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Stewart, H, Roddam, H, Wisby, D and Selfe, J (2017) The influence of portfolio aims and structure on student attitudes towards portfolios as a learning tool: a scoping review. *Physical Therapy Reviews*, 22 (1-2). pp. 86-94. ISSN 1083-3196

DOI: <https://doi.org/10.1080/10833196.2017.1312844>

Publisher: Taylor & Francis/Maney Publishing

Version: Accepted Version

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1 **The influence of portfolio aims and structure on student attitudes towards portfolios as**
2 **a learning tool: A Literature Review.**

3

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12

13 **Abstract.**

14 **Background:** Portfolios are widely used in undergraduate health professional education,
15 however the majority of literature suggests that these are poorly received by students, in
16 terms of being an effective learning tool. **Objectives:** to evaluate whether the aims/purpose or
17 structure/level of standardisation/content of student portfolios influences their attitudes to and
18 perceptions of its use as a learning tool. **Major Findings:** Aims/purpose and structure/level of
19 standardisation/content of portfolios were analysed in relation to student responses in order to
20 determine any relationship between these. The level of information provided in the studies
21 was variable, making analysis difficult, however there appeared to be no clear link between
22 any of these factors and student responses. The interplay of level of support and guidance, the
23 time required for completion of the portfolio, and the role of assessment appear to have the
24 greatest influence on student views.

25 **Conclusions:** Considering the wide use of portfolios in health professional education, student
26 support for these is limited, and further research is required to determine if alternative
27 approaches to portfolio learning can positively influence student attitudes and perceptions.

28 **Key Words:** portfolio; professional education; student; attitude and perceptions; influence on
29 learning

30

31 **Introduction.**

32 The word portfolio stems from the Italian word *portafoglio*, a case for carrying loose papers.

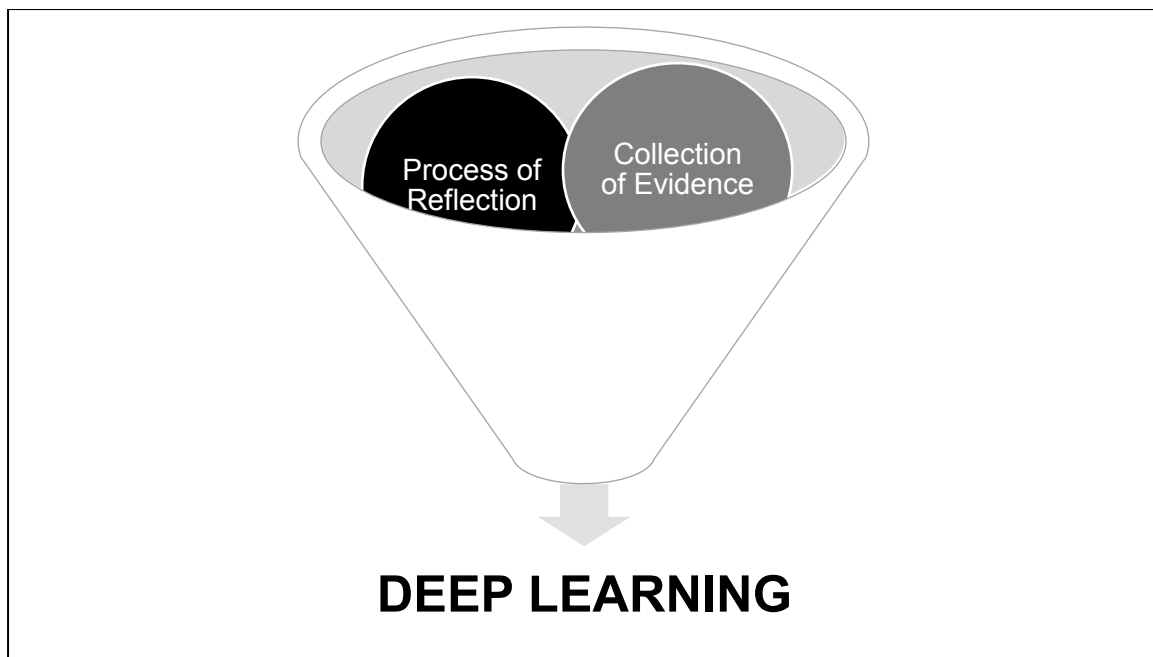
33 The evidence for the use of portfolios within education began to appear in the 1990's, in
34 teacher education,¹ the arts,² nursing,³ and medical education.⁴ The first published evaluation
35 of portfolio use in Physiotherapy education was in 1997.⁵

36 There are many varied definitions of a portfolio,⁶⁻⁹ with two clear types of portfolios
37 identified - that of the portfolio as a tool to demonstrate achievement, or a best work
38 portfolio,¹⁰⁻¹³ and the portfolio that is used to aid progress and growth, or a learning
39 portfolio.^{11, 14-15}

40 The reported key benefits of a portfolio within healthcare education, are that it encourages
41 personal reflection on experiences, learning and development,¹⁶ provides a useful link
42 between academic knowledge and clinical practice,¹⁷ makes students more aware of their
43 own learning,¹⁸ and promotes critical thinking.¹⁹ Portfolios should also encourage students to
44 develop the abilities they will need to become independent and self-directed learners.²⁰

45 Personal experience of using portfolios over many years and in different formats with
46 undergraduate Physiotherapy students, suggested that despite the reported benefits listed
47 above, students did not perceive the portfolio to be useful, or to value its completion.

48 A relatively recent portfolio model by Zubizarretta (2008) suggests that three key
49 components need to be included in portfolio development, if students are to learn at a deep
50 level through their use (see Figure 1).²¹ The first component is the inclusion of evidence,
51 followed secondly by the process of reflection, which has been noted to be critical to the
52 success of learning through use of a portfolio.^{22, 23} Finally, the inclusion of collaboration
53 recognises that although professional development is the responsibility of the individual,
54 students beginning this process need guidance, feedback and advice from more skilled and



55

56 **Figure 1. Diagrammatic Representation of Zubizarretta (2008)¹⁶ Model of Portfolio**
57 **Learning**

58 knowledgeable professionals,²¹ and it is suggested that this process of mentoring is the most
59 decisive factor in portfolio success.²⁴

60 In order to consolidate the knowledge and research findings on the use of portfolios in
61 undergraduate health education, as well as to identify gaps within the research, a literature
62 review was undertaken as part of a course of study at doctoral level. The doctoral review
63 aimed to investigate factors influencing student perceptions of and attitudes to use of
64 undergraduate portfolios in the broadest context. In order to focus the findings for this
65 publication, findings from the review will be discussed in relation to the following two
66 questions –

- 67 1. Do the aims/purpose of the portfolio influence the students' perceptions of and
68 attitudes towards portfolio use?
- 69 2. Does the structure/format or required content influence the students' perceptions of
70 and attitudes towards portfolio use?

71 **Methods.**

72 As this research is a literature review, ethical approval was not sought. Literature searches
73 took place between 10th September and 6th October 2014, using 12 databases (see Table 1);
74 each was searched from the oldest issue available up to August 2014.

75 **Table 1. Databases searched.**

DATABASES SEARCHED
Academic Search Complete
Amed
Biomed Central
British Education Index
Cinahl complete
Embase
Maternity and Infant Care
Medline
ProQuest Hospital Collection
PsychArticles/PsychInfo
Science Direct
Sports Discus

76

77 Search terms were identified through previous background reading, and were categorised into
78 four themes. Both continuing professional development and its abbreviation, CPD, were
79 included as search terms, in order to broaden the findings from the literature search. Search
80 terms were combined using the Boolean operator AND (see Table 2), and where possible,
81 searches were performed within Title, Abstract, or Keywords to limit the number of hits and
82 improve relevance of results.

83 **Table 2. Search terms and search combinations.**

THEME 1 - Portfolio	THEME 2 - Student	THEME 3 - Learning	THEME 4 - Attitude
Portfolio	Student	Continuing Professional Development	Perception
	Undergraduate	CPD	Attitude
		Lifelong Learning	Preferences
			Views
			Behaviours
			Evaluation
			Purpose
Theme 1 AND Theme 2			
Theme 1 AND Theme 3			
Theme 1 AND Theme 4			
Theme 1 AND Theme 2 AND Theme 4			
Theme 2 AND Theme 3			

84

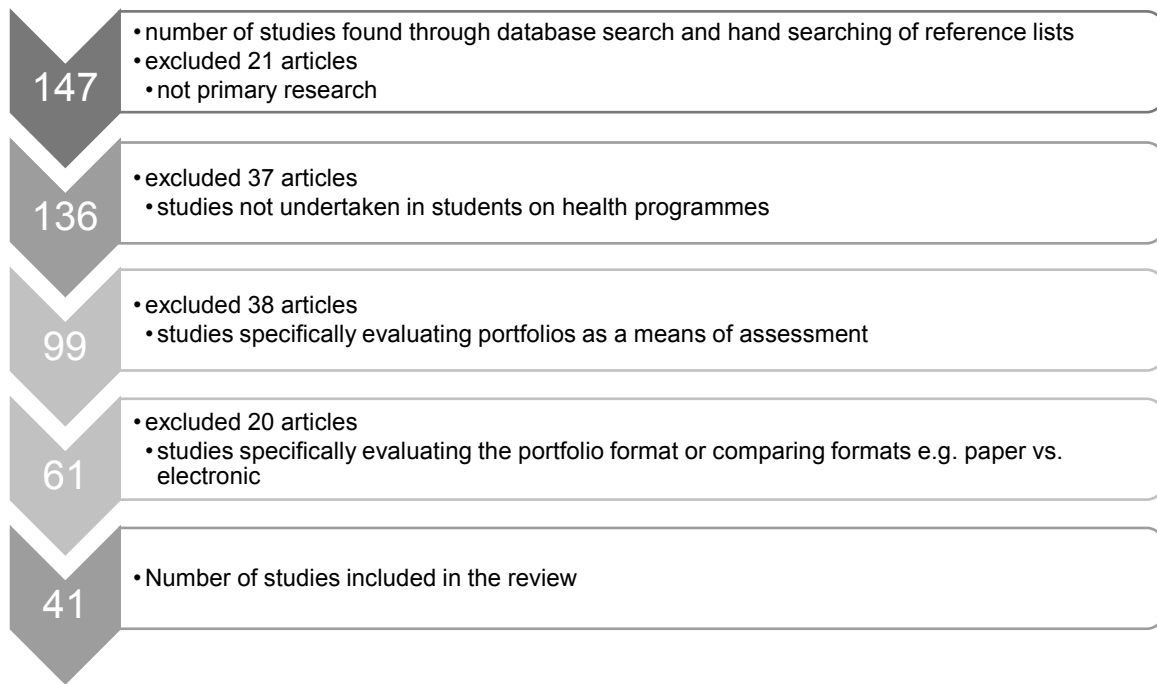
85 Articles retrieved had to be published in the English Language and provide data on student
 86 perceptions or attitudes towards use of a portfolio to be included in the review. Hand
 87 searching of references lists also produced some included papers.

88 The initial sample included 147 scientific articles, editorials, commentaries, and opinion
 89 pieces. Papers were excluded from this sample using the criteria outlined in the flowchart in
 90 Figure 2. The final sample included in the review was 41.

91

92 ***Analysis of Literature***

93 One author analysed the research, as this was undertaken as part of a programme of doctoral
 94 study, however the analysis was discussed with all authors as part of the supervisory process.
 95 On initial reading of the research studies, the first author became familiar with the key ideas
 96 and recurrent topics being raised, either from the qualitative comments made by student
 97 participants during interviews or focus groups, or from the questions asked and responded to
 98 in questionnaires. Following a process of qualitative data analysis as described by Bryman



99

100 **Figure 2. Literature search process.**

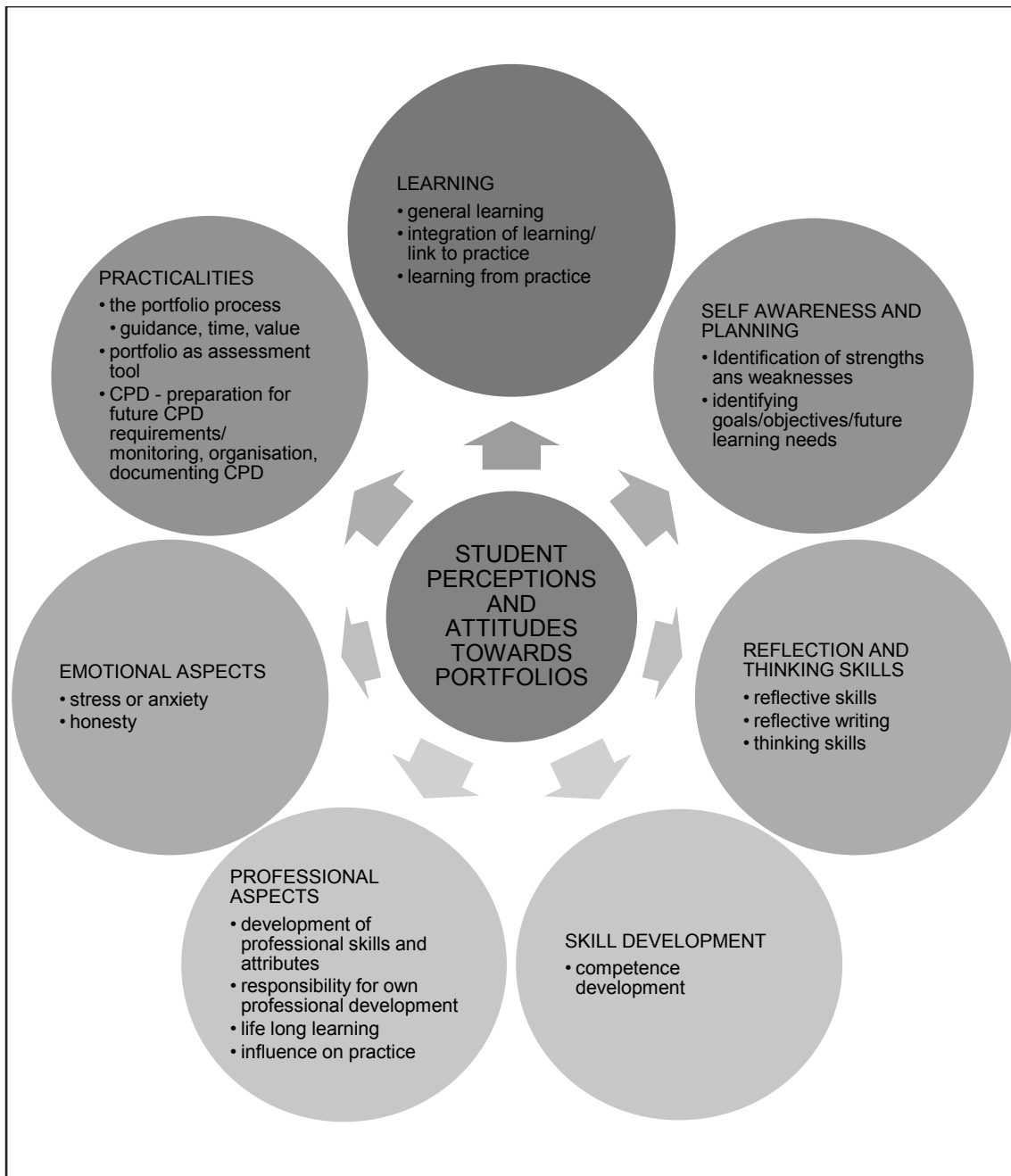
101 and Burgess (1994)²⁵, these key ideas and topics were then developed into a theoretical
 102 framework (see Figure 3), which was discussed and finalised by all authors. Indexing and
 103 charting of the empirical data then took place in relation to this framework, with the reported
 104 data from each individual study charted as either positive or negative in relation to the
 105 student’s perception of each the topics identified in Figure 3. These results were then mapped
 106 against the identified possible influencing factors – portfolio aims/purpose (see Appendix 1);
 107 level of standardisation of the portfolio (see Appendix 2); the basis or format of the portfolio;
 108 portfolio content – and findings interpreted to draw conclusions.

109

110 **Results.**

111 *Description of the sample.*

112 Of the 41 studies reviewed, 40 were published in peer-reviewed journals, between 1994 and
 113 2014, with the majority published between 2003 and 2012. One study was a thesis, from the
 114 University of Iowa.²⁶ The research was undertaken mainly in the Western world, with only



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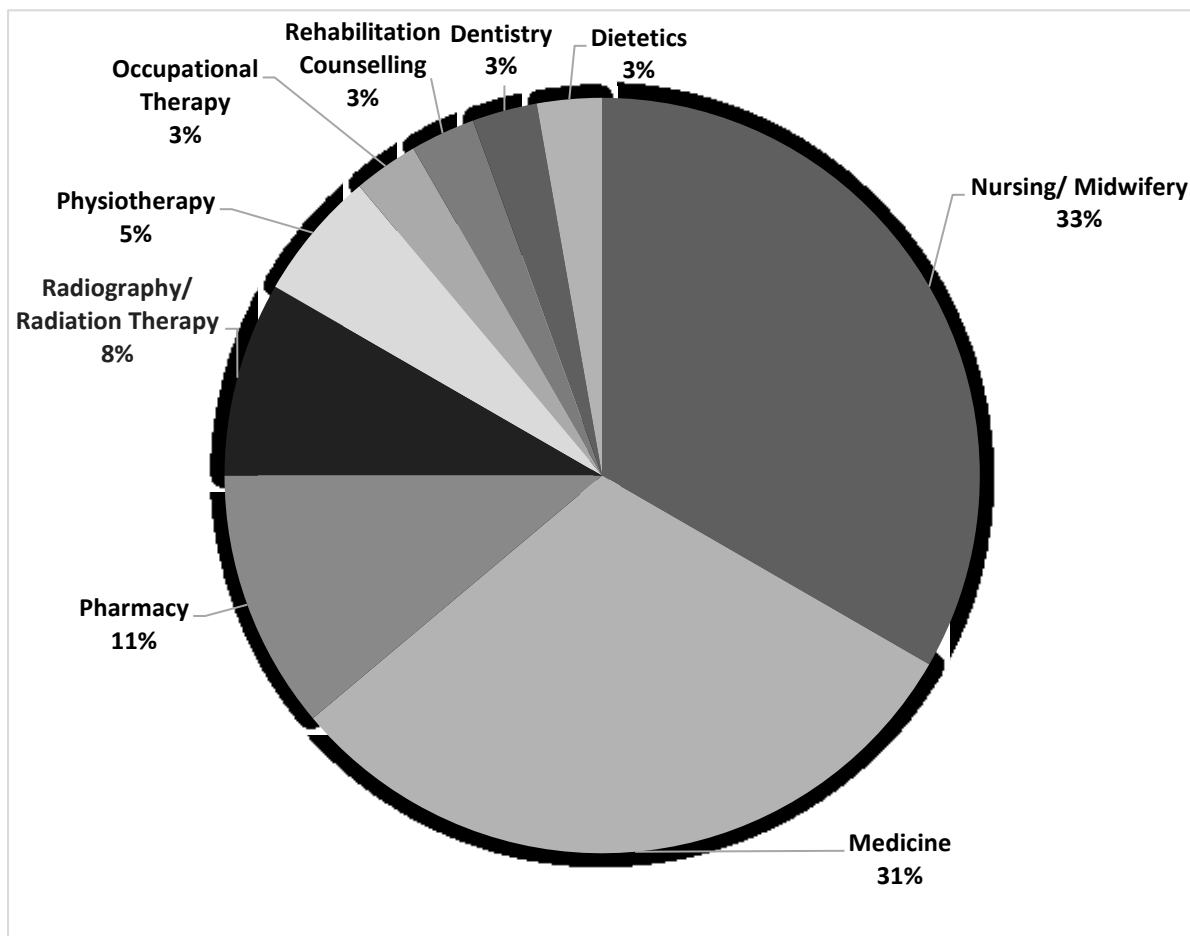
Figure 3. Themes emerging from analysis of qualitative and quantitative data.

118 one study from Africa,²⁷ and one study from the Far East.²⁸ Distribution of research by
119 profession is shown in Figure 4.

120

121 *Aims/purpose of the portfolios.*

122 Only 18 of the 41 studies provided information regarding the aims or purpose of their student
123 portfolio. These fell into 6 categories – a collection of evidence,²⁹⁻³⁵ a means of developing



124

125 **Figure 4 – Distribution of research from different professional groups.**

126 reflective skills,^{27, 30, 33-36} to develop self-awareness and professional identity,^{30-31, 37-38} for the
127 purpose of assessment,^{30-32, 36, 38-41} a communication tool,^{32, 35, 38, 42-43} and to develop students'
128 learning processes.^{30-32, 35, 38, 42, 44} Overall there was a lack of standardisation of the aims
129 across the portfolios described, and a number of studies' portfolios had more than one aim.

130

131 ***Structure, format and content of the portfolios.***

132 The research found generally lacked detail in terms of the structure, format or level of
133 standardisation of their student portfolios. 16 of the 41 studies gave some indication of
134 whether their portfolio was of a standardised structure, semi-standardised or completely

135 flexible. Two early studies, one in Physiotherapy,⁵ and one in medicine,²⁹ presented portfolios
136 at opposite ends of the standardisation spectrum, with one providing a rigid structure and the
137 other no standardised structure at all. More recent studies described portfolios that have
138 reached a semi-standardised compromise, providing some overarching structure in terms of
139 the expectations of the portfolio (for example providing section headings or guidance re
140 formatting), while allowing students flexibility about what evidence they collect, or how this
141 is used to demonstrate achievement of requirements. Eight studies based their portfolio
142 structure on professional standards or competency frameworks,^{5, 31-32, 36, 39, 45-47} three around
143 programme or module learning outcomes,^{40-41, 44} and two around theoretical frameworks of
144 learning.^{35, 43}

145 The content of the student portfolios varied widely, with 25 of the 41 studies giving
146 information about content. As part of this review, content was grouped into 7 broad
147 categories – ethical issues and dilemmas,^{28, 40, 43} reflective elements,^{5, 31-33, 36, 38, 40, 43-44, 47-49}
148 academic components such as assignments or classroom notes,^{5, 28-30, 35, 38-42, 45, 49} evidence of
149 working with others,^{31, 37, 40, 49} checklists and documents,^{5, 28-29, 32, 35-37, 42, 45, 47-49} patient/client
150 related evidence,^{5, 27-28, 30-32, 34-35, 37, 39-40, 42-44, 46, 49} and learning agreements and personal
151 development plans.^{5, 38, 40, 42-43, 45-46, 48} There is a lack of clarity as to whether elements
152 categorised as working with others and patient/client experiences are students' reflections on
153 these experiences or simply descriptive documents evidencing that this was done. Many of
154 the studies described portfolios requiring content from more than one of these categories.

155

156 ***Student perceptions and attitudes towards portfolios.***

157 All 41 studies provided either quantitative and/or qualitative data regarding students'
158 perceptions and attitudes towards the use of a portfolio. A range of data collection methods

159 were used, with no specific method being favoured by authors from any one professional
160 group.

161

162 **Discussion.**

163

164 *Do the aims/purpose of the portfolio influence the students' perceptions of and attitudes* 165 *towards portfolio use?*

166 Based on the data provided, it is difficult to draw any strong conclusions regarding any
167 relationship between aims or purpose of the portfolios, and the students' perceptions of and
168 attitudes towards use of a portfolio (see Appendix 1). In general terms, comments relating to
169 the influence of the portfolio on practice, the emotional factors involved in the portfolio, the
170 time taken to complete the work, the link between theory and practice, and the guidance
171 given were negative, irrespective of the aim of the portfolio. The question regarding whether
172 students saw any value to completion of a portfolio was wholly answered negatively across
173 all aims. Interestingly, improvement in reflective skills was reported by the majority of
174 students, and although students did not value their portfolios, they could see that it had
175 prepared them for future practice regardless of its intended purpose.

176 Students whose portfolio aimed to specifically develop reflective skills,^{27, 30-31, 33-36} responded
177 positively with regard to learning from practice, and the development of self-awareness,
178 reflective skills and thinking skills. These students also appeared to have fewer concerns
179 regarding the time taken to complete the portfolio.

180 Similarly, students whose portfolio aim was to meet assessment criteria,^{29, 31-32, 36, 38-41} also
181 responded positively with regard to reflective and thinking skills, but also felt that the
182 portfolio enabled them to develop their professional skills and attributes, and a responsibility
183 for their own learning. Students in this group of studies were concerned about the guidance

184 given for portfolio completion more strongly than others, and this may have been because of
185 the specific focus on assessment in the aims of the portfolio. These students also reported that
186 they felt unable to be completely honest in the content of their portfolios due to it being
187 assessed. Finally, there were mixed views from students whose portfolio aim was assessment,
188 with regard to the portfolio as an assessment tool, compared with the majority of other
189 studies, where the student opinion was mainly negative.

190 Studies where collecting evidence was the aim generally found students reported less
191 negatively than in studies with other aims.²⁹⁻³⁵ This is perhaps because the lack of
192 requirement for critical thinking, analysis or reflection meant students did not find the task
193 challenging. The overall lack of positive comments from student responders in these studies
194 ²⁹⁻³⁵ could also suggest that the students found the creation of their portfolio unstimulating.

195

196 ***Does the structure/format or required content influence the students' perceptions of and***
197 ***attitudes towards portfolio use?***

198 As with the previous discussion, it is difficult to draw any strong conclusions regarding the
199 relationship between structure, format or content and student responses to the studies (see
200 Appendix 2). Across all formats (level of standardisation; basis, type of content required) of
201 the portfolios described in the research, the general opinion of students was negative in terms
202 of time requirements, level of guidance provided and the value of completing a portfolio.

203 Overall, semi-standardised formats received a higher proportion of positive comments,^{29, 32, 36,}
204 ⁴⁸ and standardised formats received the highest proportion of negative comments.^{5, 27, 31, 33-34,}
205 ^{41-43, 47, 49-50} Semi-standardised portfolios that allowed some flexibility in terms of content or
206 format appeared to encourage students to think more deeply,⁵¹ learn from practice, take
207 responsibility for their own development, and recognise the need for lifelong learning.^{30, 32, 36,}

208 ⁴⁸ Both standardised or semi-standardised formats did allow students to see that developing
209 their portfolios had prepared them for future CPD requirements.

210 In terms of the basis for the portfolio, those based on professional standards,^{5, 27, 32, 36, 46}
211 generated more positive responses to the themes than those based on either competency
212 standards,^{39, 45, 47} learning outcomes,^{40-41, 44} or theoretical concepts.^{35, 43}

213 When analysing the content of the portfolios against the students' views, similar themes
214 arose, with no particular type of content showing specifically positive or negative comments.

215 Across all the studies giving detail of content, students responded positively regarding
216 development of reflective skills, taking responsibility for their own learning, understanding
217 the role of lifelong learning, and being prepared for the future. Thinking skills received
218 mainly positive responses.

219 Returning to the portfolio model as described by Zubizarretta (2008) several comments can
220 be made.²¹ Firstly, by nature of the definition of a portfolio, all of the studies required the
221 students to collect evidence, although it is not clear in all studies what this included, or
222 whether there was any requirement for critical writing about the evidence collected. The
223 findings from this review of the literature suggest that pure collection of evidence does not
224 elicit strong feelings from students, either positively or negatively, suggesting perceived lack
225 of achievement and lack of stimulation. Secondly, although the aims of only 7 studies
226 required the need for reflection, the majority of studies did in fact include this element, and
227 students responded positively in all studies regarding the development of reflective skills.

228 Thirdly, the findings with regard to collaboration are limited, and so it is difficult to draw
229 firm conclusions about how student support in the portfolio-building process influences
230 whether students value their portfolios or achieve deep learning from them. Students
231 completing standardised portfolios felt restrained by having too much guidance,⁵ yet not
232 enough guidance left students feeling confused about what was expected.^{33, 35-36, 41, 44, 49} It is

233 also unclear whether, when answering questions about guidance, students are referring to
234 face-to-face guidance, which would be considered collaboration or mentoring,²¹ or whether
235 they are referring to written instruction on how to complete their portfolio. The challenge for
236 educators appears to be creating a balance between enough guidance so that students feel
237 empowered to undertake the task without stifling their creativity, ensuring all members of the
238 course team involved in student support understand the process, the allowances for flexibility
239 and definitive requirements, whilst also factoring in the need for objectivity and parity if the
240 portfolio is to be assessed.

241 Considering the current drive by professional and statutory bodies to enforce CPD within
242 qualified health professionals in both the UK and around the world,⁵²⁻⁵⁷ it is encouraging that
243 students felt that using a portfolio prepared them for their future CPD requirements.

244 However, it is possible that this move to regulation of CPD may have influenced educators to
245 design undergraduate portfolios that allow students to meet these requirements, to the
246 detriment of developing as learners through reflecting on the experiences under the guidance
247 of a more experienced practitioner.

248 Only one study, by Dolan et al (2004), described a portfolio whose aims incorporated all of
249 these three elements, yet despite this, these UK-based student nurses' attitudes towards and
250 perceptions of their portfolio remained largely negative³⁵. While they responded positively
251 regarding its use as a reflective tool, they did not value the portfolio and gave it a low
252 priority, and 63% had never used the portfolio as a result of their clinical experiences. The
253 authors concluded that the lack of value was because the portfolio was not assessed, but
254 rather used to stimulate discussion with tutors relating to progress through the course, and
255 goals for future employment. Although only one study, this throws into question whether the
256 three elements required in a portfolio as described by Zubizarretta (2008) actually do produce
257 deep learning.²¹

258 **Limitations.**

259 There are several limitations to this study. Not all of the literature relating to student
260 portfolios was reviewed; as part of the doctoral study a conscious decision was taken to
261 exclude any papers specifically exploring portfolios as an assessment method, or portfolios
262 comparing different types of portfolios, e.g. paper vs. e-portfolios. This means that some data
263 relating to students' attitudes to or perceptions of portfolios may have been missed. Only one
264 author reviewed and analysed the literature, and therefore this could have introduced bias to
265 the process. Lack of detail within the studies regarding all of the elements considered – aims,
266 purpose, structure, standardisation, content – means that conclusions have been drawn with
267 some missing information.

268

269 **Conclusion.**

270 Portfolios are widely used within higher education, and particularly in pre-registration
271 education of health professionals. There are several benefits suggested to their use, including
272 encouragement of reflection, providing links between academic knowledge and clinical
273 practice, promoting critical thinking, and development of independent and self-directed
274 learners. One model of portfolio learning suggests evidence collection, reflection and
275 collaboration with more experienced colleagues are all required for students to achieve deep
276 learning through the use of a portfolio. The evidence from this review suggests that factors
277 such as portfolio aims, purpose, structure, format and content have little influence on
278 students' perceptions of or attitudes to the use of a portfolio as a means of learning, with
279 responses within studies being mainly negative in relation to the value of the portfolio, the
280 time required to undertake portfolio work, and the guidance given related to this work.
281 Students generally reported positively in terms of development of reflective skills and being
282 more prepared for future professional CPD requirements as a result of using a portfolio.

283 While the evidence is limited regarding the three requirements of evidence collection,
284 reflection and collaboration,²¹ it is proposed that even the inclusion of all three of these
285 elements does not appear to improve students' generally negative views on portfolios.
286 Despite the positive responses with regard development of reflective skills as part of using
287 their portfolios, students did not see the benefit of this, and further research should explore
288 whether this is because they do not value reflection, or whether they do not understand the
289 purpose of it, in relation to their practice. It is also evident that portfolios continue to be used
290 by educators, despite the negative attitudes from students regarding their use, and further
291 exploration is required to determine how or if it is possible to enable students to engage in
292 portfolio learning, in order to achieve the benefits that are suggested within the literature.

293

294 **Key Messages.**

295

296 ***What is already known on this topic.***

297 Portfolios are widely used within higher education, and particularly within the education of
298 health professionals. There is wide variety within these portfolios, in terms of aims, purpose,
299 structure, format, content, and inclusion in assessment, across and within the disciplines.

300 Despite large volumes of literature evaluating the use of portfolios as learning tools, there has
301 been relatively little discussion regarding the factors influencing student engagement and
302 recognition of value of portfolio learning.

303

304 ***What this study adds.***

305 This paper showed that there does not appear to be a clear link between the aims of a
306 portfolio, its structure or content, and students' attitudes to or perceptions of portfolios as a
307 means of learning. Regardless of aims, structure, content, students generally feel the portfolio

308 assists in development of reflective skills and prepares them for the future CPD requirements.

309 However, there appears to be interplay between a number of factors, which impact on the

310 value students place on their portfolios, such as the role of assessment, the guidance and

311 support provided, and the time implications of maintaining and developing their portfolios.

312 Educators need to consider these factors when deciding how to design portfolios within their

313 programmes of study, and should clearly articulate the purpose of this method of learning to

314 students, in order to try to improve the value given to portfolio use.

315

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Appendix 1 - Influence of Aims/Purpose of Portfolio on Student Responses to Themes (number = the number of studies in which students had this response)

AIMS OR PURPOSE OF PORTFOLIOS	Collection of evidence (N=8)		Reflection (N=7)		Self-Awareness (N=4)		Assessment (N=8)		Communication (N=5)		Learning Process (N=7)	
	positive	negative	positive	negative	positive	negative	positive	negative	positive	negative	positive	negative
Learning	1	1	1	1			3	2		1	2	2
Theory to Practice Link						1		1	1	1		1
Learning from Practice			1				1	1				
Self-awareness			1			1	2	1		1		1
Reflective skills	1		2		2		2		2	1	2	
Reflective Writing					1	1	1	1	1		1	1
Thinking Skills			1				2		1			
Skill Development							1	1	1		1	
Professional Skills and Attributes						1	1			1		1
Responsibility for own development			1				1					
Lifelong Learning	1		1								1	
Influence on Practice		1		2				1		1		1
Emotional aspects, stress, anxiety			1	1		1	2	2		1	1	2
Honesty								1				
Guidance given				1				2				1
Time taken	1							3		2		2
Value of portfolio		1		2				2		2		3
Assessment by portfolio		1	1			1	3	3		2		2

Preparation for the future	2		2		1		1		3		3	
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471 **Appendix 2 – Influence of Level of Standardisation of Portfolio on Student Responses to**
 472 **Themes (number = number of studies in which students had response)**

STANDARDISATION OF PORTFOLIO THEMES OF STUDENT RESPONSES	Flexible (N=5)		Semi standardised (N=4)		Standardised (N=11)	
	positive	negative	positive	negative	positive	negative
Learning	3	2	1	3		3
Theory to Practice Link					1	
Learning from Practice			1			
Self-awareness	2	1	1			
Reflective skills	1		2		3	
Reflective Writing					1	1
Thinking Skills	1	1	2		2	
Skill Development						1
Professional Skills and Attributes	1					
Responsibility for own development			2			
Lifelong Learning			2			
Influence on Practice	1					
Emotional aspects, stress, anxiety	2	2	1	1		
Honesty						1
Guidance given	1	2		1		3
Time taken				1		3
Value of portfolio		2	1	1	1	4
Assessment by portfolio	1		1	1	1	
Preparation for the future			1		3	