrument measures the concept and helps to access the goodness of a measure”. The item's reliability must be verified to be certain of the accuracy of measurement and minimise measurement error, according to Straub et al. (2004). The average inter-item correlations calculated by Cronbach's alphas were used to determine the internal consistency. Although Cronbach's alpha has a conventional lower limit of 0.70, the alpha coefficient has no set upper limit. Table 4 illustrates the reliability analysis findings. These findings indicate that the data is trustworthy and suitable for the hypothesis tests.

Table 4: Reliability Testing Results of the Measurement

Variables		Cronbach's Alpha	No. of Items
Project Information Overload	Personal	.760	5
	Information Characteristics	.748	8
	Task & Process Parameters	.759	6
	Organisational Design	.835	9
	Information Technology	.929	7
Project Management Information Systems		.717	5
Decision Making		.811	5

4.4 Correlation Analysis

Studies of the standard variation of two or more variables are referred to as correlation analyses. By keeping all other variables constant, the correlation analysis seeks to quantify the link between a specific independent variable and a specific dependent variable. The bigger the correlation value, the stronger the association among the variables will be considered. Table 5 shows the correlation analysis.

Table 5: Correlations Analysis

	Project Information Overload	Project Management Information Systems	Decision Making
Project Information Overload	1		
Project Management Information Systems	-.134*	1	
Decision Making	-.364**	.439**	1

*. Correlation is significant at the 0.05 level (2-tailed)

4.5 Hypothesis Testing

This part provides regression and bootstrapping analysis to assess the relationship between independent, dependent, and mediation variables. It is the conventional technique used by this study to assess the significance level of the relationship, which is the p-value. Statistics show that the *p*-value of 0.01 is "extremely significant". The *p*-value will be between 0.01 to 0.05. In below table 6, a standardised beta coefficient (β) and the *Pp*-values show the strength of the relationship between the independent and dependent variables.

Table 6: Research Hypothesis Testing

Research Hypothesis	Independent Variables	Mediation Variables	Dependent Variables	Statistics	Result
Hypothesis 1	Project Information Overload		Decision Making	$\beta = -.364, p < 0.001$	Accept
Hypothesis 2	Project Information Overload		Project Management Information Systems	$\beta = -.134, p < 0.05$	Accept
Hypothesis 3	Project Management Information Systems		Decision Making	$\beta = .439, \mathrm{p} < 0.001$	Accept
Hypothesis 4	Project Information Overload	Project Management Information Systems	Decision Making	$\beta = -.4554, p < 0.001$ $\beta = -.2241, p < 0.05$	Accept

β = .3474, $p <$ 0.001

4.6 Discussion

Overwhelming project information (personal information characteristics, task & process parameters, organisational design, and information technology) has a negative impact on decision-making in construction companies in Oman. From the responses given by the participants, this study discovered that many of the participants agreed on the relationship between project information overload and decision-making. Regression findings indicated that project information overload is negatively and significantly correlated with decision-making ($\beta = -.364$, $p < 0.001$). Thus, the first hypothesis is accepted at a 99.99 per cent confidence level, and the null hypothesis is rejected. Project information overload (personal information characteristics, task & process factors, organisational design, and information technology) negatively affect project management information systems in Omani construction firms. Significant contributors to information overloading are personal factors, information characteristics, characteristics, task and process parameters, information system and other technological and logistic support, and the organisational structure (Kubíčková & Hodžić, 2020).

The study discovered that many participants agreed on the relationship between project information overload and project management information systems. Regression findings indicated that project information overload is negatively and significantly correlated with the project management information systems ($\beta = -.134$, $p < 0.05$). Thus, the second hypothesis is accepted at a 95% confidence level, and the null hypothesis is rejected. Project managers are more willing to utilise the information system if they have the requisite clarification as to their specifications (Tsurkan et al., 2019).

Project management information systems positively impact decision-making in construction companies in Oman. From the responses given by the participants, this study discovered that many of the participants agreed on the relationship between project management information systems and decision-making. Regression findings indicated that project management information systems are positively and significantly correlated with decision-making ($\beta = .439$, $p < 0.001$). Thus, the third hypothesis is accepted at a 99.99 per cent confidence level, and the null hypothesis is rejected. The generality of people's actions and the commonality of their behavioural criteria decide the decision-making theory's uniform analytical activities (Dombrowski et al., 2019). Decision-making affects our attempts to reduce resource spending and optimise Performance in operations (Danesh et al., 2018).

5. CONCLUSION AND RECOMMENDATIONS

The findings from this study also have managerial relevance. Project environments generate specific challenges that find their origin in increased complexity. Linkages and interdependencies between simultaneously running projects are at the root of this increased complexity. This study showed that project managers running several projects simultaneously benefit from using a PMIS. Not all companies with substantial project activities adopt a central PMIS. The management of such firms might want to design a policy on using project management information systems. There may be a caveat. A central PMIS would make it possible for top management to monitor the progress of projects and the decisions made by project managers about resource allocation. Additionally, businesses should spend money on PMIS and time ensuring that the PMIS produces high-quality data because quality decision-making will result from excellent PMIS data. Additionally, this study contends that even when project managers feel overburdened by information, there are no negative impacts to be anticipated from project and information overload up to a specific threshold. Because more research is required to determine where this threshold might be, management should consider this conclusion cautiously. Project managers' health should never be in danger because this will undoubtedly lower the quality of the work. This literature review can offer some advice for managers dealing with information overload at work.

It can be concluded from this study that project managers running several projects at the same time benefit from using a PMIS. Not all companies with substantial project activities adopt a central PMIS. The management of such firms might want to design a policy on using project management information systems. The study also concluded that using project management information systems is advantageous to project managers because of the alleged contribution regarding timelier decision-making and project success. The information generated must be free of complexity, easy to understand and accessible for project managers to share with the project team's members.

6. LIMITATIONS AND FURTHER STUDIES

Like other research studies, the current study has some limitations. Of the study location in Oman, construction industry project managers were only involved on a limited scale of construction companies in Oman. Therefore, results cannot be generalized. However, the study recommends that future work employ other rigorous statistical methods, using quantitative and qualitative longitudinal research designs to address the project's evolving challenges in Oman's construction companies. Similarly, the literature analysis on information overload indicates that new future research directions have emerged. Furthermore, the study faced more problems in assessing the impact of local and indigenous factors, like regulatory authority, bonds and other regulations. Therefore, the study recommends exploring contextual factors of information overloading and assessing their impacts on the decision-making processes and project execution.

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Ethical Statement: This study received the written consent of ethical approval from the Tenga Nasional Universiti (Uniten) Malaysia, and the school advisory board. All participants were formally informed, and their consent was taken, which is confidential.
Consent to Participate: The author declared that they have no known competing financial interests or personal relationships which affect the work reported in this article. This study deals with human participants, and human data or human rights issues are discussed and evaluated.
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Interactional Justice and Destructive Deviant Workplace Behavior: The Mediating Role of Perceived Supervisor Support in Developmental Project

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ABSTRACT

Interactional justice and supervisors' support are crucial in steering employees' behavior in either a constructive or destructive direction in developmental projects. This study examines the impact of interactional injustice on employees' deviant behavior, using perceived supervisor support as a mediator. Equity and social exchange theories were employed to connect the study variables. A survey of the considerable literature on destructive deviance was conducted. A sampling approach with two phases was used to collect 158 responses. The study used a single structured and modified questionnaire. This research study has practical as well as theoretical implications. The study's findings indicate the relationship between interactional justice, deviant workplace behavior, and the supervisor's role. The study has some limitations, including participant subjectivity and sampling. This research can be repeated in the future in other industries.

Keyword: Interactional Justice; Deviant Workplace Behavior; Perceived Supervisor Support; Developmental Project; Islamabad/Rawalpindi-Pakistan.

1. INTRODUCTION

The developmental projects aim to promote social, emotional, psychological and economic development. Social development states that investing in people necessarily requires the removal of barriers; thus, all community members can accomplish their dreams with self-assurance and integrity. Moreover, having a secure and affordable place to stay is extremely important for people to achieve self-sufficiency (Friedman, 1969).

The projects can fail due to a lack of performance of individuals or teams, which can create negative emotions; in this, they should able to display self-compassion in the form of self-kindness, common humanity, and awareness. Thus, organizations should encourage such behavior and even give

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Growth chances for employees to learn new abilities. (Shepherd & Cardon, 2009). Psychological development is concerned with describing and analyzing changes in psychological processes at any time during a person's life. Because of developmental psychology, we understand what development and employees are like. Due to this, we can find the personality and interests of employees by asking various types of questions which play a vital role in developmental projects (Morss, 1995).

Employees are an organization's asset; it does not refer to their number or qualifications. It is their actions that matter. They are only assets if their actions align with the organization's expectations; otherwise, they are liable (Gene Pease, 2012). Interactional justice is the proportion to which those impacted by a judgment are treated with respect and dignity (Robbins & Judge, 2013) Organizations must investigate the elements that influence employee behavior directly linked to the company's success. They will be able to establish and maintain a competent and cooperative workforce with this understanding of human behavior. Regardless, employees have been observed engaging in both productive and destructive behavior (deviant) (Rahman2, 1, January 2022). Organizations must be efficient and effective in their operations. Moreover, to accomplish this, the organization must investigate the elements that influence employee behavior, which is directly linked to the company's success (Shrestha & Subedi, 2020).

Regardless, employees have been proven to exhibit both helpful and detrimental deviant workplace behaviors tendencies. The first is advantageous and desirable for both the organization and the employee, whereas the second is disadvantageous and unwanted for both the individuals and the company. (Vadera et al., 2013). Various surveys stated that Organizational factors, not personal characteristics, were significant predictors of misconduct and work satisfaction for for-profit, non-profit, and government employees. (Andreoli & Lefkowitz, 2009).

Leadership effectiveness has been discovered to be a better logistic of positive deviance. (Appelbaum et al., 2007). Client abuse (also termed as "client torture") deteriorates employees' resources, diminishes their ability to govern their conduct, and leads to customer-directed deviant behaviour, according to the conservation of resources (COR) theory (Song et al., 2020). In constructive workplace deviance, psychological involvement is expected to act as a mediator, a theoretical framework based on some rarely analyzed predictors, for example, group decision-making, individual match, optimism, and justice interpretation etc., where psychological ownership is expected to play mediator (Yıldız et al., 2015). This research focuses on deviant workplace behaviour in a two-dimensional organizational and interpersonal construct. Construct. Deviant workplace behaviour is defined as "discretionary behaviour in which individuals intentionally violate important organizational principles and cause harm to other members and the organization. (Robinson & Bennett, 1995).

Organizational justice is an excellent indicator of a variety of workplace behaviours. We compared the supervisor's perceptions of justice to the organization's overall conceptions. (Rupp & Cropanzano, 2002). All workplace practices, organizational policies, incentive distribution, or supervisor treatment are marked by (in) justice according to confirmatory factor studies. The scale contained four unique aspects distributive, procedural, interpersonal, and informational justice. (Colquitt et al., 2001). As a result, research has revealed various justice outcomes, such as organizational citizen behaviour. (Rupp & Cropanzano, 2002), job satisfaction (Nadiri & Tanova, 2010) Rupp & Cropanzano, 2002), organizational commitment (Wang et al., 2010) and deviant workplace behaviours. (Demir, 2011; Fox et al., 2001; Hashish, 2019).

This article aims to look into deviant workplace behaviour as a response to workplace injustice. The scope of this research is majorly limited to one dimension, interactional justice, even though scholars have looked at organizational justice from all three of its familiar dimensions. Although the relationship between interactional justice and deviant behaviour is not linear, several variables can intervene and help to explain it. (Yang et al., 2014). Some moderating and mediating variables were included to have a sound understanding of the mechanism and nature of their interaction. As a result, this study will focus on perceived supervisor support and argue that interactional justice is crucial in influencing deviant conduct.

The research was conducted among the employees of a development project. There are two reasons for undertaking this research. First, academics in this field have still focused solely on quality dimensions and employee performance, but what factors are significant in molding this performance has yet to be determined. In other words, the psychological needs of employees should be more valued in development efforts. Another, the study variables, particularly interactional justice and the support of a perceived supervisor, act as a backbone in the supervisor-subordinate bilateral connection. Because subordinates contact their supervisor daily, these variables' interaction is more common in developmental projects than in other industries. It indicates that in this profession, information is exchanged, and interpersonal assistance is given far too frequently. As a result, the study's findings are more grounded in reality, objective, and highly applicable to industry management.

2. LITERATURE REVIEW

This study discussed in detail the existing research on interactional justice, destructive deviant workplace behavior and the mediation role of supervisor reviewed through literature from books, research reports, research articles and other essential sources published during the last five to eight years to build the foundation of the current study. Here we discuss the independent variable, interactional justice, and the dependent variable, destructive deviant workplace behaviour. Under the theoretical analysis, the links between these variables were formed, and their impact on one another was analyzed. These connections and their consequences aided in the development of research hypotheses. Based on these assumptions, a logical model of the variables was developed, which aids in comprehending the study concept.

2.1 Interactional Justice and the deviant workplace Behavior

The relationship between organizational justice and workplace misbehavior has been studied extensively (Rupp & Cropanzano, 2002). The relationship has been clarified in all three dimensions in the existing literature. Each variable has been investigated in connection to deviant workplace behaviour independently. The focus of this research, however, is limited to interactional justice. The previous literature examined and explored each dimension from an organizational approach. However, this study looked at interactional justice from the supervisor's standpoint. The social exchange theory and the principle of poor cooperation are used to investigate the link between research variables. According to these beliefs, a subordinate's actions and attitudes affect him or her qualitatively and quantitatively (Cropanzano & Mitchell, 2005). Employees would react badly if they saw unfairness in this social exchange process (Parzefall & Salin, 2010; Farid et al., 2021).

According to Khattak, (2020), it is revealed that perceived interactional injustice leads to organizational deviance. The implications of interactional justice for managers, educators, and lawmakers when it comes to eliminating negative behaviour in professional staff through the correct rewards application (Shoaib & Baruch, 2019). Interactional justice mediated the interaction between perceived authoritarian supervision and work engagement. The adverse effects of perceived authoritarian supervision on employees' results were amplified by higher degrees of employees' need for belonging (Ni et al., 2021).

Empirical research has linked interactional justice and deviant workplace behavior (Hoobler & Hu, 2013; Ni et al., 2021; Shoaib & Baruch, 2019). For instance, Ahmad (Ahmad, 2018) claims that interactional justice and a hostile work environment are closely linked and that both are examples of negative deviant actions. (Skarlicki, 1997) have also shown that significant levels of interactional injustice result in retaliation, observed only when there was low interactional and procedural justice. Similarly, (Le Roy et al., 2012) have detected that employees become enraged when they see interactional inequality, and this enragement manifests itself in deviant actions such as verbal aggression, sabotage, and theft. They say that those who believe they do not have access to critical information would participate in negative behaviours such as taking long breaks and vacations. Using the existing literature as a guide, this research proposes the following suggestion for authentication in the recent population.

H1: Deviant workplace behavior is negatively related to interactional justice.

2.2 The Perceived Supervisor Support and Deviant Workplace Behavior

Supervisors are essential in influencing subordinates' behaviour and increasing their productivity at work. Supervisor honesty and responsible behaviours have a direct favourable impact on employee performance. Also, positive supervisory behaviours indirectly affect performance through partial and serial mediation of workplace spirituality and job engagement. Supervisors should be sensitive and honest to initiate a positive motivational process in their staff, which will result in improving their performances. (De Carlo, 2020; Shanock & Eisenberger, 2006). The literature shows that the subordinates feel obligated to behave positively for the organization's benefit because of supportive supervision, and support from the supervisor is directly associated with creative work behaviour.

Some empirical investigations show a damaging association between perceived supervisor support and deviant behaviour, either directly or through a mediation mechanism. For instance, by applying a mediation method, (Sguera et al., 2018) claimed that a subordinate's sense of supervisor support evolves into supervisor-directed self-esteem, which subsequently influences the subordinate's conduct. Their finding revealed a connection between deviant behaviour and perceived supervisor support.

The association between supervisor support and (un)ethical employee behaviour is mediated by supervisor-based self-esteem, and employee task satisfaction also strengthens the link between supervisor support and supervisor-based self-esteem. In addition, (Khan et al., 2015) looked into whether there is a link between support from perceived supervisor and workplace deviance, as well as the impact of organizational commitment and supervisory support on workplace misbehaviour. As a result, the workers who lack management support are more prone to engage in deviant workplace behaviour, which hurts the organization, other employees, and customers. Dissimilarities in ethnicity, agreeability, and openness to experience were shown to be significantly connected to organizational deviance. At the same time, gender, conscientiousness, and extraversion were found to be significantly related to interpersonal deviance. (Liao et al., 2004). Thus this study stated that:

H2: A negative relationship exists between deviant workplace behaviour and perceived supervisorsupport.

2.3 Role of Perceived Supervisor Support as a Mediator

The immediate supervisor is critical in linking managerial justice and deviant workplace behaviour. In the presence of ethical leadership, interactional justice may serve as a mediation mechanism for reducing workplace bullying. Such behaviour is considerably minimized, Because of the excellent role of the mediator for justice at work. Employees' deviant behaviour toward their boss was determined by their previous day's deviant behaviour toward their job, and this can be reduced by a mediator method of supervisor. (Li et al., 2021; Ahmad, 2018).

According to (Randall et al., 1999), the employees' performance increases by creating a supportive and collaborative work environment in developmental projects. It is difficult to decrease the feeling of interactional injustice without supporting supervision, which hurts subordinate action. (Ahmad, 2018). As per the social exchange hypothesis (Blau, 1968), staff interact continuously with their supervisors and the institution. The more services provided in exchange for a valuable service, the more power offering those valuable services has. The sort of employee reciprocation in this transactional exchange relationship is determined by the supervisor's and organisation’s activities. This concept lays the theoretical groundwork for linking the three research variables. Employees who see injustice in their interactions with supervisors believe they are not treated with dignity and respect and are consequently more likely to participate in workplace deviance. (Shanock & Eisenberger, 2006; Young Ho Song, 2020).

2.4 Research Hypothesis and Conceptual Model of the Study

Based on the abovementioned findings and premises, the study came with the following model as shown in Figure 1 and hypothesis.

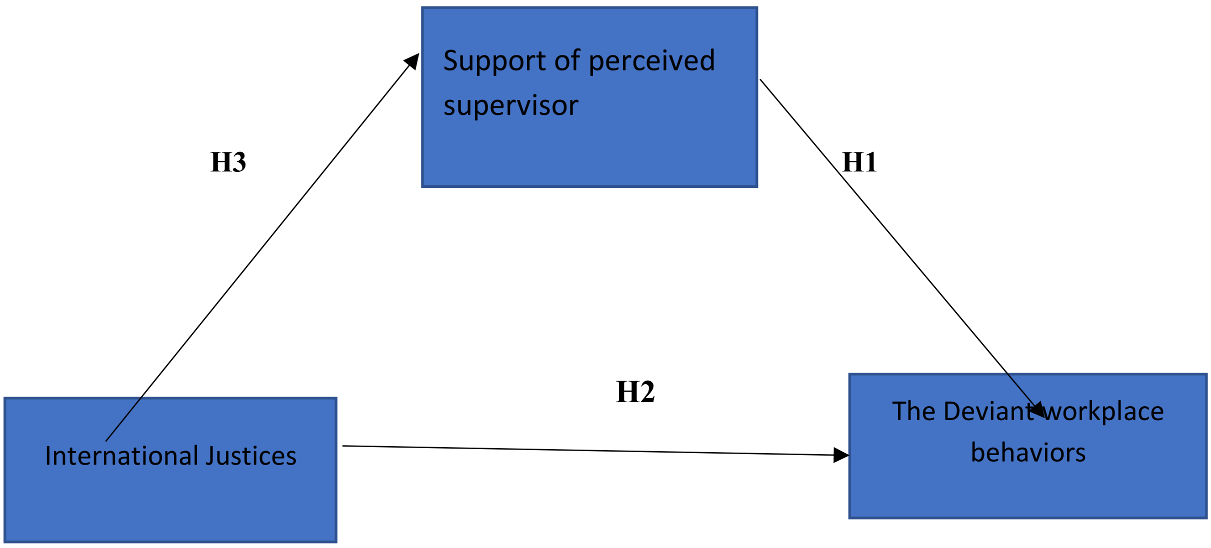

Figure 1. Conceptual frame work

Hypothesis

H1: Deviant workplace behaviors is negatively related to interactional justice.

H2: A negative relationship exists between deviant workplace behaviour and perceived supervisor support.

H3: Interactional justice and deviant workplace behaviour are mediated by perceived supervisor support**.**

3. RESEARCH METHODOLOGY

This study provides the procedures for identifying and collecting the data and how that data were analyzed systematically. The primary purpose of this section is to describe the methodology to be adopted for this research in detail, including what research philosophy I will adopt to gather the data, the research design and approach, as well as population sampling and instrumentation. This section is critical for the thesis as it validates my study and evaluates its reliability. This research work focused on cross-sectional data collection from various organizations based on which quantitative results were obtained.

This research philosophy is positivism, which holds that only "factual" information obtained from observation (the senses), including measurement, is reliable. The researcher's function in positivist studies is restricted to data collection and objective interpretation.

3.1 Population and Sampling

The study is based on quantitative information gathered from respondents who were specifically targeted and who worked on different project-based developmental projects in Islamabad and Rawalpindi, Pakistan's twin towns. Using a standardized questionnaire, the information was excluded and taken from earlier research. Data were collected for the study using a cross-sectional methodology. In this study, convenience sampling was used. The target respondents were also accessed using a practical sampling strategy. However, only 158 of the 390 questionnaires that were sent were returned for the study. The study used SPSS to analyze the data and result in completion. The selection of the sample from various industries of public and private sectors as well as the respondents from different tiers of organizations, help to maximize the generalizability of this research and minimize the chances of bias in the sample data.

3.2 Measurement of variable

This study adapted the scale to measure variables from the research studies. The study contains a total of 15 items, which are adapted from (Colquitt, 2001; Rhoades & Eisenberger, 2002). Interactional justice contains four items, support perceived supervisor contains eight items, and deviant workplace behavior contains three items. In order to fit the needs of the study and its environment, the questionnaire was modified. The items were scored using a 5-point Likert Scale, with one denoting strong agreement and five denoting strong disagreement.

3.3 Data Collection Methods

The data was gathered from experts in a variety of fields, including Project Leaders such as project managers, supervisors, and team leaders, as well as their employees working under their command for said projects, both male and female, working on developmental projects in the private and public sectors in Pakistan's Islamabad / Rawalpindi area. The questionnaire was sent to people online through Google Forms and disseminated through email and social media.

4. RESULTS AND DISCUSSION

4.1 Response rate and demographics data

The questionnaire was distributed among 390 professionals, of which 166 responses were received from all three tiers of senior, middle and lower Management. We eliminated eight responses with incomplete information; thus, 158 were usable survey responses for data analysis. Of which 114 were male, and 41 were female, three were not preferred. Most of them were younger and had bachelor's and master's degrees. One hundred twenty-three responses were collected from Islamabad, and 35 were gathered from Rawalpindi. Project team members provided the majority of the responses. The descriptive frequencies are detailed in the following tables. This demonstrates that the responders were knowledgeable and competent enough to give relevant data. The summary of demographic data is presented in Table 1.

Table .1 Demographics

Demographics	Items	Frequency	Per cent
Gender	Male	114	72.2
	Female	44	27.8
Age	18-25	45	28.5
	26-30	66	41.8
	31-40	40	25.3
	41-50	7	4.4
Education	Bachelor	84	53.1
	Master	62	39.2
	PhD	2	1.3
	Certification	10	6.3

4.2 Descriptive Statistics

A justification Data are shown in tabular form in statistical tables. It shows the mean, standard deviation (SD), and the lowest and most significant values of the data collected for the study. The mean in this table represents the variable's average value, and the SD represents the standard deviation of the values from the mean. The data were gathered using a closed-ended procedure evaluating replies on a 5-point Likert scale. The descriptive frequencies are detailed in Table 2, demonstrating that the responders were knowledgeable and competent enough to give relevant data.

Table.2: Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Standard Deviation
DWB	158	1	3	1.36	0.539
IJ	158	1	4	2.04	0.784
PSSR	158	1	5	2.63	0.669

After descriptive statistics, a correlation was calculated to evaluate the relationship between the study's constructs. The values indicate a strong association and affiliation between all of the variables, which are all strongly associated with one another. According to correlation statistics, all three variables are significant.

Table .3: Correlations

	DWB	IJ	PSSR
DWB	1		
IJ	0.239**	1	
PSSR	0.181**	0.852**	1

4.3 Reliability Analysis

The validity and reliability of the scale, instrument, and items are discussed in the reliability analysis. The scale and items will not be regarded as trustworthy and valid in SPSS if the values are less than 0.7. All items received reliable scores; Table 2's total reliability statistic reflects this. The statistic declares that the scale and item were judged to be dependable and satisfactory. Therefore, reliability was reached across the board for the construct.

Analyzing reliability in the current study entails determining a construct's capacity to yield reliable outcomes. Each variable corresponding to the three constructs underwent a separate internal consistency examination. The variables' overall reliability:

Table 4. Reliability Analysis

	Cronbach's Alpha (CA)	Composite Reliability(CR)	Average Variance Extracted (AVE)
Deviant Workplace Behaviour	0.774	0.862	0.679
Interactional Justice	0.772	0.853	0.594
Perceived Supervisor Support Role	0.88	0.905	0.546

4.4 Regression Analysis

Regression analysis is a potent tool for investigating the relationship and influence of one variable on another or for summarizing the relationship and impact among themselves. Regression analysis is typically used to determine how an independent variable affects a dependent variable. Table .5 summarize the value for regression analysis.

Table.5 Coefficient of Regression

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Relationship	Decision
IJ -> DWB	-0.256	-0.260	0.149	1.957	0.043	Negative	Significant
IJ -> PSSR	0.713	0.721	0.049	14.543	0	Positive	Significant
PSSR -> DWB	-0.14	-0.13	0.276	0.341	0.612	Negative	Insignificant
IJ-> PSSR -> DWB	-0.063	-0.066	0.19	0.575	0.566	Negative	Insignificant

Table 5 shows that out of 3 hypotheses, one is supported, and two are not, as their p values are >0.05, which confirms it to be insignificant. The relationship between IVs and DVs is negative and significant. Supervisor support positively affects interactional justice and has no mediating role in the relationship between interactional justice and deviant workplace behavior. So it is to be insignificant.

4.5 Discussion

In this study, the mediating effect of perceived supervisor support was used to examine the effects of interactional justice on deviant workplace behaviour. To clarify the significance and results of the current study, the main goal of this study will be to review the findings and results presented in the previous study and compare the analysis and results of the current study. The purpose of the current study was to test the model's hypotheses, which included perceived supervisor support as a moderating variable, deviant workplace behaviors as a dependent variable, and interactional justice as the independent variable. Information was gathered from developmental Project organizations in the Rawalpindi and Islamabad regions.

The current study's results indicate a significant relationship between interactional justice and deviant workplace behaviour. However, no moderating influence of perceived supervisor support between interactional justice and Deviant workplace behaviour could be demonstrated. So Hypothesis 1 asserted that interactional justice and deviant behaviour have a negative association. The empirical results revealed a negative relationship between interactional justice and deviant workplace behaviour. This means that the proposed hypotheses got validated in the current population. These results align with several researchers' findings (Skarlicki, 1997; Hoobler & Hu, 2013). The second hypothesis in the study proposed a negative relationship between deviant workplace behaviour and perceived supervisor support. Through bootstrapping, the path coefficient and effect were confirmed. Which gave T-Value=0.507 (Threshold >1.96) and P-Value=0.612 (Threshold <0.05), confirming it to be insignificant, and the betta value is negative, which shows the negative relationship. The empirical results of this study supported the hypothesis that perceived supervisor support had a negative relationship with deviant workplace behaviour. These results are more consistent with those of earlier studies (Whelpley & McDaniel, 2016).

The empirical findings of the current studies in Pakistan show an insignificant correlation and negative relationship between deviant workplace behaviour and supportive perceived supervisor in organizations. Hypothesis 3 proposed that interactional justice has a negative relationship with deviant workplace behavior through the mediation of perceived supervisor support, such that interactional justice has a positive relationship with perceived supervisor support and perceived supervisor support has a negative relationship with deviant workplace behavior. The relationship was operationalized through indirect effects. Through bootstrapping, path coefficient and effect were established. Which gave T-Value=0.575 (Threshold >1.96) and P-Value=0.566 (Threshold <0.05), confirming it to be insignificant, and the betta value is negative, which shows the negative relationship. Besides this, the main focus of the current study was to determine the mediating effect of perceived supervisor support in the relation between interactional justice and deviant workplace behaviour. The prior findings indicated the influence of the mediator variable in the relationship between these variables. However, the current study needs to pay more attention to the insignificant effect of perceived supervisor support for both relations.

The main reason behind that is the culture of Pakistan and the short sample size. Secondly, most respondents to our questionnaire declined to complete specific demographic questions because they seemed concerned that if they did, the Human Resource Information System might use the information to track down their identities. It may affect their ability to keep their employment, especially if they admit to engaging in deviant workplace behaviour that the company would find unacceptable (Syaebani & Sobri, 2013).

5. CONCLUSION

In this study, the mediating role of perceived supervisor support was examined in the relationship between interactional justice and deviant workplace behavior. The purpose was to investigate the hypotheses, including perceived supervisor support as a moderating variable, deviant workplace behavior as the dependent variable, and interactional justice as the independent variable. Data was collected from developmental project organizations in the Rawalpindi and Islamabad regions. The results of the current study revealed a significant negative association between interactional justice and deviant workplace behavior, confirming. However, no moderating effect of perceived supervisor support on the relationship between interactional justice and deviant workplace behavior was observed.

The results, through bootstrapping analysis, indicated an insignificant relationship with a negative beta value, supporting the hypothesis. However, the bootstrapping analysis revealed an insignificant indirect effect, indicating that perceived supervisor support did not mediate the relationship between interactional justice and deviant workplace behavior. It is important to note that the insignificant findings regarding perceived supervisor support in both the moderating and mediating analyses may be attributed to cultural factors specific to Pakistan and the limited sample size. Additionally, respondents' reluctance to provide specific demographic information due to concerns about potential repercussions on their employment and anonymity may have affected the results.

6. LIMITATIONS AND RECOMMENDATIONS OF THE STUDY

Like other studies, this one also carries certain limitations which need to be overcome in the future. First, the sample size can be increased and even from multiple countries and context data can be collected and tested to mature and generalize the concept further. Similarly, the study employed a cross-sectional design, which help less in in-depth causality and relationship explanation. So, cohort or longitudinal studies can be conducted using the mix-method approach to assess the phenomenon in depth. Likewise, the study’s basic model is based on SPSS, which can be handled with advanced data analysis software like AMOS, and Smart-PLS. One basic addition, which needs to be incorporated is the third-party data, or external data, or supervisory data, which will give the true picture of interactional justice, and workplace deviant behaviors. So, multiple sources can be used for the collection of more generalized data.

Regarding the model complexity, more contextual mediating and moderating variables can be added, even methodological, which can add value to the study and can make it more comprehensive. This can include, but is not limited to job satisfaction, organizational commitment, or employee engagement, to gain a more comprehensive understanding of the relationship between interactional justice and destructive deviant workplace behavior. In the same way, examining the influence of different leadership styles on the relationship between interactional justice, perceived supervisor support, and destructive deviant workplace behavior could be a fruitful avenue for future research. Investigating the role of transformational or ethical leadership in mitigating destructive deviant workplace behavior could provide insights into effective leadership practices. Cultural differences have been staged as the most contributing factor in the project context, which needs to be studied in the context of interactional justice and workplace deviant behaviors.

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And human data or human rights issues are discussed and evaluated.
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The Mediating Role of Employee Engagement in the Relationship between Leadership Styles and Organizational Performance: Conceptual Model

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ABSTRACT

Organizational performance is the combined efforts of the employees and leadership. Their effective engagement and better working relationships enhance organizational performance and effectiveness. Open communication among employees and Leadership bolsters organizational performance and provides social, emotional, psychological, ethical, and moral support, safety, and security. This study explores employee engagement's mediating role in assessing Small and Medium Enterprises (SMEs). A mixed methodology was adopted for the study. In the first step, a Systematic Literature Review (SLR) was adopted as a methodology for the study. In the second stage, a case study supported the study's findings. The study found that leadership style affects organizational performance. Moreover, employee engagement has a significant effect on organizational performance. The study also proposed a model based on the content review, which is recommended to be tested in different contexts and industries around the globe.

Keyword: Organizational Performance; Leadership Style; Employees' Engagement; Small and Medium Enterprises (SEMs)

1. INTRODUCTION

Multiple scholars have studied the influence of leadership styles on employee behaviour and performance. The fall in infrastructure projects in OMAN has been attsributed to shifting economic conditions and market dynamics in the Middle East due to lower oil prices. This has resulted in employment uncertainty among staff working in Small and Medium Enterprises (SMEs) in OMAN,

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Affecting employee engagement (Al Qayoudhi et al., 2021). In these challenging times for SMEs in OMAN, it is more important than ever for executives to ensure that staff is actively engaged to sustain the organization's success.

Employee engagement is primarily driven by work-related factors such as job security, Leadership, and employee performance (Al Haziazi et al., 2021). According to Almawali et al. (2021), leadership behavior substantially impacts employee engagement. As businesses grow more dynamic, the responsibility of leaders to empower people by adopting leadership styles that allow for this should become the organization's objective. The notion of a good leader has shifted in response to changing corporate business. A competent leader encourages and instructs subordinates to make the best efficiently manages available resources and influences them to reach the organization's goals and objectives (Tahir et al., 2021; Ali et al., 2022).

Small and medium businesses (SMEs) are essential in accomplishing national goals in developed and developing countries and are considered critical in many governments' strategic plans. Indeed, many industrialized nations' planning stresses and encourages the establishment, promotion, and support of SMEs to reduce unemployment, share income, and boost economic growth (Muthuraman et al., 2020). According to the literature, SMEs have a role in creating money, absorbing labour, reducing poverty, and developing and permitting the exercise of entrepreneurial skills, as well as connecting many different sectors that may be geographically and economically varied (Al Farsi & Alattar, 2021; Al-Hussaini et al., 2019).

Due to diversification, privatization, unemployment, and the dominance of ex-pats in many small company operations, SMEs have grown essentially in several Gulf Cooperation Council (GCC) nations in recent years (Sibani & Salim, 2021). Small enterprises in Oman have won official recognition for their contributions to job creation, complementing the work of larger organizations, and strengthening local resources (Muthuraman et al., 2021). The Omani government has made it apparent that small firms will play a crucial part in Oman's future industrial growth, and it has accepted responsibility for the nation's infrastructural development to support those (Gupta & Hoda, 2021).

As Oman's industrialization accelerates, small and medium firms, which already account for most of the economy, are anticipated to supplement the operations of large-scale corporations (Gupta & Hoda, 2021). As a result, they can provide local domestic investors with inexpensive options to diversify into manufacturing outputs at levels that are compatible with their current managerial skills (Muthuraman et al., 2021). Small businesses should play a more significant role in Oman's economic transformation. The government aims to construct an essential infrastructure for the growth of the selected sectors to attain these aims. It also establishes enterprises to harness the SMEs, especially the country's crude oil and natural gas, which provide Oman with a cost advantage (Muthuraman et al., 2021).

SMEs require sufficient capital to realize their development potential (Heinze, 2022). On the other hand, banks and other lending institutions are widely known for being hesitant to lend money to small businesses; business size and lack of leadership are the key reasons (Sibani & Salim, 2021). It has also been highlighted that a company's age and size impact the difficulty of acquiring financing (Muthuraman et al., 2021). Furthermore, many business owner-managers hesitate to give up stock to outsiders as they believe it would reduce their independence and control, and the gap in equity financing for such businesses may expand (Al Fazari & Tewari, 2022).

However, SMEs face issues raised by Muthuraman et al. (2021), such as poor leadership style, which hardly and productively engaged their employees in operation and production processes.

Therefore, this study explores the underlying phenomenon of engaging workers proactively to bolster organizational performance. Moreover, there are multiple styles of Leadership; however, transactional and transformational Leadership are considered the most obligated, practised, and popular leadership styles (Jayashree et al., 2022). Based on the cited literature the central question for the research study is "What is the mediating effect of the employees' engagement between leadership styles and organizational performance?" Therefore, the study's main objective is to explore the mediating role of the employees' engagement between leadership styles and organizational performance.

2. RESEARCH METHODOLOGY

A Systematic Literature Review (SLR) is applied to meet the study's objectives. Therefore, the most widely used scholarly search engines were selected for the study, which included, but not limited to, Google Scholar, Scopus, EBSCO, PsycINFO, Science Direct, and Web of Science was used for the study. Moreover, "organizational performance", "employees' engagement", "leadership Styles", organizational performance and employees' engagement", "leadership Styles and organizational performance", and "leadership Styles and organizational performance" were used as a keyword for the study. Furthermore, the following criteria were adopted for SRL

a. The period for the search is from 2000 to 2021.

b. The search is limited to only the English language.

c. The search is limited to research journals, periodicals, proceedings, and published reports.

d. The study is extended to social, numerical, and bio-sciences.

A total of one hundred fifty (150) documents related to the study obtained in the first round and screened out for relevance to the abovementioned criteria. Therefore, 34 articles were removed due to their irrelevancy. In the same way, 23 documents were rejected due to duplications. Similarly, 11 articles were excluded, as they were not published in English. Moreover, 19 articles were excluded due to sources having lower impacts. The study left with 72 documents, including sixty-eight (68) research papers and four (4) reports, which were included in the study. The details are provided in Figure 1.

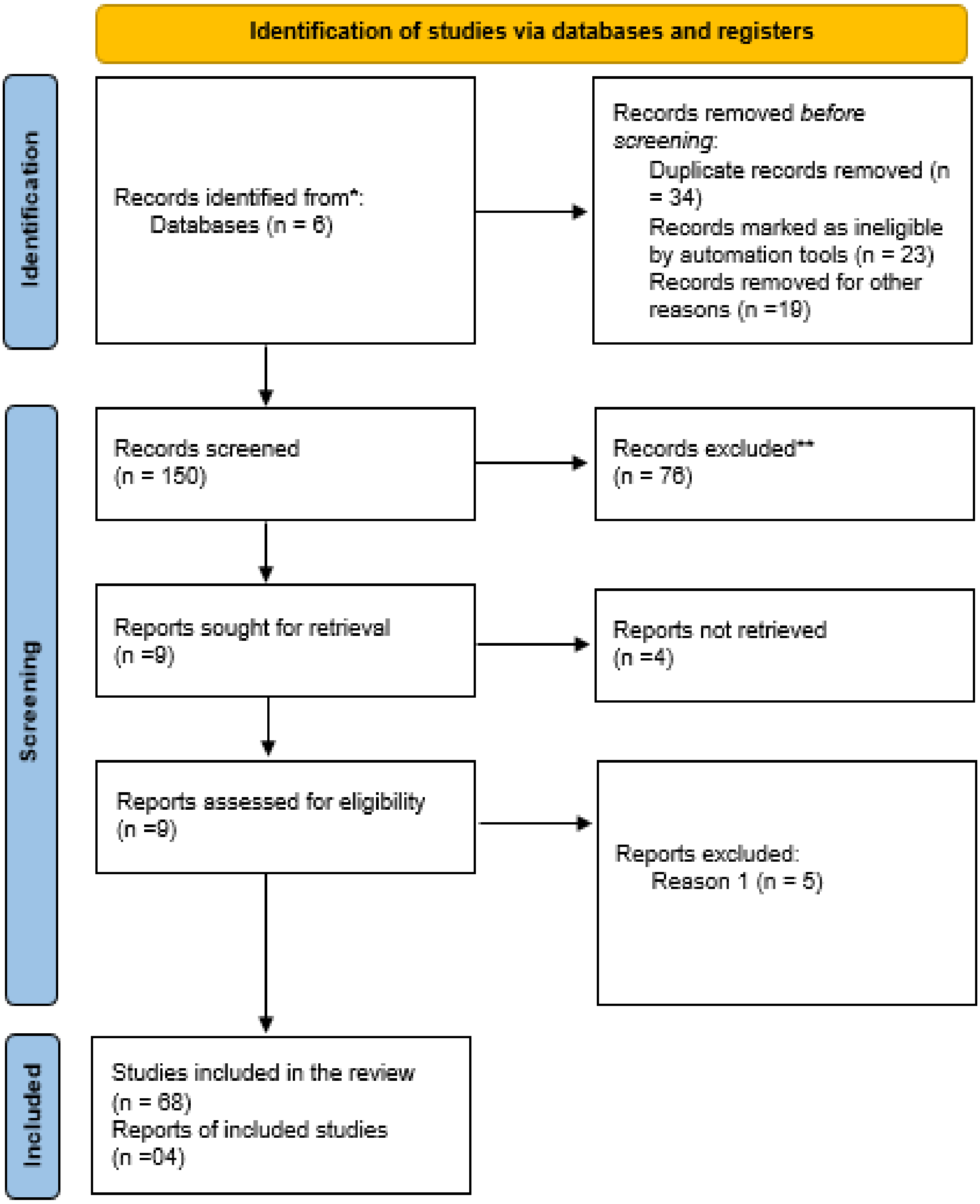

Figure 1: PRISMA flow diagram for the study

3. LITERATURE REVIEW

3.1 Types of Leadership

Transformational Leadership is a theory of management where an innovator teams up with teams to identify required change, make a vision to help the adjustment using motivation and perform the modification in tandem along with fully committed participants of a group; it is an integral portion of the Total Selection Management Version (Jiang et al., 2017). Transactional leadership styles are about preserving the regular flow of functions – this type is "maintaining the ship afloat." Negotiable innovators use corrective energy and a selection of incentives to the reality that this forerunner generally inspires staff through exchanging perks for functionality. A negotiable innovator usually does not appear in advance in tactically helping an organization to a posture of market management; as an alternative, these supervisors are frequently concerned with ensuring every little thing circulates perfectly today (Odumeru & Ifeanyi, 2013).

3.2 Employee Engagement

Employee engagement is the passionate connection employees feel towards their work environment, work job, position inside the organization, associates, and culture and the influence this connection has on prosperity and profitability. From a business perspective, employee engagement is worried about utilizing new measures and activities to expand the positive, passionate connection felt and, in this way, efficiency and, by and large, business achievement (Ozolina-Ozola, 2014). Numerous individuals see employee engagement to be a case of an upper hand. Researchers have defined the concept of employee engagement as 'an individual employee's cognitive, emotional, and behavioural state directed toward desired organizational outcomes' (Prayogi & Lesmana, 2021). Employee engagement is believed to be a long-term emotional involvement of the employee and is considered a precursor to job satisfaction and commitment (Saeed, 2018).

3.3 Leadership Style and Employee Engagement

According to Firman et al., (2021), leaders can influence the organization's effectiveness through their subordinates. They can give new directions, philosophies, and horizons to organizational performance and productivity if they engage their employees according to their interests, inclination, and orientations (Firman et al., 2021). There are many styles of Leadership, and they are needed and demanded as needs and requirements of the working environment. Transactional leaders are confined to using prizes and recognitions to motivate employees; transformational leaders support the growth of employee engagement by shifting employees' focus from their interests to the group's overall interests. Similarly, transformational leaders can motivate and inspire personnel to focus on the organization's goals and objectives. Moreover, according to multiple researchers such as Hendawy Al-Mahdy et al. (2021) and Hammad and Al-Harthi (2021), Transformational leaders directly impact employee engagement by increasing commitment and organizational performance.

According to Riva et al. (2021), leaders who cultivate positive, trusting connections with their staff can boost employee engagement. Researchers have conducted numerous studies, and employee engagement is now defined as a "heightened emotional connection that an employee feels for his or her organization that influences him or her to exert greater effort to his or her work" when combined with leadership styles (Susilawati et al., 2021).

According to Megawaty et al. (2022), trust and integrity, having a clear correlation between organization performance and employee performance, intellectual stimulation, career opportunities for employees, the leader-employee relationship, pride in the company's reputation, and team collectivism are the critical factors of Leadership that affect employee engagement. Employee engagement, in turn, influences the service orientation of workers in service-based businesses (Maral & Hamedoğlu, 2022). This indicates that employees who regard their leaders as transformative are more engaged and service-oriented. Transformational leaders excite their people by transforming their attitudes and beliefs into a shared vision for the company. Employee engagement is enhanced when transformational leaders ensure that their people are confident, that their individual needs are satisfied, that they are intellectually stimulated, and that they are engaged in addressing organizational challenges through inventive solutions (Maral & Hamedoğlu, 2022).

3.4 Small and medium enterprise in Oman

The total number of Small and Medium Enterprises (SMEs) registered with the Authority for Small and Medium Enterprises Development (ASMED) by the end of August 2021 stood at 56,687, compared to 45,706 in August 2020. This constitutes an increase of 24 per cent, according to the data released by the National Centre for Statistics and Information (NCSI). Among the governorates, the Governorate of Muscat topped the list, marking an increase of 25.2 per cent compared to the same period in 2020 to reach 19,187, followed by the Governorate of North Al Batinah with a rise of 23.7 per cent to stand at 8,945. An increase was also marked in the number of SMEs in all governorates, the Governorate of A'Dakhiliyah by 20.1 per cent to reach 6,961, the Governorate of Dhofar by 23.8 per cent to 4,737, the Governorate of South Al Batinah by 28.1 per cent to 4,341, the Governorate of North A'Sharqiah by 21.2 per cent to 3,751, the Governorate of South A'Sharqiah by 27.5 per cent to 3,392, the Governorate of A'Dhahira by 17.4 per cent to 3,156, the Governorate of Al Buraimi by 23.9 per cent to 1,207, the Governorate of Al Wusta by 37.5 per cent to 755 and the Governorate of Musandam by 44.9 per cent to 255. Each business has its core; leaders and managers face various situations while working with organizations and people. To cope with circumstances with high production levels, they must explore various ways. Logic dictates that an organization can only thrive with solid Leadership. Organizations today must achieve and meet the competing expectations of stakeholders clearly and ethically, according to studies on leadership style and organizational performance. Leaders must implement a proper leadership style as organizational success may depend on them (Al-Rusheidi & Supian, 2021; Al Haziazi et al., 2021; Danişman et al., 2015). According to the experts, there is no consensus in the literature on the criteria for evaluating organizational effectiveness (Al-Rusheidi & Supian, 2021; Shafiu et al., 2019). This may be viewed from various angles when examining the components influencing organizational success.

3.5 Organizational performance

According to Shafiu et al. (2019), it may be described as transforming inputs into outputs to accomplish specific goals. According to Al-Rusheidi & Supian, 2021 and Danişman et al. (2015), organisational performance is the transformation of inputs into outputs to accomplish particular goals. Furthermore, according to Shafiu et al. (2019), performance education is about the relationship between minimal and effective cost (economy), effective cost and realized output (efficiency), and output and attained the outcome (effectiveness). According to Al Khajeh (2018), organisational performance is a complicated and multidimensional phenomenon in business literature. According to Danişman et al. (2015), each organization's performance may be measured using different criteria.

According to Al Khajeh (2018), organisational performance consists of an organization's outcomes or actual outputs, which may be assessed against expected outputs, goals, and objectives. Financial performance (return on investments, earnings, etc.), shareholder return (economic value-added, total shareholder, etc.) and product/service market performance (market share, sales, etc.) are the three aspects that make up organizational performance (Al Khajeh, 2018). Leadership is important in companies since it creates strategies and plans the organization's route to become more effective and efficient. Financial reports, bottom lines, market shares, company revenues, and other performance metrics are used to evaluate the efficacy of Leadership and organizational performance (Thumiki & Jurcic, 2021). Many management theorists regard Leadership as a critical contributor to, if not the most significant cause, of organizational success in the marketplace and society (Bawar, 2020; Ahmad et al., 2019).

The literature must have a universal consensus on the standards for measuring organizational performance. However, they note four primary prevalent techniques in their study: (1) The Goal-Oriented Approach People form organizations to accomplish specific goals set by the stakeholders. An organization's capacity to fulfil its objectives is called organizational performance. (2) The System Resource Approach is a method of analyzing a system's resources. This strategy focuses on the organization's interaction with the environment. Organizations are adept at exploiting their surroundings to achieve high value and overcome limited resources to enhance their operations. (3) The Constituency Methodology. Organizations are effective when they are seen as such by many stakeholders. Organizations with more resource control may have the most influence on performance. (4) The Approach to Competing Values (Hendawy Al-Mahdy et al., (2021), Hammad and Al-Harthi, (2021); Al-Mahdy et al., (2021), Andrej et al., (2022); Mareta & Mirza, 2022). It claims that various expectations from various locations shape the organization's goals. As a result, various companies may have different performance measurement standards.

3.6 Leadership and Organizational Performance

Many studies argued over the link between Leadership and organizational effectiveness as well. Using the four-factor theory of Leadership and data collected from 2,662 people working in 311 firms, the findings revealed that leadership style impacts organizational culture and performance (Shafiu et al., 2019). Al Khajeh (2018) demonstrated this by combining the four-factor leadership theory with data collected from 2,662 individuals working in 311 firms to show that organizational culture and performance are linked to leadership style. The other study confirms that Leadership significantly influences employee performance and that participatory leadership styles aid in improving employee performance (Hendawy Al-Mahdy et al., 2021, Igbaekemen & Odivwri, 2015). According to research done by Hendawy Al-Mahdy et al. (2021), Hammad and Al-Harthi (2021), and Al-Mahdy et al. (2021), Leadership is perceived as impacting worker performance in Kenya's health sector. The findings indicated that leaders should strive to establish a positive work atmosphere for their workers and discourage negativity. Based on the importance of the findings in their study, there is a good delegation of authority and duty to the organization's employees to improve service delivery. In the organization, there is a solid motivation to boost employees.

3.7 Organizational Performance Measurement

Management research rarely explicitly states the structure and concept of organizational performance since it is so common.

Regarding organizational goals, Ishak et al. (2022) distinguishes three categories of organizational performance measurements: operational performance, financial performance, and overall performance. Financial performance is the most commonly used model in empirical strategy research. Managers and accountants have differing perspectives on organizational success. Accountants are concerned with an organization's financial performance, whereas managers are concerned with enhancing the present and future organizational performance. Conversely, Abbas and Asghar (2010) merged historical accounting viewpoints with operational indicators to create the "Balanced Scorecard" method. The sections that follow provide a quick overview of several approaches to measuring organizational performance (Lee et al., 2022)

3.8 Leadership style

Leadership is defined as the ability to lead others. Attempting to define the term "leadership" has proven to be a difficult task for both academics and practitioners. Leadership has been a subject of scholarly debate for over a century, and numerous definitions have emerged continually (Devi & Subiyantoro, 2021). Many elements have influenced these definitions, ranging from global affairs and politics to features of the field in which the subject is researched. The term "leadership" is defined in a variety of ways. There are almost as many distinct conceptions of Leadership as people who have tried to define it (Anastasiou & Garametsi, 2021) observed in a review of leadership research. The attainment of a goal via the guidance of human companions is called Leadership. A leader who can skillfully direct his associates to attain specific goals. According to some experts, Leadership is guiding or organising specific responsibilities for group members (Megawaty et al., 2022). According to Andrej et al. (2022), leadership is organizing and influencing a group of individuals to attain a common purpose. When a person mobilizes institutional, political, psychological, and other resources to inspire, engage, and satisfy the objects of followers, this is called Leadership (Andrej et al., 2022). According to researchers, leadership and its study have been traced back to the dawn of civilization (Stone & Patterson, 2005). Researchers have studied workplaces, corporate environments, worker motivations, leaders, managers, leadership styles, and various other work-related aspects for over two centuries. Researchers began investigating the link between leader behaviour and outcomes such as follower happiness, organizational productivity, and profitability.

There are many different definitions of Leadership; however, one component that appears in all definitions is that it has to do with an individual's ability to influence the behaviour of others, which may be described as followers (Verghese et al., 2022; Khan & Ghayas, 2022). Leadership is "a combination of unique qualities or characteristics that an individual possesses," meaning "leadership is a blend of unique features or characteristics that an individual possesses."

These characteristics help that person to persuade others to do duties. Other definitions of Leadership include "the things leaders do to bring about change in a group" and "the things leaders do to bring about change in a group" (Zhou et al., 2022). The direction in which followers are directed is referred to as leadership style. As leadership studies have progressed throughout history, leadership styles have increased. If the leadership style is successful, it may help improve organizational performance and promote attaining desired goals. However, if the leadership style is effective, it can help organizational performance and employee perceptions. This strong link between leadership styles and organizational effectiveness prompted many studies on the subject, yielding many leadership theories. Each theory recommends a separate leadership style and, in most cases, a combination of styles for leadership performance (Syakur et al., 2022).

Character and personality qualities can be utilized to determine if a leader is transformational or transactional (Donkor et al., 2022). However, the leaders' leadership styles are determined by the followers' acknowledgement of their leaders, their willingness, and the mission's complexity. As a result, leaders must possess a unique capacity to assess organizational settings, carefully identify unanticipated elements, and make sound judgments to guide the organization to success (Syakur et al., 2022)

3.9 Transformational Leadership Style

The organization's present focus on rejuvenating and reforming companies to face the challenges of future competitiveness has sparked a surge in scholarly interest in Transformational Leadership (Puni et al., 2022). This perspective is significant for researching organizational transformation and processes and explaining why good outcomes for workers' efforts and satisfaction occur (Metwally et al., 2019). Transformational Leadership aims to alter workers' methods, beliefs, assumptions, and motivations by employing techniques that elicit higher levels of desire and encourage change (Nguyen et al., 2022).

Transactional Leadership, or managerial Leadership, is frequently used in innovation initiatives (Kim, 2022). Transformational leaders can stimulate and motivate employees to achieve above and above what is expected of them (Udin et al., 2022). Transformational leaders trade incentives and requirements with their staff and encourage them to put their self-interests aside for the greater good (Udin et al., 2022).

Management-by-exception and contingent reward are both used. The function of supervision, structure, and group performance are all critical aspects of Leadership. It stresses employee cognition, with leaders encouraging staff cooperation through reward and punishment. Furthermore, transactional leaders aim to maintain the status quo rather than change the future. Leaders monitor their colleagues' work, pointing out flaws and deviations while abdicating responsibility and deferring decision-making. In a way, Leadership maintains congruence between the organization's mission and goals while maintaining staff motivation and interest in achieving specified goals (Jacobsen et al., 2022). It involves charisma, excitement, and inspiration to identify the traits of leaders; transformational Leadership has some parallels to charismatic Leadership (Al-Hussaini et al., 2019).

Although transformational leadership theory claims to neglect the importance of the organizational environment and ineffective Leadership, past research shows that the model has been used in various settings and crises, particularly when transformational leaders challenged the status quo (Andrej et al., 2022). Another significant justification for this view is that Transformational leaders cannot compel their people to achieve specified goals, which are considered Transactional leadership traits. The researcher used the Range Leadership Theory, which will be covered in the next portion of the article, to respond to the criticism and argument.

Transformational leaders enable employees to see challenges in new ways, give support and encouragement, express a vision, and create emotion and identification. Transformational Leadership significantly impacts individual and organizational outcomes such as employee happiness and performance. Higher degrees of Transformational Leadership are linked to increased collective potential (Hasan & Islam, 2022).

3.10 Transactional Leadership Style

Burns introduced the Transactional Leadership Theory in 1978 (Wasim & Rehman, 2022). It is founded on the interaction between leaders and employees, based on the exchange or exceptional reward leaders establish for achievement acknowledgement. Three key features of Transactional leaders: dependent incentives, active management with exceptions, and passive management with exceptions (Tahir et al., 2021). Contingent incentives relate to positive interactions between leaders and workers in which benefits are based on performance. The role and hope of giving the resources they require, as well as the success they bring to the award, are described by the leaders. Active management is the interaction in which leaders assess employees' performance and make changes during the process. Except for interactions, where leaders only interfere when faults or standards are not fulfilled, passive management is the norm (Al Haziazi et al., 2021; Khan et al., 2021)

Others see Leadership as a continuum, with Transactional Leadership on one end and Transformational Leadership on the other (Khan et al., 2020). Transactions between the leader and the workforce are at the heart of Transactional Leadership's concept. According to a Transactional leader, human connections are nothing more than a series of Transactions. Reward, punishment, economic trade, emotional and human exchanges, and other such "Transactions" are the foundations of this leadership style (Al Haziazi et al., 2021; Niazi, Komal et al., 2019).

To comprehend this leadership style, imagine yourself as the organisation's CEO, telling people their responsibilities since you are paid. If the employee performs their job well, they will be rewarded; if they do not, they will be punished. A Transactional leader leads the groups in this manner. Leadership style is on the duty of administration, organization, and group performance; it is also known as management leadership. Transactional Leadership is a leadership style in which the leader uses rewards and penalties to encourage his subordinates' compliance. Transactional leaders take the initiative to sustain the chain of rules and regulations, and their approach does not anticipate future changes. Transactional leaders use a substitution model to reward excellent outcomes or positive results (Al Haziazi et al., 2021). Transactional leaders can punish subpar performance or unresolved concerns (Hasan and Islam 2022). Transactional Leadership is built on agreements that workers accept or adhere to leaders in exchange for praise, gratitude, and resources or to avoid disciplinary action. Leaders use contingent rewards to identify and clarify goals that their staff should meet and to announce suitable prizes. It is uncommon for leaders to confine their management responsibilities to active or passive management (Wasim & Rehman, 2022).

This leadership style focuses on achieving the job's objectives. Understanding the link between effort and reward, responsiveness to display issues, use of incentive, reward, and punishment, goal setting and rewarding performance, and using authority to force followers to accomplish tasks are all essential concepts of transactional Leadership.

Transactional leadership theory is centred on two key components, Tabassi et al. (2016) transactional leadership theory:

1. The contingent reward strategy offers prizes for accomplishing targets or followers' capacity to execute tasks according to their leaders' wishes.

2. Management-by-exception - When employees make mistakes, the leaders intervene by establishing visible procedures to enforce the proper regulations. When a leader uses the management-by-exception approach, he or she takes an active and self-centered interest in the work and task monitoring. The leader is continually involved in the work process, searching for departures from the conventional procedure and intervening before subordinates make mistakes. In the age of global competition, transactional Leadership is just as crucial as transformational Leadership in assisting leaders in increasing organizational competitiveness.

Transactional Leadership has a different level of morality from transformational leadership. The lack of desire of employees to offer anything above what is stipulated is a crucial downside of transactional Leadership. The challenges in defining entire task descriptions well in advance owing to the nature of the projects, this uniqueness is generating a problem in the construction business. In the construction sector, project managers' leadership styles have a significant impact on project performance (Al Haziazi et al., 2021; Tahir et al., 202).

3.11 Situational-Leadership Approach

Investigating situational theories arose from the disparity in results on leadership attributes and behavioural styles (Kertabudi, 2022). The situational theory of Leadership stresses the relevance of the context in determining the efficacy of a leader's behavioural style; situational changes need a variety of styles. According to Douglas et al. (2022), the effectiveness of Leadership is determined by the context and the leader's ability to apply the appropriate style in each situation. The situational theory's most important perspective is that leaders modify their leadership style depending on their followers and the environment. Furthermore, a leader is expected to approach various people differently depending on their work and proficiency with specific duties and the organization at any given moment and place. Four styles of situational leadership theory proposed by Polmear et al. (2022) are as follows:

1. Participative Leadership entails establishing a solid relationship with subordinates while having little responsibility. This leader-driven technique is used when followers are capable yet unwilling or hesitant to do the work at hand. According to Hersey and Blanchard, the leader can figure out why the subordinate is not motivated and whether there are any restrictions to the subordinate's capacity to work.

2. Selling and coaching is a strategy that the leader leads. It is illustrated when there is a high relationship value between followers and a high task level.

3. Participating and supporting: This is a technique that the followers drive. According to the authors, the leader has a low work concentration and a strong connection emphasis. On the other hand, the follower possesses extraordinary capacity and a shaky commitment and is capable but unwilling or hesitant.

4. Delegation: This is a follower-led method employed when there is a minimal work need and little relationship with followers.

When followers are capable, willing, or motivated to do the duties at hand, the delegation style is used (Polmear et al., 2022; Turi et al., 2019).

3.12 Employee Engagement

Employee engagement levels at work and the degree of intensity and attention they devote to their duties vary widely within each organization. Employee engagement is a relatively new notion that has only been used for the previous two decades (Polmear et al., 2022). It is a massive construct with no single, universally agreed-upon definition; nonetheless, this is not exceptional nor problematic since many other psychological constructs have needed more clarity in the early stages of their participation in the social sciences. The study of workplace engagement has grown in importance due to the tendency toward "positive psychology," which focuses on human strengths and optimal functioning rather than flaws and dysfunction (Al-Mahdy et al., 2021).

Although most researchers agree on the construct of work engagement, there are differing perspectives on how it should be conceptualized (Riva et al., 2021). However, they all agree that employee engagement evolved from earlier concepts like employee commitment, job satisfaction, and organizational citizen behaviour (Riva et al., 2021). Employee engagement is more significant in scope and may be characterized in a variety of ways, even though it is connected to and incorporates these principles. According to Megawaty et al. (2022), employee engagement is "a heightened emotional and intellectual connection that an employee feels for his or her organization, boss, or coworkers, which leads him or her to apply greater discretionary effort to his or her work." According to Ravi et al. (2021), workers' willingness and capacity to assist their firm to flourish, primarily through committing discretionary effort on a long-term basis. It is also described as the amount of effort put in by workers in their job activities and their emotional and intellectual dedication to the company.

The basic concept employed for the objectives of this study is that engagement is characterized by three dimensions: vigour, devotion, and absorption. There is also a proclivity to remain steadfast in the face of task difficulty or failure, indicating a willingness to put effort into one's job. Dedication involves passion, inspiration, pride, and challenge and refers to a deep affiliation with one's job. Absorption is defined as being completely focused and pleasantly absorbed in one's task. Time moves swiftly in this realm, and it is impossible to separate oneself from work (Purwati et al., 2022).
According to the researcher, engagement is the simultaneous employment and expression of a person's preferred self in task behaviours that create work relationships. He defined cognitive engagement as having a reasonable knowledge of one's job and goal within an organization and the company's strategy and direction. Al-Mahdy et al. (2021) feel that workers are more likely to perform at a greater level if they consider themselves successful contributors to the company's aims or objectives. Employees who understand how to contribute to a company's strategic goals are likelier to feel they belong. Cognitive engagement may benefit Employee performance and retention (Firman et al., 2021).

Employees being responsively and open-heartedly engaged to others in the workplace, as well as the level to which they appreciate, enjoy, and believe in their employment, teams, supervisors, and the organization, are all examples of emotional engagement, according to him. Increased confidence in management affects workers' levels of emotional commitment more favourably, as evidenced by trust and perceived organizational support. Finally, being physically engaged is a manifestation of extra-role performance or going above and beyond what is required of an employee concerning their work function (Firman et al., 2021).

3.13 Leadership Theories

There are multiple theories of Leadership. Every theory has its efficacy, utilization, and application in a specific context. However, the Trait theory and the leaders' member exchange theory have the maximum applicability to the study under consideration.

3.13.1 Trait Theory

The trait theory is widely regarded as the first method for researching Leadership. According to the trait school of thought, leaders are born, not formed. According to Bass & Stogdill (1981), specific physical, social, and personal attributes are innate in particular individuals, and these characteristics eventually distinguish leaders from non-leaders. Trait refers to "a multitude of individual traits, including features of personality, temperament, wants intentions, and values," Yukl (2012). Some examples are self-assurance, extroversion, emotional maturity, and high energy levels. These attributes are particularly suited to Leadership, among other things, and people who become strong leaders would have a solid mix of these features. This method proposes that certain people are born with social characteristics that make them excellent leaders, and the idea goes on to explain specific characteristics that make particular people great leaders, whether in corporate, social, political, or military settings.

3.13.2 Leader-Member Exchange Theory

In line with the contingency theory, Liden et al. (1997) explain the foundation of their thesis by claiming that in some conditions, leaders favour specific followers over others, resulting in an 'in' group. Due to time constraints, leaders frequently favour followers, putting greater faith in them, offering them more attention, and granting them more privileges. The balance is formed by the 'out-group. When leaders initially connect with followers, they categorize them as "in" or "out." The explanation for the selection is unknown, although the link has remained relatively steady throughout time (Liden et al., 1997).

3.14 Research Model and the Relationship among Variables

3.14.1 Relationship between Transformational leadership style and organizational performance

Transformational leadership style and organizational performance The Transformational leadership style focuses on developing the followers and considering their needs. The managers who focus on transformational Leadership focus mainly on developing the employees' overall value system, moralities, skills, and motivation levels. Transformational Leadership is a vital bridge between followers and leaders to understand the motivational level, values, and interests clearly. Bass and Avolio (1994) stated that transformational Leadership demonstrates superior leadership performance. Transformational Leadership, according to Bass and Avolio (1994), occurs when the leaders broaden or elevate the interest of the employees.0

Transformational leaders are the ones who encourage employees to look beyond their self-interest. Transformational leaders are influential for several reasons; the leaders may be charismatic in inspiring the employees, the transformational leaders may meet the emotional needs of the employees, or may stimulate the employees intellectually (Bass & Avolio, 1994). Transformational Leadership and individual-level follower performance are positively linked. Further, the study also indicated that transformational Leadership and teams' performance at the organizational level are positively associated. Performance is the function of skills, abilities, knowledge, and motivation directed towards a prescribed behaviour. The study conducted by the authors mentioned above indicated that transformational Leadership enhances the overall development of the followers—the followers of transformational leadership associate with a self-defining and satisfying relationship with an individual or group. Transformational leaders' idealized and behavioural charisma motivates followers to identify with the leader (Purwati et al., 2022). The personalized relationship developed by a transformational leader develops an environment in which the employees feel happy, improving their overall performance. Hence, transformational Leadership and organizational performance are positively associated. Transformational Leadership has a significant impact on the performance of the organization. They researched banking organizations with the help of statistical tools such as SEM and SPSS. They reached the above conclusion that transformational Leadership has a direct positive impact on the organization's performance.

3.14.2 Relationship between Transactional leadership style and organizational performance

A leader is known as a transactional leader if he/she is always willing to give something in return (Uchenwamgbe, 2013). This can include promotions, pay raises, performance reviews, new responsibilities, etc. The major problem with this type of Leadership is the expectation. Hence, transactional Leadership can be defined as the exchange of targets and rewards between the management and the employees.

The study by Longe (2014) revealed that transactional leadership style positively impacts organizational performance. The transactional leadership style helps create and sustain the context in which organizational and human capabilities are maximized, as the employees can consistently achieve tangible and intangible rewards. This leadership style mainly helps create an optimal environment for performance and articulates a compelling vision that enhances the overall organizational performance (Longe, 2014). Transactional Leadership was not found to have a direct impact on the performance of the organization. This leadership style does not encourage creativity and innovation among the employees; hence, the employees need to perform as per the organisation's expectations.

3.14.3 Relationship between Transformational Leadership and Motivation

The effect of charismatic Leadership on motivation based on self-concept theory is based on three prepositions of motivation, which can be achieved through informal roles and other social activities among peers. The theory of transformational Leadership is critical in the field of Leadership, and many studies show that there is a positive relationship between transformational Leadership and other dependent variable like satisfaction, commitment, motivation, and performance of the employees (Khan et al., 2021) found that there is a positive relationship between transformational Leadership and employee creativity.

They argue that leaders care for their needs and wants related to social activities that ultimately affect the power of ideas generation. Transformational Leadership is surrounded by idealized influence, intellectual stimulation, and inspirational motivation. Strategies for increasing employee motivation are part of human resources development, and the affecting factors can be analyzed. Previous research on employees' work motivation has been conducted for years. TL has positive effects on work motivation.

3.14.4 Relationship between Transactional Leadership Styles and Employee Motivation

A leader can motivate employees, among others, by allowing employees to participate in decision-making, creating a harmonious atmosphere, and working relationships that trust and respect each other. Different leadership styles will undoubtedly colour the behaviour and type of Leadership to bring up a task- and an employee-oriented leadership style. The transactional leadership style positively influences work motivation (Uchenwamgbe, 2013)

3.14.5 Relationship between Employee Engagement and Organizational Performance

This segment highlights review articles about Employee Motivation and Organizational Performance that were published in various worldwide journals. Uddin et al., 2016 conducted a study on the effect of formal coaching on employees' work motivation, organisational commitment, and job performance in the UK. The study revealed that mentoring can enhance employees" attitudes without necessarily elevating their performance. The study for the most section targeted coaching on performance.

Furthermore, when contrasted with a similar study in Finland, wages are the most significant element of Motivating employees in both countries.

Likewise, Niko's sales performance was greatly affected by the quality of supervision, increased employee commitment, level of education, the condition under which they perform their obligations, the quality and management of operations, and the number of hours worked. An examination concentrating on motivation measures and improving workers' performance in Kitgum district in Uganda. She found that workers were not performing well in Kitgum district because salaries and allowances in the district were very inadequate and unable to meet people's basic needs between managers and subordinates, preventing brilliant performance. However, intrinsic motivators like achievement, advancement, responsibility, and recognition were identified to be well-revealed in the district.

In any case, utilizing the correlation coefficient, the examination discovers that organizational performance had a huge positive impact on the work environment and facilitation. Likewise, the outcome of regression analysis found that two elements had statistically significant, positive, and direct effects on organizational performance. In summary, motivation is essential to both an individual and the organization. For an individual motivation is a crucial element that encourages an individual to achieve his/her personal goals. Within an organization, motivation is an issue that leads to employee satisfaction. Also, motivation inspires a person to widen his/her knowledge explore and unleash his/her full capabilities and potential. Correspondingly, from the organizational aspects, motivation leads to a practical attitude in the workplace, convenient adaptation to changes, and more creativity.

3.14.6 Relationship of Transformational Leadership Styles, Work Motivation, and Organization Performance

The early approaches to theories of employee motivation supposed that if firms were constantly changing, they might not be practical or improve performance because employees require routines to work effectively to improve organisational performance (Cheng et al., 2022).

Especially before the rapid change in the business environment, the capability to adjust effectively and quickly towards change events is now becoming a critical concern of leaders and managers. As a result, nowadays, scholars have widely acknowledged that the vital importance for firms is that they can undergo continuous change. The ability of firms to be constantly changing can become a good and dynamic habit in its own right. It is a normal and natural response to unforeseeable business environments and markets; consequently, change capability is a decisive factor for firms' continued success. The relationship between employee motivation and organizational performance has received little attention from many authors. However, current literature also shows evidence for this relation. Thus, to provide further understanding of how innovative culture and capable champions contribute to financial and operational performance, this study proposes that:

3.14.7 Relationship of Transactional Leadership Styles, Work Motivation and Organization Performance

A leader can motivate employees, among others, by allowing employees to participate in decision-making, creating a harmonious atmosphere, and working relationships that trust and respect each other. Different leadership styles will undoubtedly colour the behaviour and type of Leadership to bring up a task- and an employee-oriented leadership style. The transactional leadership style positively influences work motivation (Uddin et al., 2016). There is a relationship between motivation and employee performance. Motivation has a positive and significant effect on employee performance.

Work motivation can be measured by three indicators, namely individual needs, personal preferences and work environment, found to have a moderate to strong correlation with the dependent variable employee performance. The level of effort is what someone does in doing a job, and the level of effort is related to motivation to improve employee performance. The transactional leadership style significantly affects employee performance (Cao & Le, 2022). Every leader can influence his subordinates, such as job satisfaction and employee performance. It is realized that no leadership best applies universally to all situations and environments; situational or contingency approaches in choosing an effective leadership model are the best alternative answer. A leader must realize that human resources are the critical factor that has the most influence on company productivity. Motivation is needed; if the needs are met, the employee will focus more on the duties and responsibilities to achieve company goals. Motivation is a mediator in the relationship between leadership style and performance. Based on the above-cited literature, theories and research findings, the study came with the following proposed research model, shown in Figure 2.

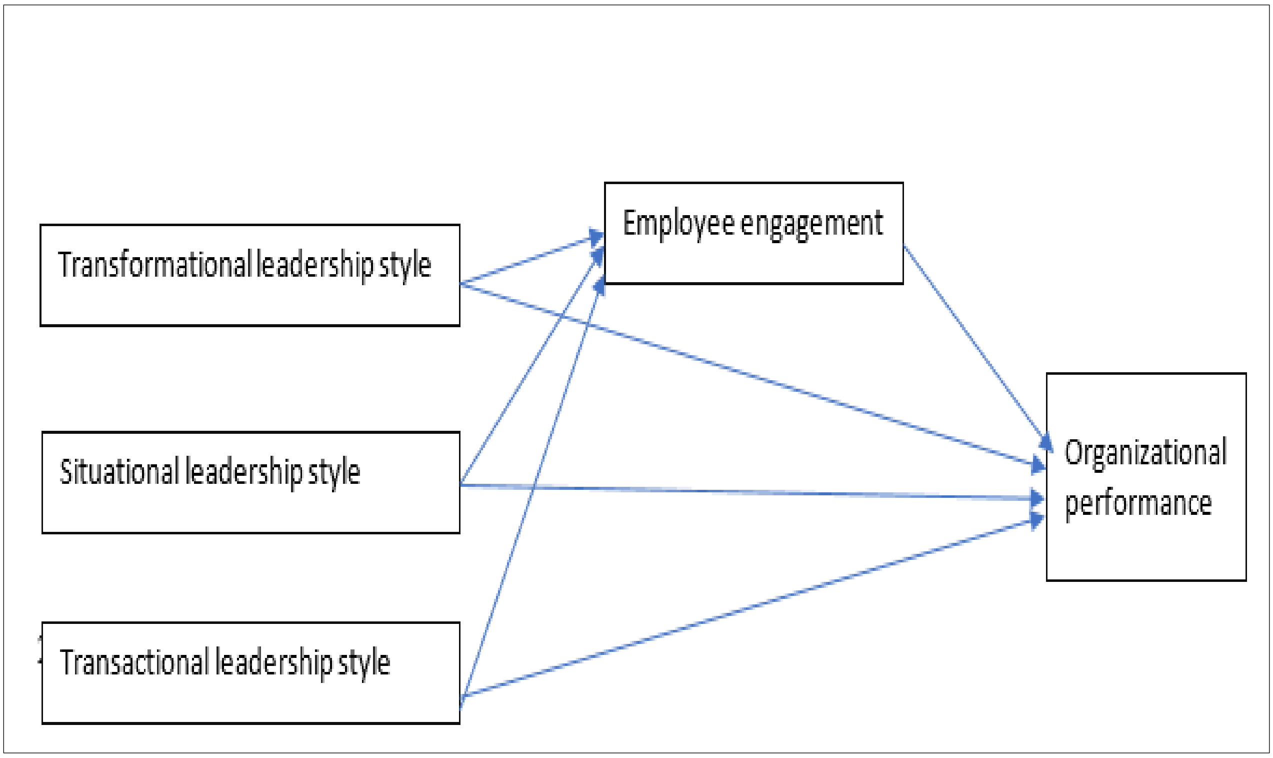

Figure 2: Conceptual Framework (Source: Author's model)

4. CONCLUSION

The study concludes that organizational performance is the joint effort of the Leadership and employees. Leadership needs to be more focused towards day-to-day processes and transactions. Leadership should remain at the backs of the employees, which will help to keep them firm, enthusiastic, pragmatic, and practical. Leaders instill souls in the employees, which keeps them motivated, engaged and productive. Leaders and members need to collaborate for common goals and initiatives. Organizational performance can be bolstered if Leadership and the employees come on a single pitch.

In the same way, members need to be provided with the latest technological and logistic support so that they can be prepared for the opportunities and challenges. According to research, developed countries spend almost $1 billion yearly to motivate, train, and engage employees. So, for the productive engagement of the employees (knowledge workers), leaders should extend social, moral, psychological, ethical and emotional support to the employees.

5. LIMITATIONS AND FUTURE RECOMMENDATIONS

This study is limited only to SMEs, which can be extended to other large and mega projects and organizations. Similarly, this study was limited to OMAN and can be extended to other countries and continents. Moreover, this study focused on only three types of Leadership. Therefore, more leadership styles can be studied in different contexts and settings. Furthermore, this study was based on a systematic literature review. It developed a model that can be tested with data, and the results can be generalized in different contexts, fields and settings.

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The Role of Emotional Intelligence in the Relationship Between Emotional Labor and Job Satisfaction in the Telecom Industry of Pakistan

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ABSTRACT

This research aimed to create a comprehensive framework for understanding how emotions influence job satisfaction in violent and aggressive workplace behavior. A quantitative research methodology was adopted for data collection and analysis. Emotional Labor, Emotional Intelligence, and Job Satisfaction data was collected on a 7-point Likert Scale starting from (1 = Strongly Disagree to 7 = Strongly Agree). Data was collected from Pakistan's telecom sector and analyzed using SPSS. The findings showed surface acting (SA) and job satisfaction (JS) are positively and significantly related, and Surface Acting (SA) and Work Hassles (WH) are positively and significantly related. Work Hassles (WH) and Negative Affectivity (NA) are positively and significantly linked. Negative Affectivity (NA) and Job Satisfaction (JS) are positively and significantly related. There is a mediating impact of Work Hassles and Negative Affectivity between Surface Acting and Job Satisfaction. At the same time, Emotional Intelligence moderates the relationship between Work Hassles and Negative Affectivity.

Keyword: Surface Acting; Work Hassles; Negative Affectivity; Job Satisfaction; Emotional Intelligence

1. INTRODUCTION

Emotional intelligence (EI) has gained popularity in the past decade. Quality products and services have recently been prioritized (Bitner, 1990; Day & Wensley, 1988). Leaders must pay more attention to salesperson success and average performance (Hess & Cottrell, 2016). Predicted and actual performance differs in previous investigations. This performance discrepancy affects salespeople's development and company goals (Terho et al., 2015). "Sales relationship practice" is the buyer-seller connection in marketing (Kadic-Maglajlic et al., 2016). Emotional intelligence in hiring and development improves job performance and customer satisfaction (Miao et al., 2017). Emotions affect

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Buyer-seller relationships (Eklinder-Frick & Åge, 2020). Employees who disguise or fake their actual emotions to comply with the dress code have a constant gap between their inner feelings and their outward expressions (Grandey, 2000). Emotional distress and job stress result from this emotional separation, which causes burnout and job dissatisfaction (Zapf, 2002). On the other end, employees who exert exertion to experience the mandatory emotions experience emotional consistency between genuine feelings and emotional representation, which leads to higher personal accomplishment and job happiness (Adelmann, 2004).

To better understand emotional intelligence, especially in hospitality (Wen et al., 2019), more research should be done on the effects of other sectors' employees' emotional intelligence on relevant employee attitudes and behaviors, such as workplace events perception, turnover behavior, service performance, and organizational citizenship (Jung, 2015). In this study, job happiness mediated the association between employee emotional labor and customer satisfaction. Future studies should include work events and positive and negative affectivity as mediating variables. Service workers in other sectors could be included in future studies (Lam et al., 2022). Future researchers can employ emotional intelligence to study diverse cultures and workplace situations (Akkoç et al., 2022).

Keeping in view the above literature and research gap, the objective of this study is to investigate the impact of surface acting on job satisfaction, the impact of surface acting on work hassles, the impact of work hassles on negative affectivity, the impact of negative affectivity on job satisfaction, to investigate the mediating impact of work hassles and negative affectivity between surface acting and job satisfaction, to investigate the moderating impact of emotional intelligence between Work Hassles and Negative Affectivity. The research questions that need to be investigated are: Does surface acting positively impact job satisfaction? Does surface acting positively impact work hassles? Does work hassles positively impact negative affectivity? Does negative affectivity negatively impact job satisfaction? Do Work Hassles and Negative Affectivity Mediate between Surface Acting and Job Satisfaction? Does Emotional intelligence act as a moderator between Work Hassles and Negative Affectivity?

The effective event theory supports the research model. Weiss, (2002) developed the model to explain how emotions and moods influence job performance and satisfaction. The model explains the connections between employees' internal influences (e.g., cognitions, emotions, and mental states) and their reactions to incidents in the workplace that affect their performance, organizational commitment, and job satisfaction. According to the theory, employee mood and emotions explain affective work behaviors, whereas cognitive-based behaviors are the best predictors of job satisfaction (Wegge et al., 2006). According to the theory, positive (e.g., enriches) and hurtful (e.g., stresses) emotional events at work can be well-known and have a significant psychosomatic effect on employees' job satisfaction. This results in long-term internal conflict (e.g., cognition, sentiments, states of mind) and external affective reactions manifested in job performance, satisfaction, and organizational commitment.

2. LITERATURE REVIEW

2.1 Surface Acting

Surface acting is frequently called "faking in bad faith," as it attempts to exhibit professionally desirable emotions without changing the core mood. Surface acting and work weariness are strongly correlated, but the other is not. Furthermore, reassessment strategies are sometimes described as deep-acting versus surface-acting. Genuine emotion displays authentically felt emotions while adhering to corporate objectives and goals (Humphrey et al., 2008). Liu et al., (2008) argue that emotional exhaustion resulting from customer interpersonal injustice causes service workers whose affect and regulatory capabilities have already been depleted (i.e., who are emotionally exhausted) to resort to surface acting (rather than predictor-focused deep acting) in their continued efforts to comply with display rules and performance when confronted dynamically (i.e., over time). Service personnel may use a range of emotional labor tactics, such as surface acting, deep acting, and natural acting, as well as demonstrate or endure emotive dissonance, emotive struggle, and the articulation of naturally realized emotions when doing service-related duties (Kruml & Geddes, 2000).

As a result, managers in this field are encouraged to engage in surface acting even though their emotional displays can have significant effects. According to experts, when managers engage in deceptive behaviour, their coworkers may notice, preventing supervisors from conveying the desired message to their audience (Newcombe & Ashkanasy, 2002).

As a substitute, surface acting may negatively affect employees' attributions regarding their manager's purposes, credibility, and leadership qualities if viewed by the audience (Rajah et al., 2011). On the other hand, workers' impressions of their boss's emotional honesty were found to have a favorable impact on their trust in that leader. This, in turn, positively influenced their performance (Caza et al., 2015). Supervisors are incentivized to regulate their emotions to fulfil the principles of what is predictable of them, in line with the demands of their assistants, because their emotional displays are scrutinized by their subordinates (Gardner et al., 2009). Humphrey et al., (2008) have studied the significance of managers' external behaviour on their attendants' ideal performance in recent years. For example, Fisk & Friesen, (2012) found that a supervisor's outward behavior had a negative impact on subordinates' favorable attitudes toward work, even when they had high-quality interactions with their boss.

However, more needs to be acknowledged regarding the influence of this emotion management method on superintendents' views to this day (Arnold et al., 2015). Managerial attitudes, on the other hand, are critical to organizations. Indeed, firms require favorable attitudes about work from their supervisors because by connecting corporate goals with employee expectations, they play a tactical role in promoting organizational performance (Montgomery et al., 2003). Managers' work engagement, for example, is critical (Hyvönen et al., 2009), not only because they are in charge of guiding employees' efforts toward organizational objectives but because they can transfer their commitment to their followers (Bakker et al., 2008). Similarly, administrators' job satisfaction is critical since it affects not only their performance but also the well-being of their employees and organizational performance (Netemeyer et al., 2010).

In addition to the ways mentioned earlier in which interpersonal objectives might affect work-related burnout, they can also influence the use of surface acting. Known as display guidelines, organizations have stated implicit expectations on the emotions employees should express at work (Diefendorff et al., 2011). One typical display rule is that personnel who interact with customers should show pleasant emotions, which leads to increased customer satisfaction (e.g., (Pugh, 2001). On the other hand, workers' feelings do not necessarily coincide with display regulations. Deep acting, which requires mentally modifying sentiments to be consistent with the display standards, differs from surface acting, which entails concealing one's genuine emotions and faking emotional displays. These two commonly researched forms of emotional labor enable individuals to comply with display norms.

Surface acting has been associated with higher levels of work stress, burnout, depression, poor job performance, and negative customer experiences (Hülsheger et al., 2010). The emotional dissonance resulting from the incongruence between felt and expressed emotion and the resulting loss of resources is regarded as the cause of surface acting's impacts on burnout (Alicia & Gabriel, 2015).

2.2 Work Hassles

Work-family conflict is a source of stress that occurs when a person devotes more time to work than their family, causing conflict. As a result, work and family roles are inversely proportionate, and dedicating time to one produces disputes with the former (Hughes et al., 1992). It can be exhausting to rush through pressing chores and realign calendars to meet competing demands (Barnett, 1994), and an employee will likely need help to strike an acceptable work-family balance in this situation.

Previously, Workplace and family conflict studies used to be unidirectional, looking at how work has an emotional impact on family, but now these encounters are said to be bidirectional (Frone et al., 1992; Mäkelä & Suutari, 2011; Rohbard, 2001). This means that not only could work have an impact on family concerns, but family issues can also have an impact on work. The nature and scope of the two concepts are adequately different to warrant separate investigations (Mesmer-Magnus & Viswesvaran, 2005). According to a Byron (2005) meta-analysis, because they have different antecedents and attitudes, the family dispute and the work-family conflict are distinct (e.g., demographic, work, and non-work-related variables). So far, study findings have confirmed that the two notions are separate (Byron, 2005; Mesmer-Magnus & Viswesvaran, 2005).

According to the Burks & Martin, (1985) over time, the accumulation of problems leads to establishing physical and cognitive stress indicators. Zohar, (1997) investigated the hassles concept in the work context by transposing the three main occupational stress classifications (i.e., role conflict, role conflicts, and role overburden) to a middle level of assessment.

2.3 Negative Affectivity

Watson & Clark, (1984) found that the dominant characteristics in personality mood are two major mood factors: Positive and Negative Affect are significantly separate dimensions that can be usefully expressed as orthogonal (uncorrelated) components despite their names suggesting they are opposed poles of the same wavelength. Both mood components can be examined as a characteristic (Individual differences in overall affective tone are constant) or a condition (transient swings in mood). Our post will focus on the qualities known as Negative Affectivity (NA) and Positive Affectivity (PA) (Tellegen, 1982).

Negative affect is a broad category of negative mood states that include dread, anxiety, wrath, scorn, and disgust. Sadness and loneliness, both associated with depression, have significant loadings on this component. At the trait level, NA is a widespread and pervasive desire to understand negative feelings, with implications for understanding our self-concept and worldview (Watson & Clark, 1984). People with high negative affectivity are more alert to warning signals of imminent punishment or annoyance than people with low negative affectivity (Judge & Larsen, 2001). Negatively influential people are likelier to see their new environment as unfriendly and scary (Bowling et al., 2008; Watson, Clark, & Tellegen, 1988). Individuals with high negative affectivity, on the other hand, have been shown to observe more prejudice (Thoresen et al., 2003). As a result of their strong tendency to anticipate the case scenario, newcomers with high negative affectivity may be less superficial to adverse occasions such as breach of the psychological contract.

2.4 Emotional Intelligence

As defined by Mayer et al., (1990), emotional intelligence allows people to observe different people's behaviors and self-emotional states, discern between them, and use that information to drive their thoughts and actions. The ability to identify and understand the emotions of others as well as control our own emotions is referred to as emotional intelligence (EI) (Tahir Anees et al., 2021). Emotional intelligence is a person's ability to control and comprehend their emotional, impulsive impulses. It is vital to a person's overall professional development (Rezvani et al., 2016). The ability of a salesperson to manage numerous social problems and deal with psychological and emotional challenges resulting from negative evaluations and failures is tied to his or her success (Brown et al., 1997). In order to persuade others to enter into a sales-purchase contract, a salesperson must also understand their feelings and the reasons for those feelings. In challenging conditions, a salesperson with vital emotional intelligence will be resilient and capable of maintaining self-control (Sjöberg et al., 2005).

A higher Emotional Intelligence is directly linked to a better sales success rate. As a result, Sales executives proficient in using Emotional Intelligence (a knowledge that can be obtained or taught) may be able to maintain their marketing strategy (Branscum et al., 2016). According to reports, an increase in gross sales in one primary pharma industry has been linked to the growth of Emotional Intelligence (Hasford et al., 2018). Several types of sales scenarios appear to necessitate a distinct set of personal attributes and skills among salespeople. Regardless of the situation, people who fail in sales cannot prove their position and are often dismissed from sales (Anees et al., 2020). Understanding the importance of Emotional Intelligence (if either) in performance gaps through more complex market situations is a valuable tool for ensuring organizational longevity. The existence of performance and success expectations in the workplace is an excellent alternative for implementing the EQ development process (Shaban & Yadav, 2018). Emotional intelligence helps the leadership build a team that can effectively change their environment (Issah, 2018).

Interpersonally, emotion awareness and regulation mechanisms linked to EI will likely improve people's social interactions, affecting their emotional and stress experiences at work. Interpersonally, controlling stress and negative emotions by consuming emotions and awareness of one's emotions might help one perform better at work (Sergey et al., 2020). Physical activity, degrees of self-determination, interpersonal, adaptability, and mood state dimension of emotional intelligence all have substantial connections (Vaquero-Solís et al., 2020). Understanding emotions and practicing emotion management can help the person reach your professional objectives and perform better at work (Krén & Séllei, 2021). Sales representatives with high Emotional Intelligence develop strength, resilience, and the ability to maintain subconscious and deal with adversity (Wisker & Poulis, 2015).

Employees with greater EI, for example, maybe better at recognizing and controlling feelings of anger and tension, reducing stress. Employees with a high EI can recognize stress and develop methods and resilience to counteract the harmful effects of stress (Wittmer & Hopkins, 2018). Employees with lower EI, on the other hand, are more inclined to be ignorant of their emotions and have a limited capability to manage them in stressful situations, worsening their anxiety and lowering their productivity.

2. 5 Job Satisfaction

Based on previous studies, job satisfaction grew within organizational behaviour and has remained a widely investigated subject (Ghazzawi et al., 2008). According to Spector, (1985), job satisfaction is an attitude that influences how much people like or strongly dislike their jobs. According Kamal & Hanif, (2011), job satisfaction is an employee's attitude throughout his employment, with satisfaction and discontent changing over time. An employee's positive emotional state due to their job being judged as accomplishing or supporting the achievement of their job values is described as employment satisfaction. On the other hand, discontent with one's work is characterized as a negative emotional state coming from a feeling that one's job is bothersome, obstructs one's ability to achieve one's employment values, or implies disvalues.

The apparent relationship between what one views it as offering and what one perceives it as engaging" was thought to be a source of both fulfilment and disappointment. Work satisfaction refers to an employee's overall satisfaction with the company for which he or she is compensated. The end-state is the sensation that occurs with completing an impulse's goal; satisfaction refers to the primary emotional state that comes with achieving any goal or achieving a specific degree of performance.

Unhappiness at work does signify a lack of motivation. Job fulfilment has been identified as a possible implementer relating organizational strategies and performance (De Menezes & Kelliher, 2017). Conceptual framework is shown in the Figure1.

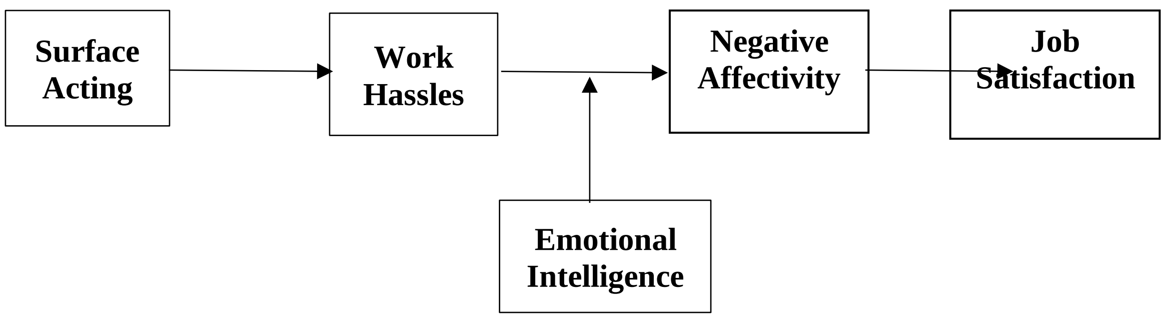

Figure 1: Proposed Hypothesis Development

Following are the proposed research hypothesis which are given below:

H1: Surface acting positively impacts on Job Satisfaction.

H2: Surface Acting positively impact on Work Hassles.

H3: Work Hassles positively impact on Negative Affectivity.

H4: Negative Affectivity negatively impacts on Job Satisfaction.

H5: There is a mediating impact of Work Hassles and Negative Affectivity between Surface Acting and Job Satisfaction.

H6: Emotional intelligence moderates between Work Hassles and Negative Affectivity.

3. RESEARCH METHODOLOGY

A quantitative research methodology was adopted for data collection and analysis. Quantitative research employs a deductive approach, emphasizing data collection through structured questionnaires (Rahman, 2015). Data was collected from the telecom sector in Pakistan. The reason behind selecting this sector was that it is the fastest-growing sector with a vast number of sales representatives in Pakistan (Imtiaz et al., 2015; Saeed et al., 2013). The telecom companies currently working in Pakistan are PTCL, Ufone, Telenor, Zong and Jazz. Due to limited time and resources, data was collected from Ufone. Data was collected from the sales representatives of Ufone Company. Data was analysed using SPSS Software.

Data was collected from male and female sales agents working in the above-mentioned company on a simple random sampling basis. A sample contains Ufone sales agents from the Telecom Sector because Telecom Companies have the highest sales revenue. Data was collected from the sales representatives via Google Forms and circulated through WhatsApp. As this is quantitative research, this research is for a finite population size of 4,000; according to this population size, the appropriate sample size will be 350 (Krejcie et al., 1996).

Emotional Labor, Emotional Intelligence, and Job Satisfaction data will be collected on a 7-point Likert Scale starting from (1 = Strongly Disagree to 7 = Strongly Agree). PANAS Questionnaire (This scale comprises several terms that describe various feelings of pleasure and emotions. Read each item and then list the number from the scale (1 = Very Slightly or Not at All, 2 = A Little, 3 = moderately, 4 = Quite a Bit, 5 = extremely) next to each word. Indicate how much you are feeling this way right now, that is, at the present moment OR indicate how long you have been feeling this way in the last week (circle the instructions you followed when taking this measure). Work Events (Daily Hassles and Uplifts) are measured by a scale from (0 = none or not applicable, 1 = somewhat, 2 = Quite a bit, and 3 = A great deal). The questionnaire is attached at the end of the paper. Questionnaire of the research is listed in the Appendix A.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

Table 1 shows a total of 350 people took part in the survey. Out of 350 respondents, 252 were male, and 98 were female, yielding a percentage of 72.0 per cent, indicating that male representations are more than female representations, which accounted for 28.0 per cent of the total survey.

Table1: Demographics of the Study

		Frequency	Per cent	Valid Percent	Cumulative Percent
Gender	Female	98	28.0	28.0	28.0
	Male	252	72.0	72.0	100.0
	Total	350	100.0	100.0	
Age	20-25 Years	54	15.4	15.4	15.4
	26-30 Years	228	65.1	65.1	80.6
	31-35 Years	61	17.4	17.4	98.0
	36-40 Years	6	1.7	1.7	99.7
	41 Years & Above	1	.3	.3	100.0

Education	Bachelor	291	83.1	83.1	83.1
	Intermediate	15	4.3	4.3	87.4
	Master/M.Phil	44	12.6	12.6	100.0
	Total	350	100.0	100.0	

Experience	0-5 years	63	18.0	18.0	18.0
	6-11 Years	203	58.0	58.0	100.0
	11-15 Years	68	19.4	19.4	37.4
	16-20 Years	13	3.7	3.7	41.1
	21 Years & Above	3	.9	.9	42.0
	Total	350	100.0	100.0	

The respondents of 20-25 Years are 54 with a valid percentage of 15.4%, whereas respondents of 26-30 Years are 228 with a valid percentage of 65.1%; also, respondents of 31-35 Years respondents are 61 with a valid percentage of 17.4% and respondents who are 36-40 Years are 6 with the valid percentage of 1.7% and in the end respondents with 41 Years & above are 1 with the valid percentage of 0.3%. The accompanying qualification table shows that 291 individuals have a bachelors, making an 83.1 per cent response rate. In comparison, 44 individuals have done masters/ Mphill, making a 12.6 per cent response rate, and 15 individuals have done intermediate, which makes 4.3 per cent. Sixty-three individuals have between 0-5 years of experience. Two hundred three individuals have between 6-10 years of experience. Sixty-eight individuals have 11-15 years of experience. 13 individuals have 16-20 years of experience, and only three have 21 or more years of experience.

4.2 Descriptive Statistics

Table 2 shows the features of the data used in this investigation. It comprises a variety of observations like dispersion in data, mean, and minimum-maximum values. Surface Acting (SA), the independent variable of this study, has a minimal value of 1.00 and a maximal value of 6.22; its average is calculated as 2.9184, and the standard deviation is found to be 0.96974. Moving next towards Job Satisfaction (JS), this study's dependent variable has a minimal value of 1.20 and a maximal value of 6.20. Its average score is 5.1429, and the standard deviation is 0.66332. Similarly, minimum and maximum Work Hassles (WH) values are 1.53 and 3.88, respectively. Its mean and standard deviation stand at 2.3456 and 0.30247. The minimum Negative Affectivity (NA) value is 0.90, and its maximum value is 3.90, with an average of 2.1174 and a standard deviation of 0.32632. In contrast, the Emotional Intelligence (EI) maximum and minimum values are 6.63 and 1.19, with a mean of 5.1302 and a standard deviation value of 0.708309. The below-listed properties of information related to the information were handled acceptably by the structure.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
SA	350	1.00	6.22	2.9184	.96974
WH	350	1.53	3.88	2.3456	.30247

NA	350	.90	3.90	2.1174	.32632
JS	350	1.20	6.20	5.1429	.66332
EI	350	1.19	6.63	5.1302	.70839
Valid N (listwise)	350				

4.3 Reliability Statistics

The accuracy and reliability of the scale items are checked, analyzed, and observed using the reliability test as shown in Table 3 Testing the questionnaires supported results' accuracy is reliable and valid. Cronbach alpha is used to display the results of the tests. The items are considered highly acceptable if the value is more significant than 0.7 and <1. In this paper, Cronbach's alpha value of Surface Acting (SA) is .857, more significant than 0.7 and acceptable. In contrast, Cronbach's alpha value of Work Hassles (WH) is .755, more significant than 0.7 and acceptable. In contrast, the Cronbach's alpha value of Negative Affectivity is .786, which is more significant than 0.7. It is acceptable, whereas Cronbach's alpha value of Job Satisfaction (JS) is .854, which is more significant than 0.7. In the end, Cronbach's alpha value of Emotional Intelligence (EI) is .856, which is more significant than 0.7 and is acceptable.

Table 3: Reliability Analysis Cronbach's Alpha

Variables	Cronbach's Alpha	No of Items
Surface Acting	.857	9
Work Hassles	.755	34
Negative Affectivity	.786	10
Job Satisfaction	.854	14
Emotional Intelligence	.856	16

4.4 Correlation Analysis

The strength of a linear link between two variables is measured by correlation. This test has been demonstrated to help calculate and measure power and reinforce the relationship between the independent, dependent, and moderating variables. Correlation analysis examines binary relationships or associations between variables (Zou et al., 2003). The variable's sign determines the positive or harmful nature of the relationship. A number ranging from values -1 to +1 is considered substantial when computing the correlation coefficients between the components.

We can also determine the link between our variables by using the connection. As can be seen, the link is characterized by a small quantity of note "r" and has a value ranging from +1 to -1.

Characteristics of the Correlation Coefficient:

- The lowercase letter r stands for the correlation coefficient.
- It has a range of -1 to 1, inclusive.

- A score close to 0 indicates that the components have little association.
- A value of 1 show that the variables have a direct or positive relationship.
- An opposing relationship between the variables is indicated by a number close to -1. It ranges from -1 to 1, inclusive.
- A score close to 0 indicates that the components have little association.

Table 4: Correlational Analysis

		SA	WH	NA	JS	EI
SA	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	350				
WH	Pearson Correlation	.168**	1			
	Sig. (2-tailed)	.002				
	N	350	350			
NA	Pearson Correlation	.123*	.429**	1		
	Sig. (2-tailed)	.021	.000			
	N	350	350	350		
JS	Pearson Correlation	-.162**	.048	.056	1	
	Sig. (2-tailed)	.002	.372	.296		
	N	350	350	350	350	
EI	Pearson Correlation	-.142**	.047	.028	.673**	1
	Sig. (2-tailed)	.008	.377	.597	.000	
	N	350	350	350	350	350

**Correlation is significant at the 0.01 level (2-tailed).
*Correlation is significant at the 0.05 level (2-tailed).

In Table 4, the slope characteristics or diagonal values are equivalent to one, signaling that the variables are substantially associated, whereas off eigenvectors are smaller than one but more prominent than 0.5, showing a significant link among the factors. Every one of the factors in the table is significant and has a positive link with the others.

4.5 Regression Analysis

Regression analysis is the most common statistical method for determining the relationship between the studies' dependent and independent variables. Regression analysis can be classified into three types: linear, multiple linear, and nonlinear. The most common models are simple linear and multiple linear models. For increasingly complicated data sets containing nonlinear relationships between the dependent and independent variables, nonlinear regression analysis is commonly used. Nonlinear regression analysis is frequently employed for increasingly complex data sets with nonlinear relationships between the dependent and independent variables. To identify the ANOVA (where we monitored down residual, Sum of Square, and relapsed), and Coefficients (where we traced down the degree of "r," "R2," and changed R square) (where we monitored down leftover, Sum of Square, and mean square). We adopted a straight recurrence examination in our investigation (where we notice Beta, t, Std., and VIF).

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.162[a]	.026	.024	.65544	
2	.186[b]	.035	.026	.65455	
3	.678[c]	.460	.454	.49035	1.643

[a]. Predictors: (Constant), SA
[b]. Predictors: (Constant), SA, NA, WH
[c]. Predictors: (Constant), SA, NA, WH, EI
[d]. Dependent Variable: JS

According to model overview Table 5, R Square =.026 indicates that the predictors on the predictor variables account for variance. At the same time, the Modified R Square value is 024. The Durbin-Watson value is smaller than 2, indicating a positive correlation between the factors. The Durbin Watson (DW) measure is a statistical framework or regression analysis test for autocorrelation in regressions. A number between 0 and 4 will permanently be assigned to the Durbin-Watson indicator. A value of 2.0 implies that the samples have no relationship. A number within 0 and less than 2 is considered a positive correlation, whereas a value between 2 and 4 is considered a negative correlation.

4.6 ANOVA Test

ANOVA examines the means of different samples to evaluate if one or more variables impact the outcome. It is a statistical analysis that looks for differences between the averages of several groups. A one-way ANOVA employs a single independent variable, whereas a two-way ANOVA uses two or more. Because the significance level is p=.000, Table 6 shows that the model is generally a perfect fit. Table 6 shows one way ANOVA test results.

Table 6: ANOVA Test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	149.503	1	4.054	9.436	.000[b]
	Residual	4.054	348	.430		
	Total	153.557	349			
2	Regression	148.238	3	1.773	4.138	.000[c]
	Residual	5.319	346	.428		
	Total	153.557	349			
3	Regression	82.953	4	17.651	73.410	.000[d]
	Residual	70.604	345	.240		
	Total	153.557	349			

[a]. Dependent Variable: JS
[b]. Predictors: (Constant), SA
[c]. Predictors: (Constant), SA, NA, WH
[d]. Predictors: (Constant), SA, NA, WH, EI

We know that in ANOVA, as we can see in our table, the total of squares is 149.503. The residual is 4.054, meaning that the Residual of the Sum of Squares is less than the Regressions of the Number of Squares. This relationship is also significant.

4.7 Structural Model and Hypothesis Testing

A method for testing a claim or hypothesis about a parameter in a population using data measured in a sample is hypothesis testing. In this method, we test some hypotheses by calculating the probability that a sample statistic would have been chosen if the population parameter assumptions were correct. Table 7 explains the results of a few unmediated hypotheses.

H1: Surface Acting positively impact on Job Satisfaction.

H2: Surface Acting positively impact on Work Hassles.

H3: Work Hassles positively impact on Negative Affectivity.

H4: Negative Affectivity negatively impact on Job Satisfaction. The unstandardized regression coefficients, Standard Error, t-value, and p-value for the structural paths are shown in Table 7. This data provides a base for hypothesis rejection or acceptance.

Table 7: Direct Effect

Hypothesis	Structural Path			B	SE	t-value	p-value
H1	SA	→	JS	.111	.036	3.072	.002
H2	SA	→	WH	.041	.018	2.312	.021
H3	WH	→	NA	.463	.052	6.872	.000
H4	NA	→	JS	.114	.056	3.046	.0037

Note: $p < .005$=Acceptable, T-value >1.96=Acceptable

According to statistical studies, surface acting (SA) and job satisfaction (JS) are positively and significantly related ($B=.111$, $p<0.05$). Consequently, hypothesis H1 is accepted, stating that Surface Acting (SA) positively and significantly impacts Job Satisfaction (JS). (See in table 6). Surface Acting (SA) and Work Hassles (WH) are positively and significantly related, according to statistical findings ($B=.041$, $p<0.05$). Consequently, hypothesis H2, stating that Surface Acting (SA) positively impacts Work Hassles (WH), is accepted. Work Hassles (WH) and Negative Affectivity (NA) are positively and significantly linked with each other ($B=.463$, $p<0.05$), as shown in the table. As a result, the hypothesis that Work Hassles (WH) has a beneficial impact on Negative Affectivity (NA) is accepted. Negative Affectivity (NA) and Job Satisfaction (JS) are positively and significantly related ($B=.114$, $p<0.05$), as seen in the table. As a result, the hypothesis that Negative Affectivity (NA) has a negative impact on Job Satisfaction is accepted. H5: There is a mediating impact of Work Hassles and Negative Affectivity between Surface Acting and Job Satisfaction.

Table 8: Mediated Effect

	Direct Effects			B	SE	t-value	p-value
Path A	~~SA~~	→	WH	.041	.018	2.312	.021
Path B	~~WH~~	→	NA	.463	.052	6.872	.000
Path C	~~NA~~	→	JS	.114	.056	3.046	.0037
	Bootstrap Results			Indirect Effect	Lower Bound	Upper Bound	p-value

Path D	SA	WH	NA	JS	.0525	0.0200	0.0849	0.0016

Table 8 shows the mediating effect is investigated. It is discovered that the overall effect is divided into four paths: first, Surface Acting (SA) and Work Hassles (WH) are positively and significantly associated with each other, with a B value of 041 and a p-value of less than 0.05 and equal to 0.021. Similarly, Work Hassles (WH) and Negative Affectivity (NA) are positively and significantly associated with each other with a value of B=.463 and P=0.000. Negative Affectivity (NA) and Job Satisfaction (JS) are positively and significantly associated with each other with a value of B=.114 and a value of P=0.0037 at path C. Path D, on the other hand, continues to test Bootstrap bias-corrected confidence intervals with a 95 per cent confidence level. The numbers are between.0200 and 0849 are lower and upper bound class intervals, respectively, and zero is found inside the 95 per cent confidence interval. This establishes the existence of serial mediation. As a result, hypothesis H5, Work Hassles and Negative Affectivity mediates the association between surface acting and job satisfaction and is accepted based on the preceding facts. H6: Emotional intelligence has a moderating impact between Work Hassles and Negative Affectivity.

Table 9: Moderated Effect

No	Hypothesis	β	SE	t-value	p-value
H6	WH → EI → NA	0.2039	0.039	7.8219	0.0000

Table 9 find out the specific moderating impact of Emotional Intelligence between Work Hassles and Negative Affectivity, along with the moderator, the model's interface keyword is created and added. To avoid the problem of multicollinearity, the variables are means-focused before even being entered into the investigation. The moderating variable, self-monitoring (B =0.2039, p<0.05), had positive beta coefficients and a p-value. So, Emotional Intelligence moderates the relationship between Work Hassles and Negative Affectivity. Therefore, the hypothesis H6 is accepted. Results of Hypothesis is shown in Table 10.

Table 10: Results

Hypothesis	Structural Path	Results
H1	SA → JS	Accepted
H2	SA → WH	Accepted
H3	WH → NA	Accepted
H4	NA → JS	Accepted
H5	SA → WH	Accepted
	NA → JS	
H6	WH → EI → NA	Accepted

4.8 Discussion

The primary goal of this research was to create a comprehensive framework for understanding how emotions influence job satisfaction in violent and aggressive workplace behavior. Regarding the first question of the study that has been posed, "Is there any connection between Surface Acting (SA) and Job Satisfaction (JS), the study confirms the theoretical connection directions of the variables used in this study, and the findings verify the suggested framework. This study, therefore, has provided an inclusive and useful awareness of the consideration of the setting of the relationship between Surface Acting (SA), Work Hassles (WH), Negative Affectivity (NA), Job Satisfaction (JS) and Emotional Intelligence (EI). The second question, "Surface Acting positively impact Work Hassles in the telecommunication sector", reveals that Surface Acting is highly significant to Work Hassles and that because of this, the employee's emotions in the workplace increase the Work Hassles and vice versa. Likewise, work hassles are essential when considering negative affectivity in an organization. The study shows that the higher employee work hassles encourage employee negative affectivity. Furthermore, it is a positive outcome regarding the telecommunication sector, especially organizations in Rawalpindi and Islamabad. Negative affectivity is an essential factor when considering job satisfaction in an organization. The study shows that the higher the negative affectivity, the lower the job satisfaction among the employees.

The study's findings indicate a link between Surface Acting and Job Satisfaction. They are also significant with a combined effect of Work Hassles and Negative Affectivity regarding Job Satisfaction at the place of work. The outcomes of the study have reinforced objectives H1 to H6 by validating the specific results in favor of this hypothesis, which therefore means that the study has successfully answered the research questions and the objective of examining the impact of Surface Acting, Work Hassles, Negative Affectivity and Job Satisfaction was achieved. The research showed that the relationship between Work Hassles and Negative Affectivity is the most robust association, and both variables are positively crucial to one another, showing that emotional intelligence positively impacts work hassles and negative affectivity. If the organization's culture is good enough to allow staff members to excel and grow, then there shall be less strain and job stress towards the worker. Therefore, by responding to this question, objective H6 validates this study, and the telecommunication sector personnel of Pakistan accept the hypothesis.

5. CONCLUSION & RECEOMMENDATION

This explanation covers workplace and generational belongings. Previous studies significantly related this review's causes. The study examined Surface Acting, a telecom zone in Pakistan, Work Hassles, Negative Affectivity, Emotional Intelligence, and Job Satisfaction. This research yields valuable results. The study examines how workplace way and emotional labor collaboration affect job happiness. Surface Acting, Work Hassles, Negative Affectivity, and Emotional Intelligence affect job pleasure in the telecommunications business. Work Hassles and Negative Affectivity demonstrate how workplace emotional labor affects behavior. This shows how interpersonal and systemic emotional interactions cause job issues and bad affectivity. This study reveals how business stress increases job irregularity in Pakistani community laborers. Job satisfaction with restrictions is explored. Job satisfaction with more or less limitations is additionally reviewed. The tradition of meeting the psychological needs of the individual's organic change is a crucial indicator of emotional labor due to emotional labor at the workplace. A healthy administrative culture may improve job satisfaction and workplace surface acting.

6. LIMITATIONS & FUTURE RESEARCH

The limited sample size prevents analysts from summarizing the review for all open area connotations in Pakistan. Because accurate tests typically need a large sample size to ensure an appropriate agent concentration of the population, it is not easy to find significant relationships in the statistics. We focus exclusively on the telecom sector, particularly for organizations in Islamabad and Rawalpindi. Which path leads to varied outcomes for similar services industries in different places? The review only used self-revealed data since the information acquired was centered on respondents' assessments. Respondents may provide fabricated information or ignore the events being investigated. Because it cannot be independently verified, this information is constrained. As a result, data from other sources or past excursions may conflict with what is already known. Likewise, the amount of time offered to focus on the research topic and the trajectory of its soundness or alteration over time could have been much better (deficient). This study was cross-sectional so that future research can go for the longitudinal study. The legitimacy and meaning of the exploration's factual outcomes will be improved by increasing the sample number of respondents. The same research model can be studied in other service industries, such as automobiles, restaurants, and pharmaceuticals. The current research has explored one dimension of emotional labor, i.e., surface acting. In future research, researchers can take the other dimension of emotional labor, i.e., deep acting. Due to limited time, the study has explored work hassles in the research. However, future researchers can study work uplifts in their research. Moreover, the current study has taken negative affectivity to check the moderating impact of emotional intelligence between work hassles and negative affectivity. Future researchers can take into account positive affectivity in their research projects.

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Appendix A: Questionnaire

Variables	Research Items
	Emotional Dissonance
Emotional Labor	1. I put on a "mask" to express the right emotions for my job.
	2. I have to cover up my true feelings when dealing with customers.
	3. When dealing with customers, I display emotions that I am not feeling.
	4. I fake the emotions I show when dealing with customers.
	5. My smile to customers could be more sincere.
	6. My interactions with customers are very robotic.
	7. I put on an act in order to deal with customers appropriately.
	8. When dealing with customers, I behave in a way that differs from how I really feel.
	9. I fake a good mood when interacting with customers.
	Emotional Effort
	10. I talk myself out of feeling what I really feel when helping customers.
	11. I have to concentrate more on my behaviour when I display an emotion that I do not feel.
	12. I experience the emotions I must show when interacting with customers.
	13. I change my feelings to match those I must express to customers.
	14. I work at calling up the feelings I need to show to customers.
	15. When dealing with customers, I attempt to create specific emotions that present the image my company desires.
Emotional Intelligence	Self-Emotions Appraisal (SEA)
	1. I have a good sense of why I often have certain feelings.
	2. I have a good understanding of my own emotions.
	3. I understand what I feel.
	4. I always know whether or not I am happy.
	Others-Emotions Appraisal (OEA)
	5. I always know my friends' emotions from their behaviour.
	6. I am a reasonable observer of others' emotions.
	7. I am sensitive to the feelings and emotions of others.
	8. I have a good understanding of the emotions of people around me.
	Use of Emotion (UOE)
	9. I always set goals and try my best to achieve them.
	10. I always tell myself I am a competent person.
	11. I am a self-motivating person.
	12. I would always encourage myself to try my best.
	Regulation of Emotion (ROE)
	13. I am able to control my temper so that I can handle difficulties rationally.
	14. I am capable of controlling my own emotions.
	15. I can always calm down quickly when I am furious.
	16. I have reasonable control of my own emotions.
Job Satisfaction	Satisfaction With Information
	1. I am satisfied with the information I receive from my superiors about my job performance.
	2. I received enough information from my supervisor about my job performance.
	3. I receive enough feedback from my supervisor on how well I am doing.
	4. There is enough opportunity to find out how I am doing in my job.
	Satisfaction With Variety
	5. I am satisfied with the variety of activities my job offers.
	6. I am satisfied with the freedom to do what I want on my job.
	7. I am satisfied with my job's opportunities to interact with others.

	8. There is enough variety in my job.
	9. I have enough freedom to do what I want in my job.
	10. My job has enough opportunities for independent thought and action.
	Satisfaction With Closure
	11. I am satisfied with my job's opportunities to complete tasks from beginning to end.
	12. My job has enough opportunity to complete the work I start.
	Satisfaction With Pay
	13. I am satisfied with the pay I receive for my job.
	14. I am satisfied with the security my job provides me.
The Positive and Negative Affect Schedule (PANAS)	Positive Affect Score
	1. Interested
	2. Excited
	3. Strong
	4. Enthusiastic
	5. Proud
	6. Alert
	7. Inspired
	8. Determined
	9. Attentive
	10. Active
	Negative Affect Score
	1. Distressed
	2. Upset
	3. Guilty
	4. Scared
	5. Hostile
	6. Irritable
	7. Ashamed
	8. Nervous
	9. Jittery
	10. Afraid
Daily Hassles at Work	1. Your child(ren)
	2. Your parents or parents-in-law
	3. Other relative(s)
	4. Your spouse
	5. Time spent with family
	6. Health or well-being of a family member
	7. Family-related obligations
	8. Your friend(s)
	9. Fellow workers
	10. Clients, customers, patients, etc
	11. Your supervisor or employer
	12. The nature of your work
	13. Your workload
	14. Your job security
	15. Meeting deadlines or goals on the job
	16. Enough money for necessities (e.g., food, clothing, housing, health care, taxes, insurance)
	17. Enough money for education
	18. Enough money for emergencies
	19. Enough money for extras (e.g., entertainment, recreation, vacations)
	20. Investments
	21. Exercise(s)
	22. Your health

	23. News events
	24. Your environment (e.g., quality of air, noise level, greenery)
	25. Political or social issues
	26. Housework
	27. Car maintenance
	28. Taking care of paperwork (e.g., paying bills, filling out forms)
	29. Home entertainment (e.g., TV, music, reading)
	30. Amount of free time
	31. Recreation and entertainment outside the home (e.g., movies, sports, eating out, walking)
	32. Eating (at home)
	33. Legal matters
	34. Social commitments

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Transformational Leadership Mediates the Relationship Between Employee Engagement and Performance in Production Media

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ABSTRACT

The impact of leadership styles (LS) on employee performance (EP) and growth is profound, especially regarding engagement. This study delves into the type of leadership and its role in bridging the gap between employee involvement and accomplishments within the production media sector in Oman, specifically in the realm of audio and video production. This descriptive research seeks to discern patterns that can predict specific outcomes. The focus is mainly on employees who do not hold managerial roles in the Omani production media industry. For this study, data was collected from an estimated 312 participants. The PLS-SEM technique was the tool of choice to dissect the connections between the variables at play. Impressively, the outcomes validated all the presented hypotheses. On an academic level, this research contributes to the broader understanding of employee efficiency. It provides tangible evidence that could be pivotal for enhancing the productivity of Oman's production media sector. In a broader sense, the research's methodology offers a blueprint that can be adapted by tweaking the variables to analyze and boost EP and achievement in various settings.

Keywords: Employee Engagement; Employee Performance; Leadership Style; Oman's production media industry

1. INTRODUCTION

The multifaceted world of business and media continually transforms, driven by technological advancements, market demands, and shifts in consumer behaviour. Within this vast ecosystem, the production media industry emerges as a beacon of creativity and innovation, always on the brink of birthing the next big idea. Nevertheless, while its products—films, advertisements, digital content, and

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More—captivate audiences worldwide, there lies a complex web of human interactions and managerial practices that dictate its success (Sulaiman Alhosni & Lehyeh, 2019; Taha et al., 2023). Central to this web are the intertwined threads of leadership and employee outcomes. Historically, leadership in any industry was seen as a straightforward managerial role, often associated with authority, decision-making, and a hierarchy of command. However, as organizational research evolved, it became evident that leadership encompassed far more than just top-down directives (Rondi et al., 2022).

It is about influencing, inspiring, and fostering an environment where individuals feel valued, motivated, and aligned with a broader vision. Leadership is the vessel that carries an organization's ethos, culture, and objectives, translating them into actionable tasks and tangible results (De Sousa Sabbagha et al., 2018; Khalid et al., 2020). Its style and approach, whether transformational, transactional, autocratic, or democratic, have rippling effects on every aspect of an organization's success (Abualoush et al., 2018; Ahammad et al., 2020).

Parallel to the leadership discourse, employee engagement has garnered significant attention. In human resource management and organizational behaviour, employee engagement has emerged as a vital metric, correlating directly with workplace satisfaction, performance, and retention (Saputra & Saputra, 2021). Engaged employees are more than just satisfied with their jobs; they are passionate, motivated, and deeply connected to their organization's goals (Sanyal & Hisam, 2018). They go the extra mile, not because they have to but want to. Such engagement is paramount in the production media industry, where creativity is currency (Gandolfi & Stone, 2018). Given the industry's unique characteristics—tight schedules, the constant pressure to innovate, and the sheer unpredictability of creative processes—having an engaged team can make the difference between a project's success and failure (Svajone & Sarka, 2018). Altheeb (2020), while leadership and employee engagement have been individually studied in depth, a comprehensive exploration of their intertwined relationship remains elusive, especially in the context of the production media industry.

The production media industry's landscape further complicates these questions (Al Busaidi & Martin, 2020). With its intrinsic challenges, such as the demand for creativity on cue, the high stakes associated with each project, and the collaborative nature of most tasks, it is crucial to understand how leadership styles can be optimized (Kuvaas et al., 2020). The industry needs to have the luxury of a prolonged trial-and-error approach. Missteps can be costly regarding finances and reputation (Svajone & Sarka, 2018). Hence, decoding the relationship between leadership style, employee engagement, and performance becomes not just an academic endeavour but a pressing business imperative (Paais & Pattiruhu, 2020). This gap in understanding forms the crux of the problem statement for the current research. While it has been acknowledged that leadership styles and employee engagement play pivotal roles in determining performance, the nuances of their relationship, especially within the unique confines of the production media industry, remain primarily uncharted (Almawali et al., 2021). According to AlUbaidi et al. (2020), it could mean the difference between a thriving, innovative environment and a stagnant, uninspired one for industry leaders. For employees, it could influence job satisfaction, career growth, and overall well-being.

According to Almawali et al. (2021), the nuances, as mentioned earlier, underline the pressing need for a comprehensive understanding of leadership's role in shaping employee engagement and performance in the production media sector. According to Al-Saadi et al. (2017), while anecdotal evidence and isolated studies provide glimpses into this dynamic, there needs to be more holistic research that contextualizes these findings within the broader fabric of the industry. Furthermore, as mentioned by Almawali et al. (2021), such research is not just about filling academic gaps; it is about equipping industry stakeholders with the knowledge and tools to harness the full potential of their teams. It is about recognizing that the actual constant is human potential in a world of ever-evolving technology and shifting consumer preferences (Miao et al., 2023). Moreover, tapping into this potential requires a symbiotic alignment of leadership practices and employee engagement strategies (Abilash & Siju, 2021).

With its unique blend of creativity and stringent deadlines, the production media industry operates under a distinct set of dynamics that can influence employee outcomes. Al-Busaidi et al. (2021), while leadership and its consequential effects on performance are well-researched in broader contexts, there remains an intricate gap when examining these interactions within production media. This industry, which hinges on the marriage of artistic vision and execution prowess, requires leadership that not only directs but inspires, according to research by Almawali et al. (2021), AlUbaidi (2020); Paais & Pattiruhu (2020), and Rondi et al. (2022), many issues remain obscured by uncertainty. Moreover, with the increasing demands for innovation and the pressure of market competition, it becomes essential to understand how leadership can be harnessed to optimize employee engagement and drive peak performance.

There are many types of leadership, notably participative, authoritarian, democratic, transformative, and transactional. However, the focus of the research is on both transactional and transformative leadership. The reason for this decision is based on these fashions' widespread appeal. Develop these leadership models further and boost organizational success (OS) by offering fresh thoughts via this study. A wide range of materials, comprising earlier studies, historical documents, library books, brochures, records, and online assets, were used to fill in the gaps in the current reservoir of knowledge. Although there is a large body of research on LS and EE, it is striking how few studies have mainly focused on the Omani business environment. This situation needs to be improved in the area of Oman's producing media. Although multiple investigations regarding company leadership and performance are conducted globally, as demonstrated, the Omani-producing media industry needs to receive more attention. Therefore, the main focus of this research is identifying the LS that best encourages ES (Day et al., 2016). The main objective is to show how different LSs affect EP in the Sultanate of Oman's production media sector.

2. LITERATURE REVIEW

2.1 Oman Media

With the introduction of radio transmission, Oman saw the beginning of proper mass communication. A one-kilowatt transmitter-equipped small transmitting station was put up in Muscat within one week after Sultan Qaboos assumed control in 1970. In November 1974, Oman Television (OTV) was officially established as the principal television network and the representative of the Sultanate. In order to promote national unity, advance developmental goals, and instil a profound sense of loyalty to His Majesty the Sultan and the country, the Omani administration has used the influence of the media since 1970. This was done to foster a strong feeling of national passion and identification.

Furthermore, the national media was charged with the honourable duty of upholding humane values, denouncing social ills like intolerance, religious conflict, and other destructive attitudes, and simultaneously highlighting the harmony, development, and sophisticated character of the Omani community. When the Omani Enlightenment began, His Majesty's vision significantly impacted this attitude. He succinctly described the role of the media, comparing it to "a mirror displaying the nation's pulse. This mirror should reflect honesty and authenticity, being true to its portrayal and audience.

2.2 Employee Performance (EP)

According to Sagala and Rivai (2013), performance is a person's total output in carrying out certain activities within a predetermined time limit while adhering to predetermined standards, goals, or targets determined by shared parameters. Suwatno and Priansa (2014) define performance as the results of a person's activities, endeavours, and behaviours throughout a specific period. Performance is, in basic terms, the result of a person's commitment to their assigned duties and the scope of their help to an organization. It includes all of the quantitative and qualitative results, both measurable and immaterial, that can be attributed to a person's function within a business context. A person's performance is influenced by a wide range of factors, including their intrinsic skills, motivating factors, exterior influences, the type of jobs they are given, the rewards they get, their loyalty to the organization, and more. The overall effectiveness of an organization or business entity is becoming more closely linked to the individual successes of its employees. When examined more closely, EP may be broken down into three key elements: efficiency, product excellence, and overall effectiveness. These factors are crucial for organizational success and deciding compensation.

According to Wibowo et al. (2017), performance may be seen from two different angles: as a continuing practice or as the physical result of labour. EP is crucial for organizational survival and goes beyond simple measurements for organizational progress. Therefore, businesses must motivate their staff constantly. Essentially, the people who make up a company's operations and culture are its most significant assets. Their effectiveness is the foundation for any establishment's path towards achievement.

Nevertheless, improving its effectiveness is a difficult task influenced by many factors. Scholars like Bhaskar et al. (2020) have focused on a few crucial characteristics to help make this complex topic more understandable. No matter how profit-oriented an organization is, it is crucial to acknowledge the importance of HR in creating a distinct economic advantage. A supporting atmosphere is essential to keep this talent pool; otherwise, there is a considerable risk of substantial attrition, which may jeopardize organizational success (Farrukh et al., 2019). It was possible to create a sophisticated picture of the factors affecting EP in the Sultanate of Oman and the larger GCC by making inferences from actual information collected from an array of employees. The investigation revealed that organizational structures and leadership interactions were of secondary importance to technologies. A paradigm change still needs to be made despite the GCC countries' unwavering efforts to revitalize their public labour environments. Given the declining budgetary space caused by declining oil income and a growing native staff, this inertia is especially troubling (Saadouli & Al-Khanbashi, 2021; Saadouli & Al-Khanbashi, 2020). An Omani-focused research hypothesized that employees could consider moving to more favourable surroundings if they are denied opportunities for continuous growth. The key for employees still lies in constant learning and obtaining the appropriate assistance for professional development, even while position variety is crucial for skill enhancement (Jalagat et al., 2017).

Additionally, Jalagat's (2017) investigation of Oman's business world highlighted the connection between tension at work and worker production. Here, stresses were identified as anticipated job uncertainty, inadequate use of skill, and excessive labour. Although there was some disagreement over the effects of stress on worker productivity, there was a clear tendency to agree that stress had adverse effects on performance.

2.3 Leadership Style (LS)

OP and function depend heavily on leadership. McClellan et al. (2017) assert that a combination of individual traits, methods for influencing others, routines, experiences, organizational positions, and innate influencing rules build leadership. Fundamentally, leadership is about persuading or modelling actions for followers over a complex communicative procedure while assuring congruence with organizational goals. Through the years, the concept of leadership has changed. By defining leadership as the method of guiding, directing, and altering the mental, sentimental, and behavioural components of people and channelling their energy towards specific aims, Mira Odeh (2019) provides a thorough viewpoint. These particular goals compel the existence of strong leadership by nature. Additionally, according to Abadiyah et al. (2020), leadership promotes a setting where ambition meets legitimacy, efficacy meets orientation, and regulation meets inventiveness, all of which are choreographed towards common organizational goals.

The job of a leader is crucial in today's complex corporate environment, which is emphasized by fast globalization and technical changes. According to Gandolfi and Stone (2018), modern organizations desperately demand leaders capable of handling the complexity of a constantly changing global environment. According to Bastari et al. (2020), who expand on this idea, leadership—derived from the word "leading," which indicates guiding—is a crucial trait for business leaders. Their part? To lead, inspire, and instil a sense of mission to increase organizational effectiveness. Researchers have invested much time and energy in analyzing different leadership models and determining how they affect organizational and personal results. Transformational leadership (TFL) and transactional leadership (TRL) have drawn much focus among the many styles examined (Zhang et al., 2020).

For further in-depth analysis, Abodunde et al. (2017) identified five unique leadership methods: charismatic, TFL, TRL, innovative, and culture-centric. The changing organizational landscape demands a leadership style responsive to customer demands and adaptable to quick changes in the company's context. Leaders need help to adapt to these new leadership stories while successfully leading various employees (Faria et al., 2021). In addition, an organizational attitude that prioritizes the growth of future leaders as a top priority is crucial for the sustainability and effectiveness of leadership growth projects. The leadership model continues to include an essential component of LS, which is developed via education, practical expertise, and ongoing training. Heyler and Martin (2018) found that certain leadership philosophies tend to make followers prosper, which supports Alvesson and Einola's (2019) claim that leadership, the most researched social method, is still essential to the functioning of both commercial and non-profit organizations. Furthermore, the interactions of LS, especially TFL and TRL frameworks, substantially impact the course of organizations. In addition to increasing efficiency, successful leadership encourages, inspires, and encourages staff, propelling the company to previously unheard-of levels of accomplishment.

2.4 Transformational Leadership Style (TFLS)

TFL is a comprehensive strategy that penetrates all facets of an organization. It is not merely an LS. Fundamentally, TFL is leaders collaborating closely with their people to pinpoint areas for development and create a stirring vision to elicit the needed adjustments. TFL motivate their teams to work together to drive change by inspiring their supporters via their attractive impact. According to Maamari and Saheb (2018), this LS has been increasingly popular in recent years and is now the preferred option for numerous leaders all over the globe. The adaptability and strong impact that TRS leaders possess are becoming increasingly important in light of the changing organizational contexts of today. These leaders do not simply act as figures of authority; they additionally oversee interpersonal relationships, promote collective awareness, support self-management, and, most importantly, act as shining lights of motivation for their subordinates (Pawar et al., 2019). Additionally, TRS leaders frequently base their methods of operation on ardently inspiring other people in public and private environments and guaranteeing that future objectives are clearly expressed (Amirullah et al., 2018).

The capacity of the TRS leader to emphasize the significance of task results, promote a perspective above individual advantages, and ignite people' evolved demands inspires followers to go further than their first objectives. Conger and Kanungo (1998) discuss the intricacies of TFL in greater detail and emphasize the crucial function played by these leaders in tumultuous times. These inspirational and TRS leaders, particularly in times of crisis and change, communicate visions that give new opportunities and potential life. The complex objectives they establish alter tactical concepts in addition to being challenging. This shows that transformative leaders highlight strategic goals to make difficulties manageable and risks have a chance of paying off. By focusing on the shift's numerous advantages, these leaders ensure that the apparent expenses are outweighed by the final rewards (Conger & Kanungo, 1998). In summation, TFL is a concept rather than just a technique. Leaders who use this strategy by inspiring their people with enthusiasm, goal, and unshakable dedication are at the vanguard of organizational progress.

2.5 Transactional Leadership Style (TRLS)

TRLs are the persons who consistently demonstrate a willingness to provide compensation, including salary raises, advertisements, additional job duties, success assessments, and benefits, in exchange for specific outcomes or contributions. Nevertheless, the primary concern associated with this particular type of leadership pertains to the standards it generates. Longe (2014) posits that implementing TRL inside a firm might yield favourable outcomes for its overall success. TRL has a significant role in creating and sustaining an atmosphere that optimizes organizational and individual abilities. This is accomplished by providing staff with both material and immaterial incentives. TRLS cultivates a conducive climate that enhances productivity and effectively conveys a well-defined seeing, both of which significantly impact the overall achievement of the firm. The ES is impacted by TRL, which aligns with a reciprocal association between the leader and the submissive. Within this dynamic, those occupying subordinate positions would be responsible for delivering a certain level of excellence to their respective leaders. In exchange for this accomplishment, the manager reciprocates by offering a range of intangible and tangible advantages, including but not limited to trust, dedication, and regard. This phenomenon may be interpreted as a manifestation of interchange or cooperation (Alkipsy & Raju, 2019). Previous studies conducted by Leverkus et al. (2018) have examined the effects of TRL on EP, demonstrating a noteworthy and constructive effect. Subordinates exhibit motivation when under the guidance of TRLs, who provide rewards in response to their achievements. These leaders establish clear and measurable employee goals and offer rewards that depend on achieving those goals. One could posit that TRLs exert the most significant influence on the efficiency of positions characterized by well-defined and measurable objectives, including police officers who can gauge their efficiency based on quantitative metrics like the number of detentions, reports, or tickets. TRL can be defined as an LS that prioritizes control and guidance, where rewards and sanctions are contingent upon compliance to or divergence from standard practices.

2.6 Employee Engagement (EE)

There has been a growing emphasis on the significance of EE among scholars, specialists, and business leaders (Eldor & Vigoda-Gadot, 2017; Holland, Cooper, & Sheehan, 2017). The initial articulation of the notion of EE was provided by Kahn (1990), wherein he observed that engaged individuals experience a profound sense of affiliation with their supervisors and peers, consistently exert their utmost endeavour daily, and exhibit enthusiasm towards attaining the organizational objectives. According to Kahn (1990), there are three prerequisites for staff members to attain a state of engagement: a sense of comfort in the workplace, availability of vital amenities, and recognition for their accomplishments (Francis & Keegan, 2020; Kahn, 1990; Liu et al., 2023). Since the original formulation of EE, additional investigations have been conducted to investigate associated constructs (Godkin, 2015; Banihani et al., 2013), defined EE, characterizing it as the manifestation of an employee's commitment and devotion, both physical and mental, towards the achievement of the organization's objectives. According to Chaitra and Vijay (2016), engaged personnel can be defined as those who possess a solid psychological attachment to the company, derive satisfaction from their work, and exhibit creativity in addressing workplace monotony. Engaged employees (ENGE) have been described by several researchers as people who demonstrate enthusiasm, vitality, collaborative behaviour, and a profound dedication to their job duties (Byrne et al., 2016; Jiang et al., 2015). EE is commonly characterized as the state of being actively employed, displaying commitment, experiencing a deep sense of absorption in one's profession, and staying motivated while carrying out job responsibilities in the desired institution.

Moreover, Schaufeli and Bakker (2010) stated that EE is frequently conceptualized as a favourable and constructive mental state, marked by a sense of dedication and a high concentration level in employees' work as they work very hard to complete the task on time. Research has shown that individuals engaged in their work exhibit diligence, deep absorption in their duties, and an elevated commitment to their jobs (Bakker et al., 2008; Chughtai & Buckley, 2011). The concept of EE, initially introduced by Kahn (1990), has been repeatedly supported by scientific studies, indicating a favourable association between an elevated degree of EE and a good work environment in the institution where employees may feel engaged and motivated. Recent research shows that it positively influences individual employees' productivity while mitigating their intention to leave their current employment (Breevaart et al., 2016). Hence, EE is commonly acknowledged as a crucial metric for evaluating the effectiveness of HRM. Considering the extensive body of research conducted on EE, a globally agreed term has yet to be established. According to Kahn (1990), employment involvement can be defined as the deliberate decision made by an individual to allocate their physical, mental, and affective resources towards their job responsibilities, enabling these personal variables to impact their success actively. Conversely, the definition of EE encompasses an upbeat feeling of job-related satisfaction arising from ardour, commitment, and immersion in a job. Notably, the notion of EE, as utilized in this study, was primarily developed by (Schaufeli & Bakker, 2010).

The investigator's varied opinions or opinions may have an impact on indicators of EE. Furthermore, Parent and Lovelace (2018) contend that EE is influenced by multiple variables, including the extent to which employees concentrate on their jobs, their readiness to participate in job-related duties outside of regular working hours, their perception of mental stimulation in their position, and their evaluation of the results of their job. Moreover, the investigation sought to elucidate the determinants that drive EP. The study's results indicated that a person's mental condition and dedication to their responsibilities could substantially influence their degree of exertion, drive, and contentment in their occupation.

2.7 Vigour

The term "vigour" refers to a state characterized by a considerable amount of optimism and mental fortitude displayed by people when engaging in their professional tasks. According to Aktar and Pangil (2018), individuals exhibit a profound inclination to utilize their proficiencies and capabilities to address and surmount issues and impediments inherent in their duties. The concept of employee behaviour (EB) is discussed by scholars like Schaufeli and Bakker, 2010; Wefald & Downey, 2009). pertains to the proactive actions and initiatives individuals undertake in their professional settings. This encompasses their endeavours to tackle issues, surmount barriers, and face difficulties in attaining their objectives or fulfilling their allocated responsibilities.

2.8 Dedication

Dedication refers to a person's ability to fully immerse themselves in their work and derive satisfaction, importance, passion, and readiness to undertake demanding professional obligations (Saratun, 2016). This pertains to an employee's affective and psychological orientation regarding their job duties and the extent to which these duties are congruent with their skills. According to various investigators, including Demerouti et al. (2001), Kanste (2011), Parent & Lovelace (2018), Saks (2006), Saratun (2016), Schaufeli and Bakker (2010), and Wefald and Downey (2009), staff members who dedicate themselves demonstrate characteristics including passion, pride, inspiration, an intense sense of obligation, and an authentic excitement for success in their respective roles.

2.9 Absorption

Absorption is a psychological condition whereby people become fully immersed in their work, resulting in a feeling of satisfaction and active involvement. According to Suan and Nasurdin (2016), individuals struggle to disengage from their professional obligations and are firmly committed to accomplishing their duties. Wefald and Downey (2009) have collectively found that absorbed workers exhibit a profound concentration on their professional duties, experiencing a subjective perception of time passing swiftly and attributing significant importance to their job duties.

2.10 Employee Engagement with Employee Performance

Numerous studies on EE have constantly demonstrated a scientifically significant correlation between engagement and several variables, such as EP (Anitha, 2014). Company profitability (Kazimoto, 2016), client happiness, worker feelings of relating and preservation and organizational dedication. As a result, the importance of EE is widely acknowledged as a critical factor in achieving organizational performance. Both human and environmental elements are significant in shaping EE (Sharoni et al., 2015). Scholars have discovered many methods by which incredibly engaged workers make significant contributions to the achievement of an organization. The advantages encompass a range of outcomes, including enhanced efficiency and effectiveness and a heightened ability to adapt to changes within a company (Hicks & Knies, 2015). The significance of EE in attaining organizational success (OS) and sustaining a comparable edge is constantly underscored by HR professionals, company leaders, and managerial boards. Scholars have performed extensive research to investigate critical elements of EE, offering valuable information for organizational leaders regarding the positive impact of EE on corporate success and the various tactics that can be implemented to foster EE (Mutsuddi, 2016). The present study makes a valuable contribution to the current body of information about EE and EP while providing practical advice for business leadership.

2.11 Conceptual Framework

The primary objective of this research is to examine the possible mediation influence of LS on the association between EE and EP in the telecommunications industry of Oman. Within this framework, leadership style, which includes TFL, TRL, autocratic, democratic, and laissez-faire LS, is seen as a mediator. Simultaneously, EE comprises ardour, dedication, and absorption and is positioned as the self-reliant factor. The theoretical structure that has been developed is depicted in Figure 1, as seen below.

Figure 1: Given Theoretical Framework

Hypotheses of Present Study

The present investigation aims to conduct statistical analyses to evaluate the research hypotheses listed below:

H1: EE significantly affects EP.
H2: LS significantly affects EP.
H3: EE significantly affects LS.
H4: LS mediates the connection amid EE towards EP.

3. METHODOLOGY

The present investigation employed a quantitative research methodology. The study hypotheses were formulated utilizing a cross-sectional (CS) approach, which has the potential to operate as a prototype for forthcoming inquiries. A CS approach enables scholars to investigate the association amid multiple factors at a particular moment, providing precious insights into their interconnections. This particular form of research can be executed expeditiously and cost-effectively, facilitating the concurrent incorporation of a substantial and heterogeneous cohort of samples. Furthermore, this study investigates the mediating effects of both reliant and self-reliant factors. The present study can be classified as descriptive in style due to its utilization of statistic testing to establish the reliability and validity (R&V) of the connections amid reliant and self-reliant factors.

The research also examines the mediating elements that provide evidence for the underlying conceptual structure. The research's intended demographic encompasses non-managerial (NON-M) personnel within Oman's production media business, with a particular emphasis on individuals involved in audio and video creation. Based on the data presented in Table 1, the population size of nON-M staff within the producing media business in Oman is reported to be 3724 people, as sourced from the website http://mediate-oman.com/. In order to extend the applicability of the investigation results to the target audience, a sampling size of 349 participants was established for the planned investigation using the Raosoft online tool http://www.raosoft.com/samplesize.html.

The measuring variables utilized in this investigation were derived from established measures found in reputable scholarly sources. The research questionnaire was partitioned into two distinct components. Demographic information queries were incorporated in Section A, whereas Section B aimed to examine reliant, self-reliant, and mediating factors. A letter of introduction that provided a succinct summary of the study's objectives and a promise to protect the respondents' privacy was sent with the questionnaire.

4. DATA ANALYSIS AND RESULTS

The demographics of our study significantly influenced the accuracy and relevance of the results we obtained. We gathered information from a diverse group of 312 participants. A majority, 82%, were males, while 18% were females. Interestingly, almost half of the respondents, 48% to be precise, were between the ages of 41 to 50. Additionally, a sizeable 44% held a Bachelor's degree. If you want to dive deep into the statistical nuances of every factor we explored, go through the relevant chapter. Referring to Table 1, the average scores for our variables fluctuated between 2.9236 and 4.3324. The statistical analysis findings further indicated that standard deviation (SD) exhibited values ranging from 0.60898 to 1.05424. The present study utilized Partial Least Squares (PLS) to investigate the proposed research framework and assess the analysis of Partial Least Squares Structural Equation Modelling (PLS-SEM), as referenced by Hair et al. (2016).

Furthermore, Table 1 presents the dependability of every factor, as assessed using Cronbach's Alpha (C’sA). It is essential to acknowledge that the dependability of every factor exceeds the suggested criterion of 0.70, as stipulated by renowned experts (Cronbach & Shavelson, 2004). This result demonstrates the validity of the survey used in this study.

Table 1: Measurement model results

Variable	Sub-Variable	Items	Loadings	Mean	SD	C'sA	CR	AVE
Leadership Style	Transformational Leadership	TFL1	0.756	2.9856	0.71534	0.979	0.79	0.556
		TFL2	0.733					
		TFL3	0.747					
		TFL4	0.785					
		TFL5	0.763					
		TFL6	0.575					
		TFL7	0.769					
		TFL8	0.71					
		TFL9	0.701					
		TFL10	0.758					
		TFL11	0.738					
		TFL12	0.717					
	Transactional Leadership	TRL1	0.651	4.0024	0.608	0.934	0.94	0.632
		TRL2	0.736					
		TRL3	0.674					
		TRL4	0.797					
		TRL5	0.827					
		TRL6	0.671					
		TRL7	0.679					
		TRL8	0.703					
Employee Engagement	Vigor	VIG1	0.727	3.2009	0.68353	0.876	0.88	0.612
		VIG2	0.819					
		VIG3	0.806					
		VIG4	0.847					
		VIG5	0.554					
		VIG6	0.771					
	Dedication	DED1	0.832	3.4923	1.05254	0.967	0.971	0.658
		DED2	0.621					
		DED3	0.699					
		DED4	0.789					
		DED5	0.792					
	Absorption	ABS1	0.907	3.3282	0.83983	0.877	0.881	0.605
		ABS2	0.564					
		ABS3	0.663					
		ABS4	0.857					
		ABS5	0.795					
Employee Performance		EP1	0.618	3.3077	0.88412	0.94	0.945	0.63

EP2	0.694
EP3	0.855
EP4	0.83
EP5	0.756

Table 1 thoroughly explains the variables, sub-variables, and their components. There are many critical metrics included, including expected factor loadings, average scores, standard deviations of these scores, and reliability measurements like Cronbach's Alpha (C'sA), Composite Reliability (CR), and Average Variance Extracted (AVE). Consider the "Transformational Leadership" category under "Leadership Style," for instance. It has a fantastic Cronbach's Alpha value of 0.979, an average score of 2.9856, and a standard deviation of 71534. The factor loadings are only shown for visual context and range from 0.76 to 0.89 for different goods.

4.1 Validity and Constructs Reliability

In our study, we tapped into Partial Least Squares (PLS) to delve into the proposed model, especially highlighting our use of Partial Least Squares Structural Equation Modelling (PLS-SEM), as referenced in the literature. Also, if you look at the research done by Ringle and his team back in 2015, it underscores how valuable the PLS-SEM techniques are. They particularly pointed out the utility of intelligent PLS when dissecting structures. This utilization significantly enhances the reliability and strength of the research findings. Multiple measures are essential in this research, emphasizing the reflecting measuring approach. The evaluation of its V&R is crucial, as Ringle et al. (2014) emphasized. The reliability coefficients, commonly referred to as C'sA, for every factor, are displayed in Table 3. It is worth mentioning that reliability ratings for every factor exceed the acceptable level of 0.70, as suggested by well-established investigators. This finding provides evidence supporting the reliability of the questionnaire employed in this research.

4.2 Discriminant Validity (DV)

DV refers to the extent to which estimations of distinct factors ought to have minimal interrelationships to demonstrate that reflecting concepts display more robust associations with their corresponding signals inside the PLS path framework. The proposed criterion value is 0.85. In contrast, to put out a threshold value of 0.90. Hence, an HTMT score below 0.90 signifies a satisfactory degree of DV amid two notions. Nevertheless, when the HTMT score surpasses 0.9, it indicates a lack of DV. The findings in Table 2 demonstrate that all the observed results are under the threshold of 0.85, providing evidence to support the existence of DV.

Table 2. Discriminant validity based on HTMT

	VIG	DED	ABS	WIS	CD	CAR	TFL	TRL	EP
VIG									
DED	0.195								
ABS	0.131	0.827							

WIS	0.239	0.192	0.148						
CD	0.329	0.439	0.449	0.199					
CAR	0.804	0.479	0.433	0.739	0.574				
TFL	0.365	0.443	0.422	0.200	0.815	0.596			
TRL	0.065	0.162	0.218	0.074	0.662	0.185	0.175		
EP	0.076	0.468	0.487	0.154	0.487	0.767	0.485	0.191	

Source: Author's estimation

Table 2 presents discriminant validity results based on the HTMT (Heterotrait-Monotrait Ratio) criterion for various constructs: VIG, DED, ABS, WIS, CD, CWR, TFL, TRL, and EP. At a glance, discriminant validity is deemed adequate when the HTMT values are significantly lower than 1, with a typical threshold below 0.85 or 0.90. Most HTMT values are comfortably below these thresholds, indicating good discriminant validity between the constructs. However, some pairs, such as VIG-CWR with an HTMT of 0.804 and EP-CWR with 0.767, approach these thresholds and might warrant closer scrutiny. The diagonals are blank, as they represent the comparison of a construct with itself, where the HTMT would always be 1. Overall, the table suggests that the constructs essentially exhibit good discriminant validity, with a few pairs that may require further investigation

Table 3. Discriminant validity based on the FLC Method

S#	LOCs	VIG	DED	ABS	WIS	CD	CAR	TFL	TRL	EP
1	VIG	**0.78**								
2	DED	0.065	**0.765**							
3	ABS	0.039	0.589	**0.735**						
4	WIS	0.095	0.331	0.345	**0.755**					
5	CD	0.01	0.555	0.72	0.42	**0.735**				
6	CAR	0.085	0.331	0.348	0.29	0.41	**0.76**			
7	TFL	0.01	0.515	0.54	0.425	0.605	0.51	**0.805**		
8	TRL	0.07	0.405	0.555	0.43	0.58	0.34	0.415	**0.765**	
9	EP	0.08	0.465	0.48	0.16	0.49	0.775	0.495	0.195	**0.74**

Source: Author's estimation

Table 3 shows various constructs' factor loadings and cross-loadings: VIG, DED, ABS, WIS, CD, CWR, TFL, TRL, and EP, represented per different items (S#). Factor loadings represent the correlation between the observed variables (items) and their respective latent constructs. For rigorous validity, each item should load strongly on its intended construct and weakly on others. In the context of this table, strong loadings are typically considered when the value is 0.7 or above on the diagonal (representing the item's loading on its intended construct). Most of the constructs demonstrate robust factor loadings, as seen by values on the diagonal.

Meanwhile, the off-diagonal values (cross-loadings) are generally lower, indicating that the items primarily relate to their intended constructs. A few higher off-diagonal values are observed, suggesting potential overlap between constructs, which may require attention. The table reveals a rigorous factor structure with distinct and minimal cross-loadings.

4.3 Structural Model Assessment

The structural framework depicted in Figure 2 acts as a fundamental instrument for investigating the study's inquiries and examining the speculations. The structural model may be examined further once the variables have demonstrated adequate reliability and validity. The proposed conceptual framework is examined in detail, and it is revealed that empirical evidence supports the underlying hypotheses that are the focus of this study.

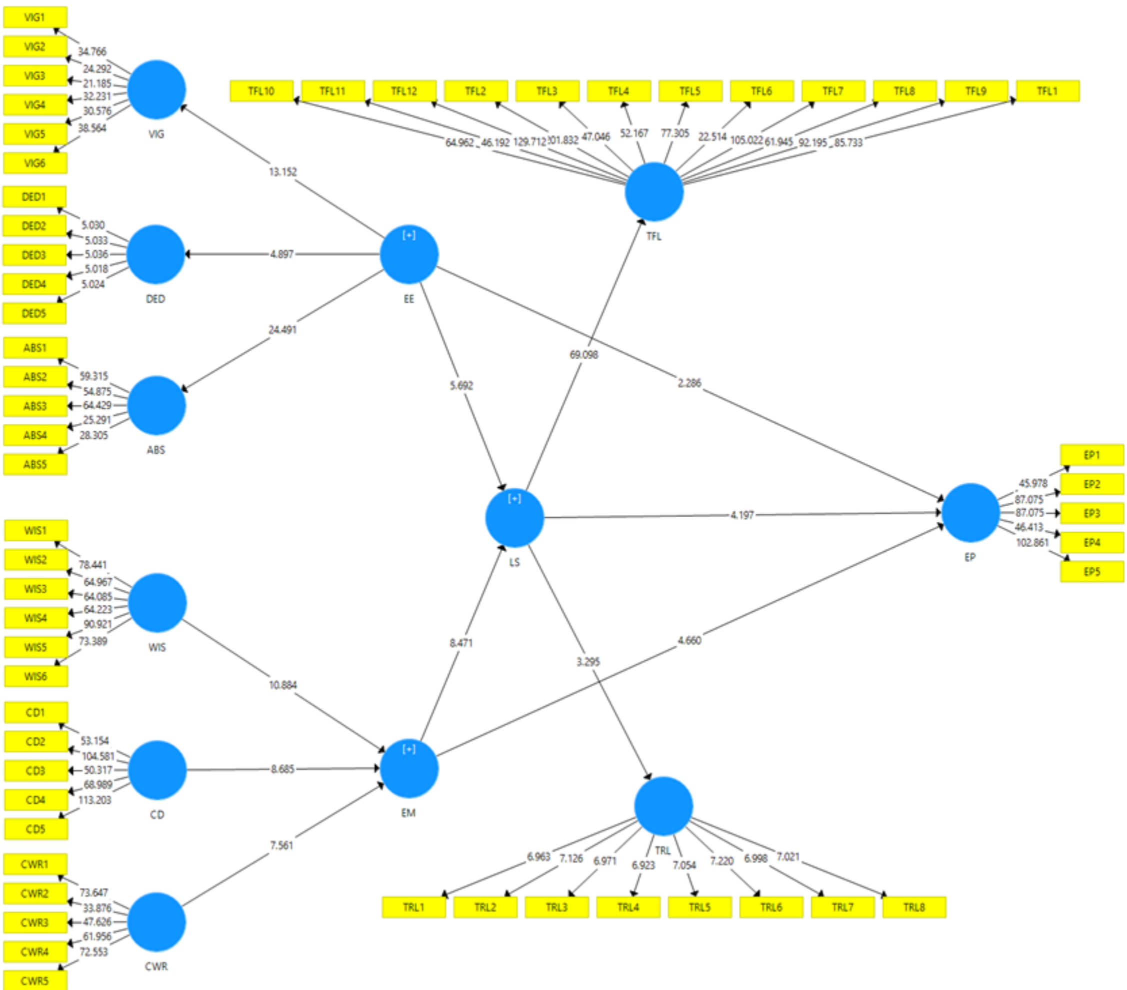

Figure 2: Structural Model with Constructs and Indicator

4.4 Hypotheses Tests

The main goal of Smart PLS is to reduce errors or increase the reported variation in all reliant factors while utilizing a specific quantity of data. Applying the structural model (SM) allows for determining the size and relevance of path parameters. In Partial Least Squares Structural Equation Modelling (PLS-SEM), bootstrap is essential for evaluating the SM. The generated assumptions were evaluated using Smart PLS, a statistical software that generates results from the bootstrapping method. These results include relevance degrees and t-stats obtained once the operation is completed. Table 4 comprehensively summarises the study's hypothesis investigated in the SM.

Table 4: Hypotheses Findings

Hypotheses	Relationship	Std. Beta	T values	P values	BCI LL 05%	BCI UL 95%	Decision
H1	EE → EP	0.62	13.8	0	0.54	0.685	Supported
H2	LS → EP	0.095	1.89	0.03	0.003	0.17	Supported
H3	EE → LS	0.225	4.9	0	-0.29	-0.132	Supported
H4a	EE → EP	0.62	13.8	0	0.54	0.685	Supported
H4b	LS → EP	0.095	1.89	0.03	0.003	0.17	Supported
H4c	EE → LS	0.225	4.9	0	-0.29	-0.132	Supported

Source: Author’s estimation

Note: Employee Engagement (EE), Leadership Style (LS), Employee Performance (EP).

Table 4 presents the results from a series of hypotheses testing, showcasing the relationships between different constructs. Each hypothesis provides metrics such as the standardized beta coefficients (Std. Beta), standard errors (Std. Error), t-values, p-values, and the bootstrapped confidence intervals (BCI LL 05% and BCI UL 95%). These metrics offer insight into the tested relationships' strength, significance, and confidence. Every relationship in the table is marked as "Supported," pointing to statistically significant outcomes for each hypothesis. The consistently high t-values and p-values support this conclusion at or close to zero. These values, especially when combined, indicate strong evidence against the null hypothesis for each relationship.

Further bolstering this conclusion is the observation that the bootstrapped confidence intervals do not cross zero for any tested relationship, suggesting that the relationships are robust and not a result of random chance. In addition to the significance, the table provides information about the strength and relevance of each relationship. The effect sizes, represented by f^2, differ across hypotheses. For instance, H1 (and, similarly, H4a) displays a large effect size, suggesting a substantial impact on the dependent variable. In contrast, other hypotheses like H2 and H4b show smaller effect sizes, indicating a more modest influence. The R^2 and adjusted R^2 values offer further insights, demonstrating the proportion of the variance in the dependent variable explained by the predictors. Some relationships account for a considerable portion of this variance, while others explain a smaller segment. Lastly, the Q^2 values indicate the model's predictive relevance, with all presented values affirming the model's aptitude in predicting the outcomes.

According to the study results, employees must cultivate a feeling of mental security and comfort within their work environment, which facilitates the establishment of open lines for interaction with peers and supervisors. This setting fosters substantial engagements, the cultivation of interpersonal relationships, and the development of business alliances. The influence of intimate connections on EE is widely recognized. However, it is just as crucial for management to effectively communicate every worker's professional demands, unique abilities, and limits. This promotes a perception of mental security, diminishing uncertainty, augmenting innovation and strategic thinking, and eventually heightening the amount of EE. The research findings indicate that LS has a consistently favourable impact on EP when considering the various aspects that affect engagement. The lack of these styles may result in a decrease in EE.

Table 5: Predictive Validity of Inner Model using PLSpredict

Variable	RMSE (PLS-SEM)	RMSE (LM)	Difference (PLS-SEM - LM)	Decision
EE → EP	0.055	0.062	-0.007	PLS-SEM Preferred
LS → EP	0.047	0.051	-0.004	PLS-SEM Preferred
EE → LS	0.052	0.059	-0.007	PLS-SEM Preferred
Combined (EE, LS) → EP	0.058	0.065	-0.007	PLS-SEM Preferred
Combined (EE, LS) → LS	0.05	0.055	-0.005	PLS-SEM Preferred

Table 5 presents a comparison between two modelling approaches, PLS-SEM (Partial Least Squares Structural Equation Modeling) and LM (Linear Modeling), based on their respective RMSE (Root Mean Square Error) values for various relationships. RMSE measures model prediction error, with lower values indicating better model fit and prediction accuracy. Across all relationships and combinations, the PLS-SEM consistently registers lower RMSE values than the LM approach, as evidenced by the negative values in the 'Difference' column. This suggests that the PLS-SEM approach provides a better fit and more accurate predictions for these data sets than the LM approach. The consistent preference for PLS-SEM across all the relationships underlines its superior predictive performance for the given dataset and relationships.

4.5 Discussion

Our research has unravelled the intricate interplay between EE, LS, and EP in Oman's distinctive production media setting. A pivotal association was observed between EE and EP, as substantiated by Hypothesis H1 (t-statistic = 13.8, p-value = 0.000). This observation is congruent with Harter et al. (2002), who elucidated the advantages of enhanced employee engagement leading to outstanding organizational achievements and individual prowess. Engaged employees, they posited, are innately driven, engendering a milieu replete with creativity and allegiance. The cardinal role of leadership style, primarily transformational leadership, in shaping this interaction is evident.

Our investigation into the intermediary role of leadership style, depicted in Hypothesis H3 (t-statistic = 4.9, p-value = 0.000), mirrors the insights of Zhu et al. (2013). Their research accentuated leadership's instrumental function in leveraging the essence of employee engagement. Influential leaders, they proposed, operate as pivotal catalysts, directing the collective vigour of their members to fulfil organizational milestones. Additionally, the conjoint influence of EE and LS on EP, as illustrated in Hypothesis H4, finds its foundation in theories articulated by Kahn (1990) and Byosiere (1997). Their scholarly pursuits consistently propounded the notion that discrete organizational elements, though potent individually, manifest heightened outcomes when synchronized harmoniously. Our research augments the discourse in Oman's production media sector, aligning cohesively with prevailing academic narratives and emphasizing the timeless principles of organizational interplay and their significant ramifications.

5. Practical Implications

The study's findings underscore the need for organizations in the production media sector of Oman to invest deeply in fostering employee engagement. Engaged employees are not merely more productive, but their intrinsic motivation and commitment can lead to heightened levels of innovation and creativity, which is crucial in a sector driven by content creation and dynamic media landscapes. Organizations might consider implementing engagement initiatives such as regular feedback loops, skill enhancement workshops, and platforms for creative expression. Moreover, with the arbitrating function of LS being evident, especially TFL, there is a compelling case for production media houses to prioritize leadership development. This does not only entail hiring candidates with leadership potential but also continuously developing existing leaders. Emphasizing traits and behaviours characteristic of transformational leaders, such as inspiration-driven approaches, empathy, and vision-casting, can help guide teams more effectively and harness the potential of engaged employees. Another practical takeaway is the need for a more integrated approach towards organizational development. The study suggests that employee engagement and leadership styles are not isolated variables but deeply interconnected. Thus, interventions aimed at enhancing one should ideally consider the other. For instance, leadership training programs in the sector could incorporate modules on fostering engagement, while employee engagement initiatives emphasize the role of leaders as enablers and catalysts. Furthermore, given the synergy between employee engagement, leadership style, and performance, media organizations in Oman should consider holistic evaluation metrics. Rather than assessing these variables in isolation, a more integrated metric, a composite index, could offer richer insights into organizational health and growth potential.

6. CONCLUSION AND RECOMMENDATIONS

Our research within Oman's production media industry has unearthed pivotal insights that underscore the profound interconnectedness of employee engagement (EE), leadership style (LS), and employee performance (EP). The data validates the instrumental role of heightened employee engagement in driving optimal performance and illuminates the catalytic impact of effective leadership in amplifying these results. This synergy, where leadership serves as a conduit for maximizing the benefits of engagement, is a testament to the intricate tapestry of organizational dynamics. Drawing from seminal works and aligning with established theories, our study reaffirms that while individual and organizational facets hold significant merit, their collective interplay often births outcomes more excellent than the sum of their parts. As the production media landscape in Oman continues to evolve, recognizing and harnessing these dynamics becomes paramount. This research, thus, provides a roadmap for organizations aiming to foster an environment of excellence, motivation, and optimal performance, grounded in both empirical evidence and theoretical foundations.

Additionally, beyond the quantitative metrics, our findings emphasize the qualitative aspects of organizational culture. The relationship between EE, LS, and EP is not just about numbers and statistics; it is about understanding human behaviour, motivation, and the fundamental drivers that propel employees to strive for excellence. As highlighted in our study, leadership is pivotal in shaping this culture, guiding teams through challenges, and inspiring them to achieve their best. Furthermore, while our research is grounded in the context of Oman's production media industry, its implications are universal. Organizations can draw lessons from our findings irrespective of domain or geographical location. Businesses can unlock higher innovation, commitment, and overall productivity levels by prioritizing employee engagement and cultivating transformational leadership styles in the rapidly evolving global business landscape, where adaptability and agility are crucial, understanding the core dynamics of employee engagement and leadership becomes a strategic imperative. In shedding light on these dynamics, our research hopes to equip organizational leaders and decision-makers with the insights and tools they need to navigate the challenges of the contemporary work environment and pave the way for sustainable growth and success.

First and foremost, there is a pressing need to prioritize employee engagement initiatives. Given the pronounced relationship between employee engagement and performance, organizations should channel resources into training programs, workshops, and other engagement-enhancing activities. Implementing regular feedback mechanisms, organizing interactive sessions, and fostering team-building exercises can engender employees' sense of belonging and commitment. Furthermore, the influential role of leadership, primarily transformational leadership, must be balanced. Organizations should emphasize developing leaders who not only manage but inspire. Leadership training programs should be revamped to incorporate elements that nurture attributes of transformational leaders, such as vision, empathy, and motivational skills. The objective should be to create leaders who can effectively galvanize their teams, harnessing the collective energy towards common organizational goals.

Additionally, the combined effect of employee engagement and leadership style on performance suggests that these elements should not operate in silos. Organizations should adopt a holistic approach, where strategies for enhancing engagement are seamlessly integrated with leadership development programs. Such a synergistic approach will likely yield amplified results, enhancing organizational outcomes. Organizations should consistently measure and track these variables. Regular assessments, through surveys or feedback mechanisms, can provide valuable insights into the effectiveness of implemented strategies, allowing organizations to make timely adjustments and ensure that they remain on the path to achieving optimal performance and productivity.

7. LIMITATIONS AND FUTURE RESEARCH

While the current research offers substantial insights into the connection between EE, LS, and EP within Oman's production media sector, certain limitations merit attention. The data was drawn from 312 respondents, and while this is a robust number, the demographics might only capture some of the sector's diversity. Specifically, with 82% male representation, the views of female employees might be underrepresented, which could introduce gender-based biases. Additionally, the study primarily focused on the arbitrating function of LS, emphasizing TFL and TRL. Various other leadership styles and dimensions might interact differently with EE and EP. The scope of the research did not delve deep into these, and this presents a potential avenue for future research. The reliance on self-reported measures, especially for constructs like employee performance, introduced a degree of subjectivity. Future studies could consider triangulating with objective performance metrics or incorporating feedback from peers or supervisors for a more comprehensive view.

Furthermore, the age demographic, with 48% of respondents between the ages of 41 and 50, might also mean that the views of younger or older professionals in the media production sector needed to be fully captured. Given the rapid evolution of the media sector, the perspectives of younger professionals, in particular, could offer differing insights. For future research, there is an opportunity to broaden the scope. Research can discover the potential moderating impacts of other organizational factors, such as organizational culture or communication styles. Given Oman's unique socio-cultural landscape, a cross-cultural or cross-regional comparison could yield fascinating contrasts and insights into how these relationships manifest in different environments.

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Data-Driven Career Placement Examination System with Prediction Model in Forecasting Licensure Performance Using Regression Techniques

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ABSTRACT

Education plays a vital role in the development of a country, and predicting the students' performance is essential to identify future risks they might encounter and enable academic institutions to take corrective actions to prevent them from failure. This study used the descriptive and developmental method of research, and criterion sampling was used to identify/select the individuals who can provide the best information for the objective of this study. After gathering the Career Placement Exam (CPE) results, the output is now imported to the developed predictive data analysis tool on which the simple-linear regression is used. Since the CPE results are not strong enough to verify the predicted result, all the undergraduate semestral grades are also used and subdivided for each of the seven technical subjects/areas, where a multilinear regression model is used. Overall, regarding Security, Functionality, Usability, Reliability, and Portability, the level of acceptance for the developed prototype system is Highly Acceptable. Moreover, for the result of the level of accuracy using the simple linear regression model (for the CPE) and the multilinear regression model (for the seven technical areas), the accuracy level of >=85 is based on the predicted and actual data generated in the Analytics tool Using the equation/model derived from linear regression techniques, the machine learning prototype can determine whether the students can pass or fail the CAAP Licensure Examination as follows: if $\alpha \leq 79.99$, then the student will fail; if $85.00 \leq \alpha \geq 80.00$, then it is questionable for the student to pass and if $\alpha \geq 85.01$ then the student will likely pass the licensure examination.

Keywords: Career Placement Examination (CPE); Machine learning; Multilinear regression; Predictive model; Simple linear regression

1. INTRODUCTION

Measuring the students' academic achievements across different subjects or fields makes a significant impact on educators to study more about different learning styles to improve not only their mode of teaching but also to lessen the factors affecting the students' performance and attain higher marks during assessments. Fortunately, the advancement of research and development benefited not

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only the industry sectors but also academic institutions, computer science and information technologies, manifesting the importance of predictive models (Kalechofsky, 2016).Meanwhile, education plays a vital role in the development of a country, and predicting students' performance is essential to identify future risks they might encounter (Hamsa et al., 2016). Many related studies have focused on explaining and predicting learners' performance (Sorour et al., 2015). Accurate predictions of students' academic performance at the early stages of the degree program help identify weak students and enable management to take corrective actions to prevent them from failure (Pandey et al., 2016).

Some of the reasons why students' performance is essential claimed criteria for a high-quality university based on its excellent record of academic achievements in today's very competitive environment and not to waste both money and resources due to failure (Baars et al., 2017; Mesarić & Šebalj, 2016; Shahiri et al., 2015). Providing manual examinations is more prone to errors and biases, making computer-aided examination a perfect choice that can release examination results in record time and without error gaining an assessment modality Jawaid et al., (2014); Abass et al., (2017); Broughton (2017) with this some sighted as well that it cut costs than the manual or traditional way based on the study of Rønning (2017) this computer-aided examination refers to the use of computers to assess students' progress (Chalmers & McAusland, 2002).

This study aimed to develop a Data-Driven Career Placement Examination System with Prediction for Licensure Examination Performance Using a Regression Algorithm. This study highlights the developed portable mock reviewer or career placement examination system that will serve as an alternative way or mode of preparing academic institutions and their students to gain a high probability of obtaining more passers, especially hence providing sufficient guidance and time allotment to review and prepare more if necessary and also to make way for those who like to fail an opportunity for appropriate actions and interventions that will help him pass the actual exam. This study focused on the developed on-premises system that can run portably via a local server and, after generating results, will be imported on the Predictive Analytics tool forming the developed data-driven mock review/career placement exam to forecast the score/percentage using regression techniques since the numerical predictive variable has been gathered from the examination itself. This will also be raw data loaded on the predictive model analytics tool. Specifically, the study sought to answer the following questions:

1. What are the processes and challenges encountered when conducting the institution's career placement examination?

2. What is the level of acceptance in the developed Data-Driven Career Placement Examination System with Prediction for Licensure Examination Performance Using Regression Algorithm in terms of a. Security; b. Functionality; c. Usability; d. Reliability; and e. Portability?

3. What is the level of accuracy of the developed Regression Models in Forecasting Licensure Performance? And lastly,

4. What appropriate features can be designed for the system that will automate the mock examination to forecast licensure performance?

2. LITERATURE REVIEW

Historical data on the licensure performance of the students helps academic institutions to maintain and track their overall performance; in light of this, there are also some factors affecting their performance as a whole for appropriate actions needed to make them more prepared and improve the number of licensure passers. Moreover, board examinations are given by professional regulatory agencies in various countries to its citizens to ensure that the desired efficiency of the job is achieved, especially those which are critical to the society like the Civil Aviation Authority of the Philippines (CAAP) that issues Aviation Maintenance Technician license for AMT graduates of Philippine State College of Aeronautics (PhilSCA) and other Aviation Institutions in the Philippines nationwide. The assessment also aims to measure the person's competencies and abilities in performing their jobs in the industry. Also, forecasting board examination results to set a prognosis of the institution's efficiency in delivering instruction nowadays can be done using a data mining technique (Abaya et al., 2016). With the advancement of technology, Computer-based exams (CBE) have several significant advantages compared to traditional paper-based exams (PBE), such as efficiency, immediate scoring and feedback in the case of multiple-choice question exams (Samson, 2017). The use of the said technology opens the opportunity for immediate feedback and support on the pre-board exam performance of the reviewer and eventually remedial before taking the actual licensure examination. This would help them cope with success and help the institution improve its licensure examination performance rating. This is another essential way of strengthening the institution's accomplishments and may eventually lead to the path toward transformation to cope with the developing information and communications technology culture (Tarun, 2017).

2.1 Utilization and Choosing Predictive Variables

Choosing what to use and how to use a predictive variable is critical in data modelling because some studies are using mixed method approaches like student performance in e-learning and blended learning approach (Rakic et al., 2020) (Lu et al., 2018). Another study, like Angeles (2020), aimed to identify variables that best predict the teacher education graduates in Cagayan Philippines, namely the instruction and curriculum, to assess the quality of teaching, which only means that a predictor is a very relevant factor in forecasting performances. As a result of the prediction, not only for students but for teachers also. On the other hand, other related studies describe the different predictive variables they used for predicting student performance. In the study conducted by Son and Fujita (2019), they introduced MIMO SAPP or Multi-Output student academic performance prediction to predict the future performance of the students. They used representative sets with neural-fuzzy logic. Mock examination results as raw data for predicting the actual licensure performance are impressive. According to the study of Tarun (2017), another study also developed this kind of prototype with a DSS decision support system (Jain, 2016) (Tarun et al., 2014). However, limited studies were conducted on the development and "Integration" of Mock review examinations and the prediction of licensure performance in one system that will forecast how likely the student will pass or fail before the actual licensure exam.

2.2 Conceptual Framework

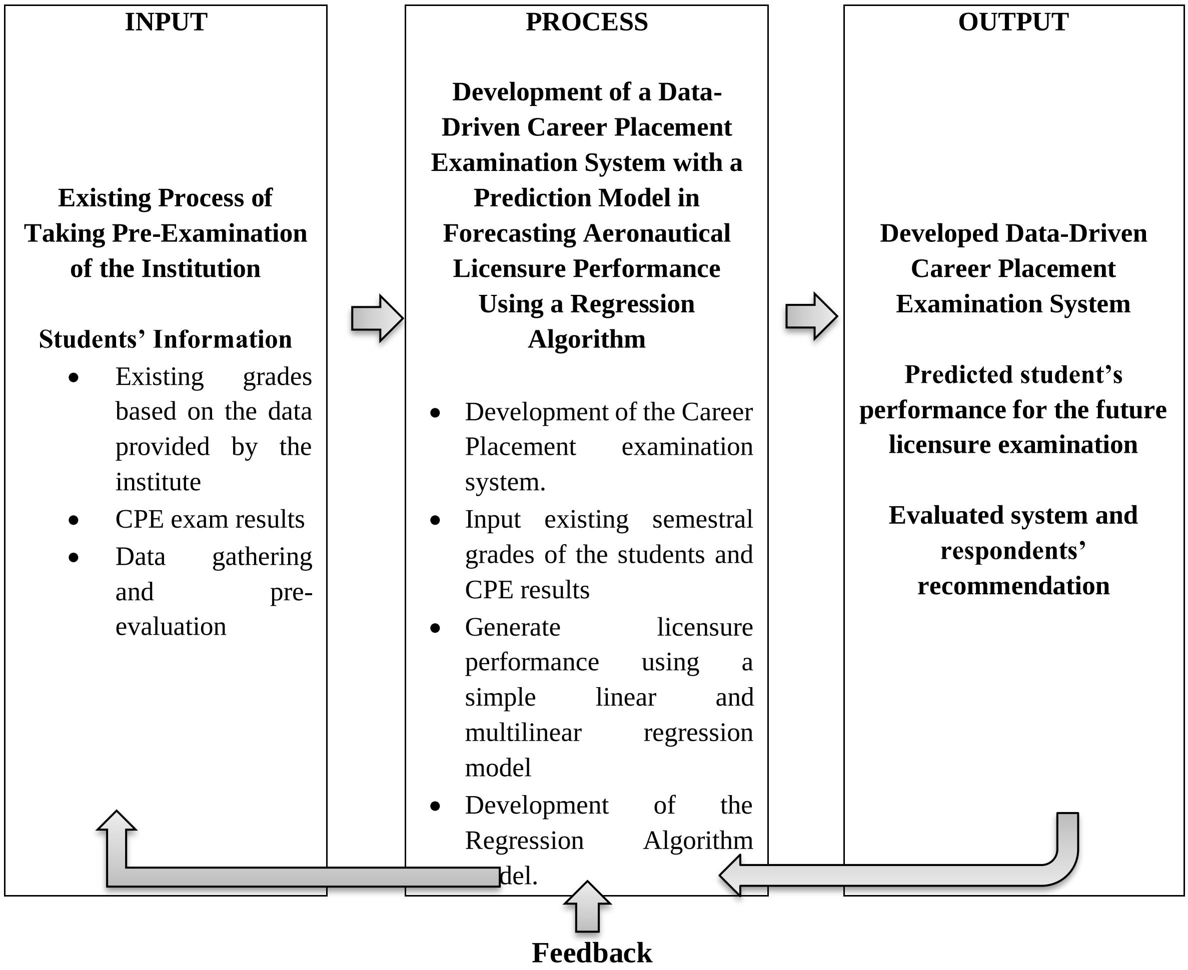

Figure 1: Conceptual Framework

The conceptual framework used in the study is the Input Process Output (IPO) model. The IPO model provides the general structure and guide for the direction of the study. By identifying and analyzing the variables of this study on the IPO model, this study came up with the conceptual framework, which is presented in Figure 1.

Figure 1 presents the conceptual framework of the study. In the input stage, this study conducted a survey questionnaire to get the demographic profile and the raw data needed, such as semestral grades/academic performance of their technical subjects and the CPE examination results. The process stage includes developing the career placement examination system, loading gathered student information, and testing the developed system results using regression techniques. For the result of this IPO model, the system could be deployed responsible for conducting mock examinations and predicting the student's actual licensure performance based on the input and process provided. The feedback represents the capability of the system to return to previous stages when errors occur before the system produces such information.

2.3 System Architecture

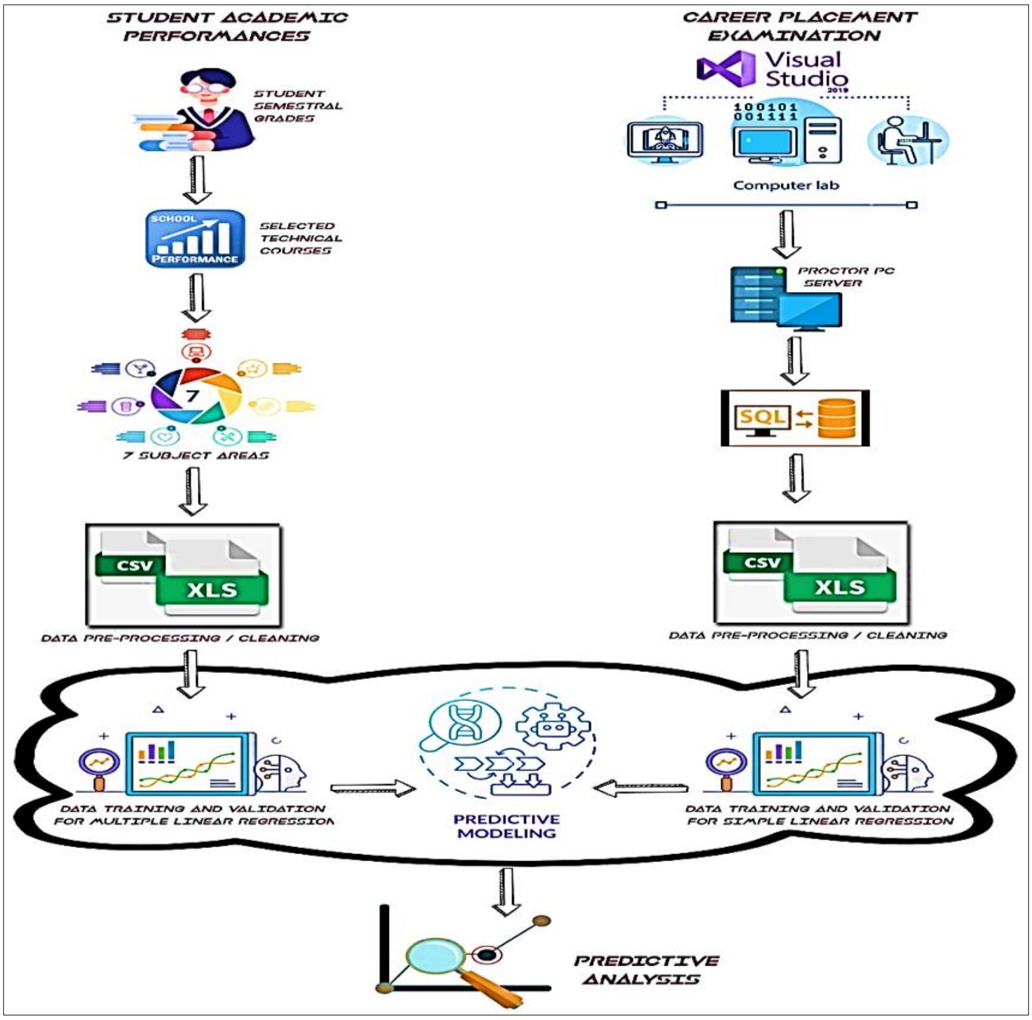

Figure 2: System Architecture of the Career Placement Examination System with Prediction Model

Figure 2 shows the interaction of the user and the Data-Driven Career Placement Examination System for Institute of Engineering students that will serve as their mock review exam for the actual licensure examination. It shows how the system works between the administrator and the examinee through MS SQL database as a standard and most widely used open-source language that is especially suited for relational database development. The datasets or the descriptive data were extracted from the 7 Technical Subject Areas and the Career Placement Exam by procedure. The raw data underwent data cleaning for pre-processing of the data and removing outliers to prevent the error output when doing the ETL (Extract Transform and Loading). Regarding the Testing Training and Data Validation, this study used a 70:30 ratio (70 percent training set and 30 percent for validation and testing dataset) because this study only used a small amount of dataset, which was quantified into 33 descriptive data. Data modeling output and analytics part will be generated from Analytics Cloud for the accuracy of the predictive data model. For the Predictive Analytics, this study used 10-fold cross-validation (k=10), in which the data was equally divided into ten parts (9 parts for training and one-tenth for testing) to provide a good balance between the variance and bias on the data (Zacharski, 2015).

2.4 Simple Linear Equation

Using the linear regression, the equation to predict if the students can pass the Licensure Examination in CAP is expressed as:

$$y = \alpha + ß_1 x \qquad / \qquad y = 0.6x + 33$$

Where:

- y is the response (prediction)
- *.06x is the constant value (derived from the given linear equation)*
- 33 is the y-intercept value

2.5 Multilinear Equation

Mathematically, the multilinear relationship is reflected as follows:

$$y = \beta 0 + \beta 1X1 + \beta 2X2 + . . . + \beta nXn$$

Where:

- y is the response
- β values are called the model coefficients. These values are "learned" during the model fitting/training step.
- $\beta 0$ is the intercept
- $\beta 1$ is the coefficient for $X1$ (the first feature)
- βn is the coefficient for Xn (the nth feature)

3. METHODOLOGY

3.1 Research Design

This study used descriptive and developmental research methods to accomplish this study.

3.2 Research Instrument / Data Collection

The research instrument used was based on the standard ISO 9126 for software development (Umar et al., 2019). Data gathering through a survey questionnaire was done first to know the current status of providing mock examination and the respondent's CPE results used to craft the system. After gathering the CPE results, the output was imported to the developed model, where the simple-linear regression was used. Since the CPE results were not strong enough to verify the predicted result, this study also included the past semestral grades for the seven areas (namely: Air laws and Airworthiness, natural Science and Aircraft general knowledge, Aircraft engineering, Aircraft maintenance Human Performance, Airframe and Powerplant), these areas stated are the composition of the mock review examination of the institute is utilized for the multilinear regression algorithm.

3.3 Sampling and Sample Size

For the descriptive part, which is the first part, this study used criterion sampling for the study respondents who answered the challenges and the level of acceptance as they were responsible for conducting the career placement examination at the institution. There are total of 5 (five) pool of CPE end users in PhilSCA composed of 1 MIS-Head or IT Expert, three departmental proctors that are program coordinators from the Engineering department (1 for the Aircraft Maintenance Technology department, 1 for the Aviation Electronics Technology department and 1 for Aeronautical Engineering department) also one representative from the head of student affairs/ guidance services unit who annually facilitated the Mock review examination since they are the primary beneficiary of the developed system. The second part, which is the dataset, is composed of 33 AMT alums/graduates that contains the undergraduate historical data such as the career placement examination results from the institution and the academic performances (all semestral grades for all the semesters they took) where this study did the pre-processing part to distribute and organize all of the technical subjects for each of the seven areas according to CAAP ratings.

3.4 Ethical Statement

This study ensured the confidentiality of the respondents, especially the 33 AMT alums/graduates' datasets who were selected as part of data modeling and who gave their academic records voluntarily via Google Forms with informed consent that the data collected would be used for research purposes only in compliance to the Philippine Data Privacy Act of 2012 which states on Republic Act 10173 to protect the fundamental human right of privacy, communication while ensuring free flow of information. Regarding the dignity of the respondents, this study prioritizes not to disclose the names of the individuals/groups who participated in the study.

3.5 Analysis Techniques

This study used mean (average value) to measure the central tendency for the challenges faced by the institution and also the ISO 9126 for the developed prototype. The data modeled were trained and validated through machine tools such as Python and Weka. Lastly, to test the level of accuracy, the CPE results were tested first to see if it is correlated to the CAAP RATING and then loaded into the SAP Analytics cloud to verify/check their accuracy.

4. RESULTS AND ANALYSIS

To describe the respondents and support the sampling method used, it was divided into 2 (two parts) The first is the descriptive part, which consists of 5 pools of CPE users (100 percent total of administrators conducting the mock examination in the institution). The second part is the dataset consisting of 33 AMT alums/graduates. Table 1 below shows the distribution of the respondents of the study for the pool of CPE users:

Table 1. Percentage Distribution of Respondents

Respondents	Frequency	Percentage
Proctor for 3 Departments	3	60%
MIS personnel	1	20%
Guidance personnel	1	20%
Total	5	100%

Table 1 shows the percentage distribution of the pool of CPE users who annually conducted the career placement examination for Aircraft Maintenance Technology students under the Institute of Engineering and Technology.

4.1. Existing Practice and Challenges Encountered in Conducting the Career Placement Examination in The Institution

Table 2. Existing Practice and encountered challenges in the institution

Encountered Challenges	Frequency
There is no automated examination for the mock examination.	5
Checking the mock examination is very time-consuming.	5
The results for the mock examination take approximately 3 to 5 days.	5
The proctor does not focus on the examinee's mistakes or subjects that need more attention (for review).	5
Currently, no employed program in the institution will track their weaknesses so that students can be more prepared for the incoming licensure students' performance and focus on their weaknesses to be more prepared for the licensure examination.	5

Table 2 shows the Existing Practice and encountered challenges of the institution. The results show that the existing practice of the institution is the PBE (paper-based examination), which includes a manual or traditional way of conducting, checking and evaluating the examination and based on their responses, there is no automated system or software program used for the CPE of the institution which resulted to the delay of publishing / posting the announcement for the mock exam passers which undeniably will take time when generating reports if the proctor or the person in charge will check them manually or individually. Moreover, the institution cannot monitor the examinee's weaknesses in the subjects or areas the students should have focused on for the incoming actual licensure examination.

4.2. Acceptability Level in the Developed Data-Driven Career Placement Examination System with Prediction for Licensure Examination Performance Using Regression Algorithm

Table 3. Level of Acceptability of the Developed System

	N	Mean	Interpretation
Security	5	3.90	Highly Acceptable
Functionality	5	3.80	Highly Acceptable
Usability	5	3.64	Highly Acceptable
Reliability	5	3.30	Moderately Acceptable
Portability	5	3.76	Highly Acceptable

Table 3 shows that in terms of Security, 3.90 General Weighted mean, which is verbally interpreted as Highly Acceptable, where the proposed system has an adequate security feature that helps the user and the administrator to prevent any possible unauthorized access by having the unique system-generated examination ID password. In terms of Functionality, with a 3.80 General Weighted Mean, which is verbally interpreted as Highly Acceptable based on the findings, the proposed CPE system can provide the actual system-generated report/performance right after taking the mock examination, distribution of questions from the database with the randomized questionnaire distribution feature is also added. In terms of Usability, 3.64 General Weighted Mean, which is verbally interpreted as Highly Acceptable that the prosed system can generate real-time results, which is needed for posting the examinee passers; however, based on the result, they are often confused about how to fully use the system that the examinees might need the help and supervision of the proctor during the actual examination. In terms of Reliability, 3.30 General Weighted Mean, which is verbally interpreted as Moderately Acceptable, the result shows that the evaluation of MIS-IT Expert and the Pool of CPE End

Users is moderately acceptable in general for the reason that during the pilot testing of the proposed system, there are some technical problems using different operating systems. In terms of Portability, 3.76 General Weighted Mean, which is verbally interpreted as Highly Acceptable, the pool of users liked the plug-and-play version of the proposed system and the most appreciated feature because it can be easily installed on a Windows operating system and can also be used as a personal reviewer.

4.3. Level of Accuracy of the Developed Regression Models in Forecasting Licensure Performance.

Table 4. Test of Accuracy results using Simple Linear Regression Technique

	Ave CPE	CAAP Ratings	Prediction	Accuracy
ds1	88	90	85.80	97.50
ds2	84	84	83.40	99.29
ds3	85	85	84.00	98.82
ds4	86	86	84.60	98.37
ds5	88	85	85.80	97.50
ds6	83	80	82.80	99.76
ds7	88	92	85.80	97.50
ds8	86	89	84.60	98.37
ds9	88	86	85.80	97.50
ds10	85	85	84.00	98.82
ds11	85	84	84.00	98.82
ds12	86	84	84.60	98.37
ds13	87	84	85.20	97.93
ds14	77	85	79.20	102.86
ds15	83	84	82.80	99.76
ds16	85	83	84.00	98.82
ds17	83	82	82.80	99.76
ds18	83	80	82.80	99.76
ds19	76	85	78.60	103.42
ds20	84	86	83.40	99.29
ds21	80	84	81.00	101.25
ds22	85	88	84.00	98.82
ds23	87	86	85.20	97.93
ds24	83	86	82.80	99.76
ds25	87	87	85.20	97.93
ds26	80	85	81.00	101.25
ds27	84	90	83.40	99.29
ds28	83	84	82.80	99.76
ds29	93	85	88.80	95.48
ds30	87	84	85.20	97.93
ds31	78	85	79.80	102.31
ds32	83	84	82.80	99.76
ds33	90	91	87.00	96.67

*Legend:	
ds	is the dataset number
Ave CPE	is the Average Result of the CPE
CAAP Ratings	is the target actual predicted value

Table 4 shows the target results of the third column, the actual CAAP ratings. Using the simple linear regression, the developed equation to predict if the students can pass the Licensure Examination in CAAAP is y=0.6x+33. This equation predicts the CAAP Ratings (Prediction = 0.6*AveCPE+33). A Pearson r moment correlation was conducted to test the significant relation of the Career Placement Examination Scores of the participants to the Passing Rate they obtained in the CAAP License.

For the simple linear regression model to determine the accuracy of the prediction: Accuracy = Prediction / Average CPE * 100 (this formula should be used for individual prediction). Based on the output, there are several factors why the developed model cannot be perfected. Some of it is due to psychological factors, examinees' condition during the examination proper, lack of preparedness, and mental conditional state while taking the mock review examination. These are only some of the reasons why the prediction overlaps. In addition, the Ave CPE result is the basis for predicting the CAAP ratings (target). As a result, the Ave CPE values are close to the Prediction values rather than the CAAP Ratings based on the derived output/outcome.

Table 5. Test of Accuracy results using Multiple Linear Regression Technique

	ALA	NSAGK	AE	AM	HP	AF	PP	Prediction	Accuracy
ds1	90.43	85.21	89.15	89.55	88.75	88.25	91.17	86.77	97.57
ds2	84.57	88.57	81.85	77.45	86.00	81.75	82.50	82.63	99.27
ds3	74.29	90.86	86.00	86.73	87.00	85.13	85.83	85.10	99.98
ds4	89.29	86.50	86.31	90.91	87.75	87.75	88.83	87.68	99.42
ds5	88.14	83.79	87.08	89.00	87.50	87.25	89.50	86.17	98.52
ds6	87.57	83.71	85.38	84.36	89.25	84.25	86.17	83.51	97.31
ds7	91.86	83.64	88.85	90.45	89.50	89.13	92.33	86.72	97.01
ds8	87.71	85.29	91.38	90.36	89.00	88.88	90.67	86.73	97.40
ds9	88.29	84.86	87.77	87.91	87.75	89.38	86.33	86.30	98.67
ds10	86.57	80.14	82.77	85.45	86.25	83.50	85.00	83.74	99.40
ds11	82.14	82.64	82.62	83.45	88.00	82.50	81.83	82.36	98.86
ds12	80.71	87.29	82.23	84.73	87.50	90.13	85.67	84.74	99.15
ds13	87.29	87.71	84.23	85.82	89.00	85.75	86.33	85.23	98.43
ds14	85.57	89.50	83.46	86.18	86.00	86.13	90.00	86.53	99.82
ds15	84.00	82.36	81.31	83.18	81.75	80.13	79.83	84.31	103.07
ds16	83.14	84.86	82.38	81.00	85.00	80.13	87.14	82.83	99.34
ds17	87.00	88.14	87.92	88.64	91.25	88.75	90.17	85.89	96.68
ds18	86.43	87.36	86.15	85.82	88.50	85.38	84.50	85.21	98.73
ds19	91.00	81.43	89.23	91.09	91.00	89.63	92.00	85.83	96.07
ds20	82.57	88.21	83.77	84.45	81.50	81.25	85.17	86.21	102.82
ds21	83.43	85.07	85.00	83.73	84.50	85.25	86.83	84.71	99.86
ds22	89.29	89.79	88.85	90.73	90.25	92.13	91.00	88.12	97.59
ds23	85.29	85.50	87.77	87.18	80.75	86.88	87.33	87.83	102.34
ds24	80.29	84.36	80.31	82.36	78.50	81.00	81.17	85.13	104.92
ds25	86.57	84.64	90.69	88.64	91.25	92.13	89.67	85.39	95.85
ds26	85.14	87.21	85.08	86.73	87.25	81.63	86.67	85.25	99.51
ds27	88.43	86.07	90.15	89.27	90.25	89.63	88.33	86.32	97.12
ds28	82.00	89.07	85.00	83.64	80.25	83.38	85.83	86.73	103.04
ds29	85.86	85.86	83.77	87.36	89.25	84.25	85.33	84.86	98.72
ds30	84.00	86.36	84.69	83.45	84.25	84.75	92.00	84.95	99.19
ds31	85.43	84.00	87.46	86.09	91.00	89.25	87.17	83.89	96.20
ds32	88.00	84.00	83.85	85.82	86.25	85.00	84.67	85.25	99.86
ds33	91.00	90.00	87.31	89.91	88.50	88.63	88.17	88.34	99.18

*Legend:	
ds	is the dataset number
ALA	is the Air Laws & Airworthiness
NSAGK	is the Natural Science & Aircraft General Knowledge
AE	is the Aircraft Engineering
AM	is the Aircraft Maintenance
HP	is the Human Performance
AF	is the Airframe
PP	is the Powerplant
Prediction	is the predicted values
Accuracy	individual accuracy of the prediction

Table 5 shows the prediction results based on the dataset for each of the 7 Technical Subject Areas through their accumulated grades. A significant regression was found ($F(7,27)=2.769$, $p<.026$). The participants' predicted passing rate through their accumulated grades is equal to this equation:

Prediction = 39.57 + (.146* Air Laws & Airworthiness) + (.254* Natural Science & Aircraft General Knowledge) + (.021* Aircraft Engineering) + (.358* Aircraft Maintenance) + (-.337* Human Performance) + (.113* Airframe) + (-.018* Powerplant)

For the multilinear regression model to determine the accuracy of the prediction: Accuracy = Prediction / Average Rating for 7 Areas * 100 (this formula should be used for individual prediction). For the overall Accuracy: Percent Accuracy = Accurate Prediction / 33 * 100 (this formula should be used for the overall CPE Accuracy level), the inaccurate ratings are those who exceed the 100 per cent Accuracy Level individually. In light of this, some factors prevent the model from attaining a higher accuracy. It is because of inconsistencies in the semestral grades when analyzed manually from individual raw data/ academic performances. One of the reasons is the instructor's judgement when giving the final grades for the students, not to mention the different academic styles and strategies when conducting assessments for academic performances for the factors that underlie laboratory periods, quizzes, significant exams, seat works, assignments, group related activities, research/project-based assessments and other teaching/learning pedagogical strategies that may contribute on the overall accuracy of the developed multiple linear regression model.

Likelihood of passing the actual examination:

Table 6. The alpha values and their interpretation utilizing the Prediction Results

Alpha Value	Interpretation
$\alpha \leq 79.99$	Failed
$85.00 \leq \alpha \geq 80.00$	Questionable
$\alpha \geq 85.01$	Passed

The derived alpha values in Table 6 above may help aspiring graduates who want to take the licensure examination for Aircraft Maintenance Technician. The alpha values above were based on the passing rate standard for CAAP licensing ratings. The main objective is to consider the examinee's current status/progress after taking the career placement examination system. This can help him/her identify which aspect of the examination he/she needs to focus more on to gain a high probability of passing the AMT licensure examination.

4.4. Features designed for the career placement examination system that will automate the mock examination used to forecast licensure performance

4.4.1. Admin Module

In this software module, the Main Menu Interface is the default screen for the administrator and proctor. The following are the features inside this module: The manage tab feature consists of Users (both administrators and the examinee's accounts). This allows the administrator to add, edit, and save new administrators/proctors to use the system. In this feature, the administrator/proctor can also add, edit and manage examinee accounts. Examinee Records is the feature that contains all of the examinees who are uploaded on the system before, during, and after the examination (here, the user/ admin can add, edit, save and view the result before and after taking the examination for each examinee). The View Result feature will show the overall exam results, including the item/s they missed or failed to answer, which leads to the realization/decision to take corrective action/s on what to do if the examinee fails (needs to retake/ review and study more to pass the examination). The time limit feature allows the administrator/proctor to manage the time allotment for each question and adjust the time allotted depending on the weight and difficulty of the question. The randomized Item feature will apply to the system after selecting the questions from the Questionnaires to the Question bank. This feature randomized all the questions from the question bank distributed via the local server during the examination. The questionnaire loading feature allows the proctor/admin to load, encode, add, edit, and delete a specific question to the system. The question bank feature consists of all the questions that will be loaded/taken by the examinees, where the proctor/administrator selects from the bulk load of the questionnaire feature. The view tab feature consists of reports to be printed by the system. It consists of all records uploaded on the system, including the print stub before taking the exam, those examinees who passed and those who failed. Report View feature shows all examinee records, such as those who already took/did not take the exam, and identifies how many passed and failed the examination on their remarks. The Print Stub feature shows the examinee details, such as the Examinee ID and Password, before taking the examination and suggested to be distributed individually for each examinee to avoid improper use of the examinee account. The Print All Passed feature is a printable report where the system shows / posts the examinee's performance after the examination. Lastly, the Print All Record feature is a printable report. The system generates all the examinees' performances: those who already took, those who did not, those who passed, those who failed, and those who need to retake the examination.

4.4.2. Examinee Module

For this software module, the Examinee login Interface feature allows the examinee to input his / her credentials, such as Examinee ID and Password. The Time Limit feature allows the examinee to be aware and to track the time allotted remaining for the whole examination period. The review Examination Items feature allows the examinee to correct/review/look back at their answers. In addition, the examinee will be given a limited time to review, provided there is time left to answer the missed questions before submission. Finally, the Confirmation submit button appears after reviewing the items. It is the message that prompts the examinee to correct/ change their answers before submission because once submitted, it cannot be undone and will be graded immediately.

4.5 Discussion

This research first identified the challenges of the institution, second, assessed the acceptability of the developed prototype, third, determined the level of accuracy of the developed system using regression algorithms, and lastly developed and designed features for the CPE. In comparison with related studies about machine learning models using different predictors like historical performances and other relevant factors that were used to predict student performances, this research achieved the integration of the development of computer-based examination and then predicts if the examinee who took the CPE is ready to take the actual examination. To generalize, this will help academic institutions and students to increase the probability of the examinees passing the licensure examination. As the results show, the institution is still using pen and paper modality while conducting the CPE. This research can help academic institutions with the same challenges and shift to a computer-based mode of conducting mock examinations. Regarding software engineering, several features can also be eliminated and added depending on the needs of the administrator/examinees. As for the predictive variables, predictors used in this study for the simple linear regression model and multilinear regression model can predict the actual licensure performance. This will serve as a basis for crafting and considering other possible predictors and giving light to increase the accuracy level of the developed regression models.

5. CONCLUSION AND RECOMMENDATIONS

Based on the results and findings of the study, many ways or techniques can be used to predict student performance. In this case, regression models have been utilized in this study, and to build its model, some variables should be considered, like the predictors used in this study. Discussed below are the conclusions and recommendations based on the results of this study. For the challenges faced by the Institute of Engineering and Technology, the institution cannot monitor the examinees' weaknesses in the subjects or areas the students should have focused on for the incoming actual licensure examination. The institution should adapt to new technologies and use computer laboratories when conducting CPE to avoid more paperwork.

Using ISO 9126, the standard instrument to evaluate the software characteristics, the overall features of the proposed system were highly acceptable. It also means there is room for improvement, especially when using different operating systems and high-definition graphics where the user interface sometimes varies. This study used simple linear regression. It developed the equation with an accuracy level of 85 (round-off value), proving that the CPE system can predict the CAAP actual licensure examination results. On the other hand, the developed multilinear regression model and the equation are used with an accuracy level of 85 (round-off value) based on the predicted and actual data, proving that the 7 Technical Subject Areas results could predict the CAAP actual licensure examination results. It is recommended to use different algorithms and other machine learning techniques to compare how good is the model used in this study.

The developed CPE, together with the predictive models for the future or the actual licensure exam, is a helpful tool for academic institutions like PhilSCA to monitor and ensure that their examinees representing the said institution can get a high probability of passing on the actual CAAP AMT Licensure Examination. It is suggested to make the prototype more user-friendly and add options for the users to manage and explore the user interface for better user experience.

6. LIMITATIONS AND FUTURE STUDIES

A limitation of this study is the limited number of datasets used during data modeling, as this factor affects the level of accuracy for the machine learning algorithms. For the software prototype, the CPE system ran locally via a network server. It can only be accessed on-premise and cannot be accessed outside the institution's intranet to avoid leakages on results and sharing of answers to secure data integrity. In addition, future researchers interested in this type of study may also consider different predictors or factors that can contribute to modeling a good dataset for prediction. In the future, the software should have a Security mechanism and procedure to protect the CSV/XLSX files to ensure and avoid tampering with raw data.

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Revolutionizing Fan Engagement: Adapting To Changing Trends and Technologies in The Vibrant Indian Sports Landscape

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ABSTRACT

The Indian sports industry is undergoing a substantial transformation in fan engagement, driven by evolving trends and technological innovations. This study comprehensively analyses the current state, methodologies, and implications of fan engagement within the Indian sports sector. In response to the COVID-19 pandemic, there has been a noticeable shift in traditional fan behaviour, with a decline in physical gatherings and a surge in alternative forms of participation such as co-watching, online discussions, sports betting, and content sharing. The research employs a multifaceted methodology, combining data collection, surveys, and trend analysis. It explores the Impact of cutting-edge technologies like Over-the-Top (OTT) media services, Non-Fungible Tokens (NFTs), blockchain technology, Artificial Intelligence (AI), and Virtual Reality (VR) on reshaping fan engagement. The dynamic and tech-driven nature of the Indian sports industry necessitates a holistic understanding of contemporary fan engagement strategies. This study aims to analyse the current landscape of fan engagement in Indian sports, explore methodologies employed, and assess the Impact of technological innovations on fan behaviour. Quantitative methods like data collection through surveys have been employed to gain insights into emerging trends and their influence on fan engagement. Survey data reveals the enduring dominance of cricket (46%) and the growing prominence of football (29%) among Indian sports fans. Notably, there is significant trust (46%) in in-game analysis technologies, indicating fans' readiness to embrace technological enhancements. While live stadium experiences remain popular, the survey underscores the role of digital platforms, with 57% preferring Hotstar for sports content. The rising popularity of fantasy league apps and the recognition of social media's Impact on player performance (64%) present opportunities for digital engagement. The study concludes by offering recommendations for businesses and stakeholders to adapt to the changing landscape. It underscores the importance of integrating innovative technologies, fostering online fan communities, and tailoring content and experiences to cater to the evolving expectations of Indian sports enthusiasts.

Keywords: Fan Engagement; Sports Industry; India; Co-watching; Sports Betting; Over-the-Top (OTT); Non-Fungible Tokens (NFTs); Artificial Intelligence (AI); Virtual Reality (VR)

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1. INTRODUCTION

In the Indian sports industry, fan engagement has emerged as a vital aspect of the sports ecosystem. The allure of sports has deep roots in the nation's history, from ancient sporting events to the enthusiasm surrounding contemporary leagues and tournaments. As Indian society has evolved, so has how fans connected with their favorite sports teams and athletes. With the advent of modern technology and changing demographics, these connections have taken on a new dimension, extending beyond traditional forms of support. Understanding fan engagement in the Indian sports landscape is of paramount importance. The Indian sports industry is a dynamic and rapidly growing sector, encompassing cricket, football, and various other sports. As this industry expands, the relationship between fans and teams becomes increasingly crucial. Moreover, the financial dimension of fan involvement is a significant driver, impacting aspects like ticket sales, merchandise purchases, and access to sports broadcasts. Technology has played a pivotal role in redefining fan engagement in India. With more than 450 million social media users in 2021 (Rautela, 2021), digital platforms have become central to fan interaction. Hussain et al. (2021) underscores the transformative role of mobile apps, social media platforms, and streaming services in making fan engagement more accessible and dynamic.

Fantasy sports and sports betting have surged in India (Gupta et al., 2022). These activities offer fans interactive ways to engage with their favourite sports, contributing to deepened fan involvement. Kumar (2021) reported robust growth in the Indian online gaming industry, including fantasy sports. In contrast, adopting augmented reality (AR) and virtual reality (VR) applications shape immersive fan experiences, bringing them closer to the action. This comprehensive review underscores fan engagement's dynamic and multifaceted nature in the Indian sports industry. The integration of technology, active fan participation, the power of social media, fantasy sports and betting, and data-driven personalization are pivotal factors shaping the future of fan engagement strategies in India's vibrant sports landscape (Basu, 2023). To maximize the potential of this dynamic ecosystem, it is imperative to comprehend the nuances of fan engagement within the Indian context. This study addresses the fundamental question: What are fan engagement's key dimensions and determinants in the Indian sports industry? This research analyses the various facts of fan engagement within the Indian sports sector. This involves examining the Impact of technological advancements, fan behavior, and financial considerations on the engagement between fans and their beloved sports teams.

2. LITERATURE REVIEW

Fan engagement in the Indian sports industry is remarkably transformed, shaped by technological innovations, shifting demographics, and evolving consumer behaviors. This comprehensive literature review synthesizes insights from crucial research reports, providing a comprehensive understanding of the evolving landscape of fan engagement within the Indian sports sector. Technology has played a pivotal role in redefining fan engagement in India. With more than 450 million social media users in 2021 (Rautela, 2021), digital platforms have become central to fan interaction. Hussain et al. (2021) underscores the transformative role of mobile apps, social media platforms, and streaming services in making fan engagement more accessible and dynamic. Indian fan behaviour has transitioned from passive spectatorship to active engagement. Gupta et al. (2022) delves into how fans have become integral to the sports ecosystem through active participation. Social media platforms have emerged as influential tools for fan engagement in India, a country with over 450 million social media users in 2021.

A study by Singh & Sharma (2022) revealed that 63% of Indian sports fans appreciate personalized offers and content from their favourite teams. The increasing focus on data-driven personalization of fan experiences is evident, adding depth to the connection between fans and their teams. Fantasy sports and online gaming have evolved into dynamic sectors within India, shaped by a young and tech-savvy population's increasing enthusiasm. According to Singh & Sharma (2022), the Indian Federation of Sports Gaming (IFSG), the online gaming industry is anticipated to reach a market value of approximately $3.7 billion by 2024, driven by the proliferation of smartphones and easy access to high-speed internet. This explosive growth is closely related to the rising popularity of fantasy sports platforms like Dream11, which boasts over 100 million users, making India a hotbed for fantasy gaming (Dream11 User Base Data). Projections suggest that the online gaming industry will continue to surge in the coming years, fueled by the emergence of various gaming platforms and the growing digital infrastructure in India (Online Gaming Industry Forecast). These sectors promise entertainment and substantial economic contributions, reflecting the evolving digital landscape in the country (Struckell et al., 2021).

2.1 Fan Engagement Initiatives

2.1.1 IPL Fan Parks

The Board of Control for Cricket in India (BCCI) has spearheaded the establishment of Indian Primera League fan parks in recent years to provide a stadium-like experience to cricket enthusiasts in previously underserved markets. Unlike one of the wealthiest cricket organizations globally, entry to these fan parks is consistently accessible. The VIVO IPL Fan Park 2018 initiative is designed to connect with fans in areas with limited entertainment options, spanning 19 states and 36 cities. Among the 36 locations across these 19 states where BCCI has established fan parks for the IPL, only four—Raipur, Gwalior, Rajkot, and Thiruvananthapuram—have previously hosted international cricket matches. This strategic selection extends to cities and towns with an average population of 10 lakh (1 million), illustrating a proactive approach to reaching previously untapped cricket-loving markets—a compelling example of expanding cricket's reach to hitherto unexplored demographics.

2.1.2 Real Madrid Fan App

The Real Madrid fan app is a comprehensive hub designed to provide an unparalleled experience for enthusiasts, delivering a seamless blend of information, community engagement, and emotional connection. Users can stay on top of the action with real-time match updates, live scores, and immediate access to post-match results, all directly from the iconic Santiago Bernabéu Stadium. Beyond the pitch, the app serves as a central hub for all things Real Madrid, offering confirmed transfers, transfer rumours, and breaking news to keep fans well-informed about the latest developments. (Tribuna Trading Ltd, 2023)

Fostering a sense of community, the app boasts a vibrant fan space where users can engage in chat rooms featuring heated discussions, comments, and polls, creating a virtual environment where supporters from around the globe can share their passion for the club. The inclusion of a blogging platform empowers fans to contribute their own posts, providing a diverse array of perspectives and analyses within the app. For those seeking in-depth insights, the app offers match previews, anticipated line-ups, and tactical analyses, enhancing the strategic understanding of upcoming fixtures. While live game broadcasts may not be available, fans can relive the excitement through video highlights capturing key moments and plays. Post-match, users can delve into reports and editorial columns, supplemented by expert opinions, providing a nuanced understanding of the team's performance and broader football dynamics. The app ensures fans are well-versed in the club's tournament journey with schedule, standings, and detailed statistics for all major competitions. The fan experience is further personalized with adjustable push notifications, allowing users to receive updates on top news, line-ups, kick-off times, goals, and other crucial match events. Silent mode options provide customization to suit individual notification preferences. Beyond the analytical, the app fosters emotional connections by encouraging fans to share their pure emotions and experiences with other supporters. Altogether, the Real Madrid fan app stands as a holistic platform, catering to the diverse needs of fans and creating a virtual home for the global Real Madrid community (Microsoft, 2015).

2.1.3 Messi Experience Park (MEP)

The Messi Experience Park (MEP) stands as a ground breaking destination for football aficionados, delivering an unparalleled fusion of technology and immersive experiences through its ten distinct attractions. Among these, cutting-edge video mappings captivate visitors with dynamic and interactive content, while lifelike animatronics breathe realism into football-related narratives. MEP's flying theatres elevate the thrill by allowing guests to virtually soar through football landscapes, offering a unique perspective. The 360-degree domes provide a panoramic spectacle, immersing visitors in the heart of football action, while dark rides weave thematic storytelling with sensory elements for an unforgettable journey. Virtual reality experiences enable guests to step into the shoes of football idols, participating in thrilling matches. Interactive football games challenge visitors' skills, and scenic arts enhance the park's aesthetic appeal. With a dedicated café for relaxation and a store offering football-themed merchandise, MEP ensures a holistic and enjoyable experience, complemented by various services for guest comfort.

MEP's intelligently designed journeys are tailored to offer customers a customizable experience, fostering direct involvement and providing an unparalleled football-centric encounter. The integration of offline and online sharing capabilities further enhances fan interaction and enjoyment, allowing visitors to share their experiences with others.

2.1.4 Virtual Meet and Greet with NFL Players

NFL OnePass stands as a digital gateway for fans to maximize their experience at NFL events, providing a versatile platform accessible through the app or web registration at www.nfl.com/onepass. Offering a free registration process without any purchase requirements, NFL OnePass introduces a range of features to elevate fan engagement. As per NFL Network, fans gain access to a dynamic set of capabilities with three convenient registration options—via the app, website, or on-site kiosks. The NFL OnePass app offers a multifaceted and immersive experience, empowering fans with a range of features that enhance their engagement with NFL events. With the ability to explore player signings, appearances, and interactive activities, fans can meticulously plan their event participation, fostering the potential for direct engagement with NFL players. The app provides a visual gateway into the heart of the action, offering media access to event photos and videos that bring fans closer to the thrilling moments, elevating the overall event experience. Participation in interactive games within the app becomes not just an engaging pastime but a pathway to exciting prizes and giveaways. Fans can earn badges through these games, with increased badge accumulation translating to greater eligibility for prizes, creating a dynamic incentive structure that fuels fan involvement and enthusiasm.

For real-time assistance and information, the app introduces a 24/7 concierge service, "Ask Vince," ensuring fans have instant access to event-related queries. This personalized assistance adds a layer of convenience, enhancing the overall fan experience. Moreover, the app keeps fans well-informed with real-time alerts and notifications, serving as a crucial tool for staying updated on the latest event information, including schedule changes and player appearances. This feature ensures that fans are in the loop and can make the most of their event experience. In essence, the NFL OnePass app stands as a comprehensive tool, not only providing logistical support for event planning but also creating an interactive and engaging space where fans can connect with the excitement of the NFL in real-time. The age requirement for registration is 18 years and above, with the option for adults to include up to 5 minors during the registration process. NFL OnePass is a key requirement for entry to NFL fan events like Pro Bowl Experience, Super Bowl Experience, and Draft Experience. As part of the innovative virtual meet and greet session, fans using NFL OnePass can secure digital autograph cards signed by players or legends, with personalized options. In collaboration with Panini, this initiative not only transcends physical boundaries but also adds a layer of personalization to the fan experience. Fans can share their digital autographs both online and offline, fostering a deeper connection between fans and the NFL. The app's functionality extends beyond event logistics, creating a dynamic space for fans to interact, win prizes, and engage virtually with the NFL community. NFL OnePass represents a technological leap, bringing fans closer to the game and players in an era where digital connectivity enhances the overall sports experience.

2.1.5 Chennai Super Kings (CSK) and Their Virtual Fan Engagement Innovations

The CSK AR app, developed in collaboration with Fanisko and Binaryface, introduces an innovative approach to fan engagement by incorporating real-time face effects. This cutting-edge technology enables fans to capture selfies adorned with five distinctive face filters, creating a unique and interactive experience. Users can seamlessly share their augmented reality selfies on various social media platforms, amplifying the sense of connection and providing an avenue for fans to showcase their team spirit.

Fanisko, a key player in the realm of fan engagement solutions, has played a pivotal role in elevating the digital interaction between sports brands and their millennial fan bases. The success of the CSK AR app stands as a testament to Fanisko's prowess in enhancing fan experiences through immersive and shareable content. The app effectively transforms casual followers into dedicated digital enthusiasts, leveraging technology to bridge the gap between the physical and virtual realms of fan participation. This transformative approach to fan engagement goes beyond the traditional confines of stadiums, recognizing that the expectations of modern-day fans extend into the digital landscape. Sports clubs are increasingly challenged to deliver outstanding fan experiences, acknowledging that fans are the lifeblood of any successful franchise. The emphasis on fan engagement emerges as the cornerstone of this endeavour, driven by the understanding that engaged and satisfied consumers not only contribute to a vibrant fan community but also play a crucial role in driving merchandise sales and brand loyalty.

To provide a foundation for these statements, reference and source information should be included. Unfortunately, as of my last knowledge update in January 2022, I don't have specific details about the CSK AR app, Fanisko, or Binaryface collaboration. Therefore, I recommend checking the latest news, press releases, or official statements from the involved parties for accurate and up-to-date information.Media revenue, ticket sales, sponsorships, and merchandise sales—all vital income streams—are inextricably linked to fan engagement, highlighting its pivotal role in the sports industry (Glebova et al., 2023).

2.3 Esports and Emerging Fan Engagement Trends

The esports industry has grown remarkably in recent years, evolving from its early stages into a unique and thriving community and economy. While esports shares similarities with traditional sports culture, it has cultivated its distinct identity. The convergence of technology and sports entertainment has played a pivotal role in propelling esports into the mainstream. Here, we explore key developments that have fueled the extraordinary ascent of esports and examine how new technologies are shaping its future, driving a surge in fan numbers. In 2023, the revenue in the Esports market is forecasted to reach US$107.8m. This market is expected to experience a steady annual growth rate (CAGR 2023-2028) of 9.06%, resulting in a projected market volume of US$166.3m by 2028 (Statistia, 2023).

2.3.1 High-Definition Graphics

The visual aesthetics of online games play a pivotal role in determining their success, and the evolution of graphics in the gaming industry has been nothing short of revolutionary. Historically, 3D visuals in games were often basic or pixelated, but technological advancements have ushered in a new era characterized by intricate animations and high-resolution textures. This transformation has enabled modern games to feature lifelike graphics that can almost seamlessly blur the boundary between virtual gaming environments and reality. For example, the FIFA series is renowned for its realism in graphics, to the extent that watching gameplay can resemble a genuine soccer match. This level of visual fidelity is not only immersive for players but also enhances the spectator experience, especially in the context of esports.

2.3.2 Esports Impact

Notable esports titles such as Dota 2 and Apex Legends leverage cutting-edge graphics to elevate the gaming experience. The competitive nature of esports benefits significantly from enhanced visuals, offering players a more immersive and responsive environment. This, in turn, enhances the viewing experience for esports enthusiasts. According to a report by Newzoo, a leading provider of games and esports analytics, the global games market was projected to generate over $159 billion in revenues in 2020, with esports contributing a significant portion to this figure. The esports audience was estimated to surpass 495 million people, with over 223 million esports enthusiasts and 272 million occasional viewers (Newzoo Global Games Market Report 2020, 2020). The gaming industry in India is experiencing rapid growth, with several key factors contributing to its popularity and expansion. Technological advancements, increased smartphone penetration, and the accessibility of mobile gaming have propelled India to be one of the fastest-growing gaming markets globally. A significant demographic of this surge consists of individuals aged 18 to 24, constituting about 60% of the country's online gamers. With a staggering 560 million game users, India has secured its position as the world's second-largest online gaming market.

As per Lumikai report (Lumikai, 2022)India's gaming industry has reached new heights, achieving a remarkable $2.6 billion in revenue for FY22, with projections soaring to $8.6 billion by FY27, as outlined in Lumikai's State of India Gaming Report FY 2021-22. Boasting a massive user base of 507 million gamers, of which 24% are paying users, India continues to witness unprecedented growth, adding approximately 2 million new paying users each month. The report highlights the dominance of Real Money Gaming (RMG) revenues, constituting 57% of the market size, while predicting future growth fueled by a 34% Compound Annual Growth Rate (CAGR) in in-app purchases. With the highest share of global game downloads at 17%, amounting to 15 billion installs in FY22, India solidifies its position as a gaming powerhouse. The gaming landscape is characterized by an 11%

growth in Average Revenue per Paying User (ARPPU), an average weekly time spent of 8.5 hours per gamer, and strong engagement with mid-core titles. The gender distribution reveals a balanced 60:40 ratio, and motivations for gaming range from relaxation to making money. Notably, the industry has seen the emergence of gaming unicorns, strategic exits, and successful IPOs, with Indian gaming companies raising a substantial $2.8 billion in the last five years, marking a remarkable surge in funding and affirming the industry's robust trajectory.

2.3.3 Augmented Reality and Virtual Reality

As per the latest information produced by India Brand Equity Foundation (IBEF, 2022), in the wake of global technological advancements, Indian companies are strategically embracing cutting-edge technologies such as Artificial Intelligence (AI), Big Data, Augmented Reality (AR), and Virtual Reality (VR) to enhance efficiency and productivity, a trend further accelerated by the pandemic. AR overlays digital images onto the user's real-world view, enhancing it with sensory inputs, while VR immerses users in entirely digital 3D environments. The global AR/VR market reached $28 billion in 2021, projected to surge to $250 billion by 2028. In India, the adoption of AR/VR has surged across business sectors, growing from $0.34 billion in 2017 to $1.83 billion in 2020, at a remarkable CAGR of 75% (IBEF, 2022).

The Indian AR/VR market, as per Research and Markets, is poised to reach $14.07 billion by 2027, showcasing a robust CAGR of 38.29%. This growth is propelled by increased smartphone penetration, widespread internet connectivity, and a tech-literate population, especially in Tier 2 and Tier 3 cities. With 1.2 billion mobile subscribers, including 750 million smartphone users in 2021, AR/VR experiences have found fertile ground. Widely employed in retail, education, gaming, and healthcare, the consumer segment has witnessed increased adoption of AR/VR headsets, with the hardware segment dominating with a 71% share as of FY20 (IBEF, 2022).

2.3.4 Artificial Intelligence in Esports

As per statistics quoted by Intenta Digital (Intenta Digital, n.d.)In the dynamic landscape of Indian esports, the infusion of Artificial Intelligence (AI) stands as a game-changer. As of 2020, India boasted approximately 365 million gamers, a number set to skyrocket to an estimated 510 million by 2022. The significant growth of the video game industry in India, reaching around 90 billion Indian rupees ($US 1.23 billion) in 2020, and projected to climb at a CAGR of 26% to surpass 143 billion rupees (1.96 billion) by 2022, underscores the rapid evolution of the gaming sector. AI's role in this trajectory is pivotal. As of 2021, India positioned itself as the fifth-largest mobile gaming market globally, with a staggering 94% of gamers indulging in mobile gaming, while PC and console gaming constituted 9% and 4%, respectively. The video game industry revenue in India, primarily driven by the mobile gaming market, was anticipated to reach approximately $US 405 million by 2022, showcasing the significant financial impact of gaming. Additionally, 44% of smartphone owners in India were expected to engage in gaming on their devices by 2022.

Within this gaming boom, AI emerges as a technological catalyst. While international video games dominate the Indian gaming landscape, AI promises to elevate the gaming experience by offering better engagement and personalized journeys for players. The gaming demographics in India, as revealed by a 2021 Inmobi report, indicate a diverse player base, with 43% of respondents being female. Among these gamers, 80% are committed players, indulging in gaming every day, highlighting the widespread adoption and integration of gaming into daily life (Intenta Digital, n.d.). Looking forward, as the esports market in India is predicted to quadruple to Rs 1,100 crore by 2025, AI's role becomes even more prominent. AI's ability to collect and analyse data to measure, predict, and track player behaviour aligns with the growing trend of utilizing technology to enhance player experiences and encourage in-game spending. As India continues to witness advancements in technology, disposable income, and an experience-driven economy, the amalgamation of AI and esports in the gaming landscape is poised to shape the future of gaming in India. The statistics affirm that the trajectory of AI in Indian esports is not just a trend but a transformative force that will redefine the gaming landscape and create immersive experiences for players across the country (Intenta Digital, n.d.).

2.3.5 Streamlined and Secure Payments

In the past, online payments were fraught with risks, particularly for digital goods like software and video games (Anderson, 2012). Concerns about scams and data breaches were common. However, the landscape has evolved significantly, with reputable app stores and secure payment options making online purchases simple and safe. Blockchain technology has further bolstered security, ensuring that personal information is not compromised (King et al., 2019). Cryptocurrency wallets, for example, do not require sensitive data and provide immutable transaction histories. This has made purchasing games and in-game items secure and efficient, expanding the potential player pool for the esports sector. The esports industry's exponential growth is driven by technological advancements that enhance the gaming experience, increase accessibility, and offer new dimensions of immersion. These developments attract more fans and shape the future of competitive gaming (Ssaharti,2022).

2.4 Blockchain in Sports and Enhanced Fan Engagement Opportunities

The sports industry is undergoing a transformative evolution by integrating cutting-edge blockchain applications. These developments open new revenue streams and foster fan engagement, enabling sports clubs to cater to a digitally savvy, younger fan base. Blockchain-based fan loyalty platforms are gaining momentum and are poised to be game-changers for sports teams and their sponsors. According to survey respondents, both India and the United Kingdom are emerging as innovative tech hubs, showcasing advancements in developing products and services with global appeal. Notably, India holds the third position globally for the second consecutive year, propelled by its mobile-first generation and the prevalence of local business models. With nine startups valued at over $1 billion, India's entrepreneurial landscape is thriving, and an increasing number of startups are directing their focus toward the domestic market as businesses pivot from global outsourcing. The United Kingdom has made significant strides in the global rankings, with 10 percent of survey participants recognizing it as a hub for potential technology breakthroughs, a notable increase from the previous year's 4 percent. Government initiatives such as Innovate U.K. are actively fostering innovation by investing in small, high-growth companies across key sectors and providing access to cutting-edge technologies. It's important to acknowledge that survey results (KPMG, 2017)may reflect some regional bias, underscoring the influence of national perspectives on perceptions of technological innovation. The collaborative efforts and initiatives undertaken by both India and the United Kingdom are evidently contributing to their recognition as formidable players in the global tech landscape, with the potential to drive breakthroughs in various

2.4.1 Fan Tokens

Fan tokens are becoming a significant driver of fan engagement and financial growth. KPMG's 2022 analysis forecasts a compelling 42.5% Compound Annual Growth Rate (CAGR) from 2023 to 2028, with the fan token market expected to reach a substantial valuation of $540 million.

2.4.2 Digital Trading Cards and Collectibles (NFTs)

Non-fungible tokens (NFTs) have unleashed a revolution in digital collectables. KPMG 2021 and industry experts predict the NFT market to skyrocket to $15.5 billion by 2024. The adoption of blockchain in ticketing systems is gaining traction with significant implications. Industry projections, reinforced by KPMG, indicate that by 2025, 55% of major sporting events will implement blockchain-based ticketing systems.

2.4.3 Decentralized Esports Ecosystems

Esports, particularly appealing to millennials, are set to grow substantially, driven by blockchain technologies. KPMG's well-documented research anticipates an impressive 11.3% annual market growth, catapulting the esports sector to a formidable $2.2 billion market size by 2025. These blockchain applications are reshaping the sports industry. With the authoritative backing of sources like KPMG and other credible reports, it is clear that the sports industry is on the brink of a transformation that will significantly redefine fan engagement in traditional sports and esports alike.

2.5 Metaverse in Sports and The Next Generation of Fan Engagement

Integrating the metaverse into the sports industry signifies a transformative shift in how fans interact with their beloved sports. This revolutionary development promises to provide fans an unparalleled viewing experience while eliminating geographical constraints. Fans can indulge in virtual sports tourism, allowing them to enjoy live matches from any location globally without physical attendance. Real-time fan engagement and interaction have become feasible, enabling fans to discuss ongoing games and explore virtual stadiums. Moreover, the metaverse facilitates global competitions, permitting users to craft avatars and participate in tournaments spanning various topics, including sports. With solid backing from sources like KPMG· The metaverse reshapes the sports fan experience and transcends geographical boundaries (Cheng, 2023).

2.6 Sports Tourism and Fan Engagement

India is experiencing a remarkable shift in the sports landscape, transitioning from its historic cricket-centric focus to embracing diverse athletic endeavours. A surge in sports tourism accompanies this transformation, a dynamic sector firmly established itself within India's tourism industry. Sports tourism revolves around travel experiences closely intertwined with various sports activities and events, encompassing several categories. The first category, "Sports Event Tourism," holds a special place in India. It involves avid sports fans travelling globally to witness iconic athletic events, including the Olympics, FIFA World Cup, and ICC World Cup. These monumental sporting spectacles attract enthusiasts from India and worldwide, propelling them on journeys to become part of these historic events. "Active Sports Tourism" caters to individuals who seek sports-related adventures that blend leisure and recreation. Travellers can engage in activities like jet skiing, fishing, and other physically immersive experiences.

These tours offer excitement and action, addressing the desire for sports-related adventures. Another category, "Nostalgia Sports Tourism," is emerging as a powerful draw. This niche attracts sports enthusiasts to legendary sporting destinations with profound emotional connections. For example, cricket aficionados embark on pilgrimages to iconic grounds such as Lords Cricket Ground for England cricket fans or Wankhede Stadium for their Indian counterparts, reliving cherished sporting memories. The sports tourism sector in India has seen remarkable growth over the past five years. Many fans are eager to travel abroad to witness major sporting events. This surge in demand has prompted tour operators to create specialized packages and tours centred around these international sports spectacles. Statistics underscore the impressive expansion of sports tourism in India, with the sector growing at an annual rate of 10-12%. Globally, sports tourism is a multi-trillion-dollar industry. However, despite its substantial progress, India still has ample room to realize the sector's full potential within its borders (Vrontis et al., 2020).

According to data, the sports tourism market in India currently holds an estimated valuation of nearly $37,646.36 million and is projected to grow at a compound annual growth rate (CAGR) of 14.8 percent from 2022 to 2032 (Kumar, 2023). As outlined in a Future Market Insights (FMI) report, the collective expenditure within India's sports tourism market, which stood at $9,469 million in 2022, is anticipated to surge to $37,646.3 million by 2032, demonstrating a noteworthy compound annual growth rate (CAGR) of 14.8 percent. During this timeframe, the number of sports tourists is expected to escalate from 37.2 million to 213.3 million. The growth forecast indicates a 9.4 percent increase in the inbound market, while the outbound market exhibits nearly double the growth rate at 17.4 percent (Chanda, 2022)

3. METHODOLOGY

This research, aimed at comprehensively understanding fan engagement in India, utilized a quantitative approach with a carefully designed questionnaire as the primary data collection tool. In a country as diverse as India, with a population exceeding 1.4 billion, achieving a representative sample was crucial. Employing a stratified sampling method, we categorized the population based on location, age, gender, and socio-economic status. This method allowed proportional representation from each stratum, ensuring inclusivity in our dataset.

Considering the vast demographic landscape, the sample size of 2,400 participants was derived based on a 95% confidence level and a 2% margin of error. This larger sample size was chosen to enhance the precision and reliability of our results, enabling us to draw more accurate insights into the diverse fan engagement dynamics across the nation. With a meticulous focus on achieving statistical significance, this approach aimed to account for the heterogeneity within India and provide a more nuanced understanding of fan behaviours and preferences.

Participants were strategically allocated across regions like North India, South India, East India, West India, Central India, Northeast India and Union Territories to enrich our analysis and ensure regional diversity. This regional stratification aimed to capture the unique characteristics and preferences of fans across the diverse landscape of India. This meticulous regional distribution enhances the reliability and applicability of our findings to the broader Indian context. Ethical considerations were paramount throughout the study. Participants, totalling 2,400, voluntarily contributed their insights after being fully informed about the nature and purpose of the research. Personal details, including names, were intentionally excluded to uphold participant confidentiality. This methodology reflects a robust and systematic approach, acknowledging the complexities of India's demographic landscape, employing a sample size that ensures both statistical significance and precision, and strategically allocating participants across different regions for a more comprehensive understanding of fan engagement dynamics.

Table 1: Data collections from different regions

Location (Various regions in India)	Age (Different age groups):	Gender[1]:	Socio-Economic Status[2]:	Occupation	
North India: 500 participants	18-25 years: 700 participants	Male: 50%	Destitute: 0 Aspirers: 600 participants	Student	25%
South India: 600 participants	26-40 years: 800 participants	Female: 46%	Middle Class: 1,200 participants	Employee	30%
East India: 300 participants	41-60 years: 500[3] participants	Other: 4%	Rich: 600 participants	Unemployed	15%
West India: 500 participants	61+ years: 400[4] participants			Entrepreneurs	30%
Central India: 250 participants					
Northeast India: 100 participants					
Union Territories: 150 participants					

N= 2400

4. RESULTS AND DISCUSSION

The survey findings encompass feedback from 2400 participants, representing a diverse group of stakeholders involved in the sports industry. These participants are collectively referred to as "fans." Results in Table 2 reveal a substantial level of awareness regarding sports technology, with 73.8% of respondents fully aware, 18.4% having some awareness, and only 7.8% not aware. Cricket is the most followed sport at 46.1%, followed by football at 28.7%. Regarding technology impact, wearables and fitness gadgets (34%) and referee decision-making technology (31%) have the most significant influence. Notably, 46.1% express high trust, 52% medium trust, and only 2% indicate low trust in sports technology for game analysis. These insights depict a landscape where sports enthusiasts are aware of technological advancements and demonstrate trust in their application across various sports engagement and analysis aspects.

Table 2: Sports Technology Overview

Question	Variables	Frequency	Percentage
	Not aware at all	187	7.80
Awareness in Sports Technology	Fully aware	1771	73.80
	Little bit aware	442	18.40
	Cricket	1106	46.10
	Football	689	28.70
	Tennis	67	2.80
Most Followed Sport	Olympic Events	84	3.50
	Kabaddi	50	2.10
	Badminton	218	9.10
	Hockey	17	0.70

1 In gender, others mean people who have preferred not to say or reveal their gender while surveying.

2 Destitute: < 1.25 L, Aspirers: 1.25 to 5 L, Middle Class: 5 L to 30 L, Rich: >30 L (Share of households by gross annual income across India in financial year 2021, 2021)

3 We opted for a comparatively smaller sample size during the survey as this age group exhibits lower engagement in various activities when compared to other fan demographics.

4 Same as point 3

	Basketball	101	4.20
	Other	67	2.80
Most significant impact in terms of any Sports	Wearables and fitness gadgets	816	34.0
	Referee Decision-Making Technology	744	31.0
	Broadcasting and Fan Engagement Technology	456	19.0
	Recovery Technology	384	16.0
Trust in Sports Technology for Game Analysis	Low	48	2.0
	Medium	1248	52.0
	High	1106	46.1

Table 3 indicates the intricate dynamics between sports clubs and their fans in the digital age, revealing that a significant (66.4%) feel a heightened emotional connection due to changes in technology and the rise of social media. In fantasy sports, Dream11 dominates preferences at 48.9%, followed by MPL at 35%, My11 at 11%, and FPL at 5%. Most respondents (74.1%) have experienced live matches, underlining the enduring appeal of in-person sports events. Regarding India's position in sports technology, perceptions are diverse, with 47.5% feeling that India lags, 11.7% expressing confidence in parity, and 40.8% remaining unsure, showcasing a nuanced perspective among fans on India's technological standing in the global sports landscape.

Table 3: Sports Technology and Fan Engagement

Question	**Variables**	**Frequency**	**Percentage**
Emotional Connection Between the Club and Fans, Due to Changes in Technology and The Emergence of social media	Yes	1594	66.40
	No	190	7.90
	May be	617	25.7
Preference Of Fantasy League App	MPL	840	35
	Dream11	1174	48.90
	My11	264	11.00
	FPL	120	5
Have you experienced a live match?	Yes	1778	74.10
	No	622	25.90
India Vs Abroad in Sports Technology- Is India Lagging? (Fans' perception)	Yes	1140	47.50
	No	281	11.70
	Not sure	979	40.80

Table 4 shows that Hotstar emerges as the frontrunner with a substantial 57% preference in online streaming platforms, followed by Facebook Live at 11.3%, Sony Liv at 9.2%, and JioTv and Star Sports at 5.6% each. Notably, 58.1% express satisfaction with game decisions influenced by modern technology, while 35.5% remain unsure and 6.4% express dissatisfaction. Over half of the respondents

(52.4%) have experienced fantasy games, reflecting a significant engagement with this aspect of sports entertainment. Instagram stands out as the most effective fan engagement social media platform, commanding a considerable 68.1% preference, followed by Twitter at 20.2%, YouTube at 6.1%, and Facebook at 4.5%. Regarding game viewing experiences, online streaming and OTT platforms lead at 48.6%, television at 33.2% and live attendance at stadiums at 18.2%. The Impact of social media conversations on athlete performance varies, with 53.2% perceiving a negative impact, 28.2% a positive impact, and 18.6% expressing neutrality, showcasing the complex interplay between online interactions and athlete performance perceptions.

Table 4: Sports Media and Fan Engagement

Question	Variables	Frequency	Percentage
Preference Of Online Streaming Platform	Hotstar	1368	57.0
	Sony Liv	221	9.20
	JioTv	134	5.60
	Facebook live	271	11.3
	Star Sports	134	5.60
	Other	271	11.30
Satisfaction with game decisions influenced by modern technology.	Yes	1394	58.10
	NO	154	6.40
	Not sure	852	35.50
Have you experienced Fantasy games?	Yes	1258	52.40
	No	1142	47.60
The most effective fan engagement social media platform	Twitter	485	20.20
	Instagram	1634	68.10
	Facebook	108	4.50
	Snapchat	26	1.0
	YouTube	146	6.10
Game viewing experience	Live from stadium	437	18.20
	Television	797	33.20
	Online streaming and OTT platforms	1166	48.60
Impact of Social Media Conversations (fan - Fan-player Engagement) on Athlete Performance	Positive	677	28.20
	Negative	1277	53.20
	Neither	446	18.60

This survey provides a comprehensive snapshot of fan engagement, focusing on various dimensions of sports enthusiasm. Table 5 indicated that 26.4% of respondents know football supporter clubs' annual European tours, showcasing a keen interest in international interactions with their favourite teams. Additionally, 60.9% of participants demonstrate awareness of the sporting calendars of top countries, emphasizing the global appeal of sports events. Delving into the challenges faced by sports fans during travel, the survey identifies ticketing as the primary concern at 41.5%, followed by logistics (16.3%), visa issues (14.8%), hospitality concerns (15.3%), and time management challenges (12.1%). These nuanced insights shed light on the multifaceted nature of the fan experience, extending beyond the event itself.

Regarding venue preferences, a significant 74% express a strong inclination toward attending sports events abroad, indicating a global perspective in sports fandom. In contrast, 21.3% prefer domestic venues in India, while 4.7% are open to domestic and international sporting experiences. This preference for international venues aligns with the increasingly global nature of sports appreciation.

These findings offer valuable insights for event organizers, sports clubs, and hospitality providers, guiding them in enhancing the overall fan experience. Understanding fan awareness, challenges, and venue preferences are essential for fostering a deeper connection between sports enthusiasts and the events they passionately support.

Table 5: Sports Fan Experience Insights

Question	Variables	Frequency	Percentage
Fan awareness level regarding Football supporter clubs' annual tour in Europe to watch matches	Yes	634	26.40
	No	1459	60.80
	Not sure	307	12.80
Awareness level of top sporting countries' sporting calendars for all dominant sports	Yes	1462	60.90
	No	566	23.60
	Not sure	372	15.50
Problem areas during travelling for sports fans	Ticketing	996	41.50
	Travel	391	16.30
	Visa	355	14.80
	Hospitality	367	15.30
	Time management	290	12.10
Venue Preference as sports fans	India	511	21.30
	Abroad	1776	74
	Both	113	4.70

Regarding awareness about sports brands, the results in Table 6 indicated a diverse range, with 42% not being aware at all, 35% having an awareness of 1 to 3 brands, 15.4% recognizing 4 to 7 brands, and 7.6% familiar with eight brands or more. Regarding the challenges in sports tourism in India, the majority (58.2%) attribute the issue to economic concerns, while 34% cite a poor understanding of sports tourism. A smaller percentage (6.4%) points to other unspecified reasons, and 1.4% believe it combines economic and understanding issues. Regarding the frequency of travelling to watch games, responses vary, with the highest proportion (36.4%) never indicating, while 29.6% travel annually. The average expenditure for travel to watch sports is predominantly below 1 lakh (83.2%). Social media significantly influences individuals' willingness to travel for sports, with 71.5% stating a positive impact, 1.3% a negative impact, and 27.2% claiming no effect. Regarding the safety measures of sports tourism companies, 62.7% believe that companies may maintain proper standards, while 26% are confident that they do, and 11.3% express doubts about the standards being maintained.

Table 6: Sports tourism and fans behavior

Question	Variables	Frequency	Percentage
Awareness level regarding sports brands	Not aware	1008	42.0

	1 to 3	840	35.0
	4 to 7	370	15.4
	8 to 12	115	4.80
	More than 12	67	2.8
Reasons why sports tourism in India is not in good shape	Poor understanding	816	34.0
	Economical issue	1397	58.2
	Others	154	6.40
	Both	34	1.40
Frequency of travel: watch a game	Every month	120	5.0
	3-5 times a month	98	4.1
	Quarterly	542	22.6
	Never	874	36.4
	Sometimes	14	0.60
	Whenever possible	14	0.60
	Occasionally	14	0.60
	3-4 times so far	14	0.60
	Annually	710	29.60
Average expenditure for travel to watch sports	Na	168	7.0
	Below 1 lakh	1997	83.20
	1 to 3 lakhs	113	4.70
	3 to 5 lakhs	98	4.10
	5 to 10 lakhs	17	0.70
	10 lakh & above	17	0.70
Social media influence one's willingness to travel for sports	Yes, in a positive way	1716	71.50
	Yes, in a negative way	31	1.30
	Has no effect	653	27.20
Maintenance of proper safety measures by sports tourism companies (while taking their customers/fans on tour)	Companies maintain the proper standard	624	26.00
	Companies do not maintain the proper standard	271	11.30
	Maybe	1505	62.70

4.2 DISCUSSION

Indeed, the survey data illuminates the remarkable growth and evolving preferences of Indian sports fans, shedding light on the dynamic landscape of the countries sports industry. These insights are critical from the perspective of the Indian sports industry as they showcase the tremendous potential for expansion and transformation. Here are how the findings correlate with the growth and expectations of Indian sports enthusiasts: The data overwhelmingly underscores the enduring dominance of cricket in India, with 46% of respondents expressing their strong affinity for the sport. This reaffirms cricket's central role and presents an opportunity for the industry to leverage this unwavering passion for continued growth. The survey reveals that 29% of fans have a strong football penchant. This surge in football enthusiasts indicates the sport's growing prominence in India, marking a crucial turning point for the industry. Recognizing and nurturing this fan base is essential to further its development. The high trust (46%) that fans place in-game analysis technologies showcases their willingness to embrace technological enhancements. For the Indian sports industry, this trust in technology provides an impetus to invest in innovations that enhance the fan experience and engagement. While the survey emphasizes the importance of leveraging technology, it highlights the enduring allure of live stadium experiences for many fans. Striking a balance between tradition and technology is pivotal to creating a holistic and inclusive sports fan experience.

With 57% of respondents preferring hot stars for sports content, the role of digital platforms becomes clear. The Indian sports industry can capitalize on this digital avenue to reach a broader audience and provide engaging sports experiences. The data points to the rising popularity of fantasy league apps and the potential Impact of social media on player performance, as recognized by 64% of participants. Indian sports organizations have a unique opportunity to harness these digital tools to foster fan engagement and interaction. The survey indicates that 58% of respondents are content with integrating modern technology in-game decision-making. This trust in technology enhances transparency and has far-reaching implications for the integrity of sports in India.

The survey findings unveil the tremendous potential of sports tourism, with many respondents eager to invest in memorable sports experiences. For the Indian tourism industry, this presents a golden opportunity to tap into this burgeoning market and promote accessible and exciting sports tourism packages. From the Indian sports industry's perspective, these findings emphasize the need to align strategies with the evolving interests of Indian sports enthusiasts. Recognizing the significance of tradition and technology and the unique blend of sports preferences will be instrumental in charting a path toward comprehensive growth and success. The data portrays the Indian sports industry as a thriving and dynamic entity, brimming with untapped potential and ready to meet the ever-evolving expectations of its passionate fan base (Turcu et al., 2021).

5. STUDY IMPLICATION

The study underscores the growing diversity of sports interests in India, which can significantly benefit the Indian sports industry. Sports organizations and businesses should recognize this shift and consider diversifying their offerings and investments beyond cricket, capitalizing on the emerging popularity of other sports. The mixed response to technology in sports analysis suggests the need for the Indian sports industry to assess its technological adoption carefully.

By ensuring the reliability and effectiveness of these technologies, sports organizations can make data-driven decisions that enhance the quality and appeal of their events. The research highlights the enduring allure of in-stadium experiences. The Indian sports industry should focus on creating a seamless blend of traditional stadium experiences and technological innovations to cater to fans' evolving preferences. The willingness of Indian sports enthusiasts to invest in live event experiences presents a promising growth avenue for the Indian sports tourism sector. Collaborative efforts between sports organizations and the tourism industry can unlock this potential, creating accessible and captivating sports tourism packages. The study's findings open doors for more profound research into the Indian sports industry. Conducting qualitative studies, exploring fan motivations, and conducting comprehensive surveys can provide more nuanced insights into the industry's dynamics. Considering these implications, the Indian sports industry can adapt to changing trends, foster innovation, enhance fan experiences, and drive growth. Embracing diversity, technology, and fan-centric strategies will be crucial for staying relevant in the dynamic Indian sports landscape.

6. LIMITATIONS

This research, while providing valuable insights into the dynamics of the Indian sports industry and the preferences of sports enthusiasts, is not without limitations. These limitations should be considered when interpreting the findings: Although the research was conducted with a substantial sample size of 2,400 respondents, it is essential to acknowledge that India's population is vast and diverse. The sample may not fully represent the entire age, gender, socio-economic status, and geographical region in the country. Therefore, the findings may not be entirely generalizable to the entire Indian population. While a combination of online and offline survey methods was employed, specific segments of the population, particularly those with limited access to the internet or residing in remote areas, may be underrepresented. This introduces potential selection bias, as those more tech-savvy or urban-based may have greater participation. Stratified sampling was designed to enhance representativeness, but sampling error is always possible. Although justified, employing a 2% margin of error rather than a 5% margin can still introduce some sampling bias.

7. CONCLUSION AND RECOMMENDATIONS

This research has illuminated critical aspects of the Indian sports industry, shedding light on the country's preferences and expectations of sports enthusiasts. As India undergoes a significant transformation in its sporting landscape, the findings of this research hold profound implications for the industry's future. The data demonstrates an evident and enduring love for cricket, cementing its position as the most cherished sport among Indians. Simultaneously, it reveals a substantial fan base for football, badminton, basketball, and tennis, indicating the diversification of sporting interests. This shift highlights the industry's evolving nature and offers insights for sport's governing bodies and marketers to tap into these emerging segments. Technology integration into sports analysis has garnered a mixed response, with a significant portion expressing moderate trust. This emphasizes the need for technology providers to address concerns and enhance these innovations' perceived reliability and accuracy. Despite this, the data underscores the allure of physically attending live matches, highlighting the timeless charm of the in-stadium experience. However, it is equally clear that technology is pivotal in enhancing fan engagement, accessibility, and the overall sports experience.

The findings emphasize the potential of the sports tourism industry in India. The enthusiasm of fans to spend on attending events suggests a lucrative market that remains largely untapped. This presents an exciting opportunity for the tourism industry to develop sports tourism packages that cater to this growing demand, providing fans with memorable experiences at affordable prices.

7.1 RECOMMENDATIONS

1. **Diversification and Promotion:** Given the evolving preferences, sports authorities and marketers should consider diversifying their offerings and promotional strategies to tap into the growing fan

bases of football, badminton, basketball, and tennis. Tailored marketing campaigns, grassroots development, and competitive leagues can foster these sports.

2. **Technology Enhancement:** Sports technology providers should address concerns about trust and accuracy. Continuous innovation, transparency, and real-time feedback mechanisms can enhance the perceived value of technology in sports analysis.
3. **Balancing Tradition and Innovation:** The findings emphasize balancing the traditional in-stadium experience and technological advancements. Sports organizations can consider adopting technology to make live events more engaging and immersive, thereby preserving the excitement of live matches.
4. **Sports Tourism Development:** The tourism industry should seize the opportunity presented by the enthusiasm of sports fans to attend events. Tailored sports tourism packages, clear communication of safety measures, and affordable pricing can tap into this market. Collaborations with sports teams and leagues can enhance the attractiveness of these packages.
5. **Market Expansion:** Fantasy league apps have gained popularity, indicating potential for growth. Companies in this space should focus on user-friendly interfaces, diverse game options, and strategic partnerships with sports organizations to expand their user base further.
6. **Fan Engagement Platforms:** Platforms that enable fan engagement should focus on enhancing their effectiveness. Social media, particularly Instagram and Twitter, is a powerful tool for fan engagement. Continual innovation and features that foster interaction should be explored to keep fans engaged and connected.

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Ethical Statement: This research upholds stringent ethical standards, where participants voluntarily contribute their insights. No personal information, including names or other identifiable details, was collected during the data collection process. Participants were fully informed about the nature and purpose of the study, and their involvement was entirely voluntary. The research design and procedures align with ethical principles, emphasizing confidentiality and anonymity.

Consent to Participate: The author declared that they have no known competing financial interests or personal relationships which affect the work reported in this article. This study deals with human participants, and human data or human rights issues are discussed and evaluated.

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Declaration Statement of Generative AI: We declare that artificial intelligence (AI) has not been utilized in any capacity in this research's conduct, analysis, or outcomes. The data collection, interpretation, and conclusions are solely based on traditional research methodologies and human analysis. This study operates without the influence or involvement of AI algorithms. Participants voluntarily contributed their responses, and no AI-driven tools were employed in the data collection process. This declaration is made to transparently communicate the absence of AI in every research phase, ensuring the integrity and accuracy of the findings.

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Assessing Alignment of the USJ-R BSA and BSMA 4th Year Students' I.T. Skills with the Entry-Level I.T. Skills Deemed Important in The Accounting Industry

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ABSTRACT

This study assessed the alignment between I.T. skills developed by 4th-year Bachelor of Science in Accountancy (BSA) and Bachelor of Science in Management Accounting (BSMA) students at the University of San Jose-Recoletos and the entry-level I.T. skills necessary in the accounting industry. The study used quantitative data from 205 respondents, including 102 students and 103 accounting professionals. Convenience and stratified random sampling were employed, and the Mann-Whitney U test was used for data analysis. After gathering the data, it is revealed that the skills deemed necessary in the industry are significantly higher than those developed by the students ($U=365.5$, $p>0.05$). Overall, there needs to be more alignment between the I.T. skills developed by the students and those necessary in the accounting industry, indicating a gap between expectations and performance. This result correlates to the framework "expectation-performance gap," which generally pertains to the gap between what is needed in the industry by the professionals and what is developed by the accounting students. The study recommends expanding the accounting curriculum, particularly in information technology, to bridge the knowledge and skill gap for future accounting graduates.

Keywords: Information Technology; Accounting Professionals; Skills; Performance Gap; Enterprise Resource Planning (ERP)

1. INTRODUCTION

As information technology (I.T.) becomes more prevalent in the business world, the skills required and expected of accountants expand. The workforce continuously adapts to this fast-changing environment to deliver efficiency and competence. Over the years, as technology progresses and business processes tag along, human capital is expected to keep pace with advancements (Amirul et al., 2017). Professionals must prepare for the changes as these can disrupt how professionals manage and adapt to the necessary skills while taking advantage of several opportunities. Hence, this study aims to determine if there is an alignment between the I.T. skills that the 4th-year BSA and BSMA students of USJ-R developed and the entry-level I.T. skills deemed necessary in today's accounting industry (Castagna & Bigelow, 2021). The goal of this study is to assess the alignment of information technology (I.T.) skills deemed necessary in the accounting firm industry in Cebu City.

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The I.T. skills developed by the Bachelor of Science in Accounting (BSA) and a Bachelor of Science in Management Accounting (BSMA) 4th-year students of AY 2022-2023 from the University of San Jose-Recoletos based on the curriculum. The study's findings could help firms and the academic community consider more resilient ways of dealing with a crisis on a local scale following theory and practice alignment. It could also provide a better picture of what I.T. skills students should pursue to work efficiently upon their employment. With this, the researchers intend to add to the existing knowledge pool by aligning the I.T. skills of the BSA and BSMA 4th-year students for Academic Year 2022-2023. When gathering necessary information, an averaging method is used to get reliable results and can be used for current and future investigations. This study will assess and analyze the mismatch or alignment of I.T. skills using a Likert scale. To test the accuracy of the results, the researchers used the Mann-Whitney test.

2. LITERATURE REVIEW

2.1 CHED Memorandum Order (CMO) No. 27 & 28 Series of 2017 Article IV Section 6.2

In line with this, as per Commission on Higher Education (CHED) Memorandum Order (CMO) No. 27 & 28 Series of 2017 Article IV Section 6.2, business and management graduates must be able to identify and articulate the underlying principles that underpin all functional areas of business, including information technology, as well as use information and communication technology (ICT) abilities as required by the corporate environment. Business environment and concepts refer to broad business knowledge, including corporate governance, financial management, economic concepts and analysis, financial management, information technology, and operations management (Sandifer, 2018). In practice, possessing fundamental knowledge of accounting concepts and the business environment is a strong foundation for understanding any business, which is one of the primary duties of an accounting professional, especially in the decision-making process (Klibi & Oussii, 2013). According to Section 6.3, BSA and BSMA graduates must be technically proficient in financial reporting and accounting. Financial reporting, management reporting, and general ledger systems are examples of accounting information systems. Universities use Systems Application Products (SAP) like Enterprise Resource Planning (ERP) to teach transaction processing systems, where students learn fundamental skills and show mastery of business cycles and processes like revenue, expenditure, conversion, and administrative processes.

In addition, graduates are expected to use technology in the workplace, including spreadsheet and accounting software tools for data collection and report generation. According to Section 8 of the curriculum, information technology is a crucial area that the profession requires. The BSA and BSMA programs assist aspiring accountants in developing technical competence, professional skills, values, ethics, and attitudes to pass professional certifications successfully. Section 9.1 of Chapter V lists the three essential competencies of accounting education: logical and critical thinking, quantitative reasoning, and computer literacy. According to Becker (1962) and Rosen (1976) the researchers considered the human capital theory that each worker has a unique set of talents or abilities that they may develop or add to through training and education since education and experience influence a worker's productivity. It also claims that increased educational accessibility responds to the rising demand for skilled labour. Human capital is an investment people make in themselves to increase their productivity through knowledge and skills. As a result, education is acknowledged as a human capital investment (Fleischhauer, 2007). Moreover, the curriculum offers financial, theories and applications, and technical courses that equip the students with the knowledge and skills to gain a competitive advantage upon entering the industry (Tam, 2011). Hence, it is equally important to assess the alignment of the I.T. skills currently included in the curriculum to gauge the level of proficiency that the students possess and to confirm whether the I.T. skills acquired and taught in academic settings are sufficient for the students, as future graduates, to meet the requirements of the accounting industry without additional training or experience (Karamatova, 2017). The researchers also observed an "expectation-performance gap" between what is expected of accountants and what is taught in accounting programs (El-Dalahmeh, 2017). As accounting expands in line with business advancement, financial and technical aspects are among the most significant indicators regarding competency and employability for many accounting professionals and employers. As Amirul et al. (2017) state, to prepare students for potential future careers, educational institutions must be able to offer the skills and information required by the market. Companies want candidates with job-ready abilities and substantial academic achievement, but frequently, there needs to be more expectations and performance (Parvaiz, 2014; Khouloud & Tahar, 2020). Employers must look at the essential skills for accounting education and how effectively academia is developing them, considering this "expectation-performance gap" component, which is of pivotal importance to the focus of this research.

2.2 Human Capital

Human capital refers to a person's intellectual capital, such as knowledge, skills, and training, which can be used in the workforce. Additionally, human capital consists of two main parts that are highly complementary: the knowledge and abilities a person acquires through education, including the skills acquired through on-the-job training. However, due to the rapid change in the business environment, there is a skills expectation-performance gap as we shift toward digitalization. The researchers also consider this theory as a theoretical basis for this study. The term "expectations gap" describes the misalignment between what academia and industry think students need to know to have a competitive advantage in the accounting industry (Parvaiz, 2014; Grabski et al., 2011).

One objective of this research is to identify the relevant I.T. skills that are characterized as abilities in information technology and that represent a vital component of the spectrum of skills that are increasingly sought by companies and highlighted within the overall discussion over higher education (Nicolescu & Păun, 2009; Sithole, 2015) that are deemed necessary by accounting firms in Cebu City, and align these skills with the skills developed by the 4th-year BSA and BSMA students. Additionally, the skills to be aligned are categorized into two categories: skills deemed necessary by the industry and skills developed by the 4th-year students. Skills deemed necessary are the skills that are desired and sought after by accounting firms in Cebu City. In contrast, skills developed are acquired by the 4th-year students under the offered curriculum at the university.

The conceptual framework shown in Figure 1 indicates the factors that affect the alignment of I.T. skills developed by the 4th-year BSA and BSMA students with the I.T. skills deemed necessary in the industry as identified by the accounting professionals, particularly in accounting firms in Cebu City. With this, the researchers will look at the alignment between the students' developed I.T. skills and those deemed necessary in the industry as identified by accounting professionals. In order to realize this, the study will utilize the proposed conceptual framework by the researchers to assess the alignment between the I.T. skills developed and those deemed necessary in the industry. Table 1 shows the terms and definitions used in the research paper.

H1: *There is an alignment between the I.T. skills that BSA and BSMA 4th-year students developed and the I.T. skills deemed necessary as identified by the accounting professionals in the industry.*

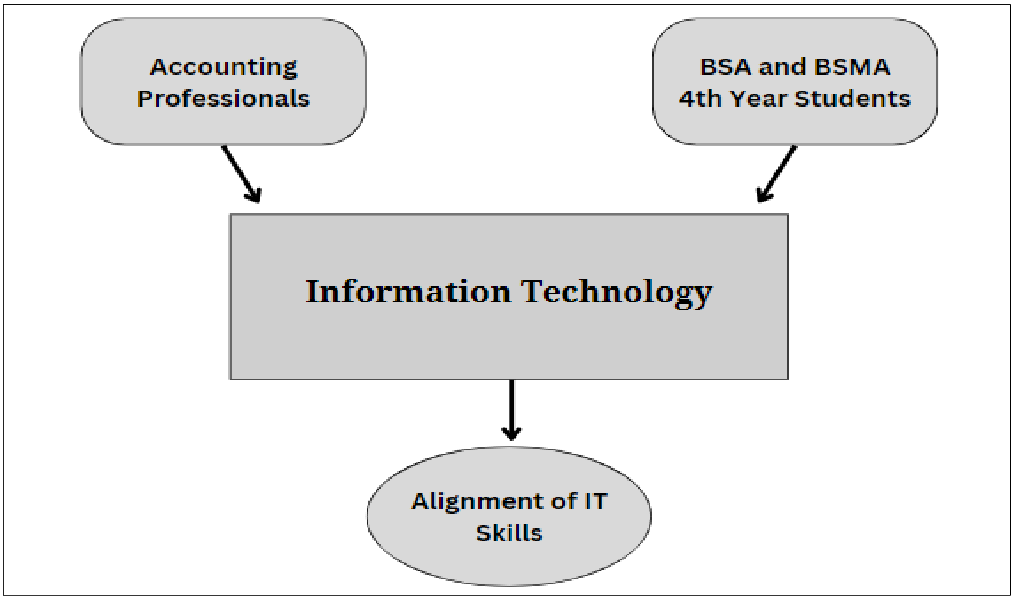

Figure I. Conceptual Framework

Table 1. Definition of Terms

Accounting Professionals	CPAs and non-CPAs with 1 to 2 years of work experience in the accounting industry
Students	4th year Bachelor of Science in Accountancy (BSA) and Bachelor of Science in Management Accounting (BSMA) students of AY 2022-2023
Information Technology	is the process of creating, processing, storing, securing, and exchanging electronic data utilizing computers, storage, networking, and other physical devices, infrastructure, and procedures
I.T. Skills	information technology competencies that are an essential component of the spectrum of capabilities that firms are increasingly seeking
Lookup and Pivot Table	It is a statistics tool that reorganizes and summarises data in a spreadsheet or Database. By contrasting them with other rows or columns, it is possible to identify values in specific columns or rows.
Data Entry, Format, Calculations, and Logic	It is the process of updating or entering data into a system. The term "formatting" describes how a document or spreadsheet looks, including using currencies, percentages, and dates.
Flow Charting and Database	Discusses data, tables, and responsibilities while explaining flowchart symbols and their application in various diagrams, such as website structures and educational initiatives.
ERP System Software	a software system that helps organizations automate and manage core business processes for optimal performance

3. RESEARCH METHODOLOGY

A quantitative method was applied through primary data, which was obtained from the participant's responses in the survey questionnaires provided by the researchers. The researchers adapted the instrument Sandifer (2018) developed with Sandifer's approval and upon meeting the stated conditions. Consequently, a descriptive survey method was used in this study to describe the alignment of I.T. skills acquired by the 4th-year students through education and experience about the I.T. skills deemed necessary in today's accounting industry. This research established a hypothesis based on existing theories and concepts, namely the human capital theory and the expectation-performance gap. Human capital theory states that people can enhance their talents and abilities through training and education. On the other hand, the expectation-performance gap states the gap between the needed performance of accounting professionals in the industry and the expected performance of entry-level accounting students.

3.1 Ethical Statement

In this study, the 4th year BSA and BSMA respondents and the accounting professionals were guaranteed absolute confidentiality. Their consent assured them that the information shared would only be used for research purposes. This complies with the Data Privacy Act of 2012: R.A. 10173.

3.2 Sample Size and Sampling Techniques

This study was conducted in Cebu City, Philippines, focusing on the BSA and BSMA 4th-year students at the University of San Jose-Recoletos and those accounting professionals from 16 accounting firms in Cebu City with 1 to 2 years of work experience. The sample size of this study was a total of 205 respondents. There are 102 respondents for the students, and for the practitioners, there are 103. The researchers utilized Convenience Sampling in determining the respondents for the accounting industry, which utilizes geographical closeness, availability at a specific time and willingness to participate as the basis for selection (Etikan et al., 2016). As the total population of 4th-year students and accounting professionals was unknown and thus abnormal, the researchers utilized the Central Limit Theorem to determine the sample size of both groups. This theorem claims that the data is correct whether the distribution is normal or abnormal (Routledge, 2023; Team, 2023). The researchers approached the practitioners by going to their firms physically, and for the students, it was done through online and physical approaches.

3.3 Data Collection

In gathering the primary data, the researchers used the adapted and validated research questionnaire from Sandifer (2018) in her dissertation, which consisted of open-ended and closed-ended questions. The researchers conducted two sets of survey questionnaires through Google Forms disseminated online through all reliable social media platforms, such as Facebook Messenger. The researchers sent the survey link through private messages and group conversations. The researchers also conducted the physical distribution of printed survey questionnaires to different accounting firms and bookkeeping services in Cebu City. As part of this study, the researchers approached the school's Accountancy and Finance Department and asked for the syllabus of the I.T. course taught under the BSA and BSMA programs. However, the researchers failed to gather the needed information due to constraints. For this reason, the researchers used the proposed standard course syllabus provided by the

Commission on Higher Education (CHED) in their 2017 released Memorandum Orders 27 and 28 for BSA and BSMA programs, respectively.

3.4 Data Analysis

In this study, the researchers used Likert-scale survey questionnaires. The researchers conducted pilot testing, after which they used Cronbach's Alpha to test the reliability and internal consistency of the questionnaires. Upon the result of the pilot testing, the researchers concluded that the questionnaires were reliable, consistent, and suitable for implementation. The researchers used the averaging method to compute the data collected from the respondents. This study utilized descriptive statistics to help describe and summarize the data. The result of the data was not normally distributed, so a non-parametric test is appropriate. Due to the abnormality of the distribution, the researchers utilized the Mann-Whitney U test. It is a non-parametric method that does not rely on the assumption of normality as it compares the distribution of one data group with another by ranking all the observations and comparing the sums of the ranks in each group. Moreover, this statistical test helped the researchers identify the misalignment between the skills deemed necessary by the industry and those developed by the 4th-year students' sample means. The responses to the skills deemed necessary by the accounting industry were analyzed and interpreted using a 5-point scale. The interpretations of the mentioned scales are as follows:

Table 2. Likert Scale Interpretation: 4th Year BSA and BSMA Students

Scale	Interpretation
Did not develop (1)	The student did not acquire or need to gain knowledge about I.T. Skills.
Minimally developed (2)	The student minimally acquired and needed more knowledge about I.T. Skills.
Moderately developed (3)	The student moderately acquired and had little knowledge about I.T. Skills.
Developed (4)	The students mainly acquired and had enough knowledge about I.T. Skills.
Completely developed (5)	The student wholly acquired and had complete knowledge of the I.T. Skills.

Table 3. Like Scale Interpretation: Accounting Professionals

Scale	Interpretation
Not important (1)	I.T. Skill is optional and is optional in the accounting industry.
Slightly important (2)	I.T. Skills are necessary and seldomly essential in the accounting industry.
Moderately important (3)	I.T. Skills are moderately critical and are fitfully essential in the accounting industry.
Important (4)	I.T. Skills are necessary and often essential in the accounting industry.
Very important (5)	I.T. Skills are critical and essential in the accounting industry.

4. RESULTS AND DISCUSSION

This section contains the data's findings and discussions on whether there is an alignment or misalignment between the I.T. skills that the 4th-year students enrolled in the BSA and BSMA programs developed and the I.T. skills that were in line with those deemed necessary by the industry in terms of information technology. The study intends to explore the outcome of the newly graduated students' competency level and their competitive advantage. The study used primary data from accounting professionals in different accounting firms in Cebu City and 4th-year students from BSA and BSMA enrolled in USJ-R. Statistical methods, various test types, and analyses used in the study are systematically presented in this part. The results of data processing are explained and analyzed in the tables. The findings and how they relate to the study questions and hypothesis are thoroughly discussed.

4.1 Demography

The demographics concerning the total sample population of the 4th-year BSA and BSMA consist of (n = 102) students. The 4th-year Bachelor of Science in Accountancy (BSA) students comprise 38 participants, while the 4th-year Bachelor of Science in Management Accounting (BSMA) students comprise 64 participants. The students' ages ranged from 22 to 23 years old, male and female. On the other hand, in the demographics concerning the total sample population of accounting professionals (n = 103), 37% of the participants are Certified Public Accountants (CPAs), and the remaining 63% are non-certified Public Accountants (non-CPAs). Of the total accounting professionals, 55% (56) have one year of working experience, and the remaining 45% (47) have two years of working experience. All accounting professionals have earned their respective bachelor's degrees in accounting. The professionals'aagessrange24 are 26 years old, male and female.

4.2 Mean and Std Deviation

Below is the side-by-side comparison of the I.T. skills necessary for accounting professionals and those developed by the 4th-year BSA and BSMA students. The results in Table 4 indicated that accounting professionals place a higher value on the I.T. skills necessary in the accounting industry than the mean value of I.T. skills developed by accounting students. All I.T. skills mentioned by the accounting professionals were rated as "Very Important," while some I.T. skills developed by accounting students were rated lower. This provides insights into the perceived importance of I.T. skills in the accounting industry, highlighting differences between the two groups.

Table 4. Comparison of I.T. Skills

	Accounting Professional		**4th Year Students**	
	Mean	**Interpretation**	**Mean**	**Interpretation**
Data Entry, Format Calculations, and Logic	4.7573	Very Important	3.4412	Developed
Spreadsheet	4.6990	Very Important	3.8824	Developed
Word Processing	4.5049	Very Important	3.8235	Developed
Lookup & Pivot table	4.4369	Very Important	2.8431	Moderately Developed
ERP System Software	4.3883	Very Important	2.8922	Moderately Developed
Flow Charting and Database	4.3301	Very Important	3.3529	Moderately Developed

Under Information Technology Skills, Data Entry, Format, Calculations, and Logic ranked as the most critical I.T. skill in the industry, gathering the highest mean. As corporate financial reporting is considered the primary source of information, it is vital to provide accurate, relevant, and timely information. However, this Skill only garnered the third highest mean among other skills developed by the students, which signifies that the importance of data entry, format, calculations, and Logic has yet to be significantly emphasized in the academe as much as its importance in the industry. In the academe, students are taught and trained to solve, calculate, and execute the accounting processes the traditional way. Hence, the development of this Skill, to its greatest extent, has become impossible for the time being as no further integration with the matter at hand is being imposed by the faculty in charge. This has become quite a challenge for the 4th-year students having their internship as technology has been extensively utilized in the industry. However, the training received substantially differs from the actual practice, considering that these specific I.T. skills influence the timeliness of financial reporting as it aids the speed of transaction processing, the accuracy of calculations, and report preparation (Nyoman Sawitri et al., 2019).

As per the 4th-year students, this I.T. skill is only moderately developed. Looking back to its interpretation, students moderately acquire and have little knowledge about this I.T. skill, indicating that they need more practice and knowledge about it to align the importance of lookup and pivots tables in the industry and the level of development of the said I.T. skills by the students (Lewis, 2019). Enterprise Resource Planning (ERP) technologies have profoundly impacted the accounting industry by integrating an organization's different business areas into a unified system by merging various business strategies with IT-supported solutions. This integration enables more efficient accounting information management. Implementing an ERP system generally leads to more effective administration of accounting information (Chayeb & Best, 2005; Saada et al., 2020).

Table 5 shows that the I.T. skills deemed necessary in the accounting firm significantly differ from those developed by the students; this reveals that the skills deemed necessary in the industry have a significantly higher level than those developed by the students ($U=365.5$, $p>0.05$). The significant difference in this table implies determining the alignment of I.T. skills deemed necessary by the accounting professionals with what is developed by the 4th-year graduating students. It indicates that the level of development of I.T. skills by accounting students needs to align with the level of importance of the I.T. skills mentioned above by accounting professionals. The I.T. skills laid out in the survey for accounting professionals are all identified as "Very Important" regarding entry-level accounting. However, the same skills were identified as "Developed" and "Moderately Developed" for the 4th-year students. This result correlates to the framework "expectation-performance gap," which generally pertains to the gap between what is needed in the industry by the professionals and what is developed by the accounting students (Atanasovski & Trpeska, 2018).

Table 5. Difference Between the Skills Needed and Skills Developed

	Respondents
Mann-Whitney U	365.5
Wilcoxon W	5618.500
Z	-11.526
Asymp. Sig. (2-tailed)	0.000

This section then verifies one of the goals of this study as to whether I.T. skills identified by researchers are up-to-date and relevant in the modern business and accounting industry. The results further dictate a misalignment between the I.T. skills that BSA and BSMA 4th-year students developed and the I.T. skills deemed necessary as identified by the accounting professionals in the industry, rejecting the null hypothesis. Hence, this matter circles to the degree of competency the 4th-year BSA and BSMA students are expected to have and how it can be developed to meet the industry's demand. As Amirul et al. (2017) state, to prepare students for potential future careers in the workforce, educational institutions must be able to offer the skills and information required by the market.

5. CONCLUSION AND RECOMMENDATIONS

In summary, the research highlights the critical importance of aligning university curricula with the evolving needs of the accounting industry. The increasing influence of information technology in the corporate sector necessitates that accounting graduates have higher I.T. proficiency and comprehension than traditionally anticipated. The results indicate a significant mismatch between the industry's emphasis on I.T. skills and the level of development of these skills among 4th-year accounting students. To address this knowledge and skill gap, the study proposes several interventions. Firstly, there is a need for curriculum diversification, introducing a more comprehensive range of accounting modules, mainly focusing on information technology.

Additionally, the integration of specific software modules, such as Oracle, and the emphasis on creating financial statements using M.S. Word and incorporating real-life accounting processes using Excel are recommended. These suggestions aim to equip students with the practical I.T. skills considered essential by the industry. Hence, universities are urged to proactively adjust their curricula to better prepare future accounting graduates for the dynamic demands of the industry. By implementing these recommendations, educational institutions can ensure that their graduates possess the necessary I.T. skills, opening doors to broader and more diverse career opportunities within and beyond the accounting sector.

6. LIMITATIONS AND FUTURE STUDIES

While the study in Cebu City offers valuable insights, it has limitations. Focusing on one location may hinder global generalizability, and regular updates are crucial due to the fast-paced nature of I.T. and accounting standards. The broad categorization of professionals limits insights into specific industry skill demands, and a single-institution focus may limit transferability. Future research should include a longitudinal study on the impact of curriculum changes, industry collaboration for alignment, comparative analysis between institutions, continuous feedback mechanisms, and exploration of emerging technologies like blockchain and AI in the accounting curriculum. Addressing these areas will enhance our understanding of industry demands and effective curriculum alignment strategies.

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