Information Technology and Human Resource Management in Educational Institutions

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Abstract. Information technology plays an important role in facilitating all procedures pertaining to HR. Such processes become faster and more effective with the help of information technology, enabling HR managers to enhance their performance and improve their productivity and output by leaps and bounds (Stone et al. 2020). The objectives of human resource management as well as the budget using which human resource management activities are to be undertaken, can be defined, and implemented well enough through the use of information technology (Boon et al. 2019). This dissertation investigates the impact of IT on human resource management as undertaken in educational institutions. The key objectives of this study, a problem statement, the key research questions, and the expected outcomes of the study are made known at the inception of the study, followed by a review of literature, a discussion of the methodology, an analysis of the study findings and a conclusion. Some recommendations are provided towards the end of this paper about how effectively information technology can be used by HR managers at educational institutions to bolster their activities, and to improve the performance of the school in doing so.

Keywords: Information Technology, Innovation Diffusion theory (IDT), Human Resource Management.

1. Introduction

The usage of human resource information systems, which at first had a relatively basic structure, is what causes information technology to have an influence on human resource management duties. Information systems for human resources are what they are called (Jeong et al., 2021). Only the organisational units and users of this system who specialise in human resources are human resources professionals. While it is also feasible to enhance the organization's commercial services, the goal of such systems is to streamline the human resources department's operations. Human resource management has been adversely impacted by the introduction of information technology and its pervasiveness in the 1990s, much like many other sectors of the company (Chaudhary, 2020). The introduction of the human resources portal, a repository of data on human resources that includes details on incentives, perks, educational opportunities, knowledge management, and continuous learning has greatly boosted Internet use and increased its importance. Employees may have online access to the relevant human resources data by using these websites (Ogedengbe, 2021).

The development of self-service human resources services has been aided by these websites. By delegating many of the routine duties of human resource management to staff members, paper games, the engagement of human resources workers in routine administrative chores, and the incidence of protracted delays have all been avoided. The evolution of human resource management continued after then (Chaudhary, 2020). The objectives, efficacy, and performance of this profession have significantly altered with the introduction of new ideas like e-human resource management (Ogedengbe, 2021). Although e-human resource management supports managers and workers in carrying out their regular duties while facilitating organisational change and transformation, human resource information systems assist HR professionals in carrying out their duties. With the use of information technology, human resource management may best support macro-strategy of strategic human resource management to save costs, boost productivity, and enable managers and staff to effectively carry out their obligations. Hence, although using information technology to support human resource management costs money, disregarding those expenses denies firms numerous possibilities.

1.2 Statement of the Problem

There is a lot of literature that one can come across on human resource management and the important role that it plays in the running of a business organization. At the same time, the impact that IT can have on business administration and human resource management is a subject, which has been discussed in prevailing literature on business management (Macke and Genari 2019). However, the extent to which IT is used by human resource managers in educational institutions is not a matter which is talked about too often (Bratton et al. 2021). It is to address such gaps in the literature that the current paper will look at how information technology impacts human resource management as it is undertaken in educational institutions. The study is being undertaken in the context of Greece.

1.3 Research Objectives

The major objective of the study is to assess the influence of information Technology on Human Resource Management in Educational Institutions. The following are the different specific objectives of the current study;
1.   To get an understanding of how IT impacts human resource management
2.   To determine how human resource management is undertaken in educational institutions
3.   To assess the impact that IT can have on the HR operations that are undertaken in educational institutions.

1.4 Research Questions

The following, are the key research questions that are going to be addressed in this study –

RQ 1 – How does IT impact human resource management?

RQ 2 – How is human resource management implemented in educational institutions?

RQ 3 – What is the impact that IT can have on the HR operations that are undertaken in educational institutions?

1.5 Expected Outcomes

It is expected that the results that are produced upon undertaking this study will provide a detailed understanding of the unique ways in which information technology impacts human resource management in educational institutions and how useful IT can be for the HR managers of educational institutions, when it comes to facilitating the growth and development of such institutions in the short and the long run.

2. Literature Review

2.1 Theoretical review

According to Chen, Yen, & Chen (2009), persons from a social context generally use the idea of innovation diffusion to explain how technical inventions spread through time. The three core components of the theory, according to Wani & Ali (2015), are diffusion phases and innovation characteristics that affect the rate of dispersion. According to Muathe (2010), there are five phases via which innovation is believed to advance, including comprehension of the innovation, persuasion from influential people, commitment to adopting, adoption, and confirmation of the decision.

The five characteristics of innovation aim to determine how well the development performs and how important it is to the clients in terms of projected advantages, operational coherence with organizational values, system simplicity, system trial, and monitoring. To be more precise, Wani & Ali (2015) identified the crucial elements that must be supported, showing the availability of resources, in order for an adoption process to be effective. He adds that the four user groups—trendsetters, early adopters, late adopters, and slackers—combine to form an S-shaped implementation arch at any given moment. The groups most likely to acquire and utilize new technology are trend-setters and early adopters (Grawe, 2009).

In his 1992 critique of the diffusion model's relationship to innovations, Surry & Farquhar (1997) emphasized that organizational knowledge acquisition and awareness are crucial to the function that they play. According to Grawe (2009), the advent of complex IT systems creates a problem with knowledge integration, particularly in terms of awareness. This makes the acquisition of crucial information and the deployment of new technologies necessary. The compatibility of new information is anticipated to be heavily weighted by the prospective users, which necessitates a stronger requirement for understanding in terms of both the design characteristics and the underlying social conventions, prior knowledge as well as the prerequisites of potential implementers.

According to Wani & Ali (2015), the ability of new technologies to be tested has an impact on their adoption and use since actual performance is often more important than discussions about the advantages and operational capabilities. As the adoption of HRMIS is impacted by the presence of network features, compatibility is crucial. A new technology may be tested out before being put to use by using the trial capability. This is important to early adopters since they depend on readily accessible knowledge as opposed to laggards who discover new information after technology has already been entrenched. Nevertheless, the typical diffusion of new technologies model is mostly based on research into how people decide whether to adopt new technology, which restricts its application to the study of HRMIS deployment in corporate contexts (Wani & Ali, 2015).

Surry & Farquhar (1997) that stated that potential consumers of innovations assess the hypothetical value that the technical breakthrough brings to them, nevertheless, is in accordance with the diffusion of innovation model. Value in this context is determined by the advantages and acquisition costs of the new technology. As IT systems improve operational performance, their implementation in a given institution should be viewed as a new practice.

2.2 Information Technology in Human Resource Management

Human resource management, in the present day and aid is greatly aided by the advents that have been taking place in the domain of technology, over the years. Today, human resource management practices can be implemented with a greater degree of ease and flexibility because of the efficiency that is enabled upon the use of information technology (Carnevale and Hatak 2020). Salaries get processed and disbursed faster, as do other types of payouts that are made to employees working for a business organization. It is also possible to keep a better track of, and review employee performance with the help of information technology (Stone et al. 2020). Performance metrics can be recorded and referred to as and when needed, to evaluate the performance of an employee, determining how much they have progressed and how much they need to approve in order, to work to potential for the business that has hired them (Chams and Garcia-Blandon 2019). Human resource management is a process that is still implemented manually, with a human resource manager usually being supported by executives in the rendition of his duties (Stone et al. 2020). However, the work of the human resource manager has been made more precise, effective, and efficient with the help of information technology, with most HR processes today being carried out using online databases and IT systems, that enable such processes to be performed with more ease and more perfection than had been the case before (Bratton et al. 2021). There are some definite benefits that come with the use of IT in human resource management, and which will be discussed in detail, below.

2.2.1 Benefits of Information Technology for Human Resource Management

One of the most important benefits associated with the use of information technology in human resource management is that it has made the handling and management of data, an easy and convenient affair (Bratton et al. 2021). Data management is no longer as monotonous or rigorous as it ought to be or was at one point in time. Noting down all essential details about the employees working for an organization, be it their personal information, or details pertaining to their skills and expertise, can now be undertaken in a smooth and efficient manner using databases and software that have been developed especially for this purpose (Macke and Genari 2019). Data management is no longer time consuming, and it is possible for HR managers to ensure better accuracy now, when it comes to consulting employee details for important matters. Today, with the help of data management software, it is possible for HR managers to complete in a week, the type of work that would have taken several weeks to get done with, and without any inconsistencies in the work done (Macke and Genari 2019).

Engaging with the employees of the business is now easier to do as HR managers can update themselves about the employees who are on the payroll of the company, by simply going through their data in a software and understanding their strengths, weaknesses, likes and dislikes (Singh et al. 2020). This allows HR managers to be better informed or better prepared when dealing with the employees of the business especially when it comes to speaking with the employees for the first time or inquiring about how they like working for the organization, and whether there are any changes or improvements they wish to see within the organizational setup (Zaid et al. 2018). HR managers can do their background research better on the employees of the firm with the help of the benefits that are extended via the use of information technology (Zaid et al. 2018). They can read up and research on the background of the

employee, and their past experiences with previous business organizations to inform the management of the present organization about how best it is that such employees ought to be handled and how it is that they can be trained and developed to do their best, and to achieve the goals and objectives of the organization in the process of doing so (Macke and Genari 2019).

Managing the leaves of employees and making sure that the incentives and bonuses that employees are entitled to, are credited to them timely, is an activity that is greatly facilitated with the help of IT (Chaudhary 2020). Today, with the help of numerous types of IT tools and information software, it is possible for HR managers to ensure that the credit of incentives, bonuses and regular pay is accurate and that it is timely done without any delays (Ivanovic and Ivancevic 2022). Similarly, there are HRMS portals which are now made use of business organizations to determine the number of leaves that are being taken by employees, whether such leaves are approved or not, while also monitoring the leave balance that is available for every employee at the end of the month and at the end of the financial year (Tambe et al. 2019). Through the use of an HRMS portal, it is possible for business organizations to make sure, that, employees are doing their work regularly, and punctually and that there are no delays and lapses taking place in terms of attendance and regular work, that can later impact the performance of the employees and their ability to be productive for the business organization (Tambe et al. 2019).

The process of recruiting employees into the ranks of a business organization has improved greatly upon the use of information technology in human resource management. Today, talent acquisition activities can be undertaken with a greater degree of precision than before with the help of IT (Chaudhary 2020). Online job portals are being used quite extensively by HR Managers in order, to advertise vacancies or job positions, while applications to various job positions are being processed and managed electronically, today (Yong et al. 2019). With the help of IT, HR managers are better able to identify the type of employees who would be a good fit for the organizations they are working at, and they are able, to get faster responses when they send out a feeler for vacancies (Yong *et al.*, 2019). Hiring and inducting employees into a business organization has today, become a smooth and hassle-free process because of the efficiency that is associated with information technology such as job portals, and employee training and management software products (Ivanovic and Ivancevic 2022).

2.2.2 Use of Information Technology in Educational Institutions
Information technology is something that is being used quite widely in educational institutions too. In the domain of education, IT is used for the dissemination of knowledge, making learning a faster, easier, and more interesting activity compared to what it used to be before. Video lectures and the use of animated and actual videos for the purpose of teaching important subjects has become the norm in many educational institutions, making education and learning far more interactive and engaging than what it used to be earlier (Stone et al. 2020). Information technology is also being used to a great extent to evaluate the capabilities of those who are enrolled in educational institutions (Yong et al. 2019). For instance, most tests and examinations are now seen to take place online, and students are expected to submit their daily, weekly, and monthly work in electronic format for the same to be evaluated by the person who is teaching them (Chaudhary 2020). The use of information technology in education has made teaching and learning more effective and more efficient than what it used to be while making education more accessible than it had been prior to the advent of information technology (Chaudhary 2020).

2.2.3 Gaps in the Review of Literature
The review of literature that has been undertaken above, has made a reference to the extent to which information technology is being used in human resource management and how it is that IT is being used in education is a matter that has also been discussed in the literature review. The benefits that are

associated with the use of IT is a subject which has been discussed at length in the review of literature. The literary analysis that has been carried out divulges the fact that the use of IT is beneficial for HR and education both. In the context of HR, it is known to facilitate and make more efficient the way in which HR managers go about their duties and in the context of learning, it is seen to make teaching, and the study process more engaging than what it used to be earlier (Ali Ameen et al 2021; Bong Hyun Kim et al 2021; Eun-Jeong Nam et al 2022). However, the gap in the literature review lies in the fact that it does discuss how information technology impacts human resource management as undertaken in an educational institution. How it is that HR managers of educational institutions operate with the help of IT and how much they are benefitted in doing so is a matter that remains to be explored and it is this subject which will be discussed at length in this study. With the help of primary as well as secondary data, the researcher will assess the impact of information technology on human resource management in educational institutions (Gandulam Ganbold et al 2021; Jae Moon Lee 2022; Jing Xu 2022; Rashidul Islam 2019).

3. Research Methodology

3.1 Research Design
The study utilized a descriptive research design based on the quantitative research methodology. There is much consideration that needs to be given to the research design of a project as well, as this defines the strategies and the techniques that the researcher will use for the collection and analysis of data (Harris et al. 2019). The descriptive research design helped the researcher has undertaken a rigorous analysis of figures and facts using the descriptive paradigm to understand how information technology impacts human resource management in educational institutions.

3.2 Research Philosophy
Research philosophy is a matter that needs to be given consideration during the writing of a dissertation. This is because research philosophy indicates the beliefs or the perspectives that a researcher has towards the study that he is undertaking (Bougie and Sekaran 2019). The positivist research philosophy, the interpretivist philosophy as well as the realist research philosophy are three examples of research paradigms that academics usually make use of a lot (Bougie and Sekaran 2019). For the current study, it is the positivist framework which has been used to gain an objective and detailed idea about how informational technology impacts human resource management in educational institutions.

3.3 Sample Size and Sampling Technique
The sample size for this study comprised of 125 HR professionals working as human resource managers different educational institutions in Athens. The convenient sampling technique was used to create the sample population, and participants were selected for the study based on how conveniently or easily it was possible for the researcher to get in touch with them (Harris et al. 2019).

3.4 Data Collection
The collection of data for this study has been carried out using the survey method. An online survey was designed and conducted with a participant population of 125 people who are working with an educational institution in Athens, Greece. The findings of the survey have been supported by information that was collected from a wide range of secondary sources, such as, books, articles in peer reviewed journals, and chapters that have been published in edited volumes. Pro-Quest and Google Scholar are the two databases that have been used to extract relevant secondary resources for this study.

3.5 Data Analysis

The analysis of data has been done using the technique of thematic analysis. The themes are based on the research objectives and have been used to categorize and assess the survey and the secondary data.

3.6 Ethical Considerations

The following are the ethical factors that were considered while undertaking this study –

- The participation of the respondents in the online survey was voluntary (Busetto et al. 2020).
- All secondary sources that were referred to while writing this paper have been cited appropriately using the Harvard referencing style (McGill et al. 2021).
- Data protection was undertaken by keeping all secondary and primary data stored inside of a USB drive, and in One-Drive. Only the researcher has access to all this data (Camacho et al. 2020).

3.7 Limitations of the Study

Time and resource constraints are the main limitations that were faced by the researcher at the time of carrying out this study. With more resources to conduct an in-depth investigation and more time too, the researcher can incorporate interviews and focus group discussions later on, to gather data and supplement the findings of the current study.

4.0 Results

This section presents the interpretation of the different results obtained after analyzing data collected from the selected teachers in Saudi Arabia.

4.1 Demographic characteristics

Results about the demographic characteristics of the selected of the different students in Saudi Arabia that participated in the study are presented in table 1:

Table 1: Showing key participants' demographic information

Characteristic	Frequency	Percentage (%)
Gender of respondent		
Male	97	77.6
Female	28	22.4
Age bracket		
Below 24 years	16	12.8
25-35 years	37	29.6
36 -45 years	51	40.8
Above 45 years	21	16.8
Years spent in HR profession		
Less than 1 year	18	14.4
Between 1-3 years	69	55.2
Above 3 years	38	30.4
Total	**125**	**100**

Source: Survey (2023)

Table 1 shows that most respondents (77.6%) were male and the remainder (22.4%) were female. The details which have been given above showcase the fact that approximately 55.2% of those who took part in the survey have been employed at their organization for a timeframe of 1 to 3 years while about 14.4%

of them have been working in the organization for less than 1 year. What such statistics happen to reveal is the fact that most of those who participated in the survey are experienced working professionals, who have been employed as HR executives for a sufficient length of time and who are therefore well positioned to answer questions on the subject.

4.2 Descriptive Analysis

The respondents were requested to reveal how often they use information technology in their work and the results are presented in figure 1.
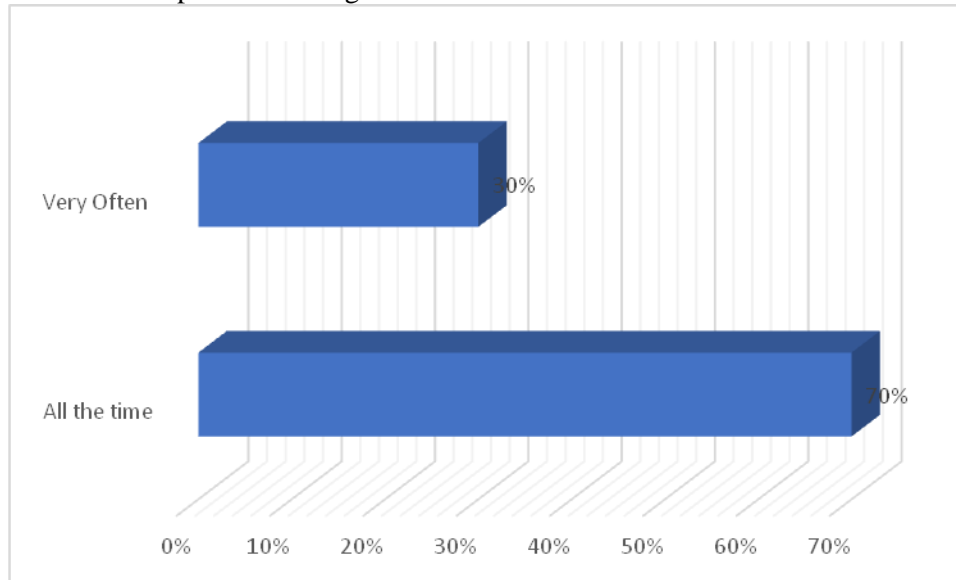
Fig. 1: How often do you use information technology in your work

The statistics which have been given above, reveal that 70% of the people who took part in the survey are people who engage in the use of information technology very often while 30% of the participant population has declared that they engage in the use of information technology in their work all the time. What this goes to show is that the HR professionals who were surveyed for this work are people who engage in the use of IT for performing their duties and who therefore have the required knowledge to answer questions on this subject.

The respondents were also requested to reveal whether **managers are given training in the use of IT** and as per the data, 100% of the respondent population, that is, all of the people who took part in the survey, seem to say that they are provided with training in the domain of IT so that they are able, to use it well. None of the participants have stated that any training in IT is denied or that they are not provided with the necessary knowledge or expertise which is required to deploy IT in HR related activities. The answer indicates that HR managers frequently use IT for their work, and they are trained in order, to be able, to do so, as well.

The respondents were requested to reveal their opinion whether the use of IT is beneficial to their work and the results are presented in figure 2
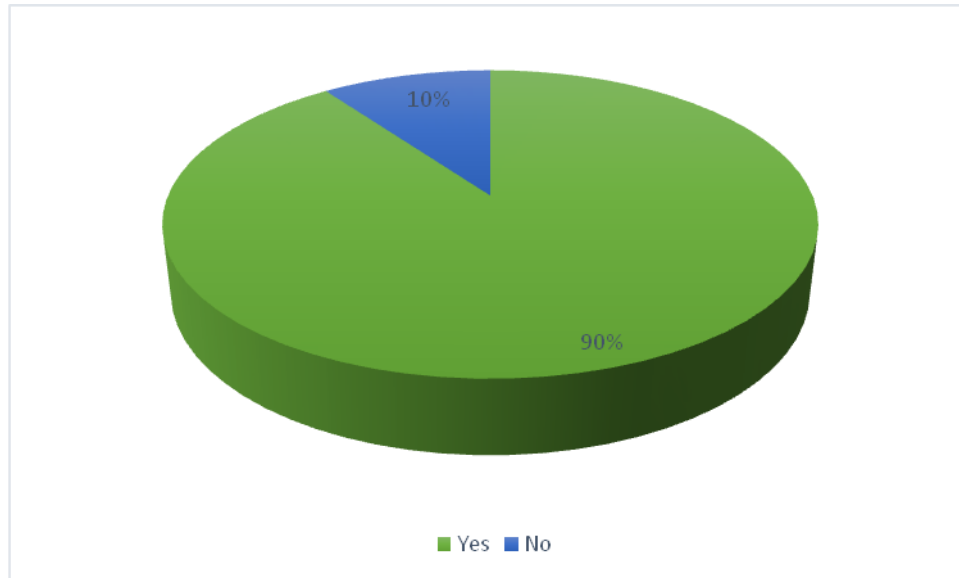
Fig. 2: Is the use of IT beneficial for your work

As per the data which has been provided above, 90% of the respondent population appear to state, that the use of IT is something that is extremely beneficial for the work that they do. Only 10% of the participant population have stated that the use of IT is not beneficial. While majority of the respondents agree that IT use is something that is very positive for HR activities, there is a small percentage among this population that seems to differ on the subject.

The respondents were requested to provide their opinion on how IT benefits their work and the results are presented in figure 3
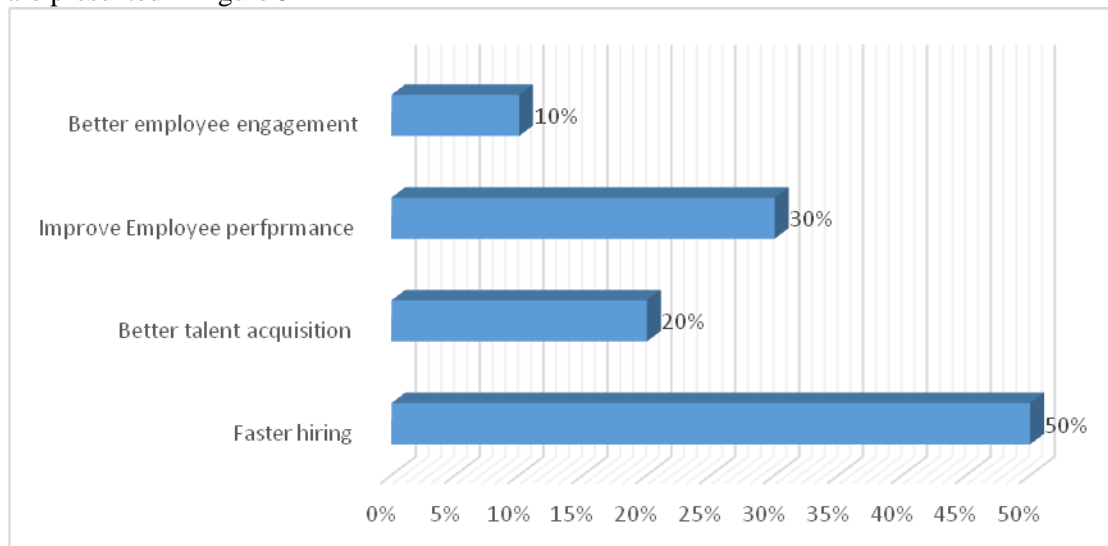

Fig. 3: How does IT benefit your work

Based on the data which has been provided above, 50% of the people who have participated in the survey reveal that the use of IT is beneficial for their work as it leads to faster recruitment or hiring. Candidates are hired or recruited into the organization much more quickly than usual with the help of IT. 20% of those who took part in the survey have stated that the use of IT is something that contributes to better talent acquisition. For 10% of the participants, the use of IT enables better employee engagement,

while for 30% of the participant population, the use of IT in HR activities leads to better performance management.

Respondents also provided their opinions on whether the use of IT in HR has impacted the enterprise and as per the information which has been given, 100% of the respondents are of the use of IT in the domain of HR has exerted an impact in some form or the other for the enterprise. All of the people who took part in the survey believe that the use of IT is quite significant, and the fact that it has been used in HR activities has led to an impactful for the organization that they are working at, in some way or the other.

Respondents also provided their opinions on how technology human resource management has helped the enterprise and the results are presented in figure 4
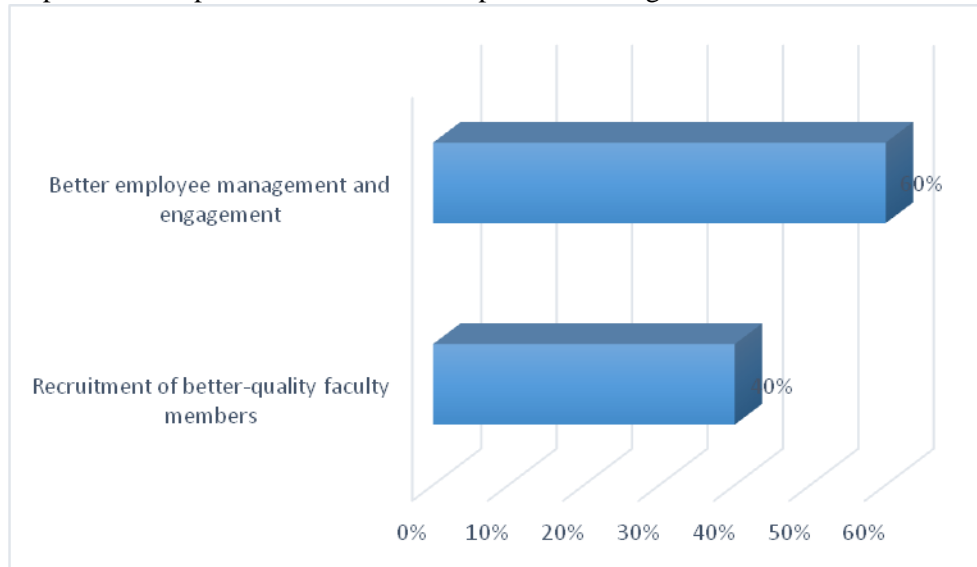

Fig. 4: How has technology in human resource management helped the enterprise

It appears from the statistics which have been provided above, that, information technology and its use in the domain of human resource management is beneficial for educational institutions. This is because for 60% of the respondent population, the use of IT in human resource management has led to better employee management and engagement. Employee engagement needs to be undertaken for an institution to move in forward direction and this is something that has been brought about upon the use of IT in HR. The data above shows that for 40% of the respondent population, the use of IT in HR has led to the recruitment of better-quality faculty members. The organization is able, to hire better teachers because of the use of IT in human resource management, allowing it to do a better job of impacting quality education.

5. Discussion

To summarize, it is evident from the survey that has been undertaken and the responses to the same, that, information technology and its use in the domain of human resource management can be useful and beneficial for educational institutions. Firstly, it is important to make a note of the fact that the use of IT is something that is becoming quite common in HR related activities and the survey responses made a clear revelation of this. Secondly it has been revealed by the answers that were provided to the survey questions, that, IT use is beneficial and the HR executives who are working for educational enterprises are being provided with training in the subject. Furthermore, as has been made known via the answers that were

generated to the survey questions the use of IT in the domain of HR is allowing for academic faculty members of a high standard to be recruited into the organization. This means that the teaching and learning process is becoming greatly improved as talent acquisition appears to be something that is facilitated to a great extent when the HR managers make use of information technology to do their work. At the same time, the survey answers have revealed the fact, that, employee engagement is a whole lot better with the use of IT in HR and performance management is also something that can be better undertaken by the HR managers with the help of information technology, allowing employees to better understand their strengths and weaknesses, and work towards improving on their de-merits so as to do better for the organization. The use of IT in HR is allowing the HR managers to do their duties more efficiently as they are able, to do better hiring and engage with employees better because of this (Boon et al., 2019)..

The results show that that with the help of information technology, HR managers are able to identify and recruit faculty members who are genuinely gifted and who have the capacity to offer their best services for the educational institution, allowing it to make considerable progress by providing quality teaching. Talent acquisition is something that can be undertaken in a way that is a whole lot better when HR managers make use of information technology for this purpose (Boon et al., 2019). It becomes easier for the HR managers to identify who has the credentials and who has the specific expertise in order, to be able to do the job of teaching or working in any capacity at an educational institution, when they use information technology to conduct a search for suitable candidates. It is evident that using online job portals and related websites is quite the norm for HR managers in the present day and age, for the identification and recruitment of talented individuals into the ranks of an organization (Rashidul Islam, 2019). It appears from the responses that have been provided to the survey questions, that, this is what the HR managers of educational institutions are doing as well. They are making good use of information technology in order, to locate and hire people who will do a good job of teaching and on the basis of which the educational institution will be able to grow and progress by a considerable degree (Bong and Hojin , 2021).

The results of the survey have made known the fact that with the help of information technology, HR managers are being able to engage with the employees of the organization better and as a result of which there is quality output that is being delivered by the employees of the firm. It is a fact well-known that one of the key roles that is played by HR managers, is to ensure that the employees of the organization are effectively engaged with, that their concerns and their issues are understood so that they are able, to serve the organization well enough for as long as it is possible for them to do so. Employee engagement is something that needs to be carried out if employees are to be made to feel as an important part of the organization that they are serving (Rashidul, 2019).

6. Conclusion

To conclude, information technology has a significant impact on the type of HR practices and policies that are implemented in educational institutions. HR practice of recruiting talented faculty members is something that is greatly facilitated with the help of information technology, allowing educational institutions to be serviced by high-quality teachers who can impart the best type of learning for their students. Information technology also helps HR managers of educational institutions to help employees regulate their leaves and their work-life balance, while making sure that pay related matters get disbursed on time and with the accuracy that is desired. The use of information technology in HR management is also something that has allowed, performance management to be better undertaken in educational institutions. Educational enterprises and institutions today are not only able, to monitor and evaluate the performance of their students effectively enough with the help of information technology, but they are

able to regulate and evaluate the performance of the faculty members as well, and in the process are able, to train and manage their performance in a way that it allows the teaching and learning process to be better undertaken within a classroom setup. Information technology is something that is greatly aiding the HR managers of educational institutions to manage the affairs of the institution and ensure that the people who are working for the same, have the skill, the attributes and the exposure and training that is needed to do the best job.

6.1 Recommendations

The following recommendations need to be taken into consideration by HR managers in order, to make sure that those who are hired to teach or work at educational institutions are the right fit for the job and are happy in their job roles, by making use of information technology to look into such matters.

• 	With the help of information technology, HR managers can take regular online surveys and even interviews to document how faculty members feel, about working for an educational enterprise, whether they are happy in their job role or whether there is more that they expect from the organization (Yong et al. 2019).

• 	Using information technology, HR managers can determine whether the key requirement areas of faculty members are being adequately met, that is, whether they are working for a specified number of days in a month or whether they are taking too many leaves and hampering the performance of the educational institution in the process (Stone et al. 2020).

• 	Using information technology, it is possible for HR managers to determine how students feel about those they are being taught by, whether the learning they undertake is good for them or beneficial or whether there are improvements that they would like to witness with regard to the same. Educational institutions will be in a better position to undertake reforms pertaining to the teaching and learning process with the help of the HR managers, provided the latter makes extensive and effective use of information technology in order, to evaluate performance and ensure wellbeing of those working for the institution (Boon et al. 2018).

Acknowledgement

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