

## **Invited Article**

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# ***CRITICAL REFLECTION AND TRANSFORMATIVE LEARNING: A CRITICAL REVIEW***

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### Abstract

In an effort to provide a more in-depth understanding of essential components of transformative learning theory, the purpose of this paper is to review the empirical literature (2001-2016) that focuses on Mezirow's conception of critical reflection (CR). Twenty-nine empirical studies were reviewed that foreground CR. Findings identified issues concerning the need for a "standard" of CR, challenges of assessment, the role of emotions, journaling, and practices of CR. The conclusions reveal a number of challenges associated with researching CR and more significant shortcomings previous of research about transformative learning and critical reflection.



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### **Introduction**

Critical reflection as a theoretical construct and reflective practice is seen as central to the theory of transformative learning since its conception. Mezirow (1990) goes as far to say: "by far the most significant learning experiences in adulthood involve critical [reflection] —reassessing the way we have posed problems and reassessing our own orientation to perceiving, knowing, believing, feeling and acting" (p. 13). Despite its long-standing centrality to TL, it is a contested term, inclusive of a variety of related conceptions (e.g., reflection,

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reflexivity, critical-self-reflection or critical thinking), inconsistency of definitions, and is one of the least studied considering its significance to transformative learning (Brookfield, 2000a; Van Woerkom, 2010; Taylor 2012).

To further clarify Mezirow's conception of critical reflection, it is helpful to begin with Brookfield's (2000a) four traditions of CR. The traditions include the emphasis on ideology critique, associated with Frankfurt School (Mezirow, 2000). "It describes the process by which people learn to recognize how uncritically accepted and unjust dominant ideologies are embedded in everyday situations and practices" (p. 128). For example, how capitalism based on assumptions justifies a system that maintains economic and political inequity. A second tradition is the reassessment of early life traumas and inhibitions, revealed in the original research on TL involving women returning to school where through a process of personal reflection and "self-examination of feelings, critical reflection, exploring and planning new roles, negotiating relationships, and building confidence" (Van Woerkom, 2010, p. 342), they were led to more inclusive worldview. A third tradition is that of analytic philosophy, rooted in the work of Kuhn that relies on logic, reason, opinion, judgment, and evidence through disciplined activity of assessing arguments and competing perspectives. Finally, pragmatism, which helps explain the role that critical reflection plays in making meaning of experience and through the questioning of deeply held assumptions, individuals learn to appreciate and accept inadequacy of universal truths (Brookfield, 2000a).

Reflecting back on these traditions they each reveal an aspect of Mezirow's conception of CR as it evolved over the last thirty years moving away from its roots in critical theory towards an emphasis on psychological change. Van Woerkom (2010) extends Brookfield's (2000b) categories to include traditions of critical reflection from organizational learning and qualitative social science "where there may be less autonomy from external influences in the natural setting, [therefore] critical reflection is crucial" (p. 5) and relating it to the double-loop learning (e.g., Argyris & Schon, 1996). In double-loop learning, similar to psychotherapeutic learning, workers question deeply held assumptions about learning the workplace.

These traditions, although informative, don't capture the evolving conception of CR. It was originally defined in relation to transformative learning as critical reflectivity, and it had seven levels of reflection, with the last three (conceptual, psychic, and theoretical) as the deepest levels indicative of critical consciousness, that of "becoming aware of our awareness and critiquing it" (Mezirow, 1981, p. 13). As a model it was seen as "too fined-grained" by some (Kember et al., 2008, p. 372), although it is still being studied in this form today (e.g., Jensen & Joy, 2005; Mettiäinen & Vähämaa, 2013; Silvia, Valerio, & Lorezna, 2013). In 1991 Mezirow collapsed these levels into three dimensions of reflection including content (reflecting on what we perceive, think, feel, and act) process (reflecting on how we perform the functions of perceiving), and "premise reflection [which] involves becoming aware of the why we perceive, think,

feel or act as we do” (p. 108). This level of reflection comes into play when the underlying assumptions of the problem are questioned. It means asking “Why is this important to me? Why do I care about this in the first place?” (Cranton, 2006, p. 34).

Premise reflection is referred to in later writings by Mezirow (1998) as CRA (critical reflection of assumptions) as a distinct form of adult learning that has the potential to affect one’s established frame of reference. He goes further and argues that critical reflection is “principled thinking; ideally, it is impartial, consistent and non-arbitrary” (p. 186) based on an assumption of universal standards of rationality and discourse. In addition to CRA, objective reframing, he introduces another form of CR—CSRA (critical self-reflection on assumptions) referring to subjective reframing (analysis of psychological or cultural assumptions). This distinction of CR and CSRA fades as Mezirow’s work progresses and this latter conception of CSRA is collapsed into CR (critical reflection). Also, psychotherapeutic reflection becomes the dominant conception among scholars and practitioners where the individual is the unit of analysis and less emphasis is given to ideology critique. It is a conception of critical reflection that is about questioning deeply held assumptions about *how an individual makes meaning of his or her world*—which “emphasizes the way people learn how to construct and deconstruct, their own experiences and meanings” (Brookfield, 2000a, p. 10) in relationship to questioning universal truths. This growing psychological emphasis is viewed by some scholars as CR leaving its deep roots in critical theory behind where it was originally more associated with “a social and political purpose and ideology critique, hence making it critical reflection” (Kreber, 2012, p. 324).

A factor that likely played a major role in creating an interest in critical reflection and transformative learning from a more psychological perspective (individual as the unit of analysis) was the emerging critique of TL association with concepts such as role of emotions, feelings, empathy, and relationships (Mälkki, 2010; Taylor, 2001, 2014; Van Woerkem, 2010). Historically, CR in relationship to transformative learning reflects a normative ideal of good thinking and a strong instrumental and rational bias. Normatively, these conceptions are implicitly prescriptive in how and or what is the most appropriate way for individuals to think/reflect rather than how they actually behave cognitively. Instrumentally, scholars “implicitly characterize critical reflection as a systematic cognitive process that is targeted towards a specific ideal” (van Woerkem, 2010, p. 343). Rationality is continually given primacy overlooking the inherently emotional nature of cognition.

Moving beyond the theoretical discussion, when it comes to research about CR in relationship to transformative learning it is rarely deconstructed in-depth (e.g., Liimatainen., Poskiparta, Karhila, & Sjögren, 2001, Cranton & Caruesetta, 2004, Kreber, 2004; Mälkki, 2010; Taylor & Laros, 2013). There is a purported over-reliance on retrospective interviews involving “participants to both recall from memory and verbally articulate reflective moments...that often operate at a tacit level” outside participants’ conscious awareness (Taylor,

2007, p. 179). Also, promoting CR is often inherently linked to specific teaching strategies (PBL, dialogue, journaling) with limited accountability and an over confidence on the written text. Insight into some of these concerns is explored in a recent review of Mezirow's conception critical reflection within the context of human resource development, confirming that "researchers spend a lot of time on coding and assessing reflection, with often ambivalent results" (Lundgren & Poell, 2016, p. 18). Also, much of what has been discussed empirically about CR has emerged from literature reviews of transformative learning theory.

Recently, concerns have been raised about an over-reliance on literature reviews of transformative learning theory (TLT), whereby researchers are not reviewing original studies and or exploring literature beyond the confines of a review (Taylor & Snyder, 2012). A consequence of this over-reliance is that transformative learning and likely CR are caught in a "first wave" of theory building (e.g. Gunnlaugson, 2008) and continue to be bound by the dominant perspective of transformative learning (Mezirow, 1991). A response to this concern is a request for reviews on essential components of transformative learning (e.g., experience, dialogue, disorienting dilemmas, relationships, critical reflection) (Cranton & Taylor, 2012) that might reveal a more detailed understanding and offer insight into transformative learning theory. As previously discussed CR is an essential component of transformative learning and is purported to be one of the least explored in-depth (Brookfield, 2000; Hanson, 2013). In response to the critiques associated with critical reflection and the need for reviews about particular components of transformative learning theory, the purpose of this paper is to conduct an in-depth review of the empirical research concerning critical reflection as defined by Mezirow (1991, 2000).

### Methodology

The methodology for this review involved a search on several databases (e.g. ERIC, Wilson, Proquest, Medline, Lumina) using four criteria for selecting the studies on CR. Each study: a) defined CR from Mezirow's perspective; b) had a methodology section; c) foregrounded CR, such that it had a major focus in the study; and d) it was published within the last 15 years. This purposeful sample of studies allowed for a more consistent interpretation of CR, whereby all the studies were critiqued within a shared framework. In all, 29 peer-review studies were identified, although most used Mezirow's conception of CR exclusively; at times other conceptions were discussed as well (e.g., Schon; Boud, et al., 1985). Each study was obtained, read in its entirety and then analyzed involving a series of recursive steps. A rubric was created identifying key aspects to be explored in the article (e.g., purpose of the study, definition of CR, methodology, assessment/evaluation, related findings, new insights) with the analysis framed within CR (e.g., Mezirow, 1991; 2000). Each article was searched for key terms and related concepts using reference software (e.g., Mendeley) as well as a collaborative team of scholars engaged in ongoing discussions of what this analysis revealed about CR leading to a structure for the review.

### Organization of the Review

The findings are organized by a synthesis of the purposes of the studies, research designs and settings, and a thematic analysis of the findings. The themes from the findings include: a) A standard of CR; Journaling CR; b) Emotions and CR; c) Quantitative assessment and CR; d) The Practice of CR; and e) Context and CR.

#### *Purposes*

The primary purposes of the studies identified in this review about CR fell within five predominant areas, including: a) *validating instruments and models* (audio-taped journaling, questionnaire, electronic portfolios, journaling, surveys) to assess CR (Bell, et al., 2011; Dantas-Whitney, 2002; Dunn & Musolino, 2011; Kitchenham & Chasteauneuf, 2009; Kreber, 2004; Plack, Driscoll, Blissett, McKenna, & Plack, 2005; Wallman., Lindblad., Hall., Lundmark., & Ring, 2008; Wittich, et al. 2013a; Wittich, et al., 2013b); b); *exploring ways to foster CR* (curriculum, feedback, facilitated dialogue, online education; journaling, modeling, program design, portfolios, problem-based learning, simulations & debriefings, web-based discussions, evidence-based strategies) (Bell, et al., 2011; Buzdar & Ali, 2013; Gulwadi, 2009; Gum, Greenhill & Dix, 2011; Jensen & Joy, 2005; Lévesque et al., 2016; Mettiäinen & Vähämaa, 2013; Okuda & Fukuda, 2014; Oosterbaan, Baartman, & Stokking, 2010; Rigg & Trehan, 2008; Silvia, Valerio, & Lorenza, 2013; Yuen Lie Lim, 2009; Zieghean, 2005); c) *facilitators’ perspectives of CR* (Hanson, 2013; Sambrook & Stewart, 2008); d) *the relationship of CR to specific learning situations* (obesity bias, mid-career) (Ogle & Damhorst, 2010); and e) *studies that focus on related aspects of CR* (emotions, context, disorienting dilemmas, feedback, levels of reflection, developmental nature of reflection, instrumental learning) (Ambrose & Ker, 2014; Dye, et al., 2011; Duke & Appleton, 2000; Mälkki, 2010; 2012; Roessger, 2014). The general intent of the research is quite diverse, although there is little of any research that explores the impact of CR on learning outcomes, negative consequences as a result of engaging in CR, and ways CR is interpreted and practiced from the perspective of the educator.

#### *Research Designs and Settings*

Methodologically a variety of designs are used in the study of CR including quantitative surveys, case studies, action, research, and basic interpretive designs. Data collection for assessing CR relies predominantly on the analysis of written reflections through the use of journals, web-based dialogue, and quantitative instruments. As opposed to the study of TL in general, most research that looks at CR exclusively, use interviews less often. However, when interviews were used there was an overreliance on retrospective interviews requiring study “participants to both recall from memory and verbally articulate reflective moments... that often operate at a tacit level” outside participants’ conscious aware-

ness (Taylor, 2007, p. 179). The studies that used surveys were predominantly modeled after the Kember and Leung (2000) questionnaire including four scales of reflection framed theoretically within Mezirow's conception of CR.

Participants in the studies on CR often involve small numbers of college students from a variety of disciplines (e.g., nursing, medicine, business) with only one study exploring CR in a nonformal setting. There are some exceptions for example, worthy of note, such as Yuen Lie Lin's (2009) cross-sectional research on the development of reflective thinking habits regular practice of PBL involving over 350 participants and Buzdar and Ali (2013) research on developing reflexive thinking through distance education involving 450 students. Regardless the size and setting, the studies overlook the role of culture and positionality (age, race, class, gender) in relationship to CR despite the fact that much research took place outside North America including such countries as Cyrus, Finland, Italy, Japan, Pakistan, Singapore, and the United Kingdom. This universal conception CR (e.g., emphasis on reasoning and logic devoid of emotions; individual as the unit of analysis) is quite striking considering the strong critique about cultural differences and transformative learning (e.g., Taylor & Snyder, 2012; Merriam & Ntseane, 2008, Mejiuni, 2012; Sims & Sinclair, 2008). Furthermore, there is no recognition or attention to the concern that life experience (Kreber, 2005) and "mature cognitive development is foundational to engaging in critical reflection and rational discourse" (Merriam, 2004, p. 65).

### Findings

Findings of the studies offer insight into internal factors (motivation) and external factors (social dimension, job status, feedback, long-term consistency) that have an impact on the promotion, the degree, and the likely outcome of CR being engaged by the learner. There is also greater understanding revealed about the levels of reflection and differences found in CR in life-crisis events in contrast to more formal and facilitated settings. The findings identified five themes: the need for a CR standard, journaling and CR, quantitative assessment and CR emotions and CR, and the Practice of CR.

#### *A CR Standard*

The variations of CR are numerous, challenging researchers to find a shared standard of what it means to critically reflect and how to assess its presence in text and when it's verbally spoken. For example, studies that looked for dimensions of reflection (e.g., non-reflector, reflector, critical reflection) (Chimera, 2006); (types of reflection-objective reframing and subjective reframing and related subcategories) (Kitchenham & Chasteauneuf, 2009; Mettiäinen & Vähämaa, 2013); and levels of reflection (reflection-content, process, premise) (Oosterbaan et al 2010; Silvia, Valerio, & Lorenza, 2013) use different interpretations of Mezirow's conceptions purported at different times in the evolution of CR. "The lack of common definitions for the terms we use continues

to complicate our ability to compare, and therefore, to gain from the research efforts within our discipline and others” (Thorpe, 2004, p. 339). In addition to the varied conceptions is the tendency for many studies to not provide much data for support, particularly when it comes to the research that relied on analysis of written text. There are few examples in the descriptive studies of what is and what is not reflection, let alone critical reflection. And there is little evidenced and shared understanding of the discourse that delineates these various levels of reflection. Most often when data is provided it is assumed that the data speaks for itself as an exemplar of CR without any analysis of the text itself, where and what specific words in the data refer to assumptions and the questioning of assumptions. Despite these shortcomings Bell et al. (2011) offers significant insight into a coding process and examples of different levels of reflection through analyzing reflective journal based on Kember et al., (1999) coding scheme. Most interestingly is the high degree of non-reflective writing that was found in journals among participants. To address this concern and others a standard is needed, less so about levels, and more so about analyzing research data and developing exemplars indicative of critical reflection.

### *Journaling and CR*

Following the previous discussion and focusing on the role of reflective writing and critical reflection, in particular, there were a number of studies that used journaling to foster, capture, and assess CR. This included journals completed by handwriting, digitally (Bell et. al, 2011; Dye, et. al, 2011; Chirema, 2007; Gulwadi, 2008; Plack et. al, 2005; Silvia, Valerio, & Lorezna, 2013; Zembylas, 2008) and e-portfolios/online writings (Clarke, 2009; Kitchenham & Chasteauneuf, 2009). This descriptive approach is the most dominant in capturing critical reflection based on the assumption that a journal is more reliable at capturing thoughts, feelings, and actions in real-time. However, the analyses of journals vary widely, it is a contested process, particularly the validity of assessing subjective knowledge. Similar to the previous discussion, there was a range of processes used among the various studies for identifying critical reflection. For example, Gulwadi (2009) used journals to foster reflection about sustainability in a studio course and analyzed the journals using a framework including four types of reflection (descriptive, descriptive reflection, dialogic reflection, critical reflection). Plack, et. al (2005) on the other hand, drew on three theoretical frameworks of reflection including Boud et al. (1985), (process and content), Schön (1983) and Mezirow (1990) for types and levels of reflection to develop a rating checklist for a reflective journal using multiple raters (interrater reliability) to develop a reliable method for assessing reflective journals. In addition to the varying nature of assessing critical reflection in journals, is the lack of examples provided (rich descriptive examples) as indicators, types and levels of reflection as well as what specifically about the examples (data) are indicative of critical reflection.

The strength of using journals is they have the potential to both capture and foster reflection. Capturing reflection is enhanced through digital means

found in electronic portfolios, journals, scripts, and reflective essays both in accessibility and the ease of assessment of CR through digital analysis. Fostering reflection through journals has often been left entirely to the learner and the medium, with little attention given to ways (e.g., feedback, interactive dialogue) to enhance the reflective process. Recent research has explored the impact of providing ongoing, constructive and encouraging feedback, although in a study involving critical reflection on performance by physical therapy students there was no significant change in the level and type of reflection in response to feedback (Dye, 2011).

Despite the numerous strengths, there are some significant limitations in engaging learners with journals. One is the assumption that inner thought can be expressed in a written fashion, not recognizing that not all reflection is conscious and that not all learners have a discourse and ability for expressing their thoughts in texts. Secondly, for some, written expression can pose a barrier and illicit resistance to reflection. At times there is “a decrease in motivation caused by the non-alignment between the written approach to assessment and a learner’s preferred learning style (Koole, et al., 2011, p. 6). Third, not all learners respond positively to journaling, particularly considering the associated risks of personal self-disclosure (Chirema, 2007). Sharing deeply emotional thoughts can discourage participation and quality of writing can decline unless regularly monitored (e.g., feedback) (Jensen & Joy, 2005).

### *Quantitative Assessment of CR*

When reviewing the quantitative survey instruments, most are based on Kember and Leung’s (2000) conception of Mezirow’s four levels of reflection (habitual action – automatic feat through repetition; understanding-using existing knowledge with no critical appraisal; reflection-exploring past to identify new insights; and critical reflection- more in-depth reflection where a perspective is transformed) and focus on asking participants to respond to statements of outcome (change of behavior as result of reflection as opposed to intention) (e.g., Ambrose & Ker, 2014; Buzdar & Ali, 2013; Dunn & Musolino, 2011; Wittich, et al., 2013a; Yuen Lie Lim, 2009). For example, Yuen Lie Lim (2009) used this questionnaire in a cross-sectional study to assess how students developed reflective thinking habits through an everyday practice of problem-based learning (PBL), with an assumption that students at different years in their program of study would reflect different levels of reflection. Findings revealed an increase of habitual action among students in their third year and a leveling of CR after students’ first year. A number of factors could explain the findings such that in a highly PBL environment reflection becomes overly prescriptive and routine reducing significance. Furthermore, there is often an unquestioned assumption that there is a direct relationship between CR and PBL without much exploration into the efficacy of these assumptions and the impact of other related factors (e.g., relationships with faculty, quality and depth of dialogue, student motivation, peer support).



The advantage of the questionnaire is the ease of self-assessment (both for the student and researcher) side-stepping indirect observations, and other related advantages of a quantitative design. Although statistically, these instruments have a high degree of integrity, the shortcomings are numerous as well. The dominant model overlooks the role of emotions, the influence of motivation, immediate context and the inability of these instruments to capture what precedes critical reflection (e.g., Koole et al, 2011). Interestingly, even though the affective dimension to develop reflective thinking was recognized it was assumed that it was more important to focus on levels of CR (Kember & Leung, 2000), as though the affective was a distraction and less relevant. The questionnaire statements assume that if there is a changed behavior then CR was present, without really revealing an understanding of the relationship between the learning event (e.g., grand rounds, PBL) and how CR was encouraged and promoted. Also, more research is needed on longevity/permanency of the assumed impact of CR (Ambrose & Ker, 2014).

### *Emotions and CR*

Despite the critiques over the years of critical reflection's over-emphasis on reason, rationality, and logic, most studies continue to overlook the affective component of CR. This is a significant oversight particularly considering that it has been strongly established that there is a neurobiological (e.g., Damasio, 1994; LeDoux, 1998) explanation for an inherent relationship between emotions and critical reflection. It is the role of feelings, in creating patterns of salience among various thoughts and assumptions, that determine what will and won't be reflected upon, and guiding or distorting the process of reasoning (Taylor, 2001). However, despite this early understanding, there have been a few efforts to further investigate this interdependent relationship further (Clark, 2009; Gum, Greenhill, & Dix, 2011; Mälkki, 2012; Zemblyas, 2008). For example, Clarke (2009) explored the abilities of emotional intelligence within a team contexts and the association with critical reflection. He found "emotional awareness and emotional management to be significant emotional abilities that are potentially associated with... three critical reflection processes: problem analysis; theorizing cause and effect; and action planning" (p. 222). Similarly, Mälkki, (2012) investigating disorienting dilemmas among involuntarily childless women, found that "working through emotions is not only a stage in transformation ...but also a prerequisite for reaching the problematic assumptions" (p. 223). As assumptions become problematic, emotionally situated, these "felt emotions" (Gum, Greenhill, & Dix, 2011, p. 9) are a trigger for reflection. Also, it is these very emotions that can both be a threat (discouraging CR) to deeply held meaning structures and a catalyst for change. There is a real need for scholars give greater attention to the role of feelings in the reflective process, by having participants express their feelings (both written and orally) and explore the interrelationship between these two dynamically interrelated constructs.

### *The Practice of Critical Reflection*

This fifth finding focused on specific practices associated with fostering CR. These practices/teaching strategies included problem-based learning (PBL), reflective journals, patient narratives/ testimonials, facilitated dialogue, and use of film to promote CR (Gulwadi, 2009; Kuennen, 2015; Lévesque, Levine, & Bedos, 2016; Ogle & Damhorst, 2010; Yuen Lie Lim, 2009). Three examples capture the spectrum of approaches. For example, Okuda & Fukada (2014) explored the impact of reflection through facilitated dialogue individually with nurses. Regardless of dialogue, none of the participants changed their level of reflection, which seemed to be constrained by their preconceptions of nursing work. Similarly, Lévesque, Levine, & Bedos (2016) implemented a continuing education course for a community dental team about poverty and the implications for the practice of dentistry. They used film of personal accounts of people living in poverty and how oral health professionals might best respond to patients' social context within a setting of group discussions to foster critical reflection. There is a tendency to assume that CR inherently is a byproduct of these activities (e.g., PBL, journals, learning contracts, group dialogue) with little effort to ensure that there is a direct relationship. To be more specific, the assumption is that CR is fostered, for example, through the process of participants being exposed to a discrepant perspective (film, testimonials, problem cases) and it "ignites cognitive conflict, thereby providing the spark for reflective thought" (Yuen Lien Lim, 2009; p. 174). In contrast to the other three studies that focused on communicative learning, Roessger (2014) focused on the how reflexive activities impact skill adaptation in work-related instrumental learning settings (tile laying). Findings revealed the learners with a high propensity of reflection revealed the lowest error rates in tile laying, while lower reflective learners had the highest error rate.

Concerning these studies and others involving fostering CR, there could also be other factors that could have equally if not a greater role in fostering reflection, such as the context inclusive of the relationships that develop between the participants, peers and/or teachers, the role and degree of empathy expressed the participants (Taylor, 2014), the larger socio-political context shaping the everyday events of the participants lives in and outside the classroom; and/or possibly these activities act as catalyst for reflection later in a learner's life when they experience a related significant learning event. More attention needs to be given to these factors when CR is researched in practice.

When it comes to understanding the role of facilitators and CR, a number of challenges are identified, such as the varied meanings of the construct, the range of reflexive activities, and express challenge of assessing (Hanson, 2013; Sambrook & Stewart, 2008). For example, Hanson's (2013) study of activist-facilitators working in the area of international development found that most were not comfortable talking about CR because of its association with personal vulnerability as well as a gap of understanding about the construct between theoretical knowledge and actual practice. Also, the facilitators' conceptions of CR tended toward "a technical-rational response, that is asking 'what went well' and

‘what had to change’” (p. 84), and their conceptions were associated more with introspection, not critical reflection (identifying and questioning assumptions). Other challenges included the lack of time and institutional support, where other demands (quick-fix approaches) were often given greater priority. When fostering “critical reflection” a number of questions come mind, such as can it be assumed by the instructor and the learner(s) that there is a shared purpose (goal) of reflection and focus of what is reflected upon? Can the instructor assume that learners are reflecting on relevant and/or related assumptions? How do instructors make meaning of CR in practice and what are the related implications for fostering CR among his/her students?

### *The Role of Context*

The sixth finding, building off the previous findings, reveals that the individual learner/student is predominantly the unit of analysis and the role of context of where reflection takes place is often given little attention. “Transformative learning [and as such CR] does not happen in a vacuum, solely through the free will of an autonomous learner; rather, it is contextually bounded and influenced by relationships with others” (Taylor & Snyder, 2012, p. 44). A number of studies attempt to foreground context in a variety of settings, such as: workplace (van Woerkom & Croon, 2008; Rigg & Trehan, 2008) professionally focused doctoral programme (Sambrook & Steward, 2008); online education (Zembylas, 2008); simulation debriefing (Gum, Greenhill, & Dix, 2011); patient safety (Ambrose & Ker, 2014); disorienting dilemma (Mälkki, 2012).

For example, the importance of the social dimension is seen in Mälkki (2012) on the role of reflection in negotiating emotionally chaotic experiences, more specifically within a context of a crisis (disorienting dilemma). Researching women who have experience involuntary childlessness, she analyzed data in relationship to the immediate contexts on several dimensions (immediate totality of the participants’ experience, the involuntary childless phenomenon). Findings reveal that the social dimension is potentially second wave trigger for critical reflection. When meaning is socially constructed and:

consequently, meanings becoming questioned or changed indicates a strain also in relation to the people and groups connected by shared assumptions.... In fact, based on the data, I suggest that experiencing an unexpected lack of shared meanings may be seen to form a dis-orienting dilemma within the social dimension, and to raise unpleasant feelings, possibly leading one to reflection (p.233).

The role of context in relation to critical reflection is significance. It not only plays a role in what and how an individual reflects upon assumptions of prior experience in a previous context, but also particularly within a different context with others, the shared perspectives prompt the identification of overlooked assumptions often taking precedent over the questioning of previously

held assumptions. What is shared and how perspectives are shared is greatly influenced by the context as well. For example, Gum & Greenhill (2011) found in the exploration of simulation debriefing that greater fidelity and contextually relevant activities enhance the reflective experience. In assessment, considering contextual factors will help contribute to the interpretation of results and in the understanding of the reflection process (Koole et al, 2011, p. 7).

### ***Discussion and Conclusion***

In reflecting back on this review it is apparent that there are a number of challenges facing the scholarship and practice of critical reflection. As a central construct of transformative learning it has too long been accepted, often with little question, about its meaning, ways of assessment, and role in relationship to transformative learning theory. This is not to say there haven't been efforts to explore CR in greater depth, as many of these studies reflect, however, that much of the research tends to overlook the inherent problems and/or has not figured out how to best capture this unique construct seen as so essential to the teaching and learning of adults.

Looking back over several issues in this review warrants discussion of how to develop a standard for assessing CR. An approach to this challenge is demonstrated by a few of the studies that use an established model of CR (e.g., Kember et. al, 2008), multiple coders/raters of extracted text, and examples of actual data provided in support of the various levels of reflection. A good model to start with is the work by Bell et. al (2011) on assessing reflective journaling. This research nicely demonstrates a process of accomplishing these tasks, even though the model has too many levels that are inadequately supported by data. Although, this approach to assessing journals needs to go even further by not only providing more data than just one example for each type of reflection, but the approach ideally should include multiple examples and the examples of data themselves should be deconstructed word by word or phrase by phrase of what and how these examples are indicative of CR and the various levels of CR. Furthermore, it would be helpful to contextualize these examples, possibly by providing more information from the journals—the story behind the reflection and how individuals see themselves in relationship to this reflective experience. On a small scale, also, doing follow-up interviews would be helpful using the citation as an elicitation device exploring with participants in greater depth of their meaning and how they are indicative of reflection. These strategies, as well as others, would help, at least in the form of the written expression of CR, offering a more reliable perspective that others could draw on.

Related to the standard for assessing CR there is also a need for more ways to capture CR. Journaling is clearly the dominant and, at present, the most effective mode particularly with the simplifying of analysis via a digital means. However, it is cumbersome for some participants to express their thoughts in the written word, and it requires a sophisticated discourse of expression (converting

all thoughts to text). A response to this concern is to provide participants the opportunity to record their thoughts verbally in real time through voice activated apps on smartphones and other recording devices. One example is provided by Dantas-Whitney (2002) who used audio tape journaling in an English as Second Language Course to “build connections between the themes explored in class and their personal experiences, values and beliefs” (p. 543). This data could be converted to text and then analyzed accordingly. Similarly, Oosterbaan et al., (2010) who captured conversations of student’s reflections via video and facilitated discussions about their e-portfolio and related learning, concluded that “students may find it easier to express themselves in spoken text and address their story to someone who is present physically” (p. 159). However, for some this could also be limiting, whereby engaging in the arts, photography, and other forms of visual expression could be more desirable as a means of fostering and capturing reflection. In turn, these expressions could be used as elicitation devices in follow-up interviews helping bring the tacit and unconscious to the conscious (e.g., Taylor, 2002).

A third issue is the oversight of the interrelationship between emotions and CR. Studies refer to its significance, but still, with a few exceptions, do not give emotions the attention it deserves despite the fact that CR is triggered by emotions and powerful emotions can be manifested through questioning deeply held assumptions. One approach to addressing the role of emotions in relationship to CR is through the construct of empathy. Empathy:

provides the motivation (altruistic interest) to “listen” to others and oneself; the means to better understand the perspective of others; an awareness of their feelings and understanding of their mental state, and the ability to accurately demonstrate that understanding; and the wherewithal to engage feelings that help identify the assumptions that are questioned in the process of critical reflection. (Taylor, 2014, p. 17).

The field of neuroscience has identified two systems of empathy: a) emotional and pre-reflexive unconscious emotional mirroring, and b) cognitive and reflexive perspective taking (Preston, et al., 2007). By exploring these systems, particularly the latter of empathy and CR together, it may begin to reveal a more accurate picture of the dynamic relationship between emotion and CR and a means to better assess and understand its significance in relationship to transformative learning theory.

A fourth issue is in the area of practice which poses many challenges for the researcher and the practitioner in the task of fostering CR. Beyond the earlier discussion about the need to ensure that activities that have long been associated with CR, such as PBL, are actually stimulating CR, is the assumption that the educator and the student have a shared agenda when it comes to CR. To understand the significance of shared agenda it is helpful to reflect on CR along three dimensions: (a) purpose, the goal of reflection; (b) focus, what is to be re-

flected upon, the object of reflection (e.g., feelings, thoughts, experiences); and (c) the process, how and where is reflection implemented (Procee, 2006). These dimensions raise a number of questions when “critical reflection” is fostered, such as, can it be assumed by the instructor and the learner(s) that there is a shared purpose (goal) of reflection and focus of what is reflected upon? Can the instructor assume that learners are reflecting on relevant and/or related assumptions? And can it be assumed that reflection is taking place at the same time and process when fostered by the instructor?

Also, it still seems to be the case that the means by which critical reflection is implemented, researchers have found (e.g., Boud & Walker, 1998) that practice and research are rife with “examples of poor practice being implemented under the guise and rhetoric of reflection . . . [and] that reality falls very far short of the rhetoric” (p. 192). Even though this was written almost 25 years ago, the issues still are present today. They discuss a host of problems with reflection, let alone critical reflection, which are rarely if ever discussed when engaging in research about the practice of fostering TL. They include, for example, (a) treating reflection as a technical activity, going through a series of steps; (b) operating under the assumption that all reflections lead to learning, not recognizing that some students may not be reflecting in productive ways; and (c) the tendency to intellectualize reflection, downplaying the role of emotions in when fostering CR.

In conclusion and returning full-circle, it is important to discuss what are implications of review of critical reflection for the study of transformative learning theory. Most significantly is the assessment and evaluation of critical reflection and the related implications for researching transformative learning. Since historically much of the research on transformative learning has involved retrospective interviews (e.g, Taylor, 2007), a method of research demonstrated in this review to be marginally practiced in the study of critical reflection, then what can what be said about the related research on transformative learning? This may not call into question the research on TL, but it clearly raises concerns on findings about CR that were revealed in the general study of transformative learning. It should also challenge scholars to include multiple data sources and other means to enhance the trustworthiness when engaged in research on transformative learning theory, particularly when they are attempting to give attention to the role of critical reflection. A second insight is the need to give greater attention to context and transformative learning, particularly the social dimension and the related implications for fostering change. The significance of social for CR further implies the same for the study of transformative learning. More specifically, it is through the context of relationships that both impede and give meaning to the significance of CR. Unless affirmed by others’, an individual’s questioned assumptions and change provoked through reflection is likely to be temporary with little meaning. Through the study of essential components of TL, such as CR, much can be learned not only about that particular component, but about the general theory of TL and related implications for both further research and practice.

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