An exploration of the current use and benefit of nursing student portfolios

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Summary

Aim: This study aims to identify the structure and of student portfolios and to ascertain their views on their usefulness.

Background: Portfolios are in common use in undergraduate nursing programmes although there are considerable variations in approaches. As a result a wide variety exists in the quality of work presented and students are often unclear as to constituent contents. This latter, while a reflection of the current status and development of portfolio use within the discipline is a source of dissatisfaction for students, and warrants further investigation.

Methods: This project aimed to quantitatively capture student views using an on line survey approach utilizing a previously validated questionnaire (McMullen, 2006) [McMullen, M. 2006. Students' perceptions on the use of portfolios in pre-registration nursing education: A questionnaire survey. International Journal of Nursing Studies 43 (3), 333–343]. A survey tool is used to examine the structure, process and content of portfolios (*n* = 481) in current use in one school.

Results: The study provides an evidence base for hitherto anecdotal comments and provides useful information for future development. While students see potential value in the portfolio use there are several areas of dissatisfaction including lack of clear guidelines.

Conclusion: As an evolving structure within universities and practice there is much room for process improvement.

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Introduction

Over the past four decades there has been increasing interest in the portfolio as both a teaching and learning method for undergraduate students (Kuisma, 2007). Portfolio use is ultimately associated with

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the belief that adults are capable of engaging in self-directed learning (Timmins, 2008), and there are several references within the published literature to portfolios use by teachers, rather than learners per se (Rossi et al., 2008, Corry and Timmins). Their ability to support learning is positively supported within the literature prompting many undergraduate and post graduate schools to consider portfolio use (Lombardi, 2008). As a result portfolio use has become increasingly popular within undergraduate nurse education settings.

A portfolio may be described as a tangible record of something that has been done (Redman, 1994) or as a systematic process of collecting and evaluating the end products of student learning (Ogan-Bekiroglu and Gunay, 2008). Literature describing portfolio use among qualified nurses uses the terms personal portfolio, personal, professional portfolio and professional portfolio interchangeably, with no consensus upon definition emerging. Nevertheless portfolio is frequently utilised as an approach for both formative and summative assessment of nursing students (McMullan et al., 2003) and to record on going professional development for qualified nurses in many countries (NMC, 2006; ANA, 2007).

Portfolios are traditionally used among disciplines such as art and architecture as a means of collating evidence of achievements (Harun and Cetinkaya, 2007). An artist, for example, may collect a range of samples of art work that are contained within a folder for portfolio purposes. Thus able to provide a prospective employer or academy with a glimpse of their achievements as a possible predictor of potential output on the job or course of study for which the applicant has applied.

In a similar way the profession of nursing internationally have adopted and embraced the concept of portfolio use. While the exact rationale for this trend towards portfolio use among practicing nurses is unclear, it does serve as an independent approach requiring nurses to provide evidence for their competence rather than the use of specific intervention from the regulatory body. This places the onus on the registered nurse which fosters independence and also prevents overt regulatory body control. In the United Kingdom (UK), Australia, and the United States of America (USA) (NMC, 2006; ANA, 2007) the portfolio forms part of a mandatory requirement for ongoing registration with the professional body. Just like an artist, personal achievements may be contained within and presented to others. The nurse in practice may present a record of other achievements, such as attendance at study days, awards, patient testimonies, that simply testify to the nurses' achievements.

There is usually a broad scope with regard to inclusion requirements.

While popular, there are inherent difficulties in relation to reliability and validity of this approach for both nurses and other professionals. Firstly it may not always be possible to ascertain that the work is indeed the candidates own work. Furthermore as the portfolio is generally a hand held folder, larger pieces of work thus cannot be displayed, thus representing perhaps only a small proportion of the candidates' actual work. Overcoming this barrier may be possible through constructing a portfolio by electronic means, through the use of photographs or through verbal presentation. None of these approaches are commonly used for nurses, although artists for example, to overcome this snapshot effect, might talk though the portfolio, thus providing meaning and relevance to any potential reader. These problems with portfolio have been identified within the wider educational literature (Sulzen and Young, 2007; Tillema and Smith, 2007); however, there has been little serious consideration of the aforementioned pitfalls with portfolio use as they may apply to the nursing profession. Indeed there is very little evidence that supports the use and benefit of portfolio for either qualified nurses or undergraduate nursing students. Their use it seems is based upon aspirational expectations of success rather than an evidenced based approach. This failure to reflect the students' views on portfolio is also a feature of the general educational literature on the topic (Ogan-Bekiroglu and Gunay, 2008).

In keeping with a trend towards portfolio preparation for qualified nurses, there is also much interest in the portfolio as a tool for the educational preparation of undergraduate nursing students (Rassin et al., 2006). In particular it is envisaged that portfolio preparation in final years of the programme would provide the nursing student with a readily prepared portfolio that could be built upon in their subsequent practice as a nurse (NMC, 2004). As a result many Nursing Schools now integrate the portfolio within the overall assessment of the final year (Rassin et al., 2006).

However, this concurrent use within the profession, as both an educational tool and a means of recording ongoing professional development while exemplary, can lead to confusion. The practicing nurses' portfolio is largely personally motivated and private, whereas a nursing student portfolio, while usually a self-directed activity usually, is driven by academic requirements. It may also be subjected to summative assessment. Contemporary portfolio use among nursing students aims to integrate the gap between what is taught in theory

and what is learned in practice. It is utilised as a mechanism of self directed learning (SDL) and as a medium for recording learning achievements. It also serves as a catalyst for growth and to develop in-depth knowledge both personally and professionally. Many of these aforementioned aspirations yield positive results, however SDL provides an unreliable foundation for portfolio use.

The underlying premise of SDL is that the learner is self-directed; however in reality not all students are capable of independent learning and require direction (McCauley and McClelland, 2004). While some students do demonstrate curiosity and self-motivation, these are the minority and are generally represented by the high achievers among the cohorts (McCauley and McClelland, 2004). As a result there is emerging debate within the literature as to whether or not SDL facilitates the portfolio process effectively (Timmins, 2008). It is suggested that rather than an independent activity, the student is provided with careful guidance and supervision throughout the portfolio process (Timmins, 2008).There are also other inherent challenges with regard to student portfolio use; such as storage and safety of the documents, the time taken to complete the portfolio and the anxiety that their preparation causes to students. There are also emergent ethical and legal issues with regard to disclosure of information about clinical situations. A compounding factor that militates against successful portfolio use is the lack of clear guidelines that seems to be a predominant feature across Nursing (Endacott et al., 2004) and indeed other Schools (Ogan-Bekiroglu and Gunay, 2008), yielding no consistent approach to their use. There is also a lack of uniformity in the preparation of assessors. This latter problem is also recognised in other settings (Sulzen and Young, 2007) and has been addressed in part by the use of e-Portfolio with clear marking criteria (Sulzen and Young, 2007). This provides for succinct information provision by students rather than the variety of artefacts that may be provided within a hand held portfolio, thus assisting the assessor in their discrimination and ultimately assessment.

In addition to the aforementioned challenges the literature offers little by way of direct guidance regarding the individual planning or management of a nursing student portfolio (Hull et al., 2005). For example in the UK, a portfolio is also required to satisfy the standard of proficiency for entry to the register within the domain personal and professional development (NMC, 2004). Specific guidelines regarding this portfolio construction are not provided other than the requirement that it''demonstrate a commitment to the need for

continuing professional''(NMC, 2004). However some discussions within the literature provide more illumination. It is suggested that there are three broad approaches to portfolio use (Cooper, 1999). Firstly there is a biographic portfolio which is simply a record of achievements, more commonly used by the post qualifying nurse (Cooper, 1999). This is also described as a ''portfolio for giving detailed information'' (Harun and Cetinkaya, 2007:2). Secondly, there is a negotiated learning portfolio based upon negotiated learning outcomes, described in other disciplines as a ''portfolio for learning'' (Harun and Cetinkaya, 2007:2). Thirdly and most commonly used, is the portfolio may be competency-based used to support the clinical assessment of student performance (Cooper, 1999). This approach is also observed in other disciplines (Sluijsmans et al., 2008). In this latter use, the portfolio is considered as an adjunct to the formal assessment of nursing student competence by qualified nurses as a component of ''holistic competence'' assessment (Jasper, 2003). However the potential or actual contribution of portfolio to current clinical assessments is unclear. There is also considerable debate within the literature about the definition and operation of clinical competence, thus the whole notion of competence, and by association the portfolio as evidence for competence, is contentious (Watson et al., 2002).

The literature also provides information about how portfolios are currently being developed in nurse education. Endacott et al. explored the undergraduate nursing portfolio process at two UK sites (Endacott et al., 2004). They used a telephone survey and case study approach. From their qualitative examination of four Schools that utilised portfolios for assessment purposes they identified four common approaches to structure. The first they termed ''shopping trolley'', where artefacts were randomly placed within the portfolio with no cohesiveness, linking or overall meaning. The ''toast rack'' referred to situations where the portfolio was subdivided in some way but provided little by way of cohesive linkage or discussion. The ''spinal Column'' referred to an approach that was somewhat integrated with obvious connections between some parts, and the final approach ''Cake Mix'' was a fully integrated approach that was rarely demonstrated. While many approaches to portfolio management observed at both sites failed to meet the latter expectation; the authors were confident that this reflected the neophyte nature of portfolio development in nursing education, and were encouraged by the evidence that more stringent guidelines that had

developed over time appeared to improve results. Beyond description and categorisation of the portfolios examined within this study, specific advice about constituent portfolios elements didn't emerge. Furthermore, the qualitative approach used within the study, while informative in terms of conceptual models of portfolio, provided little by way of quantitative objective information about the current structure of portfolios used by nursing students.

In addition to the possible predominance of the shopping trolley and toast rack approach among nursing students (Endacott et al., 2004), which has questionable learning benefits, there are other further inconsistencies and anomalies associated with their use. There are issues with validity and particularly honestly of written accounts within the portfolio, particularly when summative assessment requires the assignment of a grade. There may be little to convince an examiner that the portfolio is a valid account of the clinical practice experience, or indeed a true account. Between markers, particularly in the absence of marking criteria, there is an issue of inter-rater reliability. Using marking criteria for portfolio is suggested (Quinn, 2000) with several frameworks for assessment suggested Quinn (2000) suggests that the portfolio should be fitting; fair and efficient with marks awarded for presentation; clinical expertise; professional role; management/education and innovation. Interestingly a recent study that implemented clear marking criteria with e-Portfolio use demonstrated a high inter-reliability reliability (Sulzen and Young, 2007).

One factor that is consistently reported within the literature, is the centrality of reflection to the portfolio process (McMullan et al., 2003). However there are also debates regarding the nature of reflection that is required. Commonly used models of reflection, such as Gibbs (1998) are thought to be overly personal and individualised and lacking the critical perspective that contemporary reflection in the clinical area requires (Timmins, 2008). However the extent and nature of reflection used within contemporary nursing student portfolios is unclear. Similarly among other professional groups while the ''reflective portfolio'' is singled out for the use of a collection of ''works'' by the professional that improves their ''comprehension capacity'' related to their professional work experience, there is little documented evidence of the nature of this portfolio or its use within particular groups.

Another evolving area of interest is the use of electronic resources to develop portfolio. While there are some software developments, mostly aimed at qualified nurses, such as that provided for sale by the American Nurses Credentialing Center (ANCC), there is little consistent application of electronic portfolio (e-Portfolio) for nursing students, although their use increasingly common among other student cohorts (Sulzen and Young, 2007). One example of its use for nursing students is by the ANCC, in partnership with an education company, Decision Critical Inc. (DCI). They provide a Web-based professional portfolio management application named the ''Critical Portfolio''™ (Anonymous, 2006). This software is also offered to some 44,000 nursing students, members of the National Student Nurses Association, who may use the provided framework to help plan their portfolios for their future nursing career (Anonymous, 2006). In Canada, one study examined the use of a wireless personal digital assistant (PDA) as an electronic portfolio for nursing students (Garrett and Jackson, 2006). The researchers ascertained students' views of using the electronic portfolio (it comprised a wireless mobile phone and digital camera equipped PDA device). For the most part the students found this portfolio useful for accessing resources, such as journals and email. To this extent it functioned as a reference point rather than fulfilling its true aim. The small screen emerged as a deterrent for students entries. Overall little benefits in terms of portfolio use were reported. However, while the reported use of e-Portfolio for nursing students is in its infancy, its use among other groups, particularly teachers is well documented (Lambert et al., 2007).

It is obvious that considerable debate exists within the literature with regard to aspects of portfolio use for nursing students. Despite the dialogue that exist substantive direction does not emerge and there is evidence of variations in approach, possibly due to the neophyte nature of this approach in the nurse education setting (Endacott et al., 2004). While suggested for use in the assessment of competence, the approach is non standard. Reflection is a key component, but again little direction exists and the approach varies. Furthermore both competence and reflection are contested concepts with existent debates about the evidence base. While popular for independent learning, few students are able for the level of independence that such an activity requires. This confusion, together with the lack of specific guidelines that accompanies these products, leads to the suggestion that many students preparing a shopping trolley (throwing everything in) or subdividing these artefacts in some way to attempt structure (toast rack); but little cohesive learning is evident. However, given the scant empirical basis, we know

little about portfolio use among nursing students or their views on this process. One recent qualitative study (McMullan et al., 2003) identified student views of portfolio as both positive and negative. Students in this study outlined particular challenges related to portfolio such as lack of clear guidelines and the need for support through the process. Similarly a small qualitative study of physics students yielded mixed results (Ogan-Bekiroglu and Gunay, 2008). Nevertheless it did become apparent in this latter study that lack of clear guidelines for portfolio use hampered students' efforts.

In an attempt to benchmark one School against current trends and in response to dissatisfaction expressed by both staff and students regarding ambiguity surrounding portfolio structure and content, these authors decided to examine current portfolio use in one School of Nursing and Midwifery. The University has a strong reputation for the encouragement of portfolio development for lecturing staff; however there is less cohesive direction with regard to portfolio use for undergraduates. This investigation aimed to capture nursing students' views of portfolio use and quantify current portfolio content and structure. This approach also served to address existent deficits whereby little empirical evidence exists that describes portfolio content and structure, or students views on the process.

Objectives of the Study

The objectives of the study were as follows

- To measure nursing students' attitudes towards portfolio use.
- To examine portfolio structure, process and content

Methods

This study used a triangulation of data collection methods. In the first phase a Web based Survey (Monkey Survey) was used to quantify students' views on portfolio use. This 44-item questionnaire was adapted for use in the study with permission from McMullan (McMullan, 2008). It comprised six sections. The first section yielded information about specific demographics using 4 closed responses. Thirty nine statements related to portfolio use were presented across 4 remaining sections and students were invited to respond to each statement using a 5 point Likert response for-

mat (strongly disagree, disagree, uncertain, agree, strongly agree). These sections related to personal and professional development, effectiveness of the portfolio and general comments. A summary list of these items is provided in Table 1. A final section invited open responses to students overall views on portfolio use. A quantitative approach was chosen to provide objective data on the issue. Rather than relying solely on anecdotal views on the current content of the portfolio, it was decided that quantitative analysis of the portfolio itself would provide objective data. Student views on the process were deemed crucial to the process, to ascertain their understanding of their learning and benefits of the portfolio.

A second data collection tool was developed to quantify the evidence presented in student portfolios. This was developed specifically for this purpose and related closely to the measurement of items in the portfolio as they related to local guidelines. The literature on the topic was also extensively consulted. The final tool comprised 28 items that examined the structure, content and processes of current portfolios in use. Most items elicited the selection of one response from a variety of closed responses provided, with the exception of one final open ended item. Each portfolio was also weighed and measured. Two researchers took part in data collection. A pilot study preceded the actual study. This pilot study included a test retest of the items within the portfolios. Quantitative data were analysed using SPSS version 14. Simple descriptive statistics and mean scores were analysed and generated within the Monkey Survey System.

Ethical approval to conduct the study was obtained from the Faculty Ethics Committee in addition to permission from the Head of School. Ethical issues addressed within the study pertained to the principles of non-malificence and beneficence. With regard to the latter principle the students had for quite some time expressed concerns about the portfolio process being used, and we took the view that the collection of data was a first step towards informing School policy in this matter. With regard to the former ethical principal, cognisance was taken of the potential coercive factor within the student/teacher relationship, as both researchers worked directly with students in the School. Therefore in keeping with the ethical framework adopted within the study, a gatekeeper was appointed to recruit the students. To this end the students were invited to both respond to the survey and take part in the audit by an administrator in the School, who was not a member of academic teaching staff. This email invitation outlined the

Table 1 Statements from Web based Survey.

Statement
The portfolio helped me to link theory and practice
Gibbs (1988) is a useful model for reflection
The use of portfolios helps me to learn from practice.
I think that my reflections should be supported more by clinical staff
I think putting in articles and procedures is sufficient
The portfolio helped me to develop a sense of responsibility for my own professional development
The portfolio helped me to identify areas where my knowledge is good
The portfolio helped me to identify areas where my knowledge is weak
I received support and guidance on how to use my portfolio from Clinical Placement Coordinators
The portfolio helped me to promote my critical thinking ability
The portfolio helped me to identify areas where my skills are good
The portfolio helped me to identify areas where my skills are weak
The portfolio helped me to improve myself-esteem
I like the portfolio as a tool to *assess* my learning and competence.
The portfolio helped me to promote my critical thinking ability
The portfolio helped me to identify areas where my skills are good
The portfolio helped me to become aware of my weaknesses
My reflective writing skills are very good
The portfolio helped me to become aware of my strengths
Having the content of my portfolio both *summatively and formatively assessed increases* the *learning* value me get from using a portfolio
I would like to discuss articles and procedures in more detail
The portfolio helped me to improve my confidence in my abilities
Portfolios are very effective in assessing my learning
I think that my reflections should refer to research
I have received clear guidelines on what the *purpose* of the portfolio is
It is clear to me how much evidence I need to include in my portfolio
Portfolios are very effective in assessing my competence
It is clear to me which evidence I need to include in my portfolio
The use of portfolios helps me to be prepared for practice
I received sessions on how to use my portfolio
It is difficult to be critical and honest in reflective writing when the *reection* is going to be *summatively assessed*.
Having the content of my portfolio only *formatively assessed* would *increase* the *learning* value me get from using a portfolio
Portfolios take a lot of time to complete
I am unsure exactly what to put in
I receive conflicting advice about the type of evidence to include
Preparing my portfolio gives me a lot of anxiety
I received support and guidance on how to use my portfolio from my preceptor
I received support and guidance on how to use my portfolio from College Lecturers

nature of the study and provided a Web link to the survey. Voluntary participation was highlighted and emphasised, together with a reiteration that non completion would not affect their relationship with the School in anyway. Completion of the online survey was taken as consent to participate in the questionnaire. This questionnaire was totally anonymous and therefore individual responses were confidential. Students were given at least one week to consider their involvement in the audit of their portfolio, and they submitted their consent forms, along with their portfolio to an Administrative officer. Student names on the portfolio were initially known to the researchers, but were coded for pur-

poses of data collection and therefore not retained, as the portfolios were returned to students. The researchers assured students of the maintenance of confidentiality with regard to individual findings as quantitative findings were to be reported as a group. The questions within the audit were descriptive and therefore innocuous as no attempt was made to qualitatively assess material nor were judgements made about the quality.

Reliability and validity were addressed within the study. The items contained within the Web based questionnaire were derived from the literature on the topic thus indicating criterion related validity (McMullan, 2008). In addition, content

validity of the items was established through previous measurement of the items within McMullan's (2008) study. Reliability of the portfolio audit was established through test re test, which was performed at the pilot phase.

Summary of findings

Four hundred and eighty student portfolios were examined in this way. This represented 78% of those students who submitted their portfolio (*n* = 619) during the data collection period (October 2007—May 2008). This number reflected approximately 54% of the total number of registered students.One hundred students responded to the Web based survey representing a 12% response rate.

Students' views on portfolio were received via the Web based from students across all four years of the programme. The largest group of respondents were 2nd years (31%) and 23% (*n* = 22) were from year 1; 20% (*n* = 19) were from year 3 and 25% (*n* = 24) were from the final (4th) year. 20 and 25% responses accordingly. 85% of the cohort were female and the majority of students were aged between 18—25 years (56.8%). 60% agreed that one the whole portfolios are a good thing. Their responses to statements indicated lack of consistent agreement with regard to direct benefits from the portfolio. While students agreed that guidelines and support were available, confusion regarding what exactly to put in remained. Table 2 provides an outline of student responses to statements where majority agreement occurred (therefore the mean score was greater than 3.5). Table 3 identifies a number of statements to which students had mostly a negative response (eliciting a mean score of less than 2.5). The majority of statements received a neutral response (defined as a score of between 2.5 and 3.5) within the survey

(Table 4). This could be accounted for a lack of clear understanding of the process, or by students simply selecting the mid point of the 5 point Likert scale.

The survey of portfolio content and structure revealed that the majority of students (64%, *n* = 307) presented their portfolio using a standard ring binder or a lever arch folder. Fifteen percent (*n* = 70) presented using a lever arch folder and the remainder (21%, *n* = 104) used either a plastic folder or other type of holder. The majority (89%, *n* = 428) were neat in their overall presentation. Students from across all four years of the program were represented. Sixty nine percent (*n* = 329) of the group were either first years (36%, *n* = 174) or second years (32%, *n* = 155). The remainder were from either third year (14%, *n* = 67) or fourth year (18%, *n* = 84). The majority of portfolios weighed between 500 gs and 1 kg (69%, *n* = 334) and several (13%, *n* = 62) weighed between 1 and 1.5 kg. There were some that weighed more than 1.5 kg (8% *n* = 37) and some that weighed less than 500 gs (10% *n* = 48). Portfolios mostly related to one clinical placement (76%, *n* = 364) although several related to two or three (21%, *n* = 100). Most (71%, *n* = 339) included at least one (compulsory) piece of reflection, 10% (*n* = 46) did not present any. Just under one third of these reflections had evidence of a compulsory counter signature by a staff nurse (30%, *n* = 146). Gibbs (1988) cycle of reflection is recommended for use by the students within the portfolio and analysis of the use of this model revealed that most (84%, *n* = 402) reflections were confined to the first level (description of the incident) (Table 5). Most (64%, *n* = 305) referred to a positive situation experienced in the clinical area whereas 36% (*n* = 176) referred to a negative situation. Other types of evidence were included in the portfolio and these are outlined in Table 6.

Some portfolios contained at least one published article (9%, *n* = 43) and many (47%, *n* = 224) held

Table 2 Students views on the benefits of the portfolio: areas of largely positive response (overall mean scores>3.5).

Statement	Mean score
It is difficult to be critical and honest in reflective writing when the *reection* is going to be *summatively assessed*.	3.88
Having the content of my portfolio only *formatively assessed* would *increase* the *learning* value me get from using a portfolio	3.88
Portfolios take a lot of time to complete	3.87
I am unsure exactly what to put in	3.76
I receive conflicting advice about the type of evidence to include	3.70
Preparing my portfolio gives me a lot of anxiety	3.61

Table 3 Students views on the benefits of the portfolio: areas of largely negative responses (overall mean scores <2.5).

Statement	Mean score
I received sessions on how to use my portfolio	2.46
I received support and guidance on how to use my portfolio from my preceptor	2.01
I received support and guidance on how to use my portfolio from College Lecturers	2.15

Table 4 Students views on the benefits of the portfolio: areas of largely neutral response (2.5-3.5).

Statement	Mean score
The portfolio helped me to link theory and practice	3.49
Gibbs (1988) is a useful model for reflection	3.49
The use of portfolios helps me to learn from practice.	3.49
I think that my reflections should be supported more by clinical staff	3.34
I think putting in articles and procedures is sufficient	3.45
The portfolio helped me to develop a sense of responsibility for my own professional development	3.43
The portfolio helped me to identify areas where my knowledge is good	3.39
The portfolio helped me to identify areas where my knowledge is weak	3.37
I received support and guidance on how to use my portfolio from Clinical Placement Coordinators	3.32
The portfolio helped me to promote my critical thinking ability	3.32
The portfolio helped me to identify areas where my skills are good	3.29
The portfolio helped me to identify areas where my skills are weak	3.22
The portfolio helped me to improve myself-esteem	3.16
I like the portfolio as a tool to *assess* my learning and competence.	3.12
The portfolio helped me to promote my critical thinking ability	3.32
The portfolio helped me to identify areas where my skills are good	3.29
The portfolio helped me to become aware of my weaknesses	3.08
My reflective writing skills are very good	3.07
The portfolio helped me to become aware of my strengths	3.03
Having the content of my portfolio both *summatively and formatively assessed increases* the *learning* value me get from using a portfolio	3.01
I would like to discuss articles and procedures in more detail	3.00
The portfolio helped me to improve my confidence in my abilities	2.99
Portfolios are very effective in assessing my learning	2.76
I think that my reflections should refer to research	2.74
I have received clear guidelines on what the *purpose* of the portfolio is	2.69
It is clear to me how much evidence I need to include in my portfolio	2.67
Portfolios are very effective in assessing my competence	2.63
It is clear to me which evidence I need to include in my portfolio	2.62
The use of portfolios helps me to be prepared for practice	2.61

Table 5 Aspects of Gibbs (1988) cycle actively used in the first piece of reflective writing.

Stage of Gibbs (1988) reflective cycle	Percent
Description of the incident	84% (n = 402)
Description of feelings	0.8% (n = 4)
Evaluation	0.4% (n = 2)
Action plan	0.8% (n = 4)
None/Not obvious	2.7% (n = 13)
Not Applicable	11.6% (n = 46)
Total	100% (n = 481)

Table 6   Types of Evidence included in the Portfolio (356 pieces included in total; some students had more than one).

Types of evidence included in the portfolio	Percent
Reflective writing	27% ($n = 132$)
Student observations on practice	4% ($n = 21$)
Various leaflets and Web pages	38% ($n = 181$)
Art Work	0.002% ($n = 1$)
Other	4% ($n = 21$)

between two and four, 28 (6%) had six. However, more than one third of students did not provide any articles (38%, $n = 184$). Most of these articles (74%, $n = 218$) provided some evidence of having been read. This evidence took the form of summaries (42%, $n = 93$); comments written on the article (41%, $n = 90$); a list of comments (9%, $n = 20$) and highlighting on the text (7%, $n = 15$). Levels of learning within the evidence of reading were explored using Bloom (1956) taxonomy of learning. Only 4 (2%) portfolios that contained articles provided evidence of higher levels of learning (synthesis and analysis). Most (61%, $n = 132$) demonstrated knowledge only (the most basic level of learning). Twenty two percent ($n = 48$) showed some comprehension and 16% demonstrated application ($n = 34$). One hundred and fifty eight students (33%) also included clinical guidelines or patient information leaflets in their portfolio. In most cases this was more than one (66%, $n = 107$). Just under half of these (49%, $n = 77$) contained 2 or 3 and had 4% ($n = 7$) 6 or more. Only half of these demonstrated any evidence of having been read (52%, $n = 82$). This evidence was a mixture of summaries (46%, $n = 38$); comments written on the article (26% $n = 21$); notation (25%, $n = 20$) and highlighting on the paper (3% $n = 5$). Other types of evidence presented in the portfolio included in Table 6. Overall in relation to presentation according to Endacott et al's (2004) criteria, 64% ($n = 307$) fitted within the category of ''shopping trolley''; 24% ($n = 114$) a ''toast rack''; 10% ($n = 49$) a ''spinal column'' and 0.2% ($n = 1$) a ''cake mix'', approach.

Significant correlations within the data were explored using Pearson's' Correlation Coefficient. Significance was taken at the 0.005 level. A significant relationship was observed between the item 'indicate the number of reflective pieces included in the portfolio' and the statement 'indicate other types of information presented in the portfolio' ($p = <0.01$). This response was accounted for the fact that those individuals who presented one reflective piece only also accounted for the majority of people who presented leaflets as addi-

tional evidence or information. There was also a significant relationship observed between the item 'indicate the number of published articles in the folder' and the weight of the folder ($p = <0.01$). Inclusion of guidelines and leaflets ($p = <0.01$) and evidence of reading of these ($p = <0.01$) was associated with increased weight in a similar way, as increased inclusion of evidence increased the portfolio weight. However, increased weight was not associated with inclusion of a number of reflective pieces, or inclusion of other types of evidence or the provision of written summaries (or other evidence of having been read) of articles.

There was an association between the full use of Gibbs (1988) cycle within the first consecutive piece of reflective writing and students use of Bloom's learning taxonomy within the evidence that published articles had been read ($p = <0.01$). Students who used higher levels of learning (application, comprehension and synthesis) within their writings about the articles that they had read were also more likely to have more complete use of Gibbs (1988) cycle of reflection. There was also an association between the full use of Gibbs (1988) cycle within the first consecutive piece of reflective writing and whether or not the experience was positive or negative ($p = <0.01$). Students who reported negative experiences were more likely to outline their feelings, whereas none of the students who reported positive events outlined theirs. Students who reported positive experiences were also more likely not to use a reflective cycle at all. Use of a reflective cycle was also associated with student seniority ($p = <0.01$). Students in the more senior years (3 and 4) were more likely to use a cycle and to move beyond the first phase of reflection, whereas the junior students, particularly first years, were more likely to confine reflection to the first phase of Gibb's (1988) cycle of reflection or not include a cycle at all. Other than this observation, there were no other associations within the data that related to the student year of study.

Discussion

This study, although site specific, provides the first large scale investigation of the current structure and process of undergraduate nursing student portfolio and students' views on the process. In keeping with Endacott et al's (2004) conceptualisation and qualitative findings related to portfolio use, most portfolios presented were disjointed and fitted within the category of a shopping trolley or toast racks with very few cohesive accounts evident (spinal column or cake mix approach). Although submitted in association with their competency assessment, there was little evidence that the portfolio fitted within Cooper's (1999) categorisation of either competency-based, negotiated learning or biographic portfolio thus lacking in overall structure. Although classes are provided to students on this area, students did perceive that they had received very little guidance in this regard, this could explain in part explain the reason for the poor structure presented.

While many students included pieces of reflection many failed to do so, and of those that did the majority of these were confined to lower levels of reflection and many were not signed by a staff nurse. There are several issues raised by these findings. The evidence to support the use of reflection is suggested to be sparse (Carroll et al., 2002) and although this is a contested issue (Rolfe and Gardner, 2005) there are potential problems with students providing incomplete reflections as these descriptive narratives of practice stand outside of the framework of reflection, and thus have a very nebulous evidence base. Furthermore in the absence of either direct facilitation, supervision or indeed a staff nurse's signature, there is potential for serious clinical issues to be raised by students and remain unexplored. Overall, although narratives are used within nursing research and within journals, the use of limited descriptive reflection has doubtful learning benefits. Senior students appeared more adept at managing the use of a cycle of reflection which may be accounted for in part by the fact that support and facilitation is provided to students in the final year. This perhaps indicates the need for not only the provision of portfolio guidance to students but also to the provision of facilitative support for the reflection component of this process. This notion of facilitated support for reflection is supported in the literature (Johns 1999, 2004, Timmins, 2008).

In contrast to studies on the topic, students did not appear reluctant to describe negative experiences; however the majority of reflection experiences were positive. Interestingly those who described negative situations were more likely to express their feelings. Overall the use of reflection within portfolio needs further examination to establish whether insufficient usage relates to lack of clear guidelines or other factors. The model in use may also require further examination. It is suggested that Gibb's (1988) was initially designed as an educational tool and not for reflection in the context of a professional working environment (Timmins, 2008). Furthermore this cycle, and many others, reflects an overtly personal approach that fails to take account of the wider context of the clinical environment (Timmins, 2008). Thus the whole notion of critical reflection on practice within the portfolio needs to be considered. Central and crucial to this is the provision of facilitation and support. In the absence of both critical reflection and supervised reflection there is a risk that reflection on practice becomes mere navel gazing.

In keeping with Endacott et al's (2004) findings the shopping trolley approach was used predominantly. These were often heavy in weight, many more than 1.5 kgs and the potential burden for staff suggested Endacott et al's (2004) findings is very likely as many the submitted artefacts (which were mostly articles) appeared to remain unread, thus leaving the onus on the staff nurse or academic to wade through the portfolio and read 2—4 articles when the student themselves has appeared not to have even read themselves.

Where evidence of student reading existed (of either articles or other evidence included), this remained at a very basic level, thus of questionable learning benefit to students. The Web based survey also revealed a great deal of uncertainty with regard to portfolio use from the student perspective, perhaps explaining in part the predominance of shopping trolleys presented. Students were not in agreement regarding the benefits of portfolio, and when presented with statements about the proposed benefits to student learning most are unsure of the practical relevance. In addition they find the exercise time consuming and anxiety provoking. There is difficulty knowing exactly what to put in and most favour than formative rather than summative assessment. Presenting honest reflection for summative assessment also posed difficulties and one student commented:

''a reflective piece contains my private and personal thoughts and feelings which I do not want to share with a stranger and I do not feel it is in any way appropriate to mark or grade how a person feels or reacts to a certain situation'' (Participant 20)

Limitations

The single study site used limits generalisability of the findings. Response rate to the Web based survey was low, thus results ought to be interpreted with caution.

Conclusion

In order to address these inherent deficits within our current knowledge on the topic within nurse education, this study aimed to capture nursing students' views of portfolio use and quantify current portfolio content and structure. This aimed not only to address existent deficits but to provide objective evidence that describes portfolio content and structure, and also student's views on the portfolio process. McMullan et al (McMullan et al., 2003) suggest the portfolio attests to achievement and professional development, by providing critical analysis of its contents. Similarly it is suggested the portfolio at a minimum should illustrate a students' ability to think critically, perform appropriate therapeutic nursing interventions, and communicate effectively and ultimately link theory to practice. This current exploration provided evidence that current approaches fell short of this expectation. While this student portfolio had reported benefits from the student perspective, there were obvious deficits in its current structure and presentation. Cohesive accounts were presented by very few, although significant attempts were made by many to include artefacts. The latter mostly consisted of published articles, and while some included guidelines/policies/procedures these were mostly placed in the folder with little discussion. Discussions within the portfolio were mostly descriptive accounts with little higher levels of learning demonstrated. Reflective accounts were similarly restricted halting at description of the incident phase and may benefit from more directive guidelines and support in this area. Although nurse educators have been inclined to take an adult learning approach to portfolio preparation, current evidence suggests that the results are disappointing. Clearly more preparation for students is required in this area, including the use of very detailed guidelines regarding structure, presentation and inclusion criteria. One-to-one facilitation is also recommended, with a review of approaches to reflection. Furthermore facilitative support with portfolio development from clinical staff may also be useful. Both of these elements should serve to improve the nature and type of work presented by students.

The deficits within the work presented by students may also affect the rigour of the portfolio process. Where a grade is awarded, markers may struggle to objectively mark the work when there is little consistency between students presentation, or in the absence of clear marking criteria. The use of marking criteria for portfolio assessment is very useful, and ought to be given careful consideration within organisations (Quinn, 2000). Furthermore, although there is not frequent reported use of e-Portfolio within nurse education settings, it is certainly worth considering developments in this regard. E-Portfolios have the advantage of being able to naturally encompass guidelines within the system as there can be a set formula for approach each subsection. Within the design of this portfolio attention can be given to navigation, functionality, amount of permitted content and overall appearance (Harun and Cetinkaya, 2007). They also permit reliable assessment (Sulzen and Young, 2007) and serve to move away from the ''overloaded scrapbooks'' to a system that ''invites possibilities for active engagement in learning and assessment in ...University'' (Lambert et al., 2007:76). Clearly, rather than providing nurse educators with a array of individualised shopping trolleys, the expectation of learners within the portfolio process is that they become actively engaged with the process. Certainly more research is required on this area to examine the usefulness of the process, particularly in relation to competence assessment, and also the potential benefits of e-Portfolio. However in the meantime, close attention to carefully prepared guidelines, supporting students in their endeavours, consideration of the use of e-learning approaches and the use of rigorous marking criteria would serve to improve the quality of work currently presented.

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