

A Comparative Analysis of Reflection and Self-Assessment

Melissa Desjarlais¹, Peter Smith²

Abstract

Reflection is a personal process that can deepen one's understanding of self and can lead to significant discoveries or insights, while self-assessment is a process that involves establishing strengths, improvements, and insights based on predetermined performance criteria. In this paper we will perform a comparative analysis of reflection and self-assessment, clarifying the differences in definition, methodologies, and results. We will model a familiar situation using both processes to illustrate the need for doing reflection and self-assessment and to differentiate their separate purposes. In the process, we will elucidate some tips for engaging in reflection and self-assessment and for deciding which process best suits a given situation; we will also discuss ways to evaluate their effectiveness.

Introduction

Reflection and self-assessment are both meaningful processes that can lead to learning from experience, yet they have different purposes and goals. Reflection is a process that involves playing back a period of time related to previous valued experiences in search of significant discoveries or insights about oneself, one's behaviors, one's values, or knowledge gained. Specific criteria for performance are usually not involved. An important goal in reflection is bringing focus to an indeterminate situation (Dewey, 1938) by gaining clarity and by fully experiencing what has happened. It is important to gain closure during reflection and not ruminate repeatedly about the experience. Reflection involves divergent thinking and often includes journaling. In contrast, self-assessment is a process used for studying one's own performance in order to improve it. It is more proactive than reflection in that performance criteria are defined before the action in question begins or before it is replayed; and strengths, improvements, and insights (Wasserman & Beyerlein, 2007) against these criteria are then recorded during the process.

This paper will perform a comparative analysis of reflection and self-assessment. Methodologies for each will be described, and then an example of each will be provided. To highlight the steps of each methodology, the same example will be used of a student who is procrastinating on an assigned project. The paper will then identify specific similarities and differences of the two processes, and list tips both for helping someone decide which of these processes to use in a given situation, and for engaging in them. Finally, ways to evaluate the two processes will be given. The Appendix contains the products of the reflection and self-assessment example, i.e., the reflection log and self-assessment journal.

Literature Review

Joseph A. Raelin (2002) and Joy Amulya (2004) both stress the importance of reflective practice, and discuss

why it is important. Raelin describes reflective practice as "the practice of periodically stepping back to ponder the meaning of what has recently transpired to ourselves and to others in our immediate environment." He presents it as a public and open process by which an individual's interpretations, evaluations, and assumptions are subjected to the review of others in order to avoid bias and errors in perceptions of reality. Amulya, on the other hand, focuses more on the process in general and less on whether it is an individual or collective experience. She states that the purpose of reflection is to learn from experiences. She describes certain experiences that can provide learning opportunities through reflection: struggles, dilemmas, uncertainties, or breakthroughs. Amulya suggests journaling as a way to think about an experience, a process which is advocated in this paper.

Stevens and Cooper (2009) describe perspectives on reflection and learning from experiences based on the work by John Dewey and D. A. Schon. They focus on how to perform effective reflection, describing it as an active, intentional, and journalistic cycle. For Dewey, reflection is an active and intentional process that can begin with some discomfort with an experience and end with learning and deeper insights. According to Dewey, aspects of reflective thought include perplexity, elaboration, generating hypotheses, comparing hypotheses, and taking action. As Stevens and Cooper describe it, the reflective phase involves focusing on what an experience means and how it is related to past learning. In comparison, Schon (1983) has two processes: reflection-in-action and reflection-on-action, which he describes as components of the development of expertise. In this paper, the focus is on reflection-on-action, the easier of the two processes.

These authors have each stressed the importance of reflection and have linked reflection to learning, yet self-assessment is a related and similarly important process. Apple and Utschig (2009) list self-assessment to produce self-growth as one of their ten steps for

¹ Valparaiso University

² Saint Mary's College (retired)

improving academic assessment. They advocate taking time after daily performances to see how to improve future efforts. Leise (2007, 2007a) identifies the key role of self-assessment in sustaining self-growth through application of a personal development methodology. Myrvaagnes (2007) has created a rubric for self-growth which identifies the importance of self-assessment to move from one level of the rubric to the next.

Self-assessment is a universal process for improving learning skills. Leise (2007b) posits that learning to learn is a metacognitive competency which increases in proportion to improvements in reflection, self-assessment, and mentoring. According to Miller (2007), however, when one is trying to get buy-in from students in a course, it is best not to present self-assessment as a learning skill but rather as part of the course discipline. In his discipline, he tells students that self-assessment “is an integral part of real-world project development.” Anderson (2007) discusses the need for mentors to assess the self-assessments of beginners in order to raise them to levels where they become truly valuable. Her paper includes performance criteria and also a methodology for assessing assessments.

Students are not the only beneficiaries of self-assessment practices. Faculty should also strive to become self-growers. Myrvaagnes (2007) emphasizes that “self-growers have defining characteristics which include an enduring interest in assessment and self-assessment in order to maximize performance in every aspect of life.” Hurd (2007) holds that every faculty member should have an annual professional self-growth plan. She highlights the key role of self-assessment in her outline of the planning methodology.

Process Education™ is founded on assessment. According to Duncan (2007) it is “the continuous quality improvement (CQI) engine of Process Education.” In her

paper she examines the five developmental pathways embodied in Process Education and shows how central self-assessment is to each of them. Leise (2007c) claims that both “novices and experts can increase growth in process learning through cycles of assessment and reflection.” He also examines the process of internalizing these and other methodologies so that they become second nature.

Leise (2010) contrasts the Western and Eastern concepts of reflection and develops a methodology and a rubric for reflecting on performance from the point of view of a counseling professional. His reflection methodology is much closer to our definition of self-assessment in that it requires the specification of criteria, a self-assessment of the performance under reflection, and an identification of one’s position in the rubric. His focus differs from ours in that he restricts his study to reflecting on the performance of counselor interns, whereas we focus on valued experiences, not on performances. In this paper, we build on Leise’s theoretical work, making the concepts accessible to undergraduate students and faculty.

Even with all of this work done on reflection and self-assessment, there can still be confusion regarding the distinctions between these two concepts in terms of their purposes and outcomes. There are also no widely accepted methodologies for either process, and information about them can be found in multiple locations in the *Faculty Guidebook* (2007). This paper will synthesize ideas from different areas of the *Guidebook*, provide formal methodologies, and show that it is important to distinguish between the two related processes. This is primarily a theoretical look at these two processes, yet there are many action research possibilities yet to be explored.

Methodologies

In this section (Table 1), brief descriptions of the steps for each methodology are given and a discussion of each step is provided.

Table 1 Reflection and Self-Assessment Methodologies

Reflection Methodology		Self-Assessment Methodology
Recognize a need	Step 1	Define the purpose of the performance
Pick a time and place	Step 2	Define the purpose of the self-assessment
Play back the experience	Step 3	Develop performance criteria
Document all insights	Step 4	Determine attributes for each criterion
Play what-if games	Step 5	Determine evidence for each criterion
Organize insights into common themes	Step 6	Select a scale and range for evidence
Identify key insight(s)	Step 7	Collect and measure the evidence
Generalize key insights	Step 8	Use evidence to prepare a self-assessment report
Determine the need for other processes	Step 9	Determine the need for other processes
Assess the quality of the reflection process	Step 10	Assess the quality of the self-assessment process

	Reflection Methodology Discussion	Self-Assessment Methodology Discussion
STEP 1	<p>Recognize a need to reflect.</p> <p>This step can be initiated due to a hunch or expectation that there is something valuable to be gained by replaying a past experience. One may need to clarify some confusion that prevents the full experience from falling into focus.</p>	<p>Define the purpose of the performance.</p> <p>This first step clarifies why the endeavor triggering the assessment is worth assessing and what the assessment hopes to accomplish. With this information the self-assessor (who is also the assessee) can better determine what is important to assess (Wiggins & McTighe, 2005).</p>
STEP 2	<p>Pick a time and place for reflection.</p> <p>In this step, the reflector identifies a time and place that will minimize distractions and lead to a quality reflection. It may involve a mindless activity such as walking, chopping wood, weeding, etc. One needs to be prepared to record insights as they come to light. This recording can be in a written, electronic, or verbal format (such as a digital voice recorder). It may help to pair up with another person who can listen and record the components of the experience, and the insights gained. This is especially important for people who do their best thinking while speaking.</p>	<p>Define the purpose of the self-assessment.</p> <p>Here, the assessor establishes the outcomes for the self-assessment and restricts attention to certain aspects of the performance being assessed, if appropriate. The motivation to perform the self-assessment may have come from an earlier reflection, but the goal is always personal development and improved performance.</p>
STEP 3	<p>Play back the experience which triggered the reflection.</p> <p>In this step the reflector goes back through the experience slowly enough to examine each aspect. This should not be a mere recitation of the sequence of events, but an examination of components that may be significant. The reflector should try to engage all of the senses in this process, and pay particular attention to context and behavior, accomplishments, failures, skill level, knowledge level, and personal and fixed factors (Elger, 2007).</p>	<p>Develop performance criteria for the self-assessment.</p> <p>Using the outcomes identified in Step 2, the assessor identifies the criteria by which to measure the success of the self-assessment. These should be understandable, measurable, realistic, and relevant to the outcomes. These criteria will help keep the assessment process focused. In most cases, there should be no more than four criteria.</p>
STEP 4	<p>Document all insights in a reflection log.</p> <p>As the reflector replays the experience, all insights should be listed in a reflection log without any initial judgment on their quality or usefulness. Even if the insights are initially recorded orally, they should be transferred to a visual format, either on paper or a computer. Steps 3 and 4 may be iterated multiple times before moving on to the next step, because one insight may prompt the reflector to realize that earlier moments in the play-back need more careful examination.</p>	<p>Determine attributes that indicate quality for each criterion.</p> <p>In this step, the assessor breaks down each criterion into attributes that can be easily measured. If the assessment is narrowly focused, one or more of the criteria may be clear and measurable enough in themselves that it will not be necessary to define their attributes.</p>
STEP 5	<p>Play a lot of “what-if” games.</p> <p>This step allows the reflector to consider other possible outcomes to the experience. These alternate outcomes may come from the reflector’s own past performance or something he or she has read or heard. These other possibilities can be used to question the meaning and significance of the actual sequence of events, thus deepening and expanding the insights in the log.</p>	<p>For each attribute or simple criterion, determine the evidence needed to perform the assessment.</p> <p>Evidence is important in order to judge whether the criteria are achieved successfully. The evidence should be readily accessible from the performance being assessed.</p>

	Reflection Methodology Discussion	Self-Assessment Methodology Discussion
STEP 6	<p>Organize a list of insights into common themes.</p> <p>In this step, the reflector looks back over the list of insights generated and arranges them based on common elements. It may be useful to write the insights on separate slips of sticky paper and group them by themes before recording them in the log. This step is a preparation for Step 7 in which the reflector evaluates the quality of the insights.</p>	<p>Select the scale and range to be used in looking at each piece of evidence.</p> <p>Measurement requires a scale and a range. If the evidence is carefully selected, these should be self-evident. The scale may be numerical or ordinal and should be sufficient to explain all gradations within the range. If in doubt, one should make the scale simple.</p>
STEP 7	<p>Identify key insights.</p> <p>Once the insights have been organized by common themes, the reflector identifies those which are most significant and meaningful. This may involve rewriting them to combine several insights into one, and checking that no important insight has been omitted.</p>	<p>Collect and measure the evidence identified in Step 5 using the scale from Step 6.</p> <p>For this step it would be helpful to have already engaged in a reflection about the performance being assessed. The reflection or play-back will highlight evidence needed to conduct the assessment. The collected evidence should be connected directly to the performance. Each piece of evidence should be rated according to its scale.</p>
STEP 8	<p>Generalize key insights to a wider set of situations.</p> <p>The key insights which were identified in Step 7 may be somewhat specific to the past experience which initiated the reflection, or they may apply to a wider set of situations that can allow the reflector to derive greater value from the original experience. To raise the level of significance of the insight, it helps to ask the question "So what?" repeatedly, and then reword the generalized insight according to the answer.</p>	<p>Use the collected evidence to prepare a self-assessment report.</p> <p>In writing a self-assessment report, one determines and documents strengths, areas for improvement, and insights gained from conducting the assessment (Wasserman & Beyerlein, 2007). It is thus referred to as an <i>SII report</i>, and it is the heart of the assessment. The main purpose of self-assessment is to help the assessor/assessee improve his or her performance and move along the path to becoming a self-grower (Leise, 2007). For each area for improvement, one should develop a short-term (what can be done immediately) and a long-term (what can be done in the future) plan of action. If previous action plans have been developed, they should now be assessed.</p>
STEP 9	<p>Determine whether there is a need to for other processes.</p> <p>If, during the process of reflection, it becomes clear that an improvement in performance is necessary, the self-assessment process should be initiated to identify strengths, areas for improvement, and potential for an action plan to address some of the identified areas for improvement. Reflection can also lead to learning, problem-solving, research, design, and other processes. Since the problem-solving, research, and design processes are often confused with one another, it is useful to reflect on past situations in which a particular process has been identified and then decide which of these past situations is most similar to the given situation (Cordon & Williams, 2007).</p>	<p>Determine whether there is a need to engage in other processes.</p> <p>The self-assessment report for Step 8 may identify a need to do further reflection or to engage in learning, research, design, problem solving, or other processes in order to maximize growth or to fully implement the action plans. These processes are described in Beyerlein (2007).</p>
STEP 10	<p>Assess the quality of the reflection process.</p> <p>Identify the strengths, areas for improvement, and insights gained as a result of this process, being careful to focus both on the process of reflection, and the product that was generated (i.e., the reflection log).</p>	<p>Assess the quality of the self-assessment process.</p> <p>Identify the strengths, areas for improvement, and insights gained as a result of this process, being careful to focus both on the self-assessment process and the product that was generated (i.e., the self-assessment report).</p>

Example of the Methodologies

To illustrate a practical application of the methodologies that might be used in a classroom situation, let us use the example of a student procrastinating on a web design assignment. In our hypothetical situation, a project has been assigned that is due after Thanksgiving break. It involves the use of Dreamweaver™, which is a commonly-used web page design productivity software product. Although the project had been assigned several weeks before Thanksgiving, our student has put off starting it until he has gone home for Thanksgiving weekend. He discovers when he gets home that the Internet will be down at his house for the whole weekend. As a result he is

unable to access any online references, nor can he look at examples of other web pages while he designs his project. Fortunately for him, he does have Dreamweaver™ on his laptop, so he is able to create the code, but he is unable to test it in a real browser.

When he gets back to school and is again able to access the Internet, he discovers a number of errors which he does not have time to correct before the paper is due. He explains the dilemma to his teacher who agrees to let him turn it in late with no penalty if he completes reflection and self-assessment reports in order to learn from his experience. The following is a description of his experience using the reflection and self-assessment methodologies.

	Reflection Methodology	Self-Assessment Methodology
STEP 1	<p>Recognize a need to reflect.</p> <p>Our student thinks that this instance of procrastination, when analyzed, might help him produce better work in the future.</p>	<p>Define the purpose of the performance.</p> <p>The performance being assessed is the preparation of the web design project..</p>
STEP 2	<p>Pick a time and place for reflection.</p> <p>He decides to do the reflection while taking a long walk in the afternoon after class. He believes that this setting will be relatively free from distractions.</p>	<p>Define the purpose of the self-assessment.</p> <p>The self-assessment outcomes are to minimize future procrastination and to improve the quality of similar performances in the future.</p>
STEP 3	<p>Play back the experience which triggered the reflection.</p> <p>He plays back the experience. He recalls how he had received the assignment with a month of lead time; he remembers being too busy with other schoolwork and social activities to start it before Thanksgiving vacation; he replays his dismay at discovering that the Internet was down; he remembers doing his best to design the web pages in Dreamweaver™ (8 hours spent doing this, discovering 4 errors); he recalls how he returned to school and spent 5 hours discovering and correcting errors (6) and poor design flaws; he remembers how he tried to correct the errors (one not corrected) before class; he replays how he was forced to admit the problems to the teacher; and finally, he recalls how he was given a reprieve and was able to complete the project several days late, and not in a most efficient manner, although the appearance was acceptable.</p>	<p>Develop performance criteria for the self-assessment.</p> <p>Criteria for self-assessment:</p> <ul style="list-style-type: none"> A. understanding the consequences of procrastination B. trade-off between the quality of the online web project vs. time spent in preparation C. quality of the testing process for the validity of the web pages and the embedded links

	Reflection Methodology	Self-Assessment Methodology
STEP 4	<p>Document all insights in a reflection log.</p> <p>Since he forgets to bring a notebook on the walk to jot down his insights, he lists them when he returns to his room. This is what he discovers as a result of his reflection:</p> <ol style="list-style-type: none"> 1. He often avoids what he doesn't want to do and replaces those activities with more desirable activities. 2. He conveniently forgets to do unpleasant tasks, and should therefore write down daily tasks and tick them off. 3. He realizes that his project involved sections of code that were repeated several times. He might have saved himself some time had he saved these, as he would not have had to retype them or look back through the code to find them. 4. He notes that when coding in HTML, one of the most common errors is failing to close commands. Using Dreamweaver™, when the user gives the command </, the program tries to fill in the last open command; this helps catch unclosed commands before the user has gone too far. 5. He concludes that he ought to have tested the web project in more than one browser. 6. He decides that it would have helped had he accessed examples of similar web pages online as he designed his own in order to expand his ideas. 7. He realizes that he is a bad judge of the length of time required to develop such a project. 8. He notes that he also had a lot of work for other classes and that these took priority before Thanksgiving, particularly those involving group work and those with tests before the break. 	<p>Determine attributes that indicate quality for each criterion.</p> <p>Attributes for criteria:</p> <p>Criterion A: number of consequences identified, connection of each to successful performance</p> <p>Criterion B: amount of time spent preparing, appearance of the web project, number of errors not spotted</p> <p>Criterion C: number of errors spotted, amount of time spent testing</p>
STEP 5	<p>Play a lot of "what-if" games.</p> <p>He asks some "what-if" questions to get the insights above: What if he had not put off starting the project? What if the Internet had not been down at home? What if he had come back early from Thanksgiving break? What if he had saved key sections of code in a separate file to make it easier to reuse them? What if he had kept a to-do list? What if he had tested the project in different browsers? What if he had studied less for other courses or spent less time working in groups? What if he had not gone out with friends one night?</p>	<p>For each attribute or simple criterion, determine the evidence needed to perform the assessment.</p> <p>The evidence needed for this assessment is included in the reflection journal described above.</p>
STEP 6	<p>Organize a list of insights into common themes.</p> <p>From these insights he derives some common themes: timeliness, efficiency, web design criteria, project testing, time management, and setting priorities.</p>	<p>Select the scale and range to be used in looking at each piece of evidence.</p> <p>The only attributes whose scales are not numeric are "appearance" and "connections." The scale for appearance might be "sloppy," "acceptable," "attractive," and "spectacular." The scale for connection might be "remote," "reasonable," and "close."</p>

	Reflection Methodology	Self-Assessment Methodology
STEP 7	<p>Identify key insights.</p> <p>He comes up with the following key insights:</p> <ol style="list-style-type: none"> 1. Keep a journal with daily responsibilities and use it to set priorities. 2. Test web projects in Firefox™, Internet Explorer™, and Chrome™. 3. Use a sophisticated web page editor and learn how to use it well. 4. Procrastination can sometimes lead to a more efficient performance. 5. Preparation is the key to well-designed projects. 	<p>Collect and measure the evidence identified.</p> <p>Listing of the evidence:</p> <p>Consequences: The web project was completed several days past deadline and was not of the highest quality. To get full credit, he had to complete reflection and self-assessment reports.</p> <p>Time spent in preparation: 8 hours. The web pages appeared acceptable. There was only one error not spotted after testing.</p> <p>He spotted four errors during preparation and six errors while testing. Testing and error correcting time was 5 hours.</p>
STEP 8	<p>Generalize key insights to a wider set of situations.</p> <p>He arrives at these generalized insights:</p> <ol style="list-style-type: none"> 1. Poor ability to judge time required to complete a task contributes to a hurry-up-and-crash situation, so he needs to set aside more time to accomplish things or be more efficient with the time he sets aside. 2. Keeping organized lists either on paper or electronically can reduce procrastination. 3. Good preparation, use of productivity tools, and efficient testing can all improve the web design process. 4. Procrastination can sometimes lead to more efficient performance, but often at the expense of quality. 	<p>Use the collected evidence to prepare a self-assessment report.</p> <p>Strengths:</p> <ul style="list-style-type: none"> • Despite the delay, the web project appearance and performance were acceptable. • The preparation time was reasonable compared to other projects. • Dreamweaver™ made it easier to test the code during preparation. <p>Areas for Improvement:</p> <ul style="list-style-type: none"> • He needs to get the project finished by the deadline and improve its appearance to “attractive” or “spectacular.” • Better planning will help, as will checking to see that Internet access will be available during preparation. • He should not schedule so much on the days he will be preparing the next project. • He should use a separate file to keep phrases needing to be repeatedly copied so that he doesn’t waste time looking for them. • He ought to test the finished product in several browsers to make sure that its quality is good in all of them. <p>Short-term action plan:</p> <ul style="list-style-type: none"> • He will install the identified browsers on his laptop. • He will clear the schedule for the next project deadline. • He will practice testing the current project to make the process more efficient. <p>Long-term action plan:</p> <ul style="list-style-type: none"> • When the next assignment is given, he will get started with preparation plans right away. • He will keep a file of frequent code segments and links to avoid having to search the main text for them. • He will make a schedule/calendar of intermediate deadlines. • He will develop a practice of regular reflection and self-assessment when needed.

	Reflection Methodology	Self-Assessment Methodology
STEP 9	<p>Determine whether there is a need to engage in other processes.</p> <p>He observes that using a self-assessment process including a formal SII and short and long-term action plans would be helpful in improving his project performance in the future.</p>	<p>Determine whether there is a need to engage in other processes.</p> <p>There is no need to employ further processes at this time. Perhaps there will be a need for problem solving and design if the current action plans are not effective.</p>
STEP 10	<p>Assess the quality of the reflection process.</p> <p>He assesses the reflection process itself.</p> <p>Strengths:</p> <ul style="list-style-type: none"> • He gained insights that have helped him better understand procrastination habits and their consequences. • Walking helped develop a good flow of ideas. • The rich set of insights will help him improve the project completion process in the future. <p>Areas for Improvement:</p> <ul style="list-style-type: none"> • He must find a way to jot down insights while walking, perhaps by carrying a notebook or by using a digital voice recorder. • It was hard to do the “what-if” analysis as a separate step, and perhaps he might combine Steps 4 and 5. • He did not allocate enough time for the reflection process, so he needs to set aside more time in the future so that he does not feel rushed. <p>Insights:</p> <ul style="list-style-type: none"> • The reflection seemed to center less on the procrastination problem and more on the efficient production of the web project. • The reflection process is not really linear, as thinking about one piece sends one off on a tangent. As a result, some insights may not be directly connected to the original triggering event. • Knowing why one procrastinates can help minimize this practice in the future. 	<p>Assess the quality of the self-assessment process.</p> <p>Assessment of the self-assessment process.</p> <p>Strengths:</p> <ul style="list-style-type: none"> • He developed workable criteria. • He came up with practical action plans. <p>Areas for Improvements:</p> <ul style="list-style-type: none"> • He should have identified the evidence specifically for each attribute in Step 5. • He should have included insights in the self-assessment report. <p>Insights:</p> <ul style="list-style-type: none"> • The key to using self-assessment to improve performance is careful construction of the action plans. • Working through the reflection methodology before doing the self-assessment methodology results in a much richer analysis. <p>Collecting the evidence needed for the assessment in the reflection journal has the advantage of engaging a person in the process of reflection before starting a self-assessment.</p>

Comparative Analysis

From a search of the literature, it has become evident that most authors blur the distinction between reflection and self-assessment, with a tendency to emphasize the former. Burke (2009), however, shows that while both reflection and self-assessment can lead to learning from an experience, they are distinct processes with different motivations or purposes. This paper expands on previous work by identifying some of the differences between the processes, as specified in Table 2:

The two processes differ in terms of the initial motivations, situations which call for each process, how each process should be done, and what their goals are. People use reflection when there is the expectation or desire to gain insights about themselves by reflecting, while they use self-assessment to improve future performance by identifying strengths and areas of improvement. This initial motivation can come from different sources: people are often internally motivated to engage in reflection, since individuals may suspect that insights can

Table 2 Differences between Reflection and Self-Assessment

Characteristic	Reflection	Self-Assessment
Outcome	Insights	Strengths and areas for improvement
Control	Internally motivated	Could be externally motivated
Timing	Do as soon as possible after experience	Wait until ramifications of performance are clear
Continuity	Important to have an uninterrupted period	Less important—could stop and start
Focus	Reactive (response to an experience)	Proactive (lead to future changes)
Direction	Backward looking	Forward looking
Criteria	No performance criteria	Have performance criteria
Thinking	Divergent thinking (what if?)	Convergent thinking
Audience	Private	Mentor and others

be gained through that process; and while these insights may indicate a need for self-assessment, there can also be external motivation for self-assessment from supervisors or colleagues.

The time required for doing these processes can differ, both in terms of the starting time and the block of time needed. It is important to do the reflection as soon as possible after the experience since the play-back of the experience is a crucial step in the process. The experience should be “fresh” so that the reflector is able to focus on significant components. On the other hand, in conducting a self-assessment, it may be necessary to wait to determine potential ramifications of the performance. Knowing these will aid in the self-assessment process. The block of time available for each process can differ. In the process of reflection it is important to have an uninterrupted period of time to allow for the play-back of the experience and identifying insights. In the process of self-assessment it is possible to stop and start; for example, someone can pause the process between identifying strengths and areas for improvement.

The differences in motivation and goals of the two processes lead to reflection being backward-looking and reactive, since people reflect on past experience; and self-assessment being forward-looking and proactive, since the strengths and areas for improvement will be used to improve subsequent performances. Also, the reflection process tends to be kept private, while self-assessment is a tool leading to self-growth that should be shared with a mentor if one is available. The goal of reflection is “knowing”; the goal of self-assessment is “growing.”

While there are some distinct differences between the processes of reflection and self-assessment in terms of the reasons or ways of doing them, they also share some

qualities. Some of the similarities between reflection and self-assessment include the following. Both are:

- Structured
- Sequential
- Targeted
- Based on an earlier experience or performance
- Improved through analysis
- Internal
- Meaningful
- Important in improving quality
- Conducive to learning (about self or content)

The two processes are structured, sequential, and targeted. There is a methodology for each process that describes the steps that should be taken and the order in which they should be done, and these steps are targeted to help the individual achieve the desired outcomes of each process. Each process is based on an earlier experience or performance and requires the analysis of the experience or performance, yet both can be very meaningful processes for improving the quality of life. Also, any of the possible outcomes of either process can lead to learning, either about oneself or content that one is to learn for a course. Thus, these two processes do have some significant similarities.

It is also instructive to examine the similarities and differences between the products of the reflection and self-assessment processes (i.e., the reflection log and the self-assessment report). Table 3 illustrates the differences:

Some of the similarities between the two products are that both should be assessed and both lead to a better understanding of a past experience.

Tips

This section will help the reader to decide whether or not to engage in reflection or self-assessment, which process to choose, and how to go about each process. Once experienced, the value of these processes will be appreciated, and, after consistent use, they will become second nature.

A key first step in the process is to identify the need to do either of these processes (Table 4). Sometimes there is a critical or motivating event that can indicate this need. Often doing one process can indicate the need for doing the other, which indicates a cyclical component to the two processes. Even when there is no specific triggering event, it can be beneficial to occasionally review these tips to determine whether there may be a benefit gained from employing these processes.

Once it has been determined that one of the two processes should be done, the implementation phase can be made much more productive and effective if one follows the tips outlined in Table 5, and may result in success that will lead a person to want to continue to employ these processes in the future.

These first sets of tips help with either initiating or performing the processes, while the next set of tips apply after the processes are complete. Evaluating their effectiveness can lead to the continual use of the processes.

Evaluation

After doing a reflection or self-assessment, it is important to evaluate the effectiveness of the process. Table 6 provides some questions that can be answered to perform this evaluation.

Determining that a process is effective can mean that someone will continue to reflect and self-assess to gain a better understanding of himself or herself, and to improve future performances.

Conclusion

This paper clarifies similarities and differences between reflection and self-assessment with respect to their

purposes, outcomes, work products, and tips for high quality implementation. It suggests many areas for future study, including analysis of these methodologies in specific classroom settings. The formal methodologies outlined in this paper for reflection and self-assessment, along with the synthesis of ideas from different areas of the *Faculty Guidebook* (2007), provide a foundation for this work. Classroom studies might start by collecting initial data (both quantitative and qualitative) about the frequency and quality of reflection and self-assessment done by each student and his or her understanding and perceived importance of the two processes. This could be followed by providing orientation on two methodologies, including critical thinking about examples similar to those used in this paper. Throughout an entire term, students might then use both methodologies, generating a collection of reflection logs and self-assessment reports. At the end of the study, data could be collected again, similar to what had been initially collected. Some goals of such a study might be to try to measure change in the quality of the reflection and self-assessment done by the students, and how their understanding has changed.

As a result of writing this paper, the authors came to appreciate the cyclical nature of reflection and self-assessment. While discussing the role of reflection in transforming learning during the last few months, it became clear how important this concept was to many faculty and administrators dedicated to Process Education. The most helpful reference was the theoretical treatise, "Improving Quality of Reflecting on Performance" by Cy Leise (2010). Leise looks at the history of reflection and develops a methodology oriented toward improving the performance of counseling professionals. Our reflection and self-assessment methodologies are more accessible to undergraduate students and all who are interested in better understanding their experiences or improving the quality of their performances. It is our thesis that reflection and self-assessment can quickly become second nature, and are essential practices for anyone who wishes to become a self-grower.

Table 3 Differences between Reflection Log and Self-Assessment Report

Characteristics	Reflection Log	Self-Assessment Report
Scope	Deals only with insights	Includes strengths and areas for improvement
Growth	Not in a format to promote self-growth	Contains short and long-term action plans
Tools	Helps focus thinking	Performance criteria infuse entire report
Audience	Private: unlikely to be shared	Should be shared with mentor
Follow-up	Not so important	Action plans must be monitored

Table 4 Tips for Deciding When to do Reflection or Self-Assessment

<p>Tips for deciding when to do a reflection</p> <ol style="list-style-type: none"> 1. When you have a hunch that there is something to be gained by replaying a past experience 2. When you begin to question yourself 3. When there is a discrepancy between your values and actions 4. When you are searching for discoveries about yourself, your behaviors, your values, and knowledge gained 5. When stress reaches a critical level
<p>Tips for deciding when to do a self-assessment</p> <ol style="list-style-type: none"> 1. When the value of a self-assessment is indicated during reflection 2. When you want to improve yourself through a well-thought-out action plan 3. When you want to improve a particular performance by identifying strengths and areas for improvement 4. When there is an external requirement, such as completing an annual performance report 5. When suggested by a mentor

Table 5 Tips for Doing Reflection and Self-Assessment

<p>Tips for doing reflection</p> <ol style="list-style-type: none"> 1. Do it as soon as possible after the performance. 2. Avoid overstructuring the play-back. Let it flow. 3. Find a time and place where the experience can be freely replayed and where insights can be recorded as they occur. 4. Be attentive to when the play-back situation “talks back” and respond to this backtalk (Schon, 1983). 5. Don’t wait for the “perfect time” to do reflection; set aside a regular time. 6. Listen to feelings: explore their sources.
<p>Tips for doing self-assessment</p> <ol style="list-style-type: none"> 1. Wait until all ramifications of the performance are clear before assessing. 2. Attempt to isolate one’s feelings when identifying the purpose and criteria for the assessment. 3. It is helpful to perform a reflection before doing a self-assessment. 4. Identify a place free of distractions. 5. Don’t wait for the “perfect time” to do self-assessment; set aside a regular time. 6. Set up the assessment before the performance by identifying the performance criteria.

Table 6 Ways to Evaluate Reflection and Self-Assessment

<p>Ways to evaluate reflection effectiveness</p> <ol style="list-style-type: none"> 1. Did you derive value from the process? 2. Were the insights gained of high quality? 3. Did the final assessment (Step 10) indicate the need for significant improvement? 4. Was stress minimized? 5. Were the insights generalizable to a larger set of situations?
<p>Ways to evaluate self-assessment effectiveness</p> <ol style="list-style-type: none"> 1. Did the process result in a clear and doable plan of action? 2. Were you motivated to make the identified improvements? 3. Did you give a “why” for each strength and an action plan for each area for improvement? 4. Did the performance criteria guide the assessment process? 5. Do you see new or continuing opportunities?

Acknowledgments

The authors would like to acknowledge the assistance provided by Cy Leise, through his doing a sample reflection and providing feedback, and Steve Beyerlein, through his participation in multiple conversations about the paper and offering helpful suggestions. Thanks to Dan Apple for being the stimulus for the idea of the paper.

References

- Anderson, K., (2007). Assessing assessments. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (483-486). Lisle, IL: Pacific Crest.
- Amulya, J. (2004). *What is reflective practice?* Boston, MA: Center for Reflective Community Practice at the Massachusetts Institute of Technology.
- Apple, D. K., & Baehr, M. (2007). Assessment methodology. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (449-452). Lisle, IL: Pacific Crest.
- Beyerlein, S. W., Apple, D. K., & Holmes, C. (Eds.). (2007). *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.). Lisle, IL: Pacific Crest.
- Burke, K., Lawrence, B., El-Sayed, M., & Apple, D. (2009). Process Education: Past, present, and future. *International Journal of Process Education*, 1, 35-42.
- Cordon, D., & Williams, B. (2007). Distinguishing between problem solving, design, and research. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed. pp). Lisle, IL: Pacific Crest.
- Duncan, W., (2007). Framework for implementing Process Education. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (197-200). Lisle, IL: Pacific Crest.
- Elger, D. (2007). Theory of performance. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (19-22). Lisle, IL: Pacific Crest.
- Hare, P. (2007). Team reflection. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (419-420). Lisle, IL: Pacific Crest.
- Hurd, B., (2007). Annual professional growth plans. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (65-68). Lisle, IL: Pacific Crest.
- Leise, C. (2007). Becoming a self-grower. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (479-482). Lisle, IL: Pacific Crest.
- Leise, C. (2007a). Personal development methodology. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (483-486). Lisle, IL: Pacific Crest.
- Leise, C. (2007b). Overview of learning theory. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (139-142). Lisle, IL: Pacific Crest.
- Leise, C. (2007c). Learning processes through the use of methodologies. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (217-220). Lisle, IL: Pacific Crest.
- Leise, C. (2010). Improving quality of reflecting on performance. *International Journal of Process Education*, 2, 65-74.
- Miller, R. (2007). Practical implementation of self-assessment journals. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (431-434). Lisle, IL: Pacific Crest.

- Myrvaagnes, E. (2007). Performance levels for learners and self-growers. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (479-482). Lisle, IL: Pacific Crest.
- Pacific Crest (2009). *Student success toolbox: Improving learning and performance through assessment*. Lisle, IL: Pacific Crest.
- Raelin, J. A. (2002). "I don't have time to think!" versus the art of reflective practice. *Reflections*, 4(1) 66-79.
- Schon, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York. Basic Books.
- Stevens, D. D., & Cooper, J. E. (2009). *Journal keeping: How to use reflective writing for learning, teaching, professional insight, and positive change*. Sterling, VA: Stylus.
- Wasserman, J., & Beyerlein, S. W. (2007). SII method for assessment reporting. In S.W. Beyerlein, C. Holmes, & D. K. Apple (Eds.), *Faculty guidebook: A comprehensive tool for improving faculty performance* (4th ed.) (465-466). Lisle, IL: Pacific Crest.
- Wiggins, G. P., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Alexandria, VA: Association for Supervision and Curriculum Development.

Appendix

Reflection Log	Self-Assessment Report
<p>1. Components of the Experience</p> <ul style="list-style-type: none"> • Received the assignment with a month lead time • Was too busy with other schoolwork and social life to start it before Thanksgiving vacation • Discovered that the Internet was down • Did best to design the web pages in Dreamweaver™ (worked for 8 hours and identified 4 errors) • Returned to school and discovered and corrected 6 errors and poor design flaws (worked for 5 hours) • Tried to correct the errors before class (failed to correct one) • Was forced to admit the problems to the teacher • Received a reprieve and completed the project several days late, and not in a most efficient manner, but the final appearance was adequate 	<p>1. Greatest Strengths and Why</p> <ul style="list-style-type: none"> • Despite the delay, the web project appearance and performance was acceptable • The preparation time was reasonable compared to other projects
<p>2. Insights from the Play-Back</p> <ul style="list-style-type: none"> • He often avoids what he doesn't want to do and replaces those activities with more desirable ones. • He conveniently forgets to do unpleasant tasks: he should write down daily tasks and tick them off. • He realizes that there were sections of code that could have been repeated several times. It would have saved time had he saved these so he would not have had to retype them or look back through the code to find them. • When coding in HTML, one of the most common errors is failing to close commands. Using Dreamweaver™, when the command </ is given, the program tries to fill in the last open command. This helps catch unclosed commands before going too far. • He should have tested the web project in more than one browser. • It would have helped had he been able to access examples of similar web pages when designing his own in order to expand his ideas. • He discovered that he is a bad predictor of how long such a project takes to develop. • He also has a lot of work for other classes and these took priority before Thanksgiving, particularly those with group work and those who gave tests before the break. 	<p>2. Areas for Improvement and Action Plans</p> <ul style="list-style-type: none"> • He needs to get the project finished by the deadline and improve its appearance to attractive or spectacular. <ul style="list-style-type: none"> Short-Term plan <ul style="list-style-type: none"> ◦ Clear the schedule for the next project deadline. ◦ Practice testing current project to make the process more efficient. Long-Term Plan <ul style="list-style-type: none"> ◦ When the next assignment is given, get started with preparation plans right away. • Test the finished product in several browsers to make sure its quality is good in all of them. <ul style="list-style-type: none"> Short-Term Plan <ul style="list-style-type: none"> • Install the identified browsers on his laptop. Long-Term Plan <ul style="list-style-type: none"> • When testing the next assignment use all of the installed browsers.

<p>3. Other Possibilities from What-If Analysis:</p> <p>What If—</p> <ul style="list-style-type: none"> • he had not put off starting the project? • the Internet had not been down at home? • he had come back early from Thanksgiving? • he had saved key sections of code in a separate file to make it easier to reuse them? • he had kept a to-do list? • he had tested the project in different browsers? • he had studied less for other courses or spent less time working in groups? 	<p>3. Assessment of Performance against Previous Action Plans</p> <p>No previous plans</p>
<p>4. Insights from Other Possibilities:</p> <p>No new insights</p>	<p>4. Personal Growth Most Enhanced By:</p> <p>Stepping through the self-assessment methodology</p>
<p>5. Common Themes:</p> <p>timeliness, efficiency, web design criteria, project testing, time management, setting priorities</p>	<p>5. The Reason Why I Grew Is:</p> <p>I realized I was in control of improving the quality of my projects.</p>
<p>6. Key Insights:</p> <ul style="list-style-type: none"> • Keep a journal with daily responsibilities and use it to set priorities. • Test web projects in Firefox[®], Internet Explorer[®], Chrome[®], and Bing[™]. • Use a sophisticated web page editor and learn how to use it well. • Procrastination can sometimes lead to a more efficient performance. • Preparation is the key to well-designed projects 	<p>6. My Attitude Toward Learning Was:</p> <p>Very positive</p>
<p>7. Generalized Insights:</p> <ul style="list-style-type: none"> • Poor ability to judge time to complete a task contributes to hurry-up-and-crash situations, so he must set aside more time to accomplish things or be more efficient with time set aside. • Keeping organized lists either on paper or electronically can reduce procrastination. • Good preparation, use of productivity tools, and efficient testing can all improve performance. • Procrastination can sometimes lead to more efficient performance, but often at the expense of quality. 	<p>7. The Most Valuable Insight I Learned About Myself Is:</p> <p>Knowing why I procrastinate can help minimize this practice in the future.</p>

8. Assessment of the Process:

Strengths:

- He gained insights that have helped him better understand procrastination habits and its consequences
- Walking helped him develop a good flow of ideas
- The rich set of insights will help him improve the project completion process in the future

Areas for Improvement:

- Find a way to jot down insights while walking; perhaps carry a notebook
- It was hard to do the what-if games as a separate step; perhaps combine Steps 4 & 5
- He did not allocate enough time for the reflection process. He should set aside more time so that he does not feel rushed

Insights:

- The reflection seemed to center less on the procrastination problem and more on the efficient production of the web project
- The reflection process is not really linear, as thinking about one piece sends one off on a tangent. As a result, some insights may not be directly connected to the original triggering event.

8. Knowing This Will Improve My Performance By:

making it more likely I will start the next project in time to complete it with high quality