Transformative Learning: A Review of the Assessment Tools

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Abstract

In this review essay[1], I try to explore the following question: How can we evaluate the process and the outcomes of perspectives transformation? Where is the research on the assessment of transformative learning outcomes today and where it is going in the future? I will describe the most popular tools (see Stuckey, Taylor, Cranton, 2013) for the evaluation of the outcomes of learning activities that may be conceptualized as transformative experiences. The four instruments compared are:
1. Kember's Critical Reflection Questionnaire, a 16-question, four-scale questionnaire (Kember et al., 2000, p. 392);
2. Learning Activity Survey (Learning Activities Survey, King, 2009) questionnaire, based on the theory of the ten steps precursors to transformative learning (King, 2009);
3. Transformative Learning Survey (Stuckey, Taylor, Cranton, 2014);
4. VALUE rubric (Valid Assessment of Learning in Undergraduate Education) (AACU, 2013), whose variation Student Transformative Learning Record (Barthell et al., 2010) was created for the assessment of students' own authentic work.
Those instruments represent the effort of (a) going beyond the qualitative retrospective approach and (b) finding indicators for the critical reflection engaged by people (students or professionals) in their learning experiences. The purpose is to appeal to faculty members, adult educators, professional coaches, mentoring experts, healthcare professionals in Counselling and Psychotherapy, offering them a review of both qualitative and quantative approaches that they could adopt in their professional practices.

Keywords: transformative learning, survey, quantitative methods, assessment

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Current Trajectories of Transformative Learning Theory

The popularity of transformative learning theory (TL) over the last several decades speaks to the interest in understanding highly impactful learning experiences. Mezirow used the terms transformative learning and perspective transformation to refer to the process of "becoming aware of one's own tacit assumptions and expectations and those of other and assessing their relevance for making an interpretation" (Mezirow & Associates, 2000, p.4). Mezirow (2000) limited transformation to those learning experiences whereby one's preconscious mental schemas are laid bare and scrutinized through the process of critical self-reflection: "Transformative learning refers to the process by which we transform our taken-for-granted frames of reference in order to make them more inclusive, discriminating, open, emotionally capable of change, and reflective so that they may generate beliefs and opinions that will prove more truth or justified to guide action" (2000, p. 7-8). In the last decade, transformative learning theory has been accused of stagnation and lack of theoretical progression, due to:

- a confusion about research paradigms,
- an overreliance on a research methodology in which participants are interviewed retrospectively and in which is carried out just as thematic inductive analysis,
- the misinterpretation of kinds of data as research paradigms and the reliance on secondary sources (Taylor, Cranton, 2012).

In educational research on transformative learning the basic interpretive methodology is mostly adopted. The researcher interviews a small number of individuals in specific environments or related to specific issues (retrospectively), does a thematic analysis of the interview data, and reports on four or five themes that appear in the data. Some unresolved issues persist, such as: how to evaluate the perspectives transformations in adult people? How to disambiguate the field of the evaluation of transformative learning experiences? How can we track and support the processes of perspectives change?

The Post-Mezirow Approaches of Transformative Learning

Mezirow's theory finds its home within adult education and its expansion has come through its intersection with other theories about transformation and development. The cross-fertilization (Schapiro et al., 2017) between different approaches and disciplines continues to help TL theory evolve far beyond its first conceptualization.

Following Taylor's categorization (1998), Hoggan (2016) recognizes four approaches to transformative learning theory: psychocritical, psychodevelopmental, psychoanalytic, and social emancipatory. The Psychocritical Approach (Taylor, 1998) considers that people have habits of mind, a set of assumptions which dictate how they make meaning of the world. The

Psychoanalytical Approach stems from the work of the analytic psychologist Jung and focuses on the expansion of one's ego consciousness. The psychodevelopmental approach defines transformative outcomes as an increase in cognitive capacity. These approaches describe different, although partially similar, ways to interpret how people can change. The trajectory of approaches to transformative learning continues to expand, as evidenced by Taylor (2007), who added neurobiological, cultural–spiritual, race-centric, and planetary.

How Can We Evaluate Quantitatively Perspectives Transformations Outcomes?

Most research on the outcomes of transformative learning have been qualitative in nature and relied on retrospective interviews as a means of data collection. Methodologically, there is a growing specificity in the type of qualitative design, such as action/teacher research, narrative inquiry, autoethnography, and case study (see Merriam & Kim, 2012). In addition, participants writing in journals, students writings, photography, and portfolios have continued to be viable data sources. The predominant qualitative inquiry on transformative learning has become more sophisticated through the use of longitudinal designs, action research, scales, surveys, content analysis of various documentation (e.g. emails, journals, portfolios) and the use of video recorded interviews. In a review of the methods for the evaluation of transformative learning, Cranton and Hoggan (2012) indicate self-evaluation methods, interviews, narratives, metaphor analysis, art-based techniques, surveys, and checklists.

Table 1 Methods of Evaluation of Transformative Learning

Methods	Description
• Evaluation Methods	Self-evaluation methods are especially congruent with the philosophical foundations of emancipatory learning that have influenced the theory of transformative learning.
• Interviews	Interviews are frequently used for evaluating transformative learning. Interviews can focus on learners' story of a particular experience to gain insight into the processes or outcomes of learning, as well as to track learners' perspective changes

Table 1 Methods of Evaluation of Transformative Learning *continued*

Method	Description
• Narratives and Journals	Narratives are learning practices that include learning journals, concept-focused autobiographical writing, and case studies. Journals can take many forms, such as: imagined dialogues between the learner and someone else; real dialogues among multiple learners.
• Art-based Techniques	Arts-based techniques include photography and collage, creative writing, music, improvisation, body movement, and visual imagery. Arts-based techniques, when used in evaluation of transformative learning, are designed to help learners gain personal insights, recognize ways in which they have changed, and help crystallize ways in which they may potentially change.
• Metaphor Analysis	Metaphor theory asserts that metaphors actually represent maps that people use to understand concepts. Metaphor analysis is the process of recognizing, "unpacking," and critiquing the metaphors we tacitly use to understand our world and ourselves.

The Critical Reflection Questionnaire: How to Engage in the Assessment of Critical Reflection's Outcomes

Based on Mezirow's definition of reflective thinking, Kember, Leung, Jones, Like, McKay, Sinclair, Tse, Webb, Wong, Wong, and Yeung (2000) designed a 16-question, four-scale questionnaire, the Reflection Questionnaire, to measure "the extent to which students engage in reflective thinking in professional preparation courses" (Kember et al., 2000, p. 392).

In developing a protocol for assessing the level of reflection in journal writing, Kember et al. (2001) found the work of Mezirow provided a comprehensive, logical and workable framework for developing a method to assess reflective thinking. From theoretical elements, Kember et al. (2000, 2008) proposed tools to identify quantitatively and qualitatively reflection levels. In the qualitative proposition, Kember et al. (2008) proposed writing texts in which students were asked to write about learning processes in their professional practice. To analyze the texts, the authors developed an analysis log based on the four reflection levels, used as guide for the analysis of the reflection level in written works. The quantitative instrument assessed four constructs: habitual action, understanding, reflection, and critical reflection. Kember (2001), after a rigorous literature review, recognized that

- the subject matter of reflection is an ill-defined problem—the type of issues and cases dealt with in professional practice;
- in professional practice, the process of reflection may be triggered by an unusual case or deliberate attempts to revisit past experiences;
- reflection can occur through stimuli other than problems or disturbances to the normal routine. The stimuli may be encouraged or arranged;
- reflection operates through a careful re-examination and evaluation of experience, beliefs and knowledge;
- reflection most commonly involves looking back or reviewing past actions, though competent professionals can develop the ability to reflect while carrying out their practice (Kember, 2001).

Kember et al.'s (2000) Reflective Questionnaire needs to be combined with an additional instrument (maybe one of the surveys described below) to fully capture the perspective transformation: first, because perspective transformation happens on so many levels (e.g., individual, organizational, cognitive, affective, behavioral) that it may be impossible to develop a single scale to capture every aspect; second, because it is focused on the process of critical reflection, and it doesn't consider the outcomes of learning in terms of change of meaning perspectives.

The Learning Activity Survey: A Questionnaire for the Evaluation of Perspectives Transformations

The Learning Activity Survey (King, 2009) is a questionnaire constructed and tested by the research group directed by King (2009), and implemented in more than ten years of studies.

The Learning Activity Survey has two major purposes: identifying whether adult learners had a perspective transformation in relation to their educational experience; and if so, determining what learning activities have contributed to it (King, 2009, p. 14). The assessment tool has four major parts. Part one identifies the stages of perspective transformation and asks participants for a brief

description of their experience. Part two determines which learning experiences have promoted a perspective transformation. Part three is a series of questions determining the learning activities in which respondents were involved. Lastly, part four collects information on demographic characteristics. The LAS survey is a self-report survey totally filled out by participants all by themselves. Item 1 uses Mezirow's original ten stages of perspective transformation as a guideline for presenting carefully paraphrased and texted statements for the respondent's consideration. For Mezirow's stage one, a disorienting dilemma, the tool has the following statement that could be selected: "I had an experience that caused me to question the way I normally act." The learners from a checklist may select the ten stages of perspective transformation individually. Item 2 has three purposes: it improves the validity of the tool by summarizing and rephrasing Item 1, it assists the respondent in completing the tool, and it focuses the items on one experience of perspective transformation. If respondents did not have a perspective transformation experience, they are directed to Item 2 to go directly to the last two sections of the assessment tool.

Until this point, the tool has used closed-response, while Item 3 and Item 5 require free responses. Item 3 seeks a basic description of the perspective transformation experience in order to verify that the perspective transformation was in fact related to the respondent's educational experience. Items 1, 2, 3, and 5 guide the respondent to reflect on an experience of change and delve into what exactly it was, how it happened, and what contributed to its occurrence. The educator uses the information from these items to determine a score for each participant on a scale from one to three. This PT-Index scale indicates whether learners had a perspective transformation in relationship to their education, PT-Index = 3; whether they had one not associated with their education, PT-Index = 2; or whether they did not have a perspective transformation experience, PT-Index = 1. The PT-Index is classified according to multiple literature sources (King, 2009, p. 16). The PT-Index provides three concise categories for representing who have experienced perspective transformation and who have not. Learning activities assessed by the instrument are classroom assignments and support (of the teachers, of the facilitator, of the colleagues). Classroom assignments are divided into five sub-categories: critical thinking assignments, class discussions, student self-assessment, discovery of one's voice, and miscellaneous learning activities. One may use all six of these categories to group the learning activities listed in Item 4 and 7 of the instrument:

1. Critical thinking assignments: term papers/essays, personal journals, period of deep thought, assigned readings, and personal reflection.
2. Discussions: class/group projects and discussion of concerns
3. Students self-assessments: self-evaluation in courses and Personal Learning Assessment (PLA's).
4. Discovery of one's voice: writing about concerns, class discussions, and personal journals.
5. Support by: teacher, advisor, student, classmate, or other person.

6. Discover of own voice: logbooks, self-report.
7. Miscellaneous learning activities: nontraditional structure of courses, experiential workshops, and laboratory experiences.

The researchers who administer the Learning Activity Survey can use the Data Summary Table published with the original version of the handbook (King, 2009) or may use an Excel Page to tabulate the data. Each response on the LAS has a variable code assigned to it as listed before the administration of the survey. Each learner that completed the LAS comprises one record of data, and each response entered in the system is likewise coded per field. The simplest analysis is descriptive statistics in the form of frequencies.

More detail is needed to configure the Dataset for statistical program of choice in order to distinguish between schools/organizations, class/group/individual respondents. Examining frequencies and rankings of the entered data is possible to identify characteristics of the respondents, including age, college, affiliation, semester of enrollment, or the percentage of individuals experiencing a perspective transformation within their education. Individual effects are studied with the use of crosstabulations and chi-squared tests of significance between each of the demographics and those with PT-Index of 1 and 3. As final check, these data should be examined for adult learners having the opportunity to participate in learning activities: the educator/teacher should note which learning activities are much less available than others.

The pilot studies for the construction of the instrument included interviewing adult learners using critical incidents and collecting data about participants' perspective transformations. There was an iterative pattern of repeated sampling, formative adaptation of the instrument, and successive member-checking interviews repeated cyclically in three different educational institutions (King, 2009, p. 41). In addition, a panel of experts critiqued the tool and made suggestions. The method of supplementing the quantitative instrument with structured interviews especially improved the internal validity of the instrument (*ibidem*).

As told by King (2009, p. 18), the Learning Activity Survey can not isolate the specific impact of other variables that may have a role. Data gathered with the LAS questionnaire should be compared with data collected with other instruments, such as interviews for a small part of the sample, logbooks and journals. The Learning Activities Survey Questionnaire (LAS) saw applications in a variety of contexts over the last decade (Brock, 2010; King, 2009). Brock (2010) used the LAS Survey in her study on transformative learning experiences in undergraduates in business school; Glisczinski (King, 2009) adopted both quantitative and qualitative methods for the evaluation of transformative learning experiences in participating teachers. King's survey (2009) lacks construct validity, which raises questions about which inferences can be legitimately made and what was operationalized in the survey. Even though King reports that experts reviewed the instrument: there is no statistical evidence demonstrating its validity and reliability. In addition, the survey lacks factorial validity. Additional questions allow the researcher to perform a factor analysis to determine the degree of

relatedness between the questions and the construct. When there is a high correlation between the questions, then researchers can infer factorial validity. These concerns and others should remind scholars of the limitations of similar instruments until validity and reliability has been established. (Taylor, Snyder, 2012)

The Transformative Learning Survey: Methods of Evaluation

The Transformative Learning Survey (Stuckey, Taylor, Cranton, 2013) is a validated quantitative survey that assesses outcomes of experiences of transformative learning in college-educated adults. Survey development included a comprehensive literature review, external review by experts in adult education, focus groups for clarification of the items, the calculation of interitem correlations for each scale and cross-scale correlations, and the calculation of Cronbach's reliability coefficients (Stuckey, Taylor, Cranton, 2013, p. 211). Its purpose is to assess both common outcomes in transformative learning and variety of processes for reaching those outcomes. The survey instrument could help educators and scholars determine more accurately what strategies have the potential to foster transformative learning. The 112 items of this survey reflect and include three dominant conceptions of transformative learning (Cranton, 2006):

1. Cognitive/rational perspective (Mezirow, 1991) that emphasizes rationality, critical reflection, and ideal conditions for discourse, according to a constructivist and universal view of learning;

2. Extrarational perspective (Dirkx, 1998; Lawrence, 2012; Tisdell, 2006), which emphasizes the emotive, imaginal, spiritual, and arts-based facets of learning beyond rationality, and which recognizes personal, intuitive, and imaginative ways of knowing that lead to individuation;

3. Social critique perspective (Brookfield, 2012; Freire, 1970) that emphasizes ideological critique, unveiling oppression, and social action in the context of transformations, understood in terms of social change by "demythizing" reality, where the oppressed develop critical consciousness. This emancipatory approach is based on four broad concepts/methods, such as i) the centrality of critical reflection for helping learners develop an awareness of agency to transform society and their own reality; ii) the maieutic teaching couched in acts of cognition; iii) the problem-posing and dialogical methodology; and iv) a horizontal student–teacher relationship where the teacher works on equal footing with the students. All those elements concur in promoting a social transformation over personal change.

The survey can provide feedback to individuals on the extent of their perspectives transformation as well as feedback on whether change of perspectives was fostered in a particular group. The questionnaire includes qualitative elements to investigate participants' transformative experiences and the kind of changes they observed that may be missed through quantitative methods. The constructs described were grouped into three processes: i) for cognitive-rational process, five scales were developed to represent: critical reflection, action,

experience, disorienting dilemma, and discourse; ii) extrarational process is comprised of six subscales, namely arts-based learning, dialogue with others, emotional reactions, imaginal learning, spiritual learning, and soul work; iii) social critique includes four subscales, namely ideology critique, unveiling oppression, empowerment, and social action. Outcomes of transformative learning experiences were grouped in acting differently, having a deeper self-awareness, and having more open perspectives and experiencing a deep shift in worldview. The survey was tested in United States and Canada in a pilot study with 136 people[2] and was not tested cross-culturally.

A person who engages in replying to the survey receives a score on each scale by combining his/her responses to the items representing the scale. Outcome scores indicate the degree to which the person has engaged in transformative learning in general; the process scores indicate the probable processes a person undergoes during a revision of perspectives.

The survey may be useful for educators to describe the extent to which a specific class, in the context of a course, engages in transformative learning and to convey it in an educational experience (Stuckey, Taylor, Cranton, 2013). The limitations of this survey are that the qualitative approaches were translated to quantitative form to perform measurements with tools and techniques that appear to produce numerical and binary answers. The survey represents the most precise effort to operationalize the construct of the transformative learning, even if future tools may be closer to quantifying the outcomes on a graduated scale and assessing the process of transformative learning experiences or activities. The instrument has the merit of allowing defining transformative learning on several dimensions, considering the individual and the social dimension of change and both the internal and the behavioral dimension of transformation.

The Valid Assessment of Learning in Undergraduate Education: A Tool for the Assessment of Students' Transformative Learning

The VALUE (Valid Assessment of Learning in Undergraduate Education) is a campus-based assessment initiative sponsored by AAC&U as part of its Liberal Education and America's Promise (LEAP) initiative (http://www.aacu.org/value/rubrics/). VALUE rubrics and scoring guides provide tools to assess students' own authentic work, produced across their diverse learning progressions and institutions. The scope is to determine whether and how well students are meeting graduation level achievement in learning outcomes that both employers and faculty consider essential.

The Student Transformative Learning Record (STLR Rubric) is based on VALUE rubrics created by the Association of American Colleges and Universities. In 2007, after several years of experimentation and development (Cunliff & Hughes, 2011), UCO (University of Oklahoma) formulated an initiative called "Transformative Learning" (TL), articulated at UCO as a

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[2] For more details about the development of the survey, see Stuckey, Taylor and Cranton, 2013.

learning-centered education model for all students (Barr & Tagg, 1995). Since students' transformative experiences (and hence students' learning) can take place both in and out of a traditional classroom, UCO's approach to TL encompasses all aspects of students' learning including curricular, co-curricular, and extra-curricular activities (Barthell et al., 2010). Students' transformative experiences are included in a set of six developing practices, all of which promote high levels of students' engagement, high-impact educational practices, service learning and civic engagement practices of Astin (Astin & Sax, 1998). These six practices are called the Central Six Tenets of Transformative Learning: 1) Discipline Knowledge; 2) Leadership; 3) Research, Scholarly, and Creative Activities; 4) Service Learning and Civic Engagement; 5) Global and Cultural Competencies; and 6) Health and Wellness.

Assessment of Transformative Learning according to VALUE rubrics is accomplished with the STLR (the Student Transformative Learning Record) Rubric. Based on the willingness to create learning activities and expanded learning environments, following Mezirow's idea of fostering transformative learning as teaching for change, the STLR Rubric helps to evaluate students' progress in the associated Central Six Tenets. The assessment offers a standardized rating of students' achievement towards transformative learning and is documented in transformative learning record. According to the instrument, student's major field of study is central to the learning experience and is a vital part of the Central Six. STLR measures and records students' transformation across the five core tenets: Global and Cultural Competencies, Health and Wellness, Leadership, Research, Creative and Scholarly Activities, Service Learning and Civic Engagement.

These experiences are recorded in University databases and displayed via students' online Dashboard and in their student-built ePortfolios. STLR utilizes three badge levels for each tenet: exposure, integration and transformation. To earn a TL badge in Leadership at the exposure level, for example, a student must successfully demonstrate achievement of the criteria for that badge as measured with the rubric. Faculty and staff who manage the curricular, co-curricular, and extra-curricular programs identify activities suitable to meet badge criteria. Artifacts produced (virtual and material) associated with badge learning outcomes are captured in e-portfolios along with assessments of student work. The STLR process is designed to promote student's participation in transformative learning experiences, as well as the development of workplace and life skills competencies. As a student progresses beyond the exposure level, badge criteria reflect deeper levels of learning, much as upper level courses are more challenging and complex than lower level courses. Whether students pursue multiple badges or focus on just one, they will develop many skills and abilities that employers indicate as critical to successful job performance (Hart Research Associates, 2013). The connection of so-called "soft skills"[3] (often achieved

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[3] The promotion of the soft-skills required for the labour market are now one of the main interests of the European educational research, according to the European Qualifications Framework of 2008.

outside the classroom) to success in the workplace is increasingly well established among surveys of employers (Stratford, 2013). STLR provides a tangible method for verifying the skills that employers indicate are crucial to career success, thus providing demonstrable evidence to students, employers, and the public of the critical added value that high-impact practices bring to a student's preparation and career readiness. The evidence of students' transformative learning as automatically captured within the STLR e-portfolio may also be replicable by other colleges. It provides other graduates a means of substantiating to prospective employers their workplace-ready skills as they customize the presentation of themselves both on their résumés and as they select key evidence from their e-portfolios. One of the main values of VALUE Rubric and STLR portfolio is to take into account students' process of learning in academia for future professional development and for their employability.

Conclusions and Future Trajectories

How does one prevent the risk of misuse of transformative learning theory as an abstract framework for framing each kind of reflective process? Using multiple data collection pathways, opting for thematic embedding, clarifying the use of transformative learning theory and attending to feelings are all good strategies. The instruments presented here sustain educators and teachers to "unpack" purposes and practices of fostering transformative learning. They assess dimensions and variables of so-considered effective practices for promoting transformative learning in formal and informal settings, putting in evidence successes, strengths and outcomes of transformative educational activities and risks, challenges and caveats when doing the effort of "teaching for change" (Taylor, 2009, p. 3).

These instruments represent the effort of going beyond the qualitative retrospective approach and finding indicators for the critical reflection engaged by people (students or professionals) in learning experiences. How much of the new role and new perspectives opened will be integrated into the person and will shape new pattern of actions? How can we really evaluate the level of significance of an experience measuring people's level of change? These tools for the assessment give good feedbacks for the facilitator/teacher who is involving students in learning activities, giving the opportunity for tracking the on-going change. Considering that each educational setting differs from another, transferability of instrument is not well ensured by just adopting it, but implies considering sociomaterial conditions, features of the research and educational contexts of use. Because perspective transformation happens on so many levels (e.g., individual, organizational, cognitive, affective, behavioral), it may be impossible to develop a single, generic scale to capture every aspect. Rather, a more useful approach would be to use instruments that are specific to the type of change sought. Researchers who would like to commit in assessment of transformative learning through surveys should first consider factorial validity of instrument, high correlation between questions, and all the limitations of similar instruments until validity and reliability has been established. Future research is recommended to

extend these quantitative surveys to other schools and other populations of learners.This can be the track for next development in transformative learning theory. The open-inquiry, multi-modal nature of transformative learning defies most traditional assessment strategies. For example, we could develop a theory-based list of facets of transformative learning process from a variety of perspectives, and a theory-based list of outcomes of transformations. A rigorous psychometric approach could be used to develop, standardize, and validate instruments that could be used in further research. Surveys can be adopted in conjunction with other data collection techniques such as interviews or storytelling.

Triangulation of observation, written, and verbal accounts increases the chance that our coding efforts actually result in meaning-making. Using multiple data collection tools enables researchers to understand more of individuals' social environment in which reflection takes place. In a study conducted on transformative potential of the Theatre of the Oppressed methods, used in educational and formal settings (Romano, 2016), the author adopted a mixed-methods design with these three instruments:

1. self-reports, journals, logbooks of participants
2. LAS Survey
3. questionnaire on the Theatre of the Oppressed methods (Vittoria, Strollo, Romano, Brock, 2014). The author combined, for each participant, the outcome of the administration of the two surveys compared with the analysis of self-reports. The research questions were whether and how participants had gone through a process of critical reflection on their assumptions and had an experience of transformations of meaning perspectives.

According to this review, I suggest the following questions as a track for future research:

1. When establishing a conceptual transformative learning framework, are you looking at different traditions and perspectives of critical reflection research?
2. When setting up the research design, are you using multiple data collection pathways to record and capture meaning-structures on participants' reflection processes and outcomes?
3. When stimulating reflection recall during data collection, are you embedding questions in study-relevant themes?
4. And finally, how are you attending to participants' feelings in the overall meaning perspectives' transformation process?

The search for quantitative survey is the counterpart of deny of the qualitative retrospective approach that dominated transformative learning theory until now. However, the search for quantitative measurement of what changed can foster the mythization of the factish (Gherardi, Landri, 2014) of quantitative assessment in transformative learning theory. From this perspective, quantitative

surveys are factishes of the effort in standardizing outcomes of perspectives transformations. In transformative learning theory, perspectives transformations are "matter of fact," traces of changes, and result from negotiations of different perspectives and triggering events. A quantitative survey appears to be means of validations and promises of statistic accountability for perspectives transformations. How do quantitative surveys describe and represent contemporary dilemmas of the discourse of post-Mezirow approach to transformative learning theory in empirical research and studies? Could surveys guarantee as garancy of scientific rigor in the future? Right now, it is quite known that there's no unanimous agreement between the research community in transformative learning on what perspective transformations mean.

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