

BMJ Open How does portfolio use support self-regulated learning during general practitioner specialty training? A qualitative focus group study

Rozemarijn van der Gulden ¹, Angelique A Timmerman,² Margaretha H Sagasser,³ Anneke Kramer,⁴ Nynke Scherpbier-de Haan,⁵ Bart Thoonen,¹ Sylvia Heeneman⁶

To cite: van der Gulden R, Timmerman AA, Sagasser MH, *et al*. How does portfolio use support self-regulated learning during general practitioner specialty training? A qualitative focus group study. *BMJ Open* 2023;**13**:e066879. doi:10.1136/bmjopen-2022-066879

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2022-066879>).

Received 27 July 2022

Accepted 30 January 2023



© Author(s) (or their employer(s)) 2023. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to

Rozemarijn van der Gulden; rozemarijn.vandergulden@radboudumc.nl

ABSTRACT

Objectives Portfolios are used to support self-regulated learning (SRL), but the research literature is still inconclusive on their effectiveness. This study explored experiences with portfolio use among different stakeholders, to answer the research question: How does portfolio use support SRL during general practitioner (GP) specialty training?

Design We used a qualitative research design, based on phenomenology.

Setting Three of the eight training institutes of Dutch GP specialty training participated in this study.

Participants The three stakeholder groups that use the portfolio were included in nine homogenous focus groups: trainees (n=16), supervisors (n=16) and faculty (n=17). All participants had at least 6-month experience with portfolio use.

Results Three themes were identified: SRL with(out) the portfolio, stakeholder dynamics and ambiguities. Respondents were doubtful about the learning benefits of portfolio use, as most trainees used their portfolio to 'check off' what was considered required. Stakeholder dynamics contributed to checking off behaviour in two ways. First, trainees experienced documenting learning activities to be superfluous, since the close relationship with their supervisor already supported SRL sufficiently. Second, faculty often (unintentionally) took portfolio ownership away from trainees, as they instructed trainees to deliver portfolio content that was valuable for assessment. Without ownership, trainees struggled to use the portfolio for SRL. Besides, ambiguities related to portfolio use amplified checking off behaviour.

Conclusions Portfolio use did not support SRL in our setting. The multipurpose use of the portfolio (for the support of SRL and assessment) was identified as the primary obstacle. Underlying is a conflict that is often present in current medical curricula: agency versus accountability. If the support of SRL is considered a valuable and attainable purpose of portfolio use, it is important to realise that deliberate attention for this purpose is required during the design, guidance, assessment and evaluation of the portfolio.

INTRODUCTION

In medical education, portfolios are implemented for different purposes, for example,

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ We performed a qualitative focus group study that included different stakeholders involved with the portfolio of a medical postgraduate training programme, which resulted in a rich, contextualised overview of portfolio use with respect to self-regulated learning (SRL).
- ⇒ Our explorative approach provided us with an insight in the experiences, ideas and terminology of the different stakeholders concerning portfolio use for the support of SRL.
- ⇒ Our study showed the importance of contextual factors (eg, the close working relationship between trainee and supervisor present in our setting), which could also mean that the transferability of our results to other training programmes is limited.

assessment, guidance and/or competency development.¹ Portfolios can be defined as a purposeful aggregation of (digital) items (eg, evidence, reflections, feedback) that demonstrate learning, experience or professional growth.²⁻³ One of the purposes for which portfolio use is recommended is the support of reflective-, self-regulated and/or lifelong learning. While papers recommend and provide guidance on how to implement a portfolio for these purposes,³⁻²² there are still substantial uncertainties concerning the extent to which and how portfolio use can support learning.²³⁻²⁵

Self-regulated learning (SRL) is one of the learning concepts that is supposedly supported by portfolio use.²³⁻²⁵ SRL refers to 'the degree to which students are metacognitively, motivationally, and behaviorally active participants in their own learning process',²⁶ and is considered of eminence during and after medical education.²⁷⁻²⁹ SRL is considered especially important in workplace learning (WPL), because of its potential

to help learners keep track of individual learning needs in the unpredictable and sometimes chaotic clinical workplace.²⁸ Portfolio use is expected to facilitate learning from experiences, by supporting different metacognitive processes (eg, self-assessment, monitoring) that instigate and sustain the completion of learning cycles.^{30 31}

It is insufficiently clear to what extent these SRL processes actually occur when portfolios are used during WPL. Portfolio research considering SRL processes predominantly consists of studies that evaluated portfolio implementation with (quantitative) surveys.^{32–42} While some of these evaluations concluded that portfolio use was experienced to support learning in general,^{32 37} or more specifically reflection,^{36 42} others reported no learning benefits of portfolio use.^{33 34 39} Additionally, some evaluation studies reported mixed results regarding SRL processes.^{35 38 41}

These evaluations have not provided mechanisms that can explain differences between the more and less successful implementations of portfolios for the support of SRL, as surveys present user perceptions, while missing the experiences, sentiments and reasoning on which those perceptions are based. Moreover, these perceptions often did not represent all interests and experiences in play during portfolio use, as most studies involved one stakeholder group (eg, trainees or mentors).

Consequently, there is a need for in-depth explorations of portfolio use that involve different stakeholders, in order to gain insight in the functioning of portfolio use in the context of SRL. Therefore, this study explored experiences with portfolio use among different stakeholders of the Dutch general practitioner (GP) specialty training to answer the research question: How does portfolio use support SRL during GP specialty training?

METHODS

Context

The Dutch GP specialty training is provided by eight training institutes across the Netherlands. Three of these participated in the study (Radboudumc, Maastricht University, Leiden University Medical Centre). During the 3 years of specialty training, GP trainees learn while working in general practice and adjacent fields (emergency, mental health and chronic care). Trainees receive one-on-one supervision on a daily basis from physician-supervisors, who work on site with them. In addition, trainees receive education in peer trainee groups during a weekly academic day, which is provided by faculty of the training institutes (GPs and behavioural scientists).

Trainees are obligated to document information concerning learning and assessment in a digital portfolio. The portfolio is designed to support SRL and considered an essential component of programmatic assessment. Accordingly, portfolio content is used to inform annual progress decisions. The portfolio contains eleven prestructured forms that trainees can fill out themselves and/or send to others in order to obtain feedback (eg, a

mini-Clinical Evaluation Exercise and a form to formulate learning objectives and plans). Trainees have the ownership to use the various forms at their own discretion. Alongside the prestructured forms, trainees can add their own (learning) documents to a separate folder of the portfolio (eg, individual trainings plans and test results). Further information about the design and content of this portfolio can be found in our previous publication.⁴³

Reflexivity

We adopted a contextualist world view during this study, thus ‘assuming that context—in historical, cultural and social terms—is integral to understanding how people experience and understand their lives’.⁴⁴ The identity of the Dutch GP specialty training and its portfolio are defined by various contextual factors. Examples are the Dutch (educational) culture, the GP profession and the fact that the portfolio was developed to suit eight different training institutes that all have their local organisational and educational culture. We expected that these contextual factors affected experiences with and understanding of the portfolio by stakeholders.

In order to acknowledge contextual factors, we made sure that all study stages were discussed within the research team. In that way, we could secure consideration of the perspectives and experiences present in the research team. These differed due to our professional backgrounds—psychology (RvdG and AAT), educational science (MHS, BT and SH), health science (SH) and medicine (BT, AK and NS-dH)—and our own involvement with portfolios, as developer (MHS, BT, AK and SH-dH), user (AAT works as faculty member) or researcher (all authors). Moreover, all authors had experience with qualitative research. RvdG undertook a 2-day course concerning focus groups.

This study impacted the views of the authors concerning the use of portfolios for the support of SRL. Some of the authors (MHS, BT and AK) were involved during the development of the portfolio of the GP specialty training in 2010, during which the portfolio was designed to contribute to SRL. However, in the years after implementation, questions started to arise regarding the value of the portfolio for the support of SRL. This was one of the reasons to initiate a research project on this matter, of which this study is a part. This research project showed that portfolio use for the support of SRL is complicated, as will also become clear in the results of this study. As a consequence, a project group of the GP specialty training of which two authors are part (MHS and BT) is considering whether the purposes, design and use of the portfolio should be revised.

Design

We used a qualitative research design, based on phenomenology. Phenomenology has been defined as ‘an approach to research that seeks to describe the essence of a phenomenon by exploring it from the perspective of those who have experienced it’.⁴⁵ Considering our

observation that portfolio research thus far has not illuminated the experiences, sentiments and reasoning of portfolio users regarding the support of SRL, we considered a phenomenological approach necessary and suitable for this study. During development of the interview guide, moderation of the focus groups and analysis of the transcripts, we aimed to adhere to principles of phenomenology, such as transcendental subjectivity and imaginative variation.⁴⁵ For example, it was decided to not include any questions targeting SRL in the interview guide, as we wanted respondents to share their personal experiences with portfolio use without subjecting them to our theoretical framework (see 'procedure' for more information on the interview guide).

Data were collected via focus groups, as these are suitable to explore the range of perspectives within and between different stakeholder groups concerning a topic.⁴⁶ We also selected focus groups because we anticipated that sentiments and cognitions about portfolio use and SRL are often latently present, and focus groups provide respondents with the opportunity to hear views and ideas of others on which they can expand, thereby eliciting implicit or unconsciously present ideas about a topic.⁴⁷

Procedures

The focus groups were conducted between October 2019 and November 2020. In March 2020, data collection was interrupted, as the Netherlands went into lockdown due to the COVID-19 pandemic. At this point, five focus groups were carried out at two participating institutes. Since we did not want too much time to pass between different focus groups, we decided to continue with online focus groups. Data collection, by use of videoconferencing, was resumed in August 2020, after consultation with and agreement of the ethical review board.

We distinguished three stakeholders that use the portfolio: trainees, supervisors and faculty. We specified one inclusion criterion: experience with the portfolio (6 months for trainees, 12 months for supervisors and faculty). Since there are hierarchical differences between the groups, with some depending on others for employment and/or assessment, we chose homogenous focus group compositions to ensure safety and facilitate the conditions for open communication.⁴⁷ Furthermore, we wanted respondents to be able to participate at the medical centre they are affiliated with, to minimise the burden of commutes.

Consequently, we planned to organise at least nine focus groups to represent three stakeholders at three institutes. The delay that resulted from the COVID-19 pandemic contributed to our decision to stop data collection after these nine focus groups. At this point, a new version of the portfolio was about to be implemented and we did not want this to interfere with our analysis. While data/thematic saturation is often referred to in concern to the decision to stop data collection, Varpio *et al* insightfully explain why the concept of saturation does not align

with our contextualist world view. Likewise, this article substantiates why member checks were not performed.⁴⁸

The initial approach of potential respondents was via an email that encompassed information about the research project, practicalities about the focus groups and the informed consent form. When this email did not result in enough sign-ups, alternative routes were used to approach respondents (eg, a presentation at a trainee congress). The respondents who participated received a gift card for their contribution.

The focus groups were moderated by the first researcher and the other authors consecutively accompanied her to make observational memos. A semistructured interview guide was used to guide the discussion. Throughout the study, two versions of the guide were developed through discussion in the research team (see online supplemental appendix A). The first version did not contain any questions targeting learning or SRL. We were curious if SRL (related topics) would surface spontaneously in a discussion about portfolio use, as we wanted to know if and how respondents associated portfolio use with SRL. After five focus groups, it was clear that there was limited discussion of SRL (related topics) when this was not encouraged. Therefore, the second version did contain more targeted questions focusing on learning. SRL was still not addressed directly, as we expected the range of discussion and understanding between respondents to be restricted by a concept as complex and multi-interpretable as SRL.

All focus groups were audio recorded and verbatim transcripts were made of these recordings, personal specifiers were not transferred to these transcripts. Coding of the transcripts commenced after the first focus group, so relevant topics and themes identified during analysis of the first focus groups could be further explored in subsequent focus groups. Table 1 shows the characteristics of the focus groups.

Table 1 Information on the number of respondents that participated in the nine face-to-face and digital focus groups, and the version of the interview guide used

	Institute 1	Institute 2	Institute 3
Trainees	Face to face (87 min) n=6 Interview guide A	Face to face (70 min) n=6 Interview guide A	Online (61 min) n=4 Interview guide B
Supervisors	Face to face (53 min) n=7 Interview guide A	Face to face (71 min) n=5 Interview guide A	Online (56 min) n=4 Interview guide B
Faculty	Face to face (84 min) n=6 Interview guide A	Online (73 min) n=6 Interview guide B	Online (72 min) n=5 Interview guide B

Analysis

The transcripts were analysed using template analysis.^{49 50} During template analysis, themes are identified and organised from textual data via two processes: definition of themes and the organisation of themes in a structure that represents conceptual relationships.⁵⁰ This analysis fitted our research question, as it was possible to combine a deductive theoretical foundation on SRL with inductive interpretations about portfolio use.

Accordingly, we formulated one a priori theme: SRL. The rest of the initial coding template was constructed through coding of the first transcript by three of the authors (RvdG, AAT and MHS). They first coded the transcript individually and later discussed their coding to come to consensus regarding the initial template (see online supplemental appendix B). Next, the template was modified and further developed through (re)coding and discussion of the subsequent eight transcripts. Coding of these transcripts was first done individually and later discussed in pairs (RvdG–AAT and RvdG–MS), after which proposed changes to the coding template were discussed and reflected on within the research team. Coding was supported by NVivo and Atlas.ti.

Patient and public involvement

None.

RESULTS

Figure 1 shows the final coding template, which consists of three themes: SRL with(out) the portfolio, stakeholder dynamics and ambiguities. The themes are represented by seven main codes, each containing different subcodes. Two of the main codes ('portfolio practices' and 'interactional processes') relate to two themes, the other main codes all correspond to one of the three themes. Below, we discuss these themes and their interactions. We indicate relevant stakeholder group(s) to which findings apply. Findings that applied to all three stakeholder groups are indicated by 'respondents'.

SRL with(out) the portfolio

During the focus groups that were moderated with the first version of the interview guide, it became clear that respondents did not directly associate portfolio use with SRL, as they primarily focused on user-friendliness and

portfolio assessment when asked about experiences with portfolio use. When topics related to SRL, for example, learning objectives, were discussed, this usually led to negative responses. Also, in the focus groups that did actively target learning by use of the second version of the interview guide, it became clear that respondents were doubtful about the learning benefits of the portfolio. While they agreed that portfolio use should help trainees take charge of their learning process, many stated that this was currently hardly the case. Current portfolio practice of trainees was instead referred to as 'checking off': trainees used the portfolio perfunctorily to document information that they considered to be required.

Trainee 15: Well, you can't get out of it. You put things in there because you have to, and in retrospect you can then say: ok, I've herded it all in one place which kind of structures it, because all the relevant bits are in one place, but it doesn't contribute to my learning process. It's keeping up, because you should.

Multiple trainees explained that the time and effort needed to check everything off interfered with their opportunities to work on personal learning objectives.

Trainee 7: That I can discuss my learning objectives more often: what do I want to work on, how would I like to develop myself. That is what I want to emphasise, and currently the emphasis is on the 25 practical skills and that I have checked these off and that I have completed a reflection and a miniCEX, because otherwise I will not have enough input. That is what it is about now, I think that is a pity.

Nevertheless, there were a few trainees that described SRL in relation to portfolio use. They explained that they used their portfolio to formulate learning objectives and to monitor their competency development. Documenting in the portfolio and looking back on previous documentation, helped them to critically review their learning.

Trainee 1: Well, by writing a learning plan at the start of the year and drafting learning objectives every month, you are forced to examine 'what do I want to learn the coming months' and to also write this down, and that compels you to check where you stand every

SRL with(out) the portfolio		Stakeholder dynamics			Ambiguities	
Self-Regulated Learning	Unintended processes	Portfolio practices	Individual differences	Interactional processes	Portfolio functionality	Mindset
Learning objectives	Learning interference	Logging	(Work) experience	Pressure	User-friendliness	Insecurities
Monitoring	Shadow portfolio	Checking off	Learning preference	Instructions	Privacy	Doubts
Reflection		Surveillance	Competency level	Ownership	Time investment	Reluctance
Feedback seeking		Assessment		Collaboration		Suggestions
		Guidance		Connection		
				Expectations		

Figure 1 The final coding template. SRL, self-regulated learning.

month like 'where am I, what have I learnt, and what do I still want to learn'.

However, more often trainees described SRL that took place without the portfolio. SRL was often supported by the interaction with supervisors, and in some cases also via personal documentation. Multiple trainees kept a 'shadow portfolio', which provided them with the opportunity to organise (learning) material according to their own preferences.

Trainee 5: So, I have my own Excel document with different worksheets. So, when I find something interesting I have a worksheet for that, but I also sort of have my learning objectives that I want to work on. But that is sort of my shadow portfolio. Yes, that is something that I can always access, as I don't have to log in.

Trainee 6: Yes, I recognize that, I do the same with OneNote.

Trainee 4: Well, that is interesting. Now it becomes clear that everyone is keeping shadow portfolios.

The two other themes can explain why trainees hardly engaged in SRL by use of the portfolio.

STAKEHOLDER DYNAMICS

The first clarifying theme concerns stakeholder dynamics in play during portfolio use. The portfolio was primarily used by trainees and faculty, whereas the supervisors who guide the trainees during WPL did not actively use the portfolio.

Moderator: How do you use the portfolio in daily practice?

Supervisor 9: I don't. So, I can be brief about that.

Supervisors and trainees, who work together regularly (at least 3 days a week), experienced limited added value of the portfolio during their collaboration. They explained that the exchange of feedback and other prompts for reflection emerged naturally during daily activities, such as shared consultations and supervision meetings. Documenting this information in the portfolio was experienced as a superfluous, administrative activity.

Trainee 8: But that does lead to the feeling that it is an obligation. I have a number of sessions with my supervisor observing me and that is discussed. And then I feel: 'I know it by now. So for whom do I need to document this?'

In contrast, faculty of the training institutes did actively use the portfolio to interact with trainees. The faculty members described different ways of portfolio use:

- **Surveillance.** The portfolio was used to check whether trainees were progressing as expected. In case observations during academic days and/or supervisor reports revealed potential problems with a trainee's competency development, faculty increased the level of surveillance through the portfolio.

Moderator: I hear you say: "I check if things are present". Do you also check the content or only if everything is there?

Faculty member 12: Honestly, that depends. So, for trainees that perform well, and I never hear strange things about, I just look at one thing and think 'this more or less fits my perception'. But for trainees where it is a bit more complicated or when I have doubts myself, then I often look at more items.

- **Assessment.** The portfolio was used to substantiate and communicate assessments.

Faculty member 8: You can find everything there [the portfolio], so whether they completed tests, how their skills are evolving. And that is pretty useful when I assess their competencies, that I as a mentor can look at everything and then come to a proper assessment.

- **Guidance.** The portfolio was used to guide the trainee during their learning process. Faculty presented trainees with portfolio fragments that raised questions and/or were considered remarkable, in order to challenge trainees to reflect and (re)consider their learning through discussion.

Faculty member 2: That you encourage someone to think about the things you, as a teacher, can read or find in the portfolio. You notice something, or something stands out, and then you start a conversation about that with a trainee.

In order to use portfolio documentation for surveillance and assessment, most faculty members preferred the portfolios to encompass a uniform and comprehensive overview of the activities that trainees perform at the workplace. Accordingly, faculty informally instructed trainees to deliver certain information: 'could you add some feedback/reflection on ... in your portfolio?'. Trainees explained that they felt pressured to deliver material that was requested by faculty. While respondents agreed that ownership of the portfolio should lie with the trainees, faculty members were thus often the ones who instigated when and what information got included in the portfolio. In other words, trainees checked off what was instructed by faculty.

Trainee 13: That you perhaps have to complete much more forms than you may need in daily practice, only to make it assessable. That is how that feels. So, it needs to be well-ordered for someone else, and the only thing you can do is just tag along. In contrary to you deciding what to document, based on what you want.

AMBIGUITIES

Another theme that can explain limited SRL in relation to portfolio use was the ambiguities regarding portfolio use. For many respondents, it was unclear why and how the portfolio should be used.

Trainee 14: I also think that it needs to be more clear for every faculty member, for every supervisor how the portfolio is structured. Otherwise, I think, this chaos will continue.

Trainee 13: This is a good remark. It is not only unclear to us, but also unclear for many supervisors and faculty members.

Respondents related these ambiguities to two issues. Foremost, the user-friendliness of the portfolio was critiqued. Respondents' primary concerns were that the portfolio did not work intuitively and failed to provide a clear overview. Second, respondents were dissatisfied with the instructions that were provided. For trainees, this was largely due to a lack of coherence between the formal instructions provided at the start of the training, and the informal instructions provided by faculty members throughout their training.

Trainee 7: At the start of training everybody says: "it does not really matter, just do something. As long as there is content [in the portfolio], we can see that you are active". But as the training progresses you start to notice that in fact there are many requirements. And that in fact there are also things at stake. You sort of accidentally discover this because suddenly you hear: "others did this or that, but you did not".

Because of these ambiguities, multiple respondents doubted the added value of the portfolio and/or were reluctant to actively use the portfolio. Furthermore, trainees also described that they felt insecure about portfolio use, as they did not know what was exactly expected of them.

Trainee 13: Yes, the lack of overview almost makes you insecure, right? It is so messy that you think: 'O my god, what do I still need to check off?'

DISCUSSION

We used focus groups to gain insight in the experiences of trainees, supervisors and faculty, to elucidate the functioning of portfolio use for the support of SRL. Respondents were doubtful about the learning benefits of portfolio use, as most trainees only used their portfolio to check off what was considered to be required. Nevertheless, some trainees did engage in SRL through portfolio use, as they actively formulated learning objectives and monitored their competency development. However, overall, our findings indicate that portfolio use did not support trainees' SRL.

Different stakeholder dynamics clarify this lack of support for SRL. It has been previously suggested that portfolio use is less useful when trainee and supervisor interact on a frequent basis.⁵¹ This aligns with our results: trainees felt obligated to document learning activities that would have taken place anyway, contrary to portfolio use facilitating a meaningful interaction between trainee

and supervisor that could lead to SRL. In contrast, faculty, who are in contact with trainees on a less frequent basis, did interact with trainees by use of the portfolio.

We argue that tensions between different portfolio purposes are an important factor explaining this interaction between trainees and faculty. Besides the purpose to support SRL, the portfolio also is an essential component of the assessment programme, and with that an important tool for accountability. Faculty members felt responsible for a fair and accurate assessment of trainees, and therefore directed trainees towards building comprehensive portfolios that fully cover the competencies developed during WPL. An unintended effect of faculty's focus on 'assessable' portfolios was that ownership of the portfolio shifted from trainees towards faculty. As a result, trainees experienced little leeway to use their portfolios for the sake of SRL.

Moreover, these tensions between portfolio purposes can also explain the ambiguities that were identified in concern to portfolio use. While the importance of clear guidelines during portfolio use is well known,^{24 52} in practice the instructions provided to trainees varied as different stakeholders focused on different purposes. We are not the first to find that assessment and/or accountability can overshadow SRL, thereby adding to the debate on the (un)desirability of multipurpose portfolios.^{23 24 53 54}

Going into this debate, it is important to realise that above-described tensions extend beyond portfolio use. Instead they signify a discrepancy within our educational system: while explicitly communicating the aim to foster agency in learners, our system implicitly urges learners to conform to external expectations.^{55–58} Agency refers to 'one's capacity to act purposefully and autonomously' and is considered intrinsically valuable during education, as also shows in our efforts to support SRL.⁵⁶ However, at the same time, current curricula are outcome based and communicate a clear image of how a doctor (in training) should perform, think and act.⁵⁵ Consequently, our appreciation of learner agency is often only theoretical, as education comes with accountability which is best served by fixed measures and outcomes.

Implications for practice

This study indicates that portfolio use has limited added value for, and might even interfere with, the support of SRL, when there is a close working relationship between trainees and supervisors. Moreover, the value of portfolio use for the support of SRL can easily become marginalised when the portfolio is a fundamental part of the assessment programme. Consequently, it is important to critically appraise which portfolio purpose(s) are valuable and attainable in a specific educational setting.

If the support of SRL is considered a valuable and attainable purpose of portfolio use, it is important to realise that deliberate attention for this purpose is required during the design, guidance, assessment and evaluation of the portfolio. During all these processes, potential tensions of portfolio use need to be acknowledged, by

informing stakeholders about the competing interests of different portfolio purposes. This will enable that any conflicts of interests can be openly discussed, and where possible resolved by developing a shared frame of reference concerning the purposes and functioning of the portfolio.

Strengths and limitations

In this study, as compared with portfolio evaluation studies, we chose a qualitative research methodology that included various stakeholder experiences, in order to attain a representation of the different processes in play during portfolio use. This approach resulted in a rich, contextualised overview of portfolio use in the light of SRL.

We constructed an open interview guide, as we wanted to gain insight in the experiences, ideas and terminology of stakeholders, without sensitising them to the concept of SRL. The flipside of this approach was that the discussion extended to possibilities and limitations of portfolio use in general. Furthermore, our contextualist worldview summons us to be attentive of the transferability of this study. In this regard, it is the design of the GP specialty training, with trainees and supervisors working in close collaboration during WPL, that distinguishes our context in particular. Consequently, our results cannot fully be transferred to settings where trainees infrequently interact with their supervisors.

CONCLUSION

Portfolio use did not support SRL in our WPL setting. We clarified this by the (frequency of) interaction between different stakeholders and difficulties to serve multiple purposes with one portfolio. Portfolio use seems to have limited added value for SRL when there is frequent and/or close supervision, as this type of supervision already supports SRL sufficiently. Furthermore, portfolio assessment can easily take ownership away from trainees, as other stakeholders decide which portfolio content is valuable. Without ownership, it is difficult for trainees to use the portfolio during SRL.

Author affiliations

¹Department of Primary and Community Care, Radboudumc, Nijmegen, Netherlands

²Department of General Practice, Maastricht University, Maastricht, Netherlands

³Network of GP Specialty Training Institute, Utrecht, Netherlands

⁴Department of Public Health and Primary Care, Leiden Universitair Medisch Centrum, Leiden, Netherlands

⁵Department of General Practice and Elderly Care Medicine, Academic Hospital Groningen, Groningen, Netherlands

⁶Department of Pathology, Maastricht University, Maastricht, Netherlands

Acknowledgements The authors would like to show their gratitude to the trainees, supervisors and faculty, who dedicated their time and ideas by participating in this study.

Contributors RvdG collected, coded and analysed the data of this study. She was the primary writer of the paper. AAT and MHS coded and analysed the data of this study. They provided feedback on the different versions of the paper. AK, NS-dH, BT and SH participated in regular discussions about the design and analysis of the study. They also provided feedback on the different versions of the paper. AAT, MHS,

AK, NS-dH, BT and SH all observed (at least) one focus group. RvdG is the guarantor of this study.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Ethics approval This study involves human participants. The NVMO Ethical Review Board reviewed this study and approved it under NERB dossier number: 2019.4.4. Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement No data are available. The transcripts of the focus groups cannot be shared, as respondents did not provide their consent for this.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID ID

Rozemarijn van der Gulden <http://orcid.org/0000-0003-0815-7793>

REFERENCES

- 1 Van Tartwijk J, Driessen EW. Portfolios for assessment and learning: AMEE guide No. 45. *Med Teach* 2009;31:790–801.
- 2 Colbert CY, Ownby AR, Butler PM. A review of Portfolio use in residency programs and considerations before implementation. *Teach Learn Med* 2008;20:340–5.
- 3 Gordon JA, Campbell CM. The role of eportfolios in supporting continuing professional development in practice. *Med Teach* 2013;35:287–94.
- 4 Azer SA. Use of portfolios by medical students: significance of critical thinking. *Kaohsiung J Med Sci* 2008;24:361–6.
- 5 Cheung CR. ECLIPPx: an innovative model for reflective portfolios in life-long learning. *Clin Teach* 2011;8:27–30.
- 6 Clay AS, Petrusa E, Harker M, et al. Development of a web-based, specialty specific Portfolio. *Med Teach* 2007;29:311–6.
- 7 Dawn S, Smith MJ, Peterson S, et al. Electronic portfolios: questions, implementation, and lessons learned in a doctor of pharmacy program. *Currents in Pharmacy Teaching and Learning* 2011;3:164–70.
- 8 Deitte L. Learning portfolios in radiology residency education: how do I get started? *J Am Coll Radiol* 2008;5:664–9.
- 9 Donato AA, George DL. A blueprint for implementation of a structured Portfolio in an internal medicine residency. *Acad Med* 2012;87:185–91.
- 10 Driessen E, van Tartwijk J, Vermunt JD, et al. Use of portfolios in early undergraduate medical training. *Med Teach* 2003;25:18–23.
- 11 Gibbs T, Bridgen D, Hellenberg D. From learning portfolios to personal development plans. *South African Family Practice* 2005;47:6–8.
- 12 Greaves JD, Gupta SK. Portfolios can assist reflective practice and guide learning. *Current Anaesthesia & Critical Care* 2003;14:173–7.
- 13 Morris AP, Highet LJ, Frazer SE. Using eportfolios to support clinical training in paediatrics. *Arch Dis Child Educ Pract Ed* 2010;95:157–64.
- 14 Kitchen M. Junior doctors' guide to Portfolio learning and building. *Clin Teach* 2012;9:308–11.
- 15 Neville P. Introducing dental students to reflective practice: a dental educator's reflections. *Reflective Practice* 2018;19:278–90.

- 16 Perlman RL, Christner J, Ross PT, *et al.* A successful faculty development program for implementing A sociocultural eportfolio assessment tool. *Acad Med* 2014;89:257–62.
- 17 Pinsky LE, Fryer-Edwards K. Diving for PERLS: working and performance portfolios for evaluation and reflection on learning. *J Gen Intern Med* 2004;19(5 Pt 2):582–7.
- 18 Pitts J. Understand portfolio-based learning. *Education for Primary Care* 2007;18:404–6.
- 19 Sturmberg JP, Farmer L. Educating capable doctors—a portfolio approach. linking learning and assessment. *Med Teach* 2009;31:e85–9.
- 20 Thistlethwaite JE. How to keep a portfolio. *Clinical Teacher* 2006;3:118–23. 10.1111/j.1743-498X.2006.00078.x Available: <http://www.blackwell-synergy.com/toc/tct/3/2>
- 21 Joshi MK, Gupta P, Singh T. Portfolio-based learning and assessment. *Indian Pediatr* 2015;52:231–5.
- 22 Wilkes MS, Howell L. Technology as an instrument to improve quality, accountability, and reflection in academic medicine. *Acad Psychiatry* 2006;30:456–64.
- 23 Tochel C, Haig A, Hesketh A, *et al.* The effectiveness of portfolios for post-graduate assessment and education: beme guide no 12. *Med Teach* 2009;31:299–318.
- 24 Driessen E, van Tartwijk J, van der Vleuten C, *et al.* Portfolios in medical education: why do they meet with mixed success? A systematic review. *Med Educ* 2007;41:1224–33.
- 25 Buckley S, Coleman J, Davison I, *et al.* The educational effects of portfolios on undergraduate student learning: a best evidence medical education (BEME) systematic review. BEME guide No. 11. *Med Teach* 2009;31:282–98.
- 26 Zimmerman BJ. Investigating self-regulation and motivation: historical background, methodological developments, and future prospects. *American Educational Research Journal* 2008;45:166–83.
- 27 Berkhout JJ, Helmich E, Teunissen PW, *et al.* Context matters when striving to promote active and lifelong learning in medical education. *Med Educ* 2018;52:34–44.
- 28 van Houten-Schat MA, Berkhout JJ, van Dijk N, *et al.* Self-Regulated learning in the clinical context: a systematic review. *Med Educ* 2018;52:1008–15.
- 29 Siddaiah-Subramanya M, Nyandowe M, Zubair O. Self-Regulated learning: why is it important compared to traditional learning in medical education? *Adv Med Educ Pract* 2017;8:243–6.
- 30 Zeiger RF. Toward continuous medical education. *J Gen Intern Med* 2005;20:91–4.
- 31 Fida NM, Shamim MS. Portfolios in Saudi medical colleges. why and how? *Saudi Med J* 2016;37:245–8.
- 32 Lewis CE, Tillou A, Yeh MW, *et al.* Web-Based portfolios: a valuable tool for surgical education. *J Surg Res* 2010;161:40–6.
- 33 Hrisos S, Illing JC, Burford BC. Portfolio learning for Foundation doctors: early feedback on its use in the clinical workplace. *Med Educ* 2008;42:214–23.
- 34 Vance G, Williamson A, Frearson R, *et al.* Evaluation of an established learning Portfolio. *Clin Teach* 2013;10:21–6.
- 35 Tailor A, Dubrey S, Das S. Opinions of the eportfolio and workplace-based assessments: a survey of core medical trainees and their supervisors. *Clin Med (Lond)* 2014;14:510–6.
- 36 Halder N, Subramanian G, Longson D. Trainees' views of portfolios in psychiatry. *Psychiatrist* 2012;36:427–33.
- 37 Elango S, Jutti RC, Lee LK. Portfolio as a learning tool: students' perspective. *Ann Acad Med Singap* 2005;34:511–4.
- 38 Foucault M-L, Vachon B, Thomas A, *et al.* Utilisation of an electronic Portfolio to engage rehabilitation professionals in continuing professional development: results of a provincial survey. *Disabil Rehabil* 2018;40:1591–9.
- 39 Vance GHS, Burford B, Shapiro E, *et al.* Longitudinal evaluation of a pilot e-portfolio-based supervision programme for final year medical students: views of students, supervisors and new graduates. *BMC Med Educ* 2017;17:141.
- 40 Webb TP, Aprahamian C, Weigelt JA, *et al.* The surgical learning and instructional Portfolio (slip) as a self-assessment educational tool demonstrating practice-based learning. *Curr Surg* 2006;63:444–7.
- 41 Pearson DJ, Heywood P. Portfolio use in general practice vocational training: a survey of GP registrars. *Med Educ* 2004;38:87–95.
- 42 Webb TP, Merkley TR. An evaluation of the success of a surgical resident learning Portfolio. *J Surg Educ* 2012;69:1–7.
- 43 van der Gulden R, Heeneman S, Kramer AWM, *et al.* How is self-regulated learning documented in e-portfolios of trainees? A content analysis. *BMC Med Educ* 2020;20:205.
- 44 King N, Brooks JM. Philosophical issues when using template analysis. In: King N, Brooks JM, eds. *Template Analysis for Business and Management Students* London, UK: SAGE Publications Ltd, n.d.: 2016. 13–23.
- 45 Neubauer BE, Witkop CT, Varpio L. How phenomenology can help us learn from the experiences of others. *Perspect Med Educ* 2019;8:90–7.
- 46 Paradis E. The tools of the qualitative research trade. *Acad Med* 2016;91:e17.
- 47 Stalmeijer RE, Mcnaughton N, Van Mook WNKA. Using focus groups in medical education research: amee guide No. 91. *Med Teach* 2014;36:923–39.
- 48 Varpio L, Ajawi R, Monrouxe LV, *et al.* Shedding the cobra effect: problematising thematic emergence, triangulation, saturation and member checking. *Med Educ* 2017;51:40–50.
- 49 King N. Using templates in the thematic analysis of text. In: Cassell CS, ed. *Essential guide to qualitative methods in organizational research*. London, England: SAGE Publications 2004:256–71.
- 50 King N, Brooks J. Thematic analysis in organisational research. In: Cassell C, Cunliffe AL, Grandy G, eds. *The SAGE Handbook of Qualitative Business and Management Research Methods: Methods and Challenges* Thousand Oaks, CA, USA: SAGE Publishing, n.d.: 2018. 219–36.
- 51 Kjaer NK, Maagaard R, Wied S. Using an online Portfolio in postgraduate training. *Med Teach* 2006;28:708–12.
- 52 Van Tartwijk J, Driessen E, Van Der Vleuten C, *et al.* Factors influencing the successful introduction of portfolios. *Quality in Higher Education* 2007;13:69–79.
- 53 McMullan M, Endacott R, Gray MA, *et al.* Portfolios and assessment of competence: a review of the literature. *J Adv Nurs* 2003;41:283–94.
- 54 Heeneman S, Driessen EW. The use of a portfolio in postgraduate medical education - reflect, assess and account, one for each or all in one? *GMS J Med Educ* 2017;34:Doc57.
- 55 Watling C, Ginsburg S, LaDonna K, *et al.* Going against the grain: an exploration of agency in medical learning. *Med Educ* 2021;55:942–50.
- 56 Nieminen JH, Tai J, Boud D, *et al.* Student agency in feedback: beyond the individual. *Assessment & Evaluation in Higher Education* 2022;47:95–108.
- 57 Schut S, Driessen E, van Tartwijk J, *et al.* Stakes in the eye of the beholder: an international study of learners' perceptions within programmatic assessment. *Med Educ* 2018;52:654–63.
- 58 Cleland J, Reeve J, Rosenthal J, *et al.* Resisting the tick box culture: refocusing medical education and training. *Br J Gen Pract* 2014;64:422–3.