

SCH 3U Chemistry Portfolio Assignment

What is a portfolio?

A portfolio is a specific or purposeful collection of one's work demonstrating progression of learning, understanding and skills (Hamm & Adams, 1991; Phelps, LaPorte & Mahood, 1997). Often they make learning relevant to one's personal life and world events (Slater, 1997). It can contain contributions from teachers, specialists, parents and peers. Material can be presented in folders, binders, filing crates and etcetera. There are three main types of portfolios that are typically employed. Working portfolios contain all one's work and; although, typically not evaluated, it can provide diagnostic information to allow for remediation or instructional modification. The showcase portfolio is often evaluated and typically contains one's best work. Lastly, the evaluation portfolio is nothing more than a collection of items evaluated throughout a course. Its purpose is mostly record storage (Pheeny, 1998).

Why use a portfolio?

Portfolios represent one alternative method of evaluation (Nickelson, 2004; Phelps, LaPorte & Mahood, 1997). Traditional methods such as multiple choice tests, recall questions or problem solving only convey part of the learning picture. These traditional methods only afford glimpses of understanding (Phelps, LaPorte & Mahood, 1997) and may mask true understanding due to short-term intensive memorization (Slater, 1997), application of algorithmic reasoning (Phelps, LaPorte & Mahood, 1997; Slater, 1997) or just guessing (Slater, 1997). Traditional assessments encourage students to do whatever is necessary to obtain desired marks (Phelps, LaPorte & Mahood, 1997).

Portfolios are considered more authentic assessment (Reese, 1999; Slater, 1997) in that they reflect long-term cognitive change and deeper understanding (Hamm & Adams, 1991; Nickelson, 2004; Slater, 1997) or metacognition (Nickelson, 2004). For example, multiple choice questions reveal what a student does not know (Slater, 1997), but a portfolio draws attention to what a student does know (Hamm & Adams, 1991; Slater, 1997). Portfolios have the ability to demonstrate mastery (Nickelson, 2004; Slater, 1997), broaden learning beyond the context of the classroom and make students much more self-aware of their own learning (Hamm & Adams, 1991). Portfolios hold students more accountable for their own learning and promote real intellectual development. It encourages self-discipline and self-regulation (Phelps, LaPorte & Mahood, 1997). It has the power to remove instructional barriers and develop cross-curricular growth especially in areas of literacy (Johnson, 2006). Furthermore, a portfolio can convey meaningful conceptual reconstruction (Hamm & Adams, 1991; Nickelson, 2004) while encouraging creativity, analysis, reflection, appreciation and application of understanding (Hamm & Adams, 1991). Portfolios also lead teachers to include relevant and topical information in curriculum planning (Nickelson, 2004; Phelps, LaPorte & Mahood, 1997).

How does a portfolio work?

It is critical that the portfolio address the following key questions:

- what is the purpose of the portfolio,
- what type of portfolio is to be developed, and
- what material must be included and how will it be evaluated (Pheeny, 1998).

However, it is also important that a portfolio be as student directed as possible, in terms of inclusion of material, selection of items for marking and even determination of the marking scheme. To ensure proper organization, a table of contents or index must be included (Hamm & Adams, 1991). Students need to provide real world evidence of curricular concepts and clearly display mastery of those concepts (Reese, 1999). It is also important the portfolio contain a variety of items (Johnson, 2006; Pheeny, 1998; Slater, 1997). It is helpful if the portfolio is developed in conjunction with a timeline (Reese, 1999) and that teachers assist in ensuring clarity or focus (Johnson, 2006; Slater, 1997). The most critical component of the portfolio is self-reflection (Nickelson, 2004; Phelps, LaPorte & Mahood, 1997; Reese, 1999; Slater, 1997) addressing key questions such as, what would be done differently next time (Pheeny, 1998; Reese, 1999), how the activity impacted on learning (Reese, 1999) or outlining the relevancy of material (Pheeny, 1998; Slater, 1999) and how mastery was achieved (Slater, 1997). Students should also comment of the completeness and quality of the portfolio as a whole (Pheeny, 1998). Recognition of error and misconceptions is vital (Hamm & Adams, 1991; Nickelson, 2004; Phelps, LaPorte & Mahood, 1997). Peer review of the portfolio is also recommended (Reese, 1999). Often portfolios are scored using rubrics (Johnson, 2006; Phelps, LaPorte & Mahood, 1997) and opportunity for revisions and refinement is integral to the process (Phelps, LaPorte & Mahood, 1997).

What do students think of portfolios?

Overall, students report that they appreciate the benefits of this method of evaluation. For example, students felt portfolio development reduced test anxiety because they came to value understanding over memorization, encouraged more classroom discussion and resulted in greater long-term concept retention (Slater, 1997). Some students found it rewarding to actively involve their families in the portfolio development. Students found that portfolio development enhanced their understanding of classroom concepts (Reese, 1999) and allowed them to take more control of and explore their learning (Hamm & Adams, 1991; Reese, 1999). Portfolios were found to aid development of organization and communication skills (Slater, 1997). Students reported that the process personalized their learning (Johnson; 2006; Slater, 1999) and provided them with a more holistic view of their studies. Typically, students enjoyed sharing their portfolio with their peers (Slater, 1999).

References

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