Career Professional Development through VR

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Abstract—Professional persons and skilled workers need to continuously ensure they maintain their knowledge and skills up-to-date, as well as strive to be on top of their game within a tough and competitive working environment. Career professional development courses and programmes are specifically planned, designed and developed to address such need assisting professional workers and companies in their training and educational needs. Innovative training technologies are frequently employed in enabling and facilitating the learning process especially in specific circumstances where the learners are workers from within a domain that requires detailed or tailored content. In this paper, we make the case for the pedagogic role of Virtual Reality techniques as part of the Career Professional Development of professional workers in general. We discuss issues surrounding the design of VR training material, while employing use case scenarios from real situations when such a technique is employed advantageously and fruitfully. The paper closes with our recommendations, the foreseeable future of this particular application of virtual reality, while presenting our conclusions.

Index Terms—Career professional development, Virtual Reality, Technology-enhanced education at the workplace.

I. INTRODUCTION

The necessity and indispensability of maintaining up-to-date with the most recent developments, techniques and methodologies cannot be emphasized enough for a professional person within the workplace. One distinctive characteristics of a true professional is a continuous commitment to lifelong and in-service training to ensure their acquired skills and accumulated knowledge remains sharp and in-line with the state-of-the-art. Continuous Professional Development (CPD) courses and initiatives are one of the most common and effective methodologies of how professional people endeavor to pursue their career in the best way possible while pledging to keep on expertly providing what they have been schooled and disciplined to carry out to the benefit of a civilized society that seeks and remunerates their services. Their domain of expertise evolves over time, as do the methods and processes employed in their line of work, together with new knowledge that enriches the same work that they practice. The professional is incessantly obliged to ensue any of the potential CPD avenues available in an attempt to seek optimal career opportunities and flawless performance at work.

CPD traditionally refers to purposely planned and designed courses that are normally delivered to a group of professionals from the same field with the educational objective to fill the gap that over the months and years inevitably developed. The problem with this approach is that different peers within the same profession have different needs and requirements and thereby might require a distinctive and tailored procedure for them to fruitfully benefit from a CPD process. The exception to this is solely when the same unvaried work-related information or skill-training is required to be conveyed and invariably delivered to all the professional workers in that particular line of work. This will not constitute all the necessary professional development required to these experts as each individual person still requires focused training and acquisition of specific supplement knowledge. The career needs and educational objectives of two professionals from within the same area of expertise potentially and indisputably require a differentiated CPD process or technique that optimally maintains their respective professional status. Some professionals prefer to adopt a daily or weekly routine making good use of available resources online or through subscription of domain journals and other publications. Other opt to follow self-directed courses or online MOOCs (Massive Open Online Courses) that address their specific needs. While others just entrust their professional needs through regular and routinely CPD courses offered at work or which they subscribe to without having the burden to continuously apprehensively ponder if they are doing enough or the right thing. A healthy mixture of these techniques is also possible and realistic, in fact a number of researchers [1], [2], [3] conclude that a blended fusion of CPD approaches is more effective and potentially encompass the heterogeneous needs of each individual professional. Boschietter [3] highlights a number of methodologies available to support all professionals to reach their CPD goals. Apart from the traditional CPD courses, the author argues in favor of freely available software, apps, webinars and other web-based and multimedia learning methods that one needs to identify, access and take advantage of. These alternate CPD approaches cater for different professional domains and can also assist in supplementing the information and skills attained from formal courses. Technology and the use of new and alternate media have undoubtedly facilitated the relevance and applicability of such methodologies to assist experts in their pursuit to maintain the highest level of professionalism in their domain of expertise.

The rest of the paper is organized as follows. In the next section, we will pursue where we left in the Introduction and analyze and investigate the need of CPD courses at the workplace. Section III will delve into a number of application domains to investigate the way a number of VR training initiatives are designed to service different
workplaces, in an attempt to draw a number of best practices and recommendations that will assist HR managers in considering the adoption of VR techniques as part of their training regime. We close the paper with our conclusions in the final section.

II. CPD IN THE WORKPLACE

In this section a thorough analysis of a number of issues that affect the adoption of VR within the workplace will be done in the light of the necessary continuous development that any professional worker needs to be exposed to. It is not related to career progression requirements or any nonwork-related matter. If an issue has any kind of influence on the professional worker when performing any work-related task then it forms part of the such a profession and thereby the CPD matter discussed will apply.

A number of domain competencies that necessitate a professional worker to pursue further training and development practices have been identified by the Division of Human Resources & Organizational Effectiveness at the Texas A&M university [4]. Their competency model recommends that for professional workers to be successful at their jobs they are required to possess a requisite amount of job-specific knowledge and understanding, organizational contexts, skills and abilities, and personal attributes. Furthermore, they must be able to work effectively within their organizational context. The first of these competencies is related to job-specific knowledge which brings up purely informative issues related to the actual practices at that specific workplace, and potentially includes domain-specific matter but also cover new techniques employed, new tools available, additional quality control issues and potentially new legal regulations. CPD in such cases tend to be short and isolated training focused on the specific novel knowledge, practice or tool that is being introduced. However, some research [5] has shown that a continuous CPD training is more effective than brief intensive one. The second competency involves the role of the worker within the organization together with the organizational context itself. In either case further training or skills to adjust to potentially a new role are required. The role of numerous professional workers is continuously changing due to a dynamic changing environment around them, as well as evolving organization restructuring and adjustment. These potentially could include evolving organization policies, new initiatives or suspension of established practices. The third competency is specific to the skills and abilities required to perform a job. Within a professional ambit such competencies are crucial to the organization as the professional workers are expected to perform and deliver at optimal rates. To do so each and every worker has to be up-to-date, fluent and confident with the latest and most effective skills and abilities to successfully attain best results. Finally, the fourth competency is that related to personal attributes highly depends on the professional worker her/himself as s/he will evaluate such a need from a personal point of view. In fact, numerous research studies [6, 7] conclude that the main influences that determine the effectiveness of the CPD activity depend on the professional worker or the activities in which the worker participates in. What emerges from these four competencies is that the main issues why CPD activities for professional workers are instrumental depend on the professional as a person, the domain or profession itself, and finally the organization. The latter two are continuously shifting and transforming the entire environment around the professional who is compelled to adjust, re-train, and develop further. Bowie and Bronte-Tinkew [8] use these three purposes to highlight the value of professional development. Professional development improves the working procedures quality as they depend heavily on the ability and professional training of the professional staff. Demanding working situation impose stressful situations and crucial decision-making that professional workers are responsible for. Through CPD professional are able to reestablish and renew their professional skills and abilities to be in a position to better deal with experiences that demand tremendous emotional and psychological burdens. Professional development benefits the individual as they operate within a commercial world that requires flexibility and adaptability. Overall, professional workers must be able to adapt to the needs of their job as well as to the needs of their co-workers and management. At the organizational level, training opportunities expose professional workers to research and best practices which can then be incorporated back into the organization’s operations. As a result, the entire organization benefits because the training experience of such workers often can serve as a conduit for networking and cross-agency collaboration. Finally, professional development benefits the field on the whole as training and development further professionalizes and legitimizes the fields of expertise.

The focus of this paper is on the worker as a professional and the necessary career needs to ensure optimal service rendered. We argue that CPD is crucial in providing the required training to fulfil such needs. The use of technology in CPD activities has already been highlighter earlier in the introduction as Bosschieter [3] specifically states that the use of ‘new media’ (p. 71) has become increasingly central and pivotal in a predominantly technological society. The accessibility of resources online through a seamlessly connected lifestyle has enabled all levels of professionals across different domains to practice their CPD needs at anytime and anywhere. The availability of smart devices coupled with purposely-developed applications has enabled and facilitated the way professional workers ensure to remain ahead of their game. In the next section we will be visiting a number of professional domains to highlight the adoption and use of VR technologies to assist in the CPD of their professional workers. Training agencies around the world and online learning providers offer numerous possibilities to supply and deliver CPD courses for professional workers within organizations, providing the resources for them to access the plethora of available media in their own time and space. However, through the use of VR a higher level or training and development is intended whereby the
particular nature of this technology provides added-value and superior quality. Virtual Reality provides an active and immersive experience that engages learners immediately without any possible distractions. Fernandez [9] argues on how VR improves the educational process as he concludes that such techniques require a holistic plan rather than employed in isolation. The author identifies six interlocking tasks that facilitate the adoption of VR in training, first of which is to train the trainers as part of their career development. The other five tasks include conceptualization of prototypes, working in teams, software development, academic consultation, and the actual VR production. Within a CPD scenario VR exhibits its formidable educational attributes as it pedagogically enriches the process through a differentiated value [10]. VR allows a lot of flexibility to ensure a realistic immersion whereby learners are challenged in ways that before where not possible, specific to any scenario or educational objective. Falloon [11] points out that VR is able to engage learners “in the development of higher order thinking skills, such as interpreting, analyzing, evaluating, synthesizing and solving complex problems” (p.108). This is particularly significant when abstract concepts need to be conveyed one way or another. Curcio, et al., [12] reiterate that VR is able to conceptually represent abstract notions that learners, who were not capable to comprehend, are now able to do so.

III. APPLICATION DOMAINS

The first case study is from the academic domain as higher education trainers require extensive and continuous professional training to embellish the educational systems and future work force. The area of expertise of academics is not only much more finely focused and at a greater depth than kindergarten, primary, secondary, and post-secondary teachers, but they have also been contributing to the body of knowledge within their particular domain. This implies that the need for them to be conversant, cognizant, and fluent with the state-of-the-art of their areas of expertise, is even greater and indispensable. Botham [13] investigates the specificity of CPD for academic within higher education institutions in UK and concludes that apart from the fact that both the academic and the institution benefit from such an exercise, further contributions to the knowledge domain may result, as a result of which they enrich their students’ educational exposure and university experience. Other higher education researchers [14, 15] have also linked enhanced university students experience and their respective lecturer who was exposed to CPD. Other noteworthy research findings [13] indicate that academics who have gone through continuous CPD tend to be positively influenced in engaging and proactive in their area of expertise thereby enriching even more their own expertise and to their respective research community. The use of VR in education can be extensively be found in the literature [9, 12, 16, 17] and how educators and institutions took full occurrences through VR. Other affordances include an elevated motivational sense that engages learners even more, enrichment of contextual learning, and the proliferation of quality collaborations as part of the learning process. Numerous other examples of how VR has been applied within an education setting can be found in the literature [10, 17, 20, 21, 22] highlighting its suitability, applicability and flexibility to lend itself to alternate and wide-ranging education scenarios.

IV. CONCLUSIONS

In this paper, we have argued about the importance and necessity of the continuous professional development of professional workers in an effort to ensure they provide a continuous and consistent professional service at the workplace, as our society strongly depends on their knowledge, inspiration and skillful abilities to sustain a strong financial industry. We have reported how the use of innovative technologies and pedagogies play a major role in the pedagogical assistance to enable and facilitate the learning process. A stronger case was argued when the learners are not only educators themselves but academics at the pinnacle of every educational institution who require constant re-training in teaching skills but also in acquiring new knowledge and maintain fresh their previous skills and knowledge within their own specialized research area of interest. We then explained and justified the role and employment of virtual reality techniques and equipment within a working environment to assist professional workers during CPD to completely immerse themselves and barely distinguish between simulation and reality. Such virtual reality properties support and facilitate the learning process in general, but this paper makes the case for the use of these techniques as part of the career professional development of professional workers.

REFERENCES


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