Expanding student perspectives in an authentic learning environment

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Abstract:

Educators at every level have used self-reflection activities to help students uncover and enhance knowledge gained during learning experiences. A complimentary practice of establishing intended learning outcomes has also been promoted as contributing to learning outcomes. Recently, a new practice has been developed and is currently being tested that combines these two instructional concepts. This practice, called Intention/Reflection (I/R), provides a seamless path through a learning experience by encouraging students to identify and track their own learning gains. Several constructivist and student-centered educational theories and practices influenced the development of I/R, which is designed to promote critical thinking both before and after a pre-planned educational experience. This practice is not intended to take the place of instructor-defined course goals and objectives. Rather it is designed to enhance them by encouraging the learner to identify the most personally meaningful and applicable aspects of those objectives. Preliminary results suggest the I/R practice can positively influence learning experiences for students. This paper describes the current I/R framework. To date, this practice has been used in several learning environments, including study abroad programs, traditional classrooms, and co-curricular experiential activities. Researchers continue to work toward identifying core questions and structures that would yield the most overall positive learning experience for students.

Key Words:

Reflection, Intention/Reflection, learning outcomes, higher education, student-centered, extracurricular.

Overview

Effective learning could be described as being efficient, of adequate depth, and with long-term retention. For this to occur, a need or inquiry by the learner is often an activating force by which the learning process is set in motion, particularly for adult learners (Brookfield, 2000, Knowles, 1980). The authors used this basic tenet as a foundational piece of an instructional practice called Intention/Reflection (I/R). This is an educational practice designed to promote critical thinking before and after a pre-planned experience, in which learners are encouraged to designate their own learning objectives by identifying what they expect to extract from the experience. The development of this practice was influenced by behavioural and neurological research in psychology and education, along with several educational theories, methods, and practices that will be shared below.

Background

The term “student-centered” is a fairly recent addition to the broad lexicon of education. However, the concept dates back to ancient Greek and Roman teachers. The Sophists most likely understood that all pupils possess a unique blend of background experience and specific desires from any learning environment. The influential Roman educator Quintilian (1891), the first known publicly paid teacher in history, advocated that students should allow their interests and “amusements” to guide their learning (p. 14).

In the intervening years between then and now, the idea of encouraging students to identify and follow their curiosities has arisen in a variety of forms. Usually, these “progressive” instructional approaches fade into relative obscurity after some time. For example, a small group of educational theorists proposed several innovative instructional methods in the early 1900s, including Helen Parkhurst, John Dewey, William Heard Kilpatrick, Rudolf Steiner, and Maria Montessori. From these minds came the genesis of problem-based learning, the Dalton Plan, Waldorf Education, and other student-centered, active approaches and methods. Generally speaking, these evidence-based approaches still reside closer to the fringe of educational practice than to what many students experience in college classrooms. The bulk of schooling in the US continues to be dominated by the “lecture and test” method, particularly in higher education (NCES, 2002). While lecturing is an expedient means of delivering information, students experience better overall outcomes when a constructivist or active learning approach is used (Freeman, et al, 2014), and are more likely to persist and matriculate successfully (Watkins & Mazur, 2013) in such an environment. More importantly, simply memorizing information may not allow students the opportunity to understand how classroom information applies to actual practice.

A shift has occurred, no doubt, and can be seen in the proliferation of “flipped classroom” research, and many other related instructional practices. However, there remains much room to develop skill and knowledge among teaching faculty, as Mezirow (1991, p. xi) noted over two decades ago; “A disturbing fault line separates theories of adult learning from the practice of those who try to help adults learn.” The authors of this paper believe this development can start with relatively simple exercises and activities requiring only a small amount of class time, and little or no technical expertise. This

paper outlines an example of a relatively simple, low-tech, novel active learning method adaptable to almost any learning environment. The essential question of this research investigates students' response to such a learning activity in which they are asked to consider how participation in a children's health fair will help them in their future pharmacy practice.

Health Fairs

Pharmacy school health fairs, it should be noted, fall under the category of extracurricular activities (ECA). The children's health fair that was a part of this study included informational booths and activities to help young children learn about the practice of pharmacy. While research specifically on health fair experiences for pharmacy students is limited, one study indicated that a post-health fair reflection activity produced positive outcomes for nursing students, including an increase in self-efficacy (Levy, K., & Lehna, C., 2002). A broader review of the literature reveals that the benefits of ECA is compelling, particularly in developing student self-awareness and self-efficacy of leadership traits (Foreman & Retallick, 2012). Even so, a causal link between ECA and specific learning outcomes has been brought into question (Shulruf, 2011). Also challenged is the idea that all students benefit equally from ECA (Stuart, et al, 2011). The literature suggests the specific benefits of ECA may vary widely from activity to activity, and from person to person. The I/R practice described herein attempts to improve and equalize the effectiveness of ECA in providing specific, measurable learning outcomes for students.

Reflection

The act of purposeful reflection in education has long been regarded as an important part of the learning process. Education theorists and practitioners, including Dewey, Habermas, Kolb, Brookfield, Schön, and many others, have written about the positive effects of cognitive reflection in the learning process. Even the work of Piaget, Vygotsky, and Bruner can be connected to reflection as a means of learning.

Dewey (1933) defined reflection as "…active, persistent and careful consideration of any belief or supposed form of knowledge…" and the conclusions ultimately drawn from that analysis. Since that landmark publication 80 years ago, thousands of research-based books and articles have demonstrated a wide array benefits when learners are encouraged to reflect upon their experiences. The act of critically analysing new information and experience, combined with one's prior set of knowledge and experience, and the reconciliation of differences, is what constitutes new knowledge, according to constructivist learning theory. (Piaget 1961/1969, von Glasersfeld, 1984).

Reflective writing exercises (RWE) can help facilitate connections between knowledge already possessed by students (in the form of beliefs, attitudes, skills, etc.) and new information they are exposed to. Carlson et al (2007) reported that students who consider their work are more likely to connect course concepts to practical applications. This can help stimulate student interest and engagement in the subject (Venthan, 2008). The benefits of reflection also help students in how they absorb information, both within and outside the scope of course content. Journal writing, which

is a form of RWE, can become a thread from one experience to many others (Cisero 2006, Maloney & Campbell-Evans, 2002).

Of course RWE is not without its pitfalls. Authenticity of students' writing can be an issue (Williams and Wessel, 2004), as can the issue of expectations from instructors (Duckett, 2002). Related to this is the problem of quality, as noted by Leijen, Valtna, Leijen, & Pedaste (2012). These issues can all negatively affect the learning outcomes associated with RWE.

Intention

In contrast to reflection (but also complimentarily, as will be shown), is the practice of intention, which helps target specific knowledge to be gained before engaging in a given learning experience. The practice of intention within this paper has been influenced by a variety of educational theories and practices, shown in the table below.

Table 1: Influences for I/R practice

Inquiry-based learning	Allows the learner to follow a line of questions to arrive at a conclusion.
Formative assessment	Helps to define the scope of students' existing knowledge, and to understand student progress during a given period so positive changes may be made in the learning environment.
Learning objectives	A foundational aspect of any course, these help instructors frame appropriate assessment methods and learning activities.
Metacognition	Relates to learners' self-concept about themselves as a learner; what they know and don't know, how they learn, what are important traits of an ideal learning environment, and why any given set of content is important to them.
Learning contracts	A set of shared goals and objectives outlined and agreed upon jointly by the instructor and the learner.
Constructivism	A theory by which learners construct a unique understanding of the world by continually building upon their own existing knowledge frameworks and reflecting on new experiences.

As noted previously by Fierke and Lepp (2015), the work of Brookfield (2000), Knowles (1980) and others have also influenced the development of this practice by suggesting that adult learners may experience more positive outcomes when they have personally meaningful reasons for engaging in a learning experience. This may be particularly useful in a pharmacy program that requires a broad spectrum of foundational science, which may not be applied until much later in the curriculum, or in practice.

It should also be noted that the I/R practice makes use of an age-old method for achievement: the setting of goals. Individualized learning goals create an opportunity for

students to mentally engage in, and commit to their own learning, and then self-assess their level success or failure in achieving that goal. Schunk (1991) asserted the increased motivation that may arise from such an experience, and the improved self-efficacy when the goal is achieved. These types of "self-regulated learners" can approach their educational tasks with "confidence, diligence, and resourcefulness" (Zimmerman, 1990, pg. 4).

It is important to note that all of the methods, theories and approaches mentioned above could be classified under the broad term, "student-centered", in which the onus of learning is on the learner. Acquiring knowledge is an active process – unique to each individual – based on past experiences, frame of reference, and personal history (von Glasersfeld, 1981/1984). The common feature of each of the points above is that they attempt to stimulate the learner into actively identifying a specific intent or purpose for learning something. The question "why engage in this learning experience?" may be a crucial missing ingredient for students.

Intention/Reflection Practice

Based on the research related to reflection and intention, a distinct practice was developed, aptly named Intention/Reflection (I/R). This practice is novel in several ways. First, Intention/Reflection is an entirely student-centered practice. By contrast, most instructional methods in higher education reflect the needs of the instructor; learning goals and formative assessment methods are based on the instructor's view of what is most important. Activities in an I/R practice account for learning goals established by the instructor, but also promote the mindful creation of a students' own personal set of learning outcomes.

Second, this practice is a seamless whole. The learning experience, from beginning to end, is connected together directly and obviously, through this practice. Previous practices have made attempts at a similar objective, but have been disjointed and somewhat inaccessible for most learners to notice. I/R asks learners to identify what and how they will learn at the beginning of the experience, and expressly states that they will be asked these same questions at the end of the experience.

As noted above, the I/R practice is a series of questions designed to facilitate a critical examination by learners to help identify what they want to learn, and how they are going to learn, depending on a given learning experience. The I/R questions are separate, but may be related to, the course objectives outlined by the instructor. This practice is intended to augment instructor-identified course objectives, not replace them. Students are encouraged to identify these uniquely personal learning goals, and develop methods to acquire the desired knowledge or skills, using the course content as a framework. Note that the students' desire to learn is based on their own set of goals, questions, learning needs, and frames of reference. The course content provides a vehicle with which to achieve these goals.

The I/R practice typically begins before or in the early stages of the learning experience. Students respond to a set of questions regarding their specific intentions for the experience. After the learning experience, the reflection activity occurs. Again, a specific set of questions, which mirror the intention practice, are presented to learners.

Table 2 includes examples of general I/R questions, and highlights the main concept of promoting student involvement and engagement in the inquiry process. These questions can be adapted and/or specified to address aspects of unique learning experiences.

The timeframe for intention questions vary based on the learning experience. For example, the intention activity for an international travel course might occur two weeks prior to departure. However, the intention activity for a one-hour speaker or lecture may take place in the first few minutes of that hour. The timing of this portion of the practice depends on the framework of each learning experience: length, environment, student involvement, etc.

Table 2: Example of Intention and Reflection Questions

Intention Questions	**Reflection Questions**
What do you intend to learn from this experience?	What did you learn that was most surprising to you?
What do you hope to gain from this course?	To what degree did you achieve your learning intention?
How will you ensure you achieve your intention for this experience?	How has this learning experience changed your perspective?
How will this opportunity affect your future profession?	What steps did you take to ensure your team was prepared to succeed?

These questions are designed to stimulate self-examination and foster a sense of ownership in the learning process. Additional questions may be added, depending on the learning experience and outcomes desired. It may be appropriate to simply have an open text area for students to record other personal reflections. The important guideline is that the reflection questions tie directly and specifically to the Intention questions from prior to the learning experience.

Additional reflection points may be added in the middle of the learning experience if the overall time span of the experience deserves mid-point reflection and correction. For example, a 15-week course might include one mid-point reflection to allow students the opportunity to refocus and adjust their learning outcomes accordingly.

Methods

The I/R practice was administered to volunteer pharmacy students over three years (2013-2015) who were involved in the planning and execution of an extra-curricular health fair at a children's museum. Fifty-nine students provided anonymous responses to the I/R practice. All students involved were from the same college of pharmacy located in the Midwest of the United States. The college of pharmacy is part of a large state-run university. Students were reimbursed for material expenses as they developed their projects. No other remuneration was provided for conducting the health fair or participating in the research.

The students were responsible for determining their own activities and informational booths for the health fair. A faculty member worked with the students as an advisor and as a conduit to the children's museum.

During the weeks leading up to the event, all students were asked to complete the Intention portion of the practice. Immediately after the health fair, students were asked to complete the Reflection portion. Table 3 indicates the unique intention and reflection questions that were used specifically for this learning experience.

Table 3: Intention/Reflection questions for students in extra-curricular health fair

Intention	**Reflection**
1) Describe your previous experience working with children age 3-6.	1) What aspect of this activity, considering everything that went into it, was most influential for you? What was most surprising?
2) What is/was the biggest challenge you're facing related to your activity for the Minnesota Children's Museum? How did you plan to manage it, or how have you managed it?	2) Describe your level of success in managing your biggest challenge (identified in the pre-activity assessment). To what do you attribute your success/failure with this challenge?
3) In what way do you feel this experience will enhance your learning as a student, and/or your future practice as a pharmacist?	3) Have your perceptions changed regarding how this experience will affect your learning as a student, or your future practice as a pharmacist? Why or why not?
	4) What did you enjoy the most about the day? Why?
	5) How has this intention/reflection activity been helpful in enhancing your experience?

Responses to three of the above questions were thematically analysed. The first two questions are Intention question 3 and Reflection question 3. The content of these questions are related, and they reflect the overall goal and purpose of the I/R practice. The third question (Reflection question 5) asked the students to evaluate the I/R practice. The other questions were not analysed because the responses are not germane to the primary research investigation.

Analysis was conducted using NVivo 10 software. Descriptive coding was applied to each sentiment within the response to capture the main thoughts of the student (sub-themes). The main thoughts, or sub-themes, were then grouped together into broader ideas (themes) by questions in order to identify major concepts. The resulting analysis examines the number of students who touched upon each sub-theme and theme.

Results

The questions analysed in this paper include the Intention question 3 and Reflection questions 3 and 5, as noted in Table 3 above.

The first question analysed was answered by students prior to the start of the health fair event. Thirty-five of the 59 (59.3%) students answered the question, “In what way do you feel this experience will enhance your learning as a student, and/or your future practice as a pharmacist?” Three themes emerged from the answers students provided: Patient care, career, and professional skills or development (Table 1). Nearly three-quarters of respondents mentioned patient care in some way, with the opportunity to interact with children the most prevalent reply. One-quarter of the students indicated their learning would be enhanced because they would learn how to communicate with children. Four (11.4%) students responded that the experience would enhance learning by being able to interact and communicate with children. For example, one student said, “I feel that this experience will…enable me to interact with a specific population sector that we are not traditionally exposed under the curriculum and I will develop communication skills necessary for addressing these types of patients’ needs.” Another student noted she was specifically interested in, “Learning how to explain something as complicated as hydrophobic/hydrophilic reactions at a first grade level.”

Table 2 displays a distribution of student responses to the question, “Have your perceptions changed regarding how this experience will affect your learning as a student, or your future practice as a pharmacist? Why or why not?” Fifty-six of the 59 (95.0%) students responded to this question, which was answered after the Children’s Museum event. A little more than 40 per cent of respondents indicated that their perceptions have not changed, but instead their expectations were reinforced or fulfilled. Of the remaining 32 students, 25 indicated that their perceptions had changed in some way related patient care. The most common responses aligned with pre-event answers: the ability to communicate and interact with children and parents. For example, “This has helped me perceive children as patients instead of just their parents and has given me better experiences in working and communicating with them.” A few students also indicated their perceptions changed regarding the need for professional advocacy, with one student saying, “It made me realize that part of our job as pharmacists will be to educate people about our profession.”

The final question asked, “How has this Intention/Reflection activity been helpful in enhancing your experience?” Of the 59 students, 42 (71.2%) responded to this post-event question, with answers falling into four broad categories (Table 3). Seven (16.7%) respondents provided answers related to the event itself, and were not Intention/Reflection related. Therefore, the number of responses analysed for this question total 35. About 10 per cent of respondents replied that the Intention/Reflection activity was not helpful in enhancing their experience. The remaining responses were separated by whether the Intention/Reflection activity was helpful for enhancing their experience during or after the event. A little less than one-quarter of respondents indicated that reflecting on the experience was helpful. One student wrote, “It made me reflect on the day and learn from experiences that I would have not thought about otherwise.” Another one of the most frequent responses pertained to the activity helping students identify areas that went well and areas that could have been improved. Some

students also indicated that the Intention/Reflection activity helped them to be more organized and focused during the event. For example, one student wrote, “It kept my focus and purpose in my mind.”

Discussion

Several interesting points of discussion emerge from the data, which lay the foundation for further questioning and research. First, 60 per cent of the students indicated that they were interested in seeking some specific knowledge or skill from the activity. While the emergence of some consistency (i.e. themes) is expected, given the population, the overall diversity in responses to this question is significant. This is encouraging because it reinforces the existing literature suggesting that each student brings a unique set of desires and needs to a learning experience. Considering this, along with the students’ comments on the value of the I/R practice, one could argue that students may not consciously realize or recognize those needs because the mere fact of identifying them seemed to be helpful.

The second question related to changing perceptions also revealed several items of note. Most of the students reported slight changes in perspectives, additional insights, and/or future learning needs. This is encouraging because it identifies that at least some students are consciously aware of explicit knowledge gains and gaps. Alternatively, a smaller number of students experienced a more significant shift in their perceptions of the value of the health fair. Students’ ability to identify such a transformative shift speaks to a developing sense of meta-cognition, which is a useful skill in lifelong learning. This is not to suggest that a change in perspective is the only positive outcome. To wit, a little less than half of the students reported the health fair did not cause a significant shift in their perceptions or value of the experience. This may suggest an advanced level of confidence in these students, and is likely to reinforce a sense of self-efficacy for students. Regardless of whether students experienced a change in their perceptions or perspectives, encouraging them to monitor their learning seems to be a helpful exercise for many of them.

Conclusion

For better or worse, content in a professional health curriculum is often “covered” or “delivered” during lectures with the expectation that students will study and remember it. This model is useful for instructors because of its expediency and ease of measurement. Students are often the passive recipients of this information, and don’t generally have (or seem to expect) a pronounced voice in how or why they receive this information. These attributes are not consistent with extracurricular activities, in which the experience is often more active, and often driven by the students, as opposed to faculty.

The backdrop for the instructional approach described in this paper is a children’s health fair. Before and after the event, students were asked what they hoped to gain from the experience, and how it affected them. This I/R practice, founded on decades of research, is designed to encourage students to become active participants in their education, and avoid being simply passive recipients. The majority of students in this

study seemed to be positively affected by a simple, low-tech activity which asks the question, "Why are you engaging in this activity?"

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