

Introduction

Staff are the most valuable asset in the workplace and their training and development is crucial to the overall success of an organisation.

From time immemorial, paper-based training has been the sole medium used for the development of staff in Pathology.

A network training audit at Southwest London Pathology (SWLP) established that paper-based training and competency assessment neither aligns with the network's key organisational goal - 'to ensure and maintain a continuous competent workforce,' nor complies with UKAS standard 6.2.3 (UKAS ISO 15189: 2022). As well as increasing our carbon footprint, paper-based learning also presents significant issues associated with cost; staff time; storage; competency monitoring and maintenance.

The introduction of an e-Learning management system (e-LMS) has revolutionised learning and development at SWLP. Digitalisation of training and competencies has addressed the majority of limitations associated with paper-based learning and has brought about a renewed motivation among staff and an invigorated training culture at SWLP. This e-LMS, which integrates both online and laboratory-based learning, is comprised of notable functionalities such as:

- Interactive e-learning, in varied teaching formats
- Automated assessment marking
- 24/7 accessibility
- Lapsing competence notifications
- Real-time compliance visibility
- Customisable validity reports depicting the status of an individual, pathology discipline, analytical platform or the network as a whole; a valuable feature for UKAS examinations.

The aim of this study is to demonstrate the significant effects that digitalisation has on training and competency for pathology staff. This study aims to observe and evaluate staff attitudes towards a digitalised learning environment (DLE) compared to a paper-based learning environment.

Methods

Horizontal audit of training folders were conducted to evaluate the paper competencies of staff on the Kelsius-Temperature monitoring system and the Cobas P612 pre-analytical equipment. Subsequently, these two paper competencies were digitised and built as e-Learning programmes for staff.

After a year of use, a survey was carried out for staff members to evaluate key aspects of the new digital learning method for these programmes. The survey sample included learners (N = 33) and tutors (N = 14). Total sample size N = 47. Results were collated and plotted in a bar chart.

A training and competency process flow was then used to compare the total activity time between old and new methods of learning.

Results

The horizontal audit data showed a paper-based validity of 8% and 9% respectively for the programmes- Cobas P612 and Kelsius-Temperature Monitoring. The digital equivalent yielded a validity of 71% and 86% respectively.

The learners survey showed a preferred digital learning environment with regards to all features associated with a learning environment. Information retention was found to be the most preferred feature (89%) whilst 'storage and evidence retrieval' and 'self-management' of competencies, although both high frequency learning features (81%), were the least preferred by the learners.

Overall, attitudes towards digital learning, amongst the cohort surveyed, revealed accessibility to online learning as "moderately easy" (55%). 66% of the cohort found navigation of the DLE also "moderately easy," whilst fewer respondents (43%) perceived "evidence storage and retrieval" as "extremely easy."

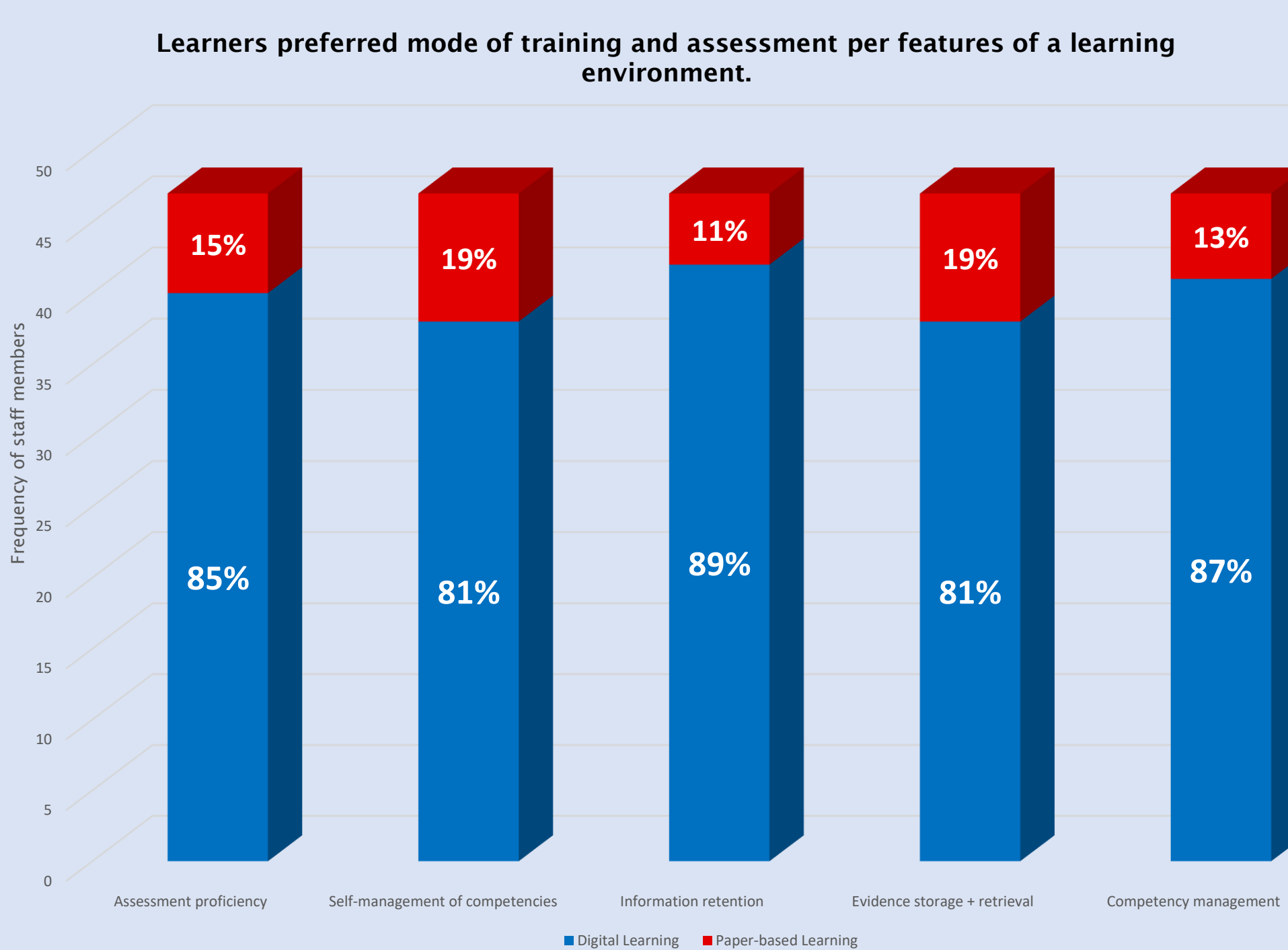
Time spent on digital training and competencies compared to paper showed a 36% and 28% time saving for tutor and learner, respectively.

Figure 1. Comparison of paper-based training and digitalized training of staff using Cobas P612 and Kelsius Temperature monitoring competencies.

Competency e-Programme	Paper-based % Validity	Digital % Validity
Cobas P612	8%	71%
Kelsius Temperature Monitoring	9%	86%

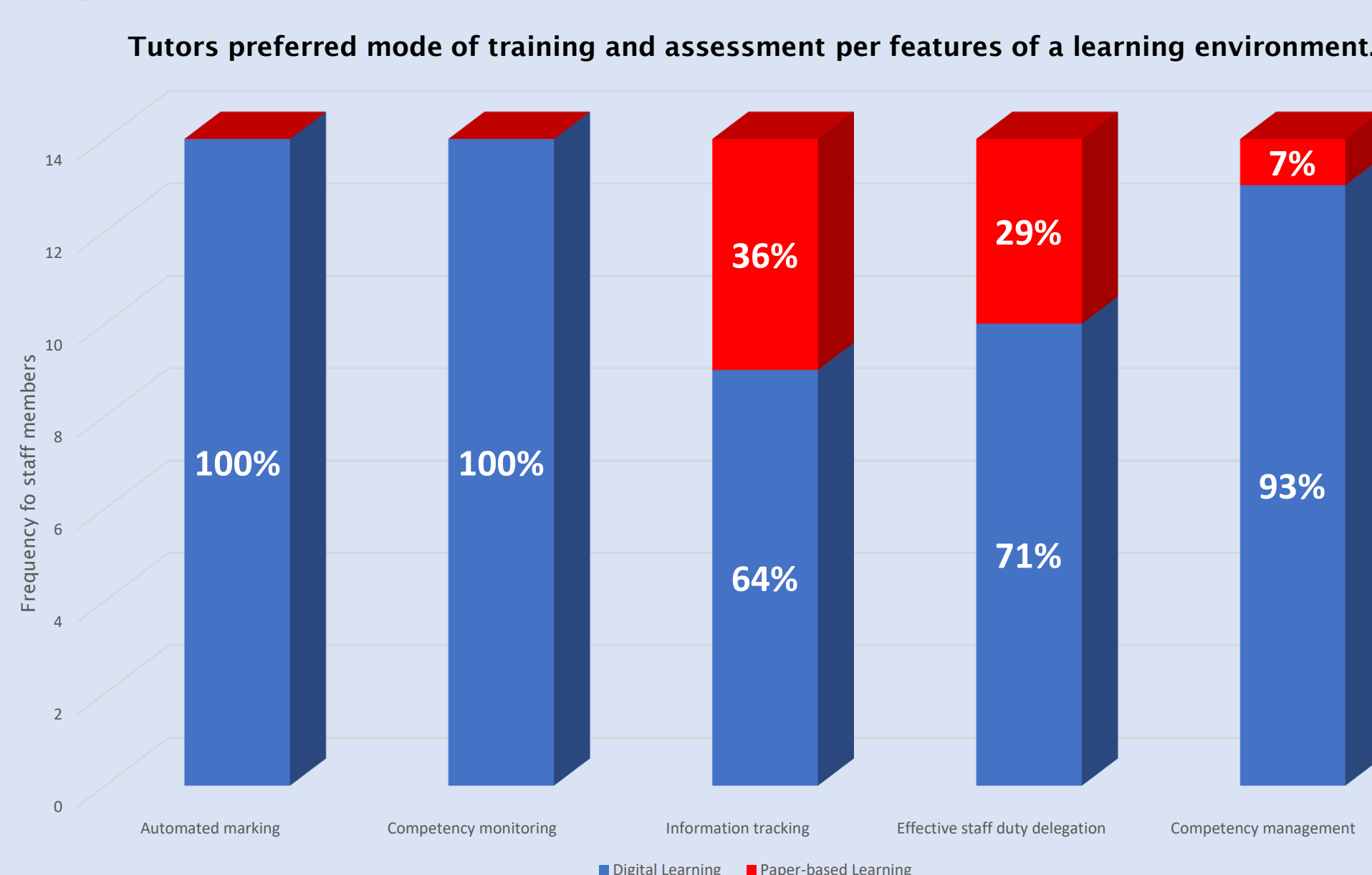
Learner Survey

Figure 2. Comparison of digital learning and paper-based learning: Learners' response (N = 47).



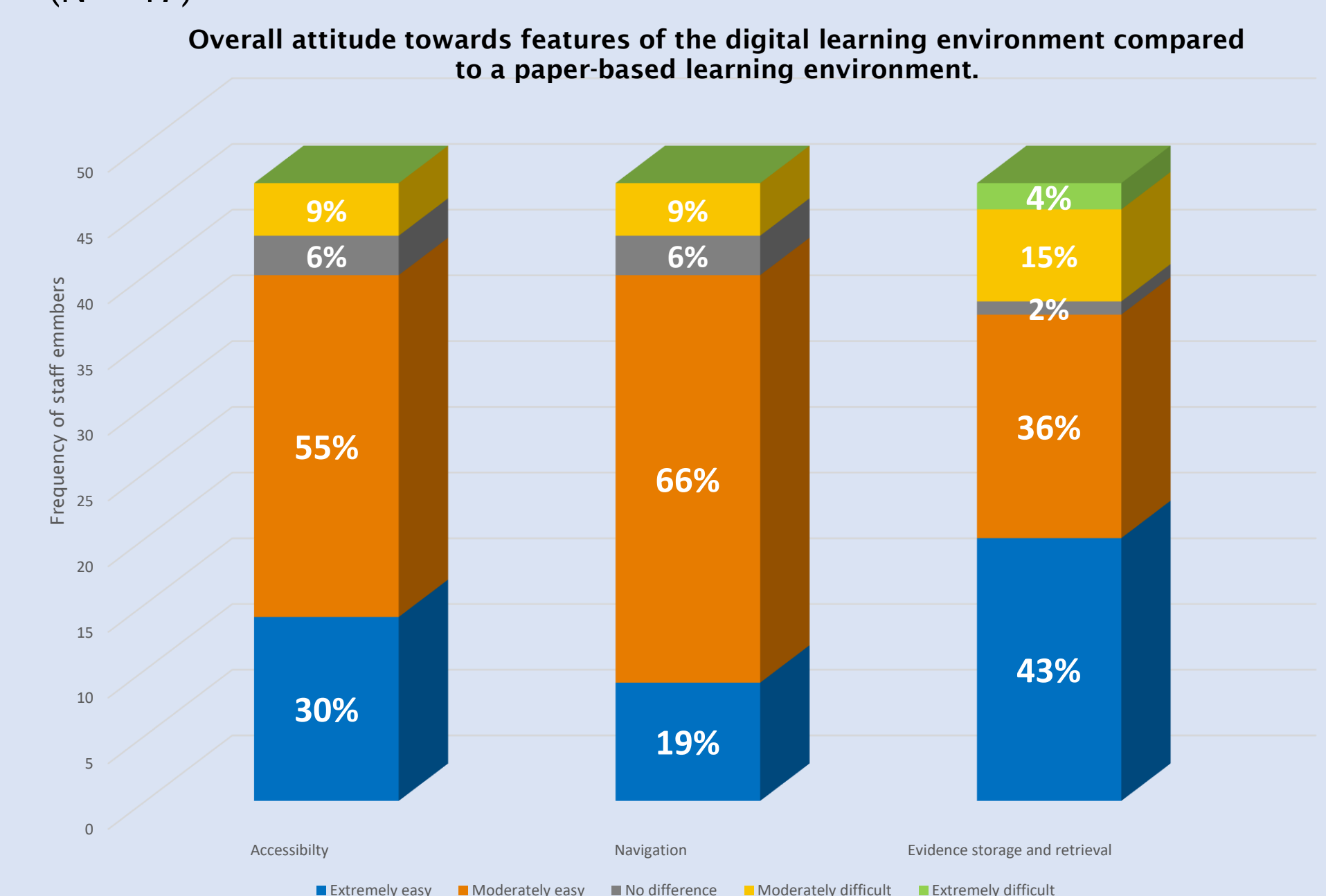
Tutor Survey

Figure 3. Comparison of digital learning and paper-based learning: Tutor's response (N = 14).



Overall Survey

Figure 4. Staff views towards a digital learning environment based on features: Accessibility, Navigation and Evidence storage and retrieval. (N = 47)



Process Flow Comparison

Figure 5. Training and competency process flow to compare the activity associated with digital and paper-based learning using the Cobas P612 analytical platform.

PRIMARY PLAN							
Paper format:			Digital Format:				
Step	Activity	Senior (mins)	Staff (mins)	Step	Senior (mins)	Staff (mins)	
1	Organisation of scheduling Trainee and Trainer ps	5	5	1	Organisation of scheduling Trainee and Trainer ps	5	0
2	Issue of Training log	10	10	2	Issue of Training log	6	0
3	Updating and monitoring of training spreadsheet	10	10	3	Updating and monitoring of training spreadsheet	0	0
4	Introduction of topic	15	15	4	Introduction of topic	40	40
5	SOP reading	0	30	5	SOP reading	0	30
6	one to one demonstration	120	120	6	one to one demonstration	60	60
7	One to one observation	100	100	7	One to one observation	100	100
8	Completion of competency assessment	0	60	8	Completion of competency assessment	0	20
9	Marking of competency assessment	30	0	9	Marking of competency assessment	0	0
10	Competency assessment feedback	35	35	10	Competency assessment feedback	10	10
11	Evidence gathering and Sign-off	30	40	11	Evidence gathering and Sign-off	20	45
12	Filing, storage and updating of training log	10	5	12	Filing, storage and updating of training log	0	0
13	Monitoring and scheduling on-going competency	20	0	13	Monitoring and scheduling on-going competency	5	0
	Total Time	385	420		Total Time	246	305

Discussion

Amongst all variables associated with a learning environment, staff at SWLP preferred a digital learning platform. 'Information retention' was the most preferred feature (Fig 2.) amongst the learners (89%). This may be as a result of the varied formats of learning and competency assessment that allow for interactive and focused engagement, facilitating improved information retention. Alternatively, although a high frequency was still achieved (81%), the features - 'Evidence storage and retrieval' and 'Self-management of competencies' were the least preferred.

The survey also revealed 100% of tutors found 'Automated marking' and 'Competency monitoring' to be the strongest features within the digital learning environment (Fig 3.) This is likely due to time constraints associated with manual assessments and competency data input for tutors, when working with the paper-based learning system.

From the survey, the feature of the DLE all respondents found most difficult was the ability to store and retrieve evidence, with 15% finding it moderately difficult and 4% finding it extremely difficult (Fig. 4.) This may be attributed to the cumbersome process of evidence scanning, saving and uploading onto the DLE, compared to the simpler photocopying and filing of paper in training folders, associated with the paper-based process. To improve this, a step-by-step guide has been added to the DLE and digital equipment e.g. electronic tablets will be procured to facilitate the process in the future.

Figure 5. depicts the training process flow with a breakdown of the time taken for each activity for both staff and tutors alike. Tutors on average saved an overall activity time of 2 hours and 19 mins using a digital learning platform over a paper-based platform. Similarly, learners training on the Cobas P612 platform saved an overall activity time of 1 hour and 55 minutes.

Overall, the benefits of digitisation outweighed those of paper-based learning and was recognised as the most favourable learning platform. Digitisation has improved efficiency and effectiveness of training, yielding higher laboratory validity (Fig. 1) amongst staff and in consequence, improved outcomes for our users.

At SWLP, with regards to staff training and competency, we have modernised our methods and adopted digitalisation. A method that is fit for purpose, aligns with our workforce' training needs and in time will end the era of the paper-based training environment at SWLP.

References

- SWLP 2022 Horizontal Training Audit
- SWLP Digital Learning Environment: ProfilerLive.
- UKAS ISO 15189: 2022

Acknowledgments

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