

# E-portfolio using Google sites and associated applications for post-graduates in Pathology

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## Abstract

**Background:** Portfolios are recognized as an effective learning tool because they recognize the importance of student-centered learning, highlight the accomplishments of learners, and serve as a tool for both learning and assessment. Eportfolio being a digital format is an ideal tool for reflective practice. E-portfolios allows greater potential for feedback on learner progress and is evidence-driven, facilitates individualized plans for future learning. **Materials and Methods:** This study developed eportfolio using google sites and implemented it to Pathology post graduate's curriculum and assessed the perception, motivation and academic knowledge of students regarding eportfolio. **Results:** Total of 12 postgraduates used the eportfolio. All students agreed that eportfolio helped them in learning process by motivating self-directed learning, allowing them to learn at their own pace, evoked interest in the subject, self-assessment and helped them understand where they stood and what was their goal in the teaching learning process. **Conclusion:** Advocating the use of Eportfolio among medical students is the foundation stone for lifelong learning and ensures continuous professional development.

**Keywords:** E-portfolio, Reflections, competency based, medical education.

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## INTRODUCTION

A portfolio is defined as “a collection of materials that represents a learner’s efforts, progress and achievements in multiple areas of the curriculum.”<sup>[1]</sup>

A portfolio is an essential part of e-learning, a comprehensive framework that supports the growth of professional skills and the ability to learn throughout one's life. It provides authentic assessment, accountability and a means to support critical reflection important in the development of critical thinking. Student portfolios serve as genuine documentation of their accomplishments, clinical experiences, and graduate profile. Competency Based Medical Education (CBME) and outcome based education mainly focuses on outcomes and professional performance of the medical students. Assessment has a key role in shaping the outcomes and success of a curriculum. In our path toward comprehensive competency-based learning, new tools of measurement and evaluation are fundamental. The portfolio is a new tool that can encourage reflection and self- evaluation, in addition to being a collection of evidence of learning and experiences. Portfolio links the assessment methods and learning methods by improving learning outcomes using performance assessment and providing constructive feedback to facilitate guidance and monitor student's progress. The use of portfolio is also thought to enhance the assessment of areas that are difficult to assess such as attitudes, personal attributes, reflection and professionalism by traditional methods in clinical contexts.<sup>[2]</sup>

Portfolio helps in evaluating the coursework quality, learning progress and academic achievements. It helps in

determining whether students have met learning standards or other academic requirements for courses. It helps the students reflect on their academic goals and progress as learners. It finally enables the supervisors to give feedback on student's strengths and weaknesses.<sup>[3]</sup>

E-portfolio is digitalization of portfolio further enhancing its utility as the present generation of students are well versed with digital profile. The use of E-portfolios is not only to enhance the learning experience of a learner but also to create a meaningful learning experience which helps in creating a better future for the student by enhancing the career options for the student in the process. Eportfolio being a digital format is an ideal tool for reflective practice.<sup>[4]</sup> Eportfolio will not only enhance learning but also improve the presentation skills of the student.<sup>[5]</sup> Like portfolio, several studies have shown that eportfolio is very effective in promoting self-directed learning and provides real time feedback further enhancing the learning the process.<sup>[6,7]</sup> More opportunities for feedback on student progress and evidence-based, customized learning strategies for the future are made possible by e-portfolios. Portfolios have been used to not only teach clinical skills but also assess attitudes and professionalism and may provide a holistic picture of a

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clinician efficiency.<sup>[8]</sup> Portfolios are useful in undergraduate and post graduate courses and aid in lifelong learning and continuous professional improvement.<sup>[9]</sup> Four key components form the foundation of eportfolios: communication, learning management systems, electronic material, and evaluation. Every component emphasizes blended learning settings that encourage proactive learning. Research has demonstrated that the use of portfolios has enhanced students' academic performance, self-esteem, and capacity to effectively combine theory and practice.<sup>[10]</sup> The main effects of portfolio use identified by various studies were improvement in student knowledge and understanding, greater self-awareness, encouragement to reflection and improved student-teacher relationships.<sup>[11]</sup> A portfolio is increasingly being recognized as reliable and valid evidence of student's professional development. Technology in e-portfolios offers convenience, manageability, and improved peer-teacher interaction. E-Portfolios are easier to share, allows for portability and if implemented well, can increase the efficiency of learning for both student and teacher. In the current competency-based medical curriculum, implementation of Eportfolios shall help to attain the educational goal which focuses to shape abilities, competencies, analysis and deep understanding. Additionally, e-portfolios encourage self-reflection, introspection, and experiential learning.<sup>[12]</sup>

E-portfolios allow for greater potential for feedback on learner progress and evidence-driven, individualized plans for future learning. This study was conducted to implement E-portfolios for post-graduates and assess the perception, motivation and academic knowledge of students regarding E-portfolio.

#### Objectives:

- To develop an E-portfolio for post graduates in pathology using google sites and associated applications
- To evaluate student perception, motivation and academic knowledge about the E- portfolio.

## MATERIALS AND METHODS

**Design and Setting:** An interventional study where in E-portfolio was developed and implemented to post graduate curriculum at Sri Devaraj Urs Medical College.

**Participants and sampling:** 12 postgraduates of Pathology department of all three years at Sri Devaraj Urs Medical College, post consent were included in the study.

**Tools/Instruments:** The eportfolio was first developed using free google applications such as google sites and associated google applications. The eportfolio was a digitized logbook with options provided for mentorship to individual students by guides and specific mentors. It was used to collect student reflections on day to day teaching activities and tasks. It was initially piloted on 2 post graduate to identify any flaws and for inputs by evaluating students and facilitators feedback. After development of the eportfolio, post graduate guides / mentors and post graduate students were trained on how to use the eportfolio, things to

be documented, writing reflections and giving feedback. Followed by, Comprehensive Eportfolio was integrated into the curriculum as part of a program of assessment. E-portfolio charted student's performance across a core set of competencies to be achieved in accordance to their curriculum. Multiple sources of data, as well as reflections, were included in the comprehensive portfolio. Then subsequently the post graduates recorded the day to day activities on the eportfolio with necessary documentation and reflection. The mentors then reviewed the reflections and activities and provided feedback.

**Data collection methods:** Postgraduate perception, motivation and satisfaction about the various components of e-portfolio were taken by questions using Likert scale and few open ended questions.

**Data Analysis:** Qualitative analysis of Student and teacher feedback on Likhert's scale was done.

#### Development of software for electronic portfolio system

An accessible and dynamic online presence can be established by setting up a WordPress website. WordPress enables people to create distinctive websites that are customized to their objectives through its user-friendly interface and wide selection of customizable themes and plugins. WordPress offers a flexible platform for expressing ideas and connecting with target audience. The user-friendly content management system makes it simple to publish and maintain the content, and the extensive library of plugins makes it possible to include extra features like contact forms, multimedia galleries, and e-commerce capabilities. The first step in the process of using Buddy Press to build a WordPress website is to install and activate the plugin. Directly accomplishing this requires going to the "Plugins" area of the WordPress admin and looking for "Buddy Press." Once launched, Buddy Press displays a basic setup tutorial to walk users through setting up user profiles, activity streams, groups, and member registration, among other variables. It's important to pick the right theme for Buddy Press-powered website. The chosen theme need to complement the function, user experience, and aesthetics of the website. Numerous WordPress themes are Buddy Press compatible and provide particular templates made to smoothly integrate the plugin's capabilities. A consistent and user-friendly experience across all devices is ensured by choosing a responsive theme. Creating comprehensive member profiles is one of Buddy Press' key features. Administrators can alter these profiles by including fields that ask users for pertinent data. The members feel more connected and part of a community as a result of the personalisation. A deeper user experience is made possible by customized member profiles, which can be used for networking. It has a feature called an activity stream that works like a social media feed. Users can interact with one other's posts, share content, and submit updates. Admins are in charge of privacy settings, making sure that interactions follow the website's objectives and rules. Private messaging is a useful tool for enhancing member-to-member communication. Users are able to communicate, give feedback, share ideas, and work together on projects without the need for additional messaging services. There are many advantages to using Buddy Press when building a WordPress website. It enables corporations to create private professional networks, educators to develop collaborative learning platforms, and hobbyists to establish thriving online

communities. The flexibility, interactivity, and engagement Buddy press provides makes it easy to use.

## RESULTS

Total of 12 postgraduates used the eportfolio. The student feedback was taken using google forms with questions using Likert scale with questions regarding their perception of use of eportfolio and few open ended questions.

Majority of the students agreed that E-portfolio helped them in the learning process by motivating self-directed learning, allowing them to learn at their own pace, evoked interest in the subject, self-assessment and helped them understand where they stood and what was their goal in the teaching learning process. Few postgraduates felt that filling the eportfolio needed additional time and few had initial difficulty initially in understanding the process. [Figure 1] Shows the feedback of students regarding E-portfolio.

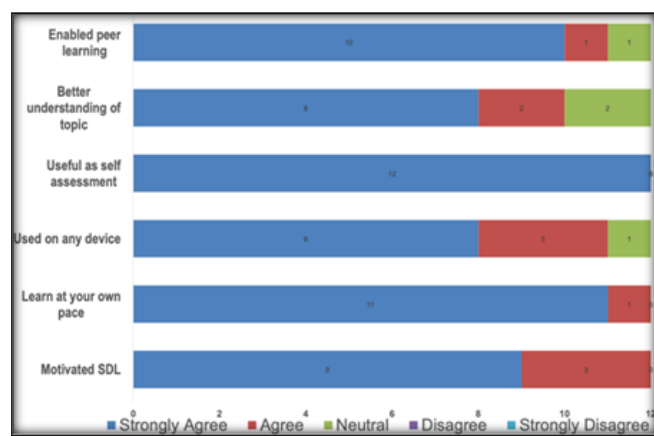


Figure 1: Student feedback on E-portfolio

## DISCUSSION

E-portfolio developed for post graduate students included reflective writing of self- directed learning, certifiable skills and student grades. The purpose of the e-portfolio was to help students learn and evaluate their own development. A variety of data sources and reflections were incorporated into the extensive portfolio. This gave the institute the capacity to determine whether the student was meeting the established competencies and gave the student the opportunity to track his or her continuous progress. The portfolios of postgraduate students were categorized under different subheadings, such as seminars, daily log, patient care, performed procedures, journal club, teaching assignments, dissertation, research, attended conferences, outreach activities, extracurricular activities, recognitions and awards, and other notable activities. By tracking the advancement of the entrusted professional activities for each specialty, the portfolios can be used to efficiently administer competency-based medical education. In order to encourage students to reflect on their learning, faculty members can be asked to provide feedback on the work that postgraduate students have maintained. In the end, this will help instructors and graduate students create a common plan

of action to close the gaps and progressively advance the Dreyfus model of skill acquisition toward mastery.<sup>[13]</sup>

Research indicates that the utilization of portfolios has enhanced students' self- confidence, academic performance, and capacity to effectively combine theory and practice.<sup>[14]</sup> The main effects of portfolio use identified by various studies were improvement in student knowledge and understanding , greater self-awareness, encouragement to reflection and improved student-teacher relationships.<sup>[15]</sup> A portfolio is increasingly being recognized as reliable and valid evidence of student's professional development. Technology-enabled e-portfolios offer convenience, manageability, and improved peer and teacher interaction. E-Portfolios are easier to share, allows for portability and if implemented well, can increase the efficiency of learning for both student and teacher. Within medical education, a portfolio is defined as an evaluation tool that can be used to assess performance in authentic contexts or as a collection of evidence over time that demonstrates education and practice achievements.<sup>[16]</sup> Competency-based education needs continuous, elaborate and comprehensive feedback systems and assessment.<sup>[17]</sup> In post-graduate training, the use of a portfolio can facilitate the continuity and comprehensiveness of assessment by collecting information about the trainees progression towards outcomes, milestones, competencies and Entrustable Professional Activities (EPAs).<sup>[18]</sup> As the sustainability and educational benefits of an eportfolio- based learning programme are dependent on user engagement, it is essential to gather the views of both students and supervisors on the acceptability and value of the process.<sup>[19]</sup> Currently, most institutions in the West have integrated E-portfolios into their curricula for active and effective learning of trainees.<sup>[20]</sup> Student portfolios can assist institutions to meaningfully display assessment evidence, enable longitudinal tracking and document student achievement. Improving the learning process and encouraging students to participate in their studies are the main goals of the E-portfolio. Furthermore, Eportfolio lessens the issue of storing and preserving student portfolios because of the large student body. E-portfolios are economical and environmentally beneficial. By adopting the portfolio approach, the student gathers evidence of their learning process, evaluates and considers their learning in relation to performance expectations, and is motivated to make plans for the future. Through this iterative approach, the student continuously assesses what they have learned and contrasts it with what they still need to master. They are then assisted in creating a plan to close the gap between the two. By doing this, the learner turns existing knowledge and abilities into a basis for future development and education. This process's ultimate purpose is for students to become more selective and self-directed in presenting proof of their learning progress and outcome achievement. They will also show how they have grown both personally and professionally and where they need to continue learning. More feedback on student achievement and evidence-based, customized learning strategies for the future are possible with e-portfolios.

## CONCLUSION

E-portfolio is a useful tool that will enhance learning in this

digital era where eportfolio provides a virtual presence and better visibility for the student as online media is routinely used. E-portfolios can be a useful tool for teachers and students in medical education. It has a number of benefits including self-assessment and reflection, documentation of progress, longitudinal assessment, standardization of assessment, feedback and continuous mentoring, interactivity with continuous assessment of competencies. However, it has its challenges including technical issues as needs advanced Website building knowledge for creation and requires continuous technical support, its time consuming initially as students have to duplicate some of their work, requires standardization, validation and digital literacy. Then there are other factors such as resistance to use from students and faculty as most are familiar with the traditional way of teaching and assessment.

**Ethical considerations:** Institutional ethical clearance for the conducted of study taken and standard ethical guidelines followed while the conduct of study.

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### Conflicts of interest

There are no conflicts of interest.

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