CHAPTER – 3
REVIEW OF LITERATURE

3.1 Introduction

With regard to the objectives of the study, this chapter presents a brief account of pertinent published research material by accredited researchers, professionals, industrialists and writers available on the research topics. Review of past research reveals some gaps which may be filled up by on ensuring attempt. It also possible to take some pointers regarding methodology and applications from published / accredited research supports. Also comparison of findings can be made through magazines, journals, publications, papers presented at various conferences, books, websites, reports, etc. have been extensively researched to gather background information for this research.

This chapter gives a brief account of what has been happening in the area of E-HRM practices in organizations. The literature review is organized in the following manner. The first section deals with details of the literature on E-HRM. The second section deals the literature on the first and prime concept of E-HRM called E-Recruitment. The third section is a review of literature of the concept E-Training. While the fourth section presents the details of literature review of E-Payroll. Finally, the fifth section deals with E-Attendance system.
The review of literature of this study based on the following major sections.

- E-HRM.
- E-RECRUITMENT.
- E-TRAINING.
- E-PAYROLL
- E-ATTENDANCE

### 3.2. Electronic Human Resource Management [E-HRM]

Sue Shaw (1994)\(^1\) believes that the effective management of human resources in the mid-1990s requires more than competence in routine personnel activities. The study considered what education providers can do to ensure that computers are seen and used as a strategic human resource tool. Current thinking places the human resource practitioner, first and foremost as a businessman or -woman, maintaining a full contribution to the organization and its strategic objectives and managing and effecting change. Information Technology (IT) not only provides the means for the human resource function to make that contribution, but also enables line managers to become more involved in human resource activities. The late 1980s and early 1990s saw an enhanced role for the human resource practitioner as people were seen as the key factor in organizational effectiveness.
and competitiveness. IT provides the human resource function with the potential to become more involved with business strategy and thereby add value.

Kirstie S. Bell (1999)\(^2\) presented a survey use of human resource information systems (HRIS) in smaller organizations, conducted in 1998. The survey enquires as to the nature of information stored electronically in three core areas; personnel, training and recruitment as well as the type of information analysis being undertaken. Significant relationships were found between the total number of people employed by the organizations, and certain aspects of its information storage and manipulation. Smaller organizations were also found to be less likely to use HRIS, and HRIS was also used less frequently in training and recruitment. No sectoral differences were found. HRIS are still being used to administrative ends rather than analytical ends.

Carole Tansley et al., (2001)\(^3\) considered a case study of a large company implementing the HRIS element of an ERP system (in this instance using SAP software) into its existing organisational locations. HR data are wide in their variety, and include job history (transfers, promotions, etc.), current and historical pay details, inventories of skills and competencies, education and training records, performance assessment details, absence, lateness, accident, medical and disciplinary records, warning and suspensions, holiday entitlements, pensions data and termination records. An HRIS provides an electronic database for the storage and retrieval of HR data that is at least potentially available to anyone who may want to access it. The important issue is how these IT
systems are actually used in the HR task. Using an HRIS to automate HR information management practices can therefore enable both greater efficiency in current HR practices and, at the same time, reduce overhead costs via task mechanisation and process automation through the substitution of the human agency of HR specialists. Handled with care, this can result in an improved HR service, by offering a faster service and improved quality and consistency of information (Hall and Torrington, 1989). Essentially then, an automating strategy in relation to the adoption of an HRIS would involve using the data provided by the IT system to increase surveillance of employees and replace employees as far as possible with machines. The HRIS would need to be designed to operate beyond the usual functional HR department boundaries, enabling some access by line management and employees, and sometimes operating outside organisational boundaries, say, where HR activities are outsourced (e.g. payroll). Newer integrated ERP systems offer opportunities to break from the past and introduce or develop HRM-style practices and develop a more strategic role for the HR department.

Huub J.M. Ruël et al., (2004) stated that the basic expectations when implementing e-HRM are that its use will decrease costs, improve the human resources (HR) service level, and give the HR department space to become a real strategic partner. In other words, HRM will become more effective through the application of e-HRM. This basic expectation is emphasized by software companies and e-HR consultancies. This study was conducted in three large international companies from contrasting sectors.
It shows that, overall, the content and the structure of e-HRM applications can have a positive effect on technical and strategic HRM effectiveness. In terms of the link between e-HRM and the commitment of employees, it seems that through using e-HRM applications, respondents sense that they are receiving more attention in terms of receiving information and development opportunities, which may make them more committed to the organization.

Huub J.M. Ruël et al., (2004)\(^5\) believed that E-HRM will assume an active role for line management and employees in implementing HRM strategies, policies, and practices. Based upon the literature, an e-HRM research model is developed and, guided by this model, five organizations have been studied that have already been on the ‘e-HR road’ for a number of years. In terms of the more operational and information processing work, such as administration, registration and information distribution, there will be less demand for HR people. This seems most logical for organizations with an operational e-HRM approach. However, also with a relational e-HRM approach dominating, a smaller HR staff will be necessary if line management and employees pick up and use the HRM instruments provided by the HR intranet. There will still be HR experience necessary for the renewal of instruments and to prepare them for easy intranet-based use. Finally, with a more transformational e-HRM approach, strategic HRM expertise will be necessary in order to formulate adequate strategic HRM plans. E-HRM creates new opportunities for line management and employees the organisational practice can be limited in using these
opportunities because of a lack of time and the willingness to pick them up. E-HRM is not something technical; it is in the first place a change of minds and behavior of HR, line management and employees. At the second place it is about facilitating through IT. In the cases, it seemed to be that IT played a very big role. E-HRM can become a new destiny in terms of HRM. In the first place because of the opportunities it creates to put employee-management relationships in the hands of the employees and line managers. In the second place because information technology creates possibilities to design HRM tools and instruments that would not be possible without this information technology.

D. Challis et al., (2004) highlighted that technology alone does not provide companies with better performance. Rather, it is the joint use of technology and organizational practices that achieve improved performance. An important implication for managers is to give high priority to the ‘softer’ human aspects of adopting new technology, as it ultimately appears to have a more significant impact on employee and manufacturing performance. This reflects a key theme in the literature as to the nature and form of the relationships between organizational, human resource and technological investments, and the way the interactions between them affect dimensions of performance. They found that high-performing firms place considerably more emphasis on ‘soft’ human resource management practices and relied on total quality management principles half as much as low-performing firms.
Gayle Porter et al., (2005) revealed that an exploration of the behavioural addictions to work and to use of technology, particularly as they overlap in managers’ work routines and expectations placed on their employees. Many engaged in work behaviours that fit the addiction view of excess, and ICT is heavily intertwined with this behaviour for both those whose main work is defined by technology and those who are in general management roles. Heavy identification with ICT increasingly seems to dissolve human-technology boundaries and create dependency on technological aids. When this occurs, humans begin thinking they should act and perform as quickly as their machines. Their study culminated in a model of various adaptations to both work pressure and need to use technology in today’s business work, including the potential to over-adapt or lapse into a pattern of addiction.

Leda Panayotopoulou et al., (2005) examined the reasons for adoption of e-HR practices and the effects of e-HR adoption as well as problems associated with it. Their study attempted to investigate the transformation in the role of the HR function in Greek firms, as a result of the use of internet and technology. E-HR aims at making information available to managers and employees at anytime and anywhere. Currently, an e-HR system may include enterprise resource planning software (ERP), HR service centres, interactive voice response, manager and employee portals and web applications. So, a modern e-HR system allows employees to control their own personal information by updating records and making decisions, and allows managers to access information and
data, conduct analyses, make decisions and communicate with others, without consulting the HR department. In the long term, the adoption of e-HR demands significant adjustments overall in the way that the HR department operates. These include devolvement of some functions to the managers, decline of several administrative functions and increased expectations from the HR professional, who will be expected to take up a more strategic and knowledgeable role. More specifically, the highest use of e-HR is reported in the area of internal communication. This was anticipated, given the fact that the major reason for the presence of a company on the internet was communication. Their study results show that the use of technology in various HR functions will become quite widespread in the next two years. Close to 30 percent of those not already using e-HR intend to do so shortly. E-HR adoption is mostly driven by other considerations, such as quality in recruitment and communication, rather than cost effectiveness. However, concerning the benefits of e-HR use, time and cost savings appear to be much appreciated, along with the minimization of mistakes. They examined and discusses the development of e-HR use in Greece and the reasons for adoption of e-HR practices focusing on strategy, process and HRM issues. Findings show that e-HR facilitates the transformation of HRM role into a more strategic one. E-HR adoption and use can be facilitated through cultivating an organizational culture, which facilitates the integration of technology in organizational processes and functions and promotes the collaboration between different departments such as HR and IT, in order to institutionalize a change.
Ernst Biesalski (2005) discussed that how e-HRM and intelligent data analysis in special can disburden the employees in the HR department. Thus the HR department can concentrate more on the qualitative tasks in personnel planning like coaching and consulting. E-HRM facilitates the usage of HR marketplaces (e-recruitment) and offers more self-service to the employees. E-HRM is a collection of many different technologies. Information systems- like e-HRM solutions-that network information enable companies to get a consistent concept for their knowledge management. E-HRM offers the opportunity to automate administrative HR-work and to optimize value creating HR activities. It covers three levels of development (a). Web-presence HR, (b).web-enabled HR, and (c) web-energized HR.

M. Voermans (2006) measured the attitude of employees have towards E-HRM systems and tries to gather insight in how this attitude is formed. He used an online questionnaire, in which 99 managers and 257 employees within Philips (Electronics) Netherlands participated. Managers and employees answered questions as to their previous experiences with regard to IT systems in general, their preferred HR roles, and their attitude towards E-HRM systems. A multi-factorial framework for studying E-HRM is preferred, that includes multiple factors like: new technology, organization and work design, organizational context, and HRM strategy and policy. All in all, employee attitude towards E-HRM is influenced by multiple factors. Two main factors were found to improve this attitude: first, positive experiences with an IT system (especially its
experienced usability), and second, the employees’ preferences as to the role played by HR in the organization (especially the strategic preference). In practice, employees will be more positive towards an E-HRM implementation if they prefer a strategic role for HR. Communication from central management and HR staff, needed to support such a role, as well as actual and visible examples of the advantages of a strategic HR role (including the possibility of increased efficiency, while at the same time preserving quality standards for HR operational tasks, like administration) may be of vital interest for successful E-HRM implementation. He found that differences in perceived usability of current IT systems, as well as the preferred HR roles strategic partner (high preference) and employee champion (low preference), were related to a positive attitude towards E-HRM systems. For managers, user support was also found to be a predictor of a positive attitude towards E-HRM. The first finding implicates that for an E-HRM implementation to be successful the broader IT environment should be taken into consideration. The second finding implicates that, in practice, employees will be more positive towards an E-HRM implementation if they prefer a strategic role for HR.

Huub Ruel et al., (2006) observed that when implementing e-HRM on a global scale it is not easy to make e-HRM appear advantageous on a local scale. That makes it hard to get local HRM professionals enthusiastic. Their study was conducted in the Ministry of Internal Affairs in The Netherlands, where e-HRM in the form of employee self-service applications was introduced. Guaranteeing the security and confidentiality of
input data is an important issue for employees in order that they should feel ‘safe’ when using web-based HR tools. They found that individual assessment of e-HRM applications influences HRM technical and strategic effectiveness. This is especially so in the perceived quality of the content and the structure of e-HRM applications which have a significant and positive effect on technical and strategic HRM effectiveness.

Marco Maatman (2006) revealed that the e-HRM technology provides a portal which enables managers, employees and HR professionals to view, extract, or alter information which is necessary for managing the HR of the organisation. With e-HRM employees control their own personal information. They can update records when their situations change and make many decisions on their own, consulting HR professionals only when they deem it necessary. The use of e-HRM technology, as it is a way to implement HR strategies, policies and practices, is expected to have an impact on how the HR function operates. Moreover, it is aimed to improve the HR system. The impact of e-HRM technology on the HR system however, is expected to be dependent on the way the technology is used. It is dependent on what and how the technology supports the HR function but also on how the technology is constructed. This is on its turn affected by what the organisation is trying to achieve with the technology, or in other words, what the e-HRM goals of the organisation are. The e-HRM goals and the actual use of the e-HRM technology thus have an impact on the HR system. The preliminary theoretical framework contained three constructs, the e-HRM goals, the use of e-HRM, and the
effectiveness of the HR system, that were expected to determine the effectiveness of e-HRM.

Eric W.T. Ngai et al., (2006)\textsuperscript{13} provided a broad overview of the internet, intranets and various internet applications used to support HRM. The purpose of their study was to empirically examine the perceptions of the importance of the internet to HRM and to understand the existing human resource. The internet provides communication cost reductions, improvements in information management, internal and external communications through comprehensive electronic mail facilities, list servers and newsgroups, and access to information from external sources through the searching of web sites. The use of intranets also helps in many ways to support HRM functions. Intranets bring benefits such as their role in enabling activities including communication, information retrieval and database access, and their ability to establish a company information system. Companies are making employee profiles, skills inventories, policy manuals and company telephone directories available to their employees. They attempted to explore how the internet and intranets can support HRM and their importance to HR practitioners. A wide range of aspects of this topic can be explored further; for example, HRIS supports various key HR processes such as payroll and job evaluation. These HR processes can be transformed to internet-based ones for international HRM.
Miguel R. Olivas-Lujan et al., (2007)\textsuperscript{14} stated that the different stages of E-HRM adoption between the four cases presented illustrate distinctive influences stemming from Mexico’s economic development and culture. A case-based study was carried out with the purpose of investigating how four of the most competitive Mexican firms are implementing their e-HRM strategy. Also they suggested that operational HR activities are being delivered through their company’s self-service portals (e-compensation, e-training, e-recruitment and e-staffing, among other activities) with a large degree of expected savings and efficiencies, but also enabling the expected changes in HR’s role. We have found that the firms in our research are working toward changing the employees’ mindset in a way that is consistent with their E-HRM strategy. Changing employees’ mindsets with respect to HR implies changing the way in which social relationships between employees have been constructed. The HR departments’ tasks have in fact tended to become less “human” in the sense that the employees have more contact with computers and technology than with the employees of the personnel department.

Huub J.M. Rue¨l et al., (2007)\textsuperscript{15} presented the results of a quantitative study on the question whether e-HRM contributes to HRM effectiveness. They also measured the assessment of e-HRM applications, defined as the extent to which e-HRM applications are perceived as appropriate for their use, and the extent to which employees perceived the resulting HRM to be effective. This was carried out in a large governmental organisation: the Dutch Ministry of Internal Affairs. One’s assessment of the quality of e-
HRM applications in particular is positively related with technical and strategic HRM effectiveness. An increase in the perceived quality of an e-HRM application results in an increase in HRM effectiveness. Interestingly, the job relevance and ease of use of e-HRM applications do not seem to have a significant positive effect on strategic and technical HRM effectiveness.

Stefan Strohmeier (2007) revealed that the framework distinguishes between context, configuration and consequences of e-HRM, proposing that the configuration will determine the consequences of e-HRM, while both configuration and consequences may be preceded and moderated by contextual factors. At first, contextual factors are obviously of relevance for e-HRM. For instance, on the individual level computer availability or attitudes of peer groups may constitute relevant contextual factors, while the organizational level may be affected by contextual factors like culture or legal conditions, etc. Actors of e-HRM are all those who (plan, implement and) perform e-HRM, and hence are of vital importance, as e.g. HR professionals, line managers, employees, consultants, applicants, etc.; therefore different actors constitute a configurational component. Having mapped the e-HRM context and configuration, the actual consequences of e-HRM, whether helpful or harmful, delineate a crucial aspect. Consequences again occur on the micro- and the macro-level. Micro-level consequences refer to individual impacts like user satisfaction or acceptance. Leaning on previous conceptual work, macro-level consequences can be structured into operational, relational
and/or transformational. E-HRM obviously seems to be generally accepted and sometimes even preferred to conventional HRM. It is sufficient, however, to recognize e-HRM as an innovative, lasting and substantial development in HRM that results in new phenomena and major changes.

Zoltan Majo (2007)\(^{17}\) believed that E-HRM has become important for both business and public actors in the past decade. Electronisation in relation to human resources, naturally and from different aspects, has moved into the centre of attention everywhere. Besides business and government interpretation and utilization, the notion of e-HRM is related three disciplines; it can be approached from three angles from a scientific point of view. He contributed a better comprehension of the relationship between human resource management and the information society and also facilitated the better comprehension of the world of phenomena of virtualising workplaces, and the effective utilization of ICT.

Johan Gregeby (2007)\(^{18}\) focused focusing on the implementation of HRIS and structuring of a specific HR practice (competence development and performance management); using a practice-based approach to analyze the role of key stakeholders and technology in determining the value of HR services. The change program consists of the implementation of HRIS software and introducing new way of working with HR; reorganizing processes to support personalization strategies, introducing new role responsibilities for HR professionals, and a service organization. The program consists of
four corner stones being the implementation of a HRIS (‘Peoplesoft’) to enable a global HR information handling, introducing global HR processes, a new HR role on both global and national level, called Human Resource Advisor (HRA) and a Service Centre (SC) solution, responsible for delivering effective HR administration services.

Voermans, M et al., (2008)\textsuperscript{19} stated that E-HRM is the flavor of the moment in many large organizations. Their study conducted at Philips during the introduction of E-HRM. It seems to offer the chance of making HR specialists more efficient by relieving them of some of their more routine work and enabling them to concentrate on the more strategic aspects of their job. This, in turn, chimes with the often-heard claim that “our people are our most important asset”. It strengthens the claim of senior HR people to a place on the board. Clearly, then, there is much at stake in the success of e-HRM systems. The employees the changes target should be able to assimilate them easily if the reforms are to be successful. The system chosen should fit well with the organization’s strategic needs – both regarding personnel in general and the HR redesign in particular. Finally, if employees conclude that the introduction of e-HRM is simply a way of offloading operational work on to them, they are unlikely to react well to the changes.

Sanayei et al., (2008)\textsuperscript{20} provided an explanation of E-HRM and introducing its activities and tools. Their study has carried over from Iranian HR managers and 110 HR managers were chosen to participate in this study. E-HRM managers always strive to provide a seamless integration of all HRM services with a common goal of employee
satisfaction. E-HRM applications have a significant positive effect on the effectiveness of HRM activities. This means that deploying E-HRM tools impacts on the effectiveness of HRM activities indirectly. For implementing E-HRM tool, first we must identify the goals and strategies of E-HRM and then provide the infrastructure in organization such as information technology and telecommunication systems. It is essential to consider the limitations of implementing E-HRM such as hardware, software, employees’ skill and financial capabilities.

Steve Foster (2008) revealed that the use of technology in HR is well established for the purposes of improving HR operational processes and allowing distributed access to employees and managers. Likewise, several organisations have successfully adopted new HR business models using technology as a platform for a transformative change at the human capital level. A key part of the consulting process involves creating a robust vision for e-HRM and aligning it to broader business needs. It is clear that in many organisations, there remains a lack of understanding among HR professionals about how technology might be applied to transformational objectives beyond basic administrative outcomes. They suggested that while attitudes towards e-HRM technology are important, opinions about technology may well be moderated by the relationship between groups of stakeholders, in this case, HR managers and line managers. These inter-group frames shape attitudes towards technology and may well be a barrier to a transformational approach to e-HRM.
Farid Khoshalhan et al., (2008)\textsuperscript{22} stated that adoption of electronic human resource management (e-HRM) is without doubt an extremely promising research area; since it deals with the human resources, which are the most important and value adding asset of any organization. E-HRM is simply a way of conducting human resource management by means of ICT. The decision to adopt or reject it would affect everyone in the organization and therefore requires great consideration. The benefits of e-HRM, including service improvement and cost reduction, might justify the adoption; however, in order to fully realize these benefits, the organization must first deal with the barriers facing its thorough adoption. They investigated the barriers to the adoption of electronic human resource management (e-HRM) in organizations. When attempting to adopt e-HRM, an organization encounters many barriers, including lack of top management support, adopters’ resistance towards change, and deficiency of organizational resources. Identifying these barriers provides solutions to overcome the adoption problem and also reduce resistance.

Victory. Haines et al., (2008)\textsuperscript{23} believed that the human resource function has undergone dramatic change, owing, it would seem, to greater use of rapidly evolving information technology. Positive associations between information technology use and technical and strategic effectiveness also revealed the transformational potential of information technology–supported human resource management applications. More effective HR may actually provide the leverage needed to acquire and implement IT
solutions. Possibly, greater use of IT-supported HR applications allows the development of more strategic roles and more effective HR. Such progress may provide the needed leverage to obtain funding for further IT investments.

Tanya Bondarouk et al., (2008)\(^{24}\) stated that E-HRM is increasingly gaining importance within working organizations and many of its adherents assume and express its advantages. Their study contributed to the discussion on whether e-HRM supplies HRM effectiveness. A small number of academic studies have investigated this issue. Scientific support, however, is scarce and there is a lack of clarity regarding the contribution of e-HRM to HRM effectiveness. Line managers and employees were interviewed to examine the linkages between the use of e-HRM applications and perceived effectiveness of HRM. Results of the analyses indicate that the appreciation of e-HRM applications is associated with HRM effectiveness, and reveals differences in the use of e-HRM between line managers and employees.

Bondarouk et al., (2008)\(^{25}\) believed Information technology completely infuses HRM processes and HRM departments in today’s global networking timeframe. Their study viewed e-HRM as an umbrella term covering the integration of HRM and IT, aimed at creating value for targeted employees and managers. For more than a decade now, digital possibilities have been challenging traditional ways of delivering HRM services within business and public organizations. The introduction of e-HRM into organizational life increasingly calls for an integration of diverse expertise,
interdisciplinary comprehension, and modernization of the HR profession. They also believed in the course their editorial decisions and thinking about e-HRM research challenges, we found ourselves repeatedly facing the question of criteria for good e-HRM research. They developed three criteria that in their view build a basis for a good e-HRM academic study: First, the study should clearly address the multidisciplinary nature of the e-HRM field, showing an attempt to assimilate IT and HRM knowledge domains. Second, such studies should elaborate on the e-HRM discourse that is to become instrumental in constructing shared thinking, symbols, language, and epistemological boundaries of this research area. Third, research should clearly demonstrate a contribution to theory building and to the practice of e-HRM projects.

Stefan Strohmeier et al., (2009) believed that e-HRM as the application of IT to both network and support diverse actors in their shared performing of HR tasks. The study focused to examine which factors influence the cross-national organizational adoption of electronic human resource management (e-HRM) in Europe. Concerning adoption it is first generally agreed that adoption constitutes a multilevel phenomenon, while customarily, the individual level (technology adoption by individual persons) and the organizational level (technology adoption by organizations or organizational units) are distinguished and interaction effects between both levels are assumed. Adoption of e-HRM seems to be interrelated with some very basic decisions concerning the design of HRM, while certain decisions apparently seems to imply adoption. Finally, the national
economic development influenced e-HRM adoption only partially or rather regionally. They found that e-HRM is a common practice throughout Europe since two-thirds of all organizations have already adopted e-HRM. Major general determinants of e-HRM adoption are size, work organization, and configuration of HRM. In addition, there are major cross-national differences in e-HRM adoption, unexpectedly revealing Eastern post-communist countries to lead e-HRM adoption.

Stefan Strohmeier (2009) stated that E-HRM constitutes a commonly adopted management practice in the interim. This is obviously founded on the expectation of diverse positive consequences of e-HRM, such as reducing costs, speeding up processes, improving quality, and even gaining a more strategic role for HR within the organisation. Given the crucial importance of actual consequences for practice, research is asked to provide a general understanding of e-HRM consequences that supports practice in its decisions. Due to the respective shortcomings they are less recommendable for e-HRM research. On the contrary, the moderate categories offer more complex but also richer concepts of consequences which show more potential for research in e-HRM. As a major implication for practice, some initial suggestions of systematically managing e-HRM consequences could be made. Also some implications for future research could be derived.
3.3. Electronic Recruitment [E-Recruitment]

Robert Stoesser (2000)\textsuperscript{28} stated that the websites of some major corporations have the capability to accept electronic resumes, for the majority of small and mid-sized businesses, including many banks. Some banks are considering offering “E-Recruitment” service for their commercial customers. They offer this as part of their online services to small businesses. The company helps a bank launch an e-recruitment site and establish a ‘community’ of employees and candidates.

JobsDB dimension (2002)\textsuperscript{29} stated that e-recruitment strategy is the integration and utilization of internet technology to improve efficiency and effectiveness of the recruitment process. Most companies understand this and have begun the evolution by integrating e-recruitment strategy into their hiring process. As usage of internet became widespread, the first way of e-recruiting innovation was the creation of career sections on corporate web sites. The early innovators achieved great success with the status of “employer of choice” and they mostly enjoyed the improved recruiting efficiency that comes with corporate website recruitment.

JobsDB Dimension (2003)\textsuperscript{30} reported that as the internet became popular, the first wave of e-recruiting innovation was the creation of career section on corporate web sites. This practice enabled the companies to post vacancies and receive applications from talents worldwide without graphical and time limitation which substantially reduced the cost and time involved for sourcing candidates. Recent studies have shown a steady
increase in the Global 500’s adoption of e-recruitment via corporate websites, growing from only 29% in 1998 to 60% in 1999, then to 79% in 2000 and 88% in 2001. The four years’ trend confirms that most of the Global 500 companies considered their corporate websites to be a vital component of the overall recruiting process. While the most innovative companies have long understood the power of the internet as a medium to attract new candidates, they are now well on the way to streamlining their recruitment process.

David Yoon Kin Tong et al., (2004)\textsuperscript{31} stated that the traditional recruitment procedures are not coping up with the industry requirements especially in selecting the right candidate quicker. Eventually, e-recruitment emerged as handy and advantageous method over traditional methods. Their examined the employed jobseekers’ perceptions and behaviours of third-party e-recruitment technology adoption in Malaysia. E-recruitment, as business activity, is fast growing globally and is worth billion of a Ringgits Malaysia annually. International e-recruiters will continue to compete among themselves aggressively, and continue to improve their services to the clients and job seekers. This would entail providing a broader range of contents for the platform tools with the purpose of enticing successful job seekers to motivate others to visit their sites. Continuous increase of résumé’ is expected. With the continuous influx of resume’s, more established e-recruiters with technological edges would continue to improve their hiring solution and services to ease the sorting of massive résumé’ received by their
clients. The results identified few key determinants to this technology adoption. Moreover, the weak evidence of the behavioural intention indicates that e-recruitment has not replaced some of the conventional recruitment methods. E-recruiters should also consider continuing improvement on the web site privacy protection, particularly shielding their members’ personal information and resumes from being viewed by their employers.

David Pollitt (2004)\textsuperscript{32} indicated that an e-recruitment program is helping Xerox Europe to find the right people for its Xerox Concessionaire sales network, created almost 20 years ago to extend the document company’s market coverage across the continent.

David Pollitt (2005)\textsuperscript{33} stated that Nike chose to work with Job partners to implement the company’s e-recruitment solution, Active Recruiter, which has been designed to help companies to manage the entire recruitment process more effectively and quickly, resulting in a better relationship between the company and its candidates. Active Recruiter offered flexibility and simplicity, and was also cost effective and could be easily integrated within the company’s existing programs from PeopleSoft. Communication is critical to the implementation. Internal customers and users of the system have to see benefits, not only to the business as a whole, but also in terms of helping them to achieve their recruitment targets and in attracting quality people with the necessary skills and attributes.
Yogesh Sharma (2005) revealed that the internet is no longer just rage; it has now become a very powerful and effective tool at everybody’s disposal. E-Recruitment is simply using this tool To Hire Whom you Desire. Conventional recruitment has always been a time consuming and paper intensive process. They also tend to stress out the organizations monetary resources. Online recruitment is not just restricted to specific web sites either; many major companies are using some form of e-recruitment, enabling candidate to e-mail their CVs to the human resources depart anent. Using the power of internet to achieve HR goals not only increases productivity but also saves time and money to give a competitive advantage. E-recruitment for organization has another facet to it; Use of software solutions for effective and efficient recruitment. Recruiters in an IT company, use of software solutions for not only searching the best skilled candidates but in the hiring process also. Recruitment is not hiring the best among those knocking at your door; rather it’s a quest to enroll the right candidate in your human capital, transcending all barriers with the help of latest technology. The pluses are many: Posting jobs online can cost less than half as much as Sunday newspaper postings and far less than employment agency fees. Online ads can be longer, more descriptive, written any time of the day or night, and posted almost immediately. For employers, online recruiting allows far better targe ting of candidates than does advertising in general newspapers, resulting in a greater percentage of qualified applicants. In addition, because 24/7. Online job hunting is private and convenient
Emma Parry (2005)\textsuperscript{35} stated that the use of online recruitment is in accord with the organisation’s resourcing strategy to attract the best talent from all over the world. An output of the online recruitment system is the production of accurate and accessible information. Information regarding vacancies and the recruitment process is now “at their fingertips” and is always available. This means that the team can “work smarter” by targeting their recruitment advertising for instance. At a higher level, the Head of Resourcing has access to faster, “real time” information and can monitor who is applying for jobs etc. and use this information in order to make better decisions. It is also possible to track the workload of each individual on the resourcing team in order to examine operational efficiency. The automation of systems in recruitment has meant that the Resourcing team has more time to focus on other “better value” issues so that they can add more value to the organisation. The use of an online system for graduate recruitment has led to improvements in both the efficiency and rigour of the recruitment process.

Rosita bt. Mohamed Othman et al., (2006)\textsuperscript{36} found that Internet recruitment is viewed as an important additional tool and traditional methods are continued to be used in recruiting process. The pros of e-recruitment were to identify and reach large of qualified candidates, advertise with dispersed location, provide cost effective method, save the recruiting process time and increase image of organization. One of the main considerations of e-recruitment is the cost-effective and the economy achieved through its usage. E-recruitment can increase the image of organization, especially when building
a corporate recruitment site; it is considered to attribute to the company an image. E-recruitment facilitates the organization to reach the large target and bringing the qualified candidates. Internet recruitment is viewed as an important additional tool and traditional methods are continued to be used in recruiting process. The pros of e-recruitment were to identify and reach large of qualified candidates, advertise with dispersed location, provide cost effective method, save the recruiting process time and increase image of organization.

Linda Barber (2006)\textsuperscript{37} stated that that the internet has caused the largest change to the recruitment landscape in the past decade acting as a conduit between employers and job seekers. The study has explored key aspects of the recruitment journey for consideration by those who may be contemplating e-recruitment or those who are already further down the road and have already moved recruitment online. Technology has enabled corporate websites, suppliers and job seekers to become more sophisticated, interactive and to connect globally 24 hours a day, 7 days a week. Online applications are widely accepted across European civil service organizations. Research suggests that online recruitment methods are viewed as one of the most effective attraction methods along with newspaper advertising. Online recruitment can pass far more information in a much more dynamic and consistent fashion to candidates than was the case in the past. Recent advances in technology allow candidates to create and maintain a personal profile
on a company’s website. Moving to recruitment online enables organizations to improve early communication via candidate management long before the application stage.

Thomas A. Martin et al., (2006)\textsuperscript{38} revealed that the internet has become an integral part of Human Resource Management during the last few years and the so-called "e-recruitment" or "internet recruitment" is increasingly gaining importance. Job boards on the Internet can help small and medium-sized enterprises (SMEs) as well as less well known companies to generate more visits to their own corporate HRM-homepage and thus recruit qualified potential employees. Even if e-recruitment and the pre-selection of candidates online are emerging and appear to be modern, well-established and economical, at least a complementing direct personal contact to applicants is still considered to be necessary and desirable. It suggested two different modes e-recruitment, (a) Job advertisements on corporate homepages (HRM site): Interested applicants can contact the enterprise directly via email or standardized forms. (b) Online career networks: Enterprises as a rule have to pay in order to post a vacancy on the website. In addition to job offers, company profiles and banners can be uploaded.

Pramila Rao (2006)\textsuperscript{39} stated that E-recruitment can either be in the form of corporate or third-party recruiters. Corporate recruiters allow potential job applicants to post their resumes directly on their job sites without using any other intermediaries. Her study provided a good perspective on internet usage, internet penetration and role of culture in two leading emerging economies, Mexico and India. E-recruitment brings out
the cultural importance of a very personalized and collective approach that some national cultures have towards staffing. Internet recruiting will definitely continue to play a very prominent role as the world becomes more digitized. Multinationals are going to rely increasingly on this method of recruitment as it proven to bring high-caliber worldwide talent to your doorstep. Practitioners and researchers would benefit from making a “what if” chart or spreadsheet based on cultural dimensions scores and adaptability to internet usage. This would help identify as to why some countries still prefer a very different approach to staffing.

Sandeep Ray Chaudhuri (2006) indicated that the recruitment practices have undergone a metamorphosis during the past two decades. His study discussed the emerging trends and emphasis the need to develop an overarching framework of recruitment by considering the individual, organizational as well as social perspectives. Traditional sources like advertisement in newspapers, campus interview, and use of recruitment consultants involved considerable time and cost. At the same time the problem of high attrition rate continued unabated. To counter these, organizations started experimenting with more innovative methods of talent sourcing. With the intervention of Internet Technologies and Hr turning into a strategic function, online recruitment has transgressed the more conventional sources (Ghosh, 2005). It does not replace other forms of recruitment –rather it supplements and complements them. E-recruitment is fast, cost-effective, and ensures the rare dual presence of quality and quantity. All major IT
companies have their own web/job sites. The emerging recruitment strategies and practices must be flexible technologically, advanced, innovative, inimitable, well publicized, timely, cost-effective and embedded in the organizational system

Erica R Marr (2007)\textsuperscript{41} has made a comparative assessment of recruitment source effectiveness. The study is based on the pre-hire measures of the quality and quantity of applicants, with a specific focus on e-recruitment. A nine year longitudinal study was employed over a period of pre-internet and post-internet use by a large organization which enabled the exploration of changes in applicant data. Recruitment source effects were assessed through two perspectives; applicant and organizational. Applicant perspectives were assessed through the distribution of a survey to real applicants of the organization. Organisational perspectives were captured through interviews with HR practitioners of eight mid to large size organizations. Results indicated that the quality of applicants generated by e-recruitment is equivalent to or less than that of other sources, therefore it is not the most effective recruitment source. Overall, the research has provided evidence to support the need for organizations to develop a recruitment strategy which incorporates a diverse range of sources to reach quality applicants in the desired target market.

David Yoon Kin Tong (2008)\textsuperscript{42} revealed that the conventional recruitment methods used by organizations consist of contacting friends or employee referrals, engaging executive search, using newspapers classified ads, and others. While e-
recruitment seemingly paves the way to become future recruitment method, and is highly likely to become jobseekers platform for job search. His study examined the employed jobseekers’ perceptions and behaviours of third-party e-recruitment technology adoption in Malaysia. The results identify few key determinants to this technology adoption. Moreover, the weak evidence of the behavioural intention indicates that e-recruitment has not replaced some of the conventional recruitment methods. E-recruiters should also consider continuing improvement on the web site privacy protection, particularly shielding their members’ personal information and resumes from being viewed by their employers. His study found two important factors for third party e-recruiters’ policy makers and human resource management practices. It is evident that the e-recruitment system and services need further improvement to recruit employed jobseekers specifically the passive talented candidates who used e-recruitment platform for job market value survey.

Lakhwinder Singh et al., (2008) believed that Internet is bringing radical changes in the recruitment arena, as companies are expanding their use of the Internet as a recruitment tool to attract competent people, and thus, have competitive advantage. In order to reap the maximum possible benefits of e-recruitment, employers must know how the job seekers perceive online recruitment processes, and what their information needs are. The company-owned websites are perceived as more efficient and effective than online job boards Web-based recruitment has been found to be the most attractive when
compared to other means of recruitment. The present study examines the perceptions of job seekers about e-recruitments and their behavior towards them. It has been found that monster.com and naukri.com are the two most popular job boards, and chat groups are the leading source of information about job openings. A large percentage of the respondents frequently visit job boards or corporate websites, use certain facilities offered by them, and check the status of their applications submitted online. A majority of their survey participants hold positive perceptions about various aspects of web recruitment. Information about various jobs provided by online advertisements is also perceived to be reliable. Effective use of online recruitment not only depends on how many job seekers are applying online, but also on their follow-up behavior with regard to their applications. Internet technology has enabled organizations to recruit employees online, and it is becoming popular as more and more organizations are discovering the advantages of online recruitments. Internet is also becoming the preferred way of searching a job for the job seekers. Organizations should capitalize on the growing popularity and perceived usefulness of online recruitment and job search processes by making employment sections on their websites more attractive, informative, and easy to use. Online recruitment is going to grow and will be of immense importance for the employers to find the best talent as well as for the individual job seekers to search for the best organizations. Online recruitment is going to overtake the traditional methods of recruitment, though both will coexist.
Anna B. Holm (2008) stated that e-recruitment generates higher application turnover, shortens by 2/3 the time taken from job being posted to it being offered to a candidate is increasingly cost-effective. The internet and the availability of supporting information and communication technologies (ICT) have brought radical change to corporate recruiting by significantly altering the traditional process of job advertising, CV, screening, short-listing and communication with candidates. The e-recruitment systems deployed seem to live up to HR managers initial expectations and needs. The study found that E-recruitment arrangements are almost entirely limited to the phases of attracting applications, receiving and processing applications and to some extent screening candidates. While traditional recruitment may not require any particular technology, e-recruitment is reliant on a wide range of information and communication technologies and access to them by the general public. Recruiting with the help of electronic means does not alter, eliminate or replace any traditional phases of recruitment cycle; it rather modernizes and advances the whole process, bringing it to another level of organizational complexity.

Hella Sylva et al., (2009) stated that it has been estimated that the movement of recruitment activities to the World Wide Web can result in financial savings of up to 90% of the costs of traditional recruitment methods and considerable time savings as the hiring cycle is reduced by almost 25%. Their study examined applicant perceptions of web-based procedures, based on a field study among 1360 applicants to a multinational
financial services organization applying for jobs in the United Kingdom, the Netherlands, and Belgium. Internet makes easier and quicker for candidates to search and apply for job positions, to compare organizations online, and to do so in real-time with responses being returned almost immediately when they subsequently decide to apply online. Candidates are thus able to search through thousands of job postings and apply for various jobs by simply sending a resume via the Internet. They found generally positive applicant reactions, the worldwide reach of the Internet, and significant savings related to web-based recruitment and assessment procedures, would all suggest that recruitment and selection on the Internet has great potential.

Diana d. Mcdonnell et al., (2010) indicated that the internet reached large numbers of people; it can also be used as a recruiting tool. Their study described the real-world experience recruiting 1,261 KA participants, primarily through online methods. Although some of the specific methods and tools used to evaluate these recruitment efforts have since been updated, the constraints that were faced – cost, time, and expertise in advertising are probably common to academic researchers.

3.4. Electronic Training [E-Training]

Albert H. Huang (1998) stated that online end-user training offers the flexibility and cost efficiency of computer-based training and the individual attention and support of instructor-guided training. At the same time, it continuously empowers end users by providing them with more up-to-date knowledge and decision-making authority over
their own training. In organizations that utilize computer-based training (CBT) methods, users may have some control over their own training schedules. Research indicates that even small amounts of user empowerment, such as enabling users to set their own training schedule, has a significant positive impact on the organization. CBEUT is the use of computers to interactively present information to end users in the training process. Instead of receiving instructions from training instructors, end users receive the training by going through a computer system that contains hypermedia-style training documents. OLEUT uses computer networks to conduct end-user training and learning activities. OLEUT empowers end users by giving them choices of training programs, schedules, locations, and even instructors. OLEUT makes it easier for end users to continuously empower themselves by establishing an ongoing relationship with online training resources. End users are continuously empowered by more up-to-date knowledge and decision-making authority over their own training. Most important, OLEUT may improve the quality of end-user training. In the long run, productivity, safety, and quality at the workplace should all be improved.

Rose et al., (2000)\textsuperscript{48} stated that Virtual environments (VEs) are extensively used in training but there have been few rigorous scientific investigations of whether and how skills learned in a VE are transferred to the real world. Their study aimed to measure and evaluates what is transferring from training a simple sensorimotor task in a VE to real world performance. Virtual training therefore resulted in equivalent or even better real
world performance than real training in this simple sensor motor task. They found in terms of the cognitive load characteristics of virtual training. Virtual training therefore resulted in equivalent or even better real world performance than real training in this simple sensor motor task, but this finding may not apply to other training tasks. The use of VEs allows the trainer total control of both the stimulus situation and the nature and pattern of feedback, and also allows comprehensive monitoring of performance. Sometimes, by combining an educational simulation and a computer

Sonia Jurich (2001)\textsuperscript{49} indicated that corporations are adopting e-learning to train and re-train their workforce. They summarized solutions found by corporations located in three different parts of the globe, to meet their training. While e-learning makes for 60 percent of the expenses of corporate training in the U.S., in France it makes for only 11 percent. E-learning programs can be provided in two ways: (1) in scheduled delivery, at fixed time and place or (2) on-demand, for individuals who have particular needs. They found that E-learning is proving to be the solution for companies that need to provide high quality, cost-effective and ongoing training to a growing network of employees, business partners and customers across the world.

Patrick McCole et al., (2001)\textsuperscript{50} indicated that Changes in technology have a direct impact on human resource issues. The decision to adopt new technology into existing processes is a company specific issue. The assessment of training needs, to facilitate the efficient and effective diffusion and implementation of strategies and subsequent
reformed processes are of paramount importance and relevance to contemporary SMEs. The rapid development of technology and the consequent change in working practices require a dramatically different approach towards training and development in organisations than has traditionally been the case. Changes in technology have a direct impact on human resource issues. The decision to adopt new technology into existing processes is a company specific issue. The assessment of training needs, to facilitate the efficient and effective diffusion and implementation of strategies and subsequent reformed processes are of paramount importance and relevance to contemporary SMEs.

Hareton (2003) stated that e-learning is a growing trend among many higher educational institutions. Learners and teaching professionals are attracted by the many benefits of e-learning, such as the flexibility of learning anywhere, at any time and at an individualized pace. The question of the effectiveness of e-learning should be reviewed before adopting e-learning on a large scale. They evaluated the effectiveness of e-learning, relative to the performance of conventional learning, for a software engineering course. E-learning includes any means of delivering learning materials via the WorldWideWeb. The learning resources that are used in e-learning courses generally include the same resources that are found in traditional face-to-face courses, such as books, notes, software, etc. Because of the associated technology, e-learning courses are usually enhanced by multimedia presentations and audio and video conferencing, which are made available over the Internet. The advantages of e-learning include the following:
flexibility, accessibility, and convenience for learners; institutional cost savings and time savings over traditional classroom-based education; and ease in updating and revising courses. Asynchronous Learning Networks (2001) states that two thirds of the respondents reported e-learning to be more effective.

Kay et al., (2003)\textsuperscript{52} revealed that Virtual environments (VEs) have been implemented in a series of potential training devices involving navigation, platform control, and dynamic environments. The question of interest for training applications focuses upon the value-added of VE with instructional features. Yet the training efficacy of such training systems may be compromised by a pervasive issue; often times when users make their way throughout a VE they become lost.

Jose et al., (2004)\textsuperscript{53} stated that the influence of information technology in human resources management (HRM) and specifically on training policy through the experience of a Spanish telecommunications firm, Telefonica. The Intranet is a powerful tool which can encourage communication and collaboration in the firm, streamline procedures and provide its staff with permanently updated information, even if the staff are distributed all over the world. The results of e-design of new training models are encouraging. The study indicated that search for higher employability levels for its employees; Telefonica’s training policy has focused on what they call cooperative learning. The basic aspects are interactivity, accessibility, facilitation, adoptability, flexibility, and employability. They found using the e-learning program leads to flexibility in the management of learning
times; trainers’ active participation; the development of control mechanisms that ensure training effectiveness; the preparation of high-quality content; the reinforcement of mutual interaction elements between trainers, between students and between both; the use of standardised technologies and the gradual introduction of these experiences.

Allan Macpherson et al., (2004)\textsuperscript{54} considered that the electronic networks of education and training will provide access to continuous learning for a much wider constituency than currently has access to traditional distance learning methods. They used e-learning generally to cover PC-based electronically delivered discrete learning packages through interconnected computer systems via internets or intranets. E-learning has the potential to be the latest in a long line of technological developments in learning that fails to deliver on the early promise and ‘hype’ afforded by its advocates.

Ronei Marcos et al., (2004)\textsuperscript{55} stated that the goal of the training evaluation in a simulation is to provide feedback about the user performance in the training environment. Approaches to online or offline evaluation of training in simulators based on virtual reality have been proposed.

Allan Macpherson et al., (2005)\textsuperscript{56} revealed that the impact of e-learning will be dependent on how the technology is adopted and used within organizational contexts, and how well the technology supports the objectives, strategies and values of learning within the corporate university framework. Their study aimed the use of e-learning in corporate universities enables access and broadens the curriculum and also assessed the use and
implementation of e-learning through case material, and explores some of the challenges and emerging concerns. While technological solutions to the management and delivery of e-learning are developing at pace, for the full possibilities of e-learning to be realised requires significant investment in technological capability and in pedagogical design. While the implementation of e-learning may deliver ROI in terms of costs and efficiency savings, the lack of assessment of learners’ experience is a concern. Then the implementation of e-learning must address more than the efficiency and flexibility agenda emphasised in these organisations. They found that e-learning has the potential to be a key learning and development strategy within the corporate university is not in doubt. However, the method and design of its adoption will limit its contribution to the organisation.

Liam Brown et al., (2006)\textsuperscript{57} noticed that as human resource development (HRD) practices shift away from training and towards learning, the notions of lifelong learning and electronic learning (eLearning) are emerging in the HRD literature. The study compared and contrasts the current attitudes towards, awareness of and take-up of eLearning in large and small organizations and outlines the implications for human resource development (HRD) professionals. Experience and usage of eLearning technologies and content are significantly higher in the large organizations than the SMEs. Both groups agree that e-learning courses are more effective when undertaken in a dedicated learning centre as opposed to being delivered to the desktop. The study found
that changes in the modern workplace and in business processes raise expectations that eLearning will meet HRD needs.

Deborah (2006)\textsuperscript{58} stated that web-based instruction, also called e-learning, is currently one of the most talked about education and training media. To prepare courses for online delivery and to maintain their effectiveness, the designer must have an understanding of e-learning instructional design principles. Action learning is a proven, effective management development process that has not been implemented to date as an e-learning instructional methodology. He examined that the impact of the action learning process on the effectiveness of management level web-based instruction (WBI). The study found that, though challenging to facilitate, the action learning online method is effective and yields changes in participants’ knowledge.

Andrew Smith et al., (2007)\textsuperscript{59} stated a key development in training reform has been the emergence of Training Packages, sets of occupational competency standards, qualifications and assessment guidelines covering most jobs in the economy. They analysed the impact that nationally recognised training has had on the practice of human resource management in Australian organisations. Many employers are now using the competency standards contained in Training Packages to underpin other human resource management practices such as recruitment and selection, performance management and management development. The use of consistent national standards to underpin these activities has led to better alignment and integration of human resource management in
some organisations, as predicted by theories of bundling in the strategic human resource management literature. The study has suggested that that training may play a more prominent role in the bundling of human resource management practices than hitherto realised.

Celayne Heaton et al., (2007)\textsuperscript{60} pointed that the VLE suited a range of styles; but also that it was more particularly supportive of some styles and approaches. It emerged that the VLE suited both activist and reflective learning styles; supported a planned and structured approach to learning and studying. It also showed that a VLE is a valuable addition to learning, even when it is used only to deliver contents. They found that style shaped use, as learners tended to use the VLE in a manner consistent with their preferred style.

Anne Stenersen (2008)\textsuperscript{61} believed that the internet is best viewed as a resource bank for self-radicalized and autonomous cells, which is used alongside more traditional ways of training and preparing. The idea that Internet training material should be used to learn the basics—before moving on to classical jihadi training

Dirk et al., (2008)\textsuperscript{62} considered that virtual assignments are characterized by the spatial separation of private and business life. They suggested that virtual delegates are faced with several intercultural management problems such as different time zones and communication styles as well as language barriers. The virtual delegate lives and interacts in one culture, yet he or she works together mainly with people from another
culture. Since face-to-face contacts with colleagues, customers or suppliers are reduced to a minimum, firsthand experience of foreign cultures does not take place. As a result, intercultural training becomes essential. These problems are increased by the lack of face-to-face communication and common trust-building mechanisms. Intercultural training may be an instrument for overcoming these challenges. Their study concluded that specific training programs for virtual delegates at the company are now under consideration.

Doo Hun Lim et al., (2009)\textsuperscript{63} indicated that organizations have adopted e-learning to develop their workforce for several reasons. Among these, e-learning is believed to: (a) expand learning opportunities for the workplace; (b) allow anytime and anywhere learning; (c) promote self-directed learning with learner’s control of learning process; and (d) facilitate timely performance support. The purpose of their study was to identify what similarities and differences in perceptions existed, and what implications, if any, such similarities and differences could be utilized to improve New Zealand’s tertiary digital strategies.

Katherine et al., (2009)\textsuperscript{64} believed that e-Learning has seen tremendous growth in recent years. More and more, university courses are now available online to a potentially global audience. Online learning education endeavors are primarily designed based on text-based virtual learning environments. Developers of e-learning initiatives need to consider the extra benefits that a virtual world learning environment can provide to a
student’s learning experience and design activities to incorporate their use. They found that technologies are delving into recognition of users’ facial expressions such as fear or anger, as well as headsets to track brain activity patterns in real time. These emerging technologies will certainly add to the sense of presence and engagement in virtual group interactions.

Rose et al., (2009)\textsuperscript{65} indicated that Virtual environments (VEs) are extensively used in training but there have been few rigorous scientific investigations of whether and how skills learned in a VE are transferred to the real world. Their study aimed to measure and evaluate what is transferring from training a simple sensorimotor task in a VE to real world performance. Virtual training therefore resulted in equivalent or even better real world performance than real training in this simple sensorimotor task,

Hale et al., (2009)\textsuperscript{66} believed that Virtual training systems use multimodal technology to provide realistic training scenarios. To determine the benefits of adopting multimodal training strategies, it is essential to identify the critical knowledge, skills and attitudes that are being targeted in training and relate these to the multimodal human sensory systems that should be stimulated to support this acquisition. Specific multimodal design techniques are presented, which map desired training outcomes and supporting sensory requirements to training system design guidelines for optimal trainee situation awareness and human performance.
3.5. Electronic Payroll [E-Payroll]

Vincent R. Cericello (1991) stated in his book, ‘Human resource management system’, most businesses, even small ones, have computerized the payroll function internally or use a service bureau. All except the smallest firms have some sort of automated payroll because accurate payroll involves tracking so many types of tax regulations. Because of the highly quantitative nature of the work involved in payroll, payroll systems preceded personnel systems as automated applications. Moreover, payroll systems generally have a longer viable life because their purpose and structure remain fairly stable over time. Payroll tends to make decisions but to administer and calculate financial data related to employee wages, salaries, and deductions. To carry out this responsibility, payroll must handle several processes like, (a) Capture time worked by all employees who must report it. (b) Compute gross pay, deduction, and net pay for each employee for each pay period. (c) Distribute payments, accompanying statements, and year-end records to each employee. (d) Facilitate or arrange for the timely transfer of appropriate salary funds into accounts. (f) File all necessary tax reports and payments to central, state and local tax authorities. (g) Report to the appropriate human resources or accounting functions amounts collected for benefits and other deductions. (h) Conduct fundamental audits of all payroll-related transactions.

Azman Ismail et al., (2006) highlighted that communication is used by employers to deliver information about pay systems to employees. They pointed although
communication about pay systems is important, its effect on individual’s performance is vague when feelings of procedural justice are present in organizations. Findings of positive outcomes may eventually motivate employees to support both organizational and human resource management goals and strategies.

Azman Ismail et al., (2007)\(^69\) stated that compensation management literature highlighted that employees who actively participate in pay systems may have increased job commitment. They suggested that employees’ perceptions of justice about the participation styles in compensation system will strongly induce positive attitudinal and behavioral outcomes (e.g., satisfaction, commitment, performance and good work ethics), and this may lead employees to maintain and support organizational strategy and goals.

Roberta Murray (2009)\(^70\) stated that adoption of online pay slips and other forms of payroll self-service is climbing rapidly as organisations continue to make strategic investments in HRIT, according to a survey published by Webster Buchanan Research. At a time when organisations are so focused on cutting costs, established technologies such as HR and Payroll self-service can generate real efficiencies while also improving the quality of HR service. He found that payroll self-service is emerging as one of the most popular forms of self-service.

Schulz et al., (2009)\(^71\) pointed that online processing service of payroll will enable individual employees to self-maintained their address changes, exemptions and
deductions. Meanwhile, online payroll processors such as ADP Run, Intuit Online Payroll and PacyCycle help reduce payroll problems.

Yakal et al., (2009)\textsuperscript{72} discussed several aspects of online payroll services. Several tasks associated with the management of payroll including generation of payroll, payment of taxes and filling of forms are automated by these sites. As stated, there are several advantages of using online payroll services including staff time savings, minimal need for input, and no manual calculation. Payroll application use wizards or setup menus to help one through the setup process. Payroll is only one slice of your accounting pie, and its numbers need to be integrated with the rest of your financials. Online payroll sites accommodate this by exporting payroll data to popular small-business accounting software like QuickBooks. Online payroll services offer numerous reports, such as Tax Liability and Workers' Compensation, so you'll always know where you are.

Ee hui ling elise (2010)\textsuperscript{73} indicated the development and implementation process of e-Payroll System for small and medium enterprise thru project management and Software development lifecycle processes. It covers the essence of a practical system that how a system should interact with user, developer.
3.6. Electronic Attendance [E-Attendance]

Stephen et al., (2005)\textsuperscript{74} indicated that finance and accounting professionals are realizing many benefits from management’s decision to implement automated time and attendance solutions for salaried and part-time employees. It also eliminates fraud by removing the temptation to manipulate time captured through paper-based system. Automated solutions decrease the amount of time it takes to issue an invoice for employers who bill employee to a third party. Employees have multiple options to access either solution and enter time through the Internet, interactive voice responses (IVR) telephone systems, automated time clocks, biometric devices that scan fingerprints or handprints, badge scanners, and personal digital assistants (PDA), among others. Technology has made it so employees can enter data from anywhere, at any time.

Loretta Newman-Ford et al., (2008)\textsuperscript{75} indicated that UniNanny is an electronic attendance monitoring system developed at the University of Glamorgan, which boasts high-quality data and minimises disadvantages associated with paper-based methods. The electronic monitoring system, UniNanny, has proven to be invaluable in producing reliable findings concerning the impacts of student attendance on attainment. Their study findings reinforce the importance of reliable attendance monitoring systems for the quick identification of persistent absentees, and indicate that action to increase attendance will help to retain students and improve their chances of academic success.
3.7. Conclusion

The rapid development of the Internet during the last decade has also boosted the implementation and application of electronic Human Resource Management (e-HRM). Surveys of HR consultants suggest that both the number of organizations adopting e-HRM and the depth of applications within the organizations are continually increasing. It is sufficient, however, to recognize e-HRM as an innovative, lasting and substantial development in HRM that results in new phenomena and major changes.
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