The Epistemology of Transformative Learning: A Systematic Instructional Design Framework Model in Transformative Learning

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Keywords:	ABSTRACT
Transformative Learning; Epistemology; Instructional Design	*Research in transformative learning has flourished in educational research in the latest decades. Among the research on transformative learning, the specific topic of how to develop instruction based on transformative learning is still very rarely found. The purpose of this study was to review the epistemology of transformative learning by introducing a systematic ID framework for transformative learning. The method of this study was the systematic literature review with three review stages: planning the review, conducting the review, and reporting the review. The review was focused on the academic paper in the research scope of transformative learning. As the result, we concluded the 3 main components of designing a transformative learning model: (1) transformative outcomes, (2) transformative scaffolding, and (3) transformative learning experience. The study also proposed 7 stages of systematic ID framework in designing transformative learning.*

INTRODUCTION

Transformative Learning is a learning approach that has a real impact on the societal change as has been proven in many studies in transformative learning. Many researchers think that Transformative Learning can be used as an alternative learning approach that has an important role in preparing future leaders. This view certainly has real implications for the paradigm shift of researchers and practitioners in the field of education, that pedagogies have to switch the role of students in learning from objects that are fed with the knowledge to become subjects who emancipate society.

Many studies reveal the effectiveness of transformative learning in preparing future leaders, one of which is a study conducted by Bryant et al. which identified the essential components of transformative learning that are life-changing, empowering, and transformational in the student's life. The study suggested the essential components that support transformational change according to many respondents (Bryant et al., 2021). This study indeed gives a fresh direction among the researcher and practitioners to retain the essential components in developing a transformative learning model. Efforts to increase the effectiveness of transformative learning are also carried out by integrating technology into transformative learning. Tikka and Oinas-Kukkonen (2019) explained the impact of technology in

changing students' behaviour in transformative learning. This study will also help researchers and practitioners to consider the integration of technology in developing transformative learning models.

Among the research in transformative learning, the specific topic of how to develop instruction based on transformative learning is still very rarely found, besides the fact that the ID systematic framework will help the experts and researchers on developing a transformative learning model. The objective of this study was (1) to reflect the components that need to be considered in designing transformative learning, and (2) to propose a systematic framework for designing a transformative learning model.

LITERATURE REVIEW

Transformative Learning Conceptual Model
Transformative learning is a learning strategy developed by Jack Mezirow and is generally applied to adult learning. Transformative learning can be defined as learning that emphasizes how to create cooperative and collective structures, systems, and processes needed for social democracy (Brewer et al., 2017; Panitsides & Kiouka, 2018; Spring et al., 2018). Transformative learning seen from the point of view of the student learning process can be defined as a behavioural process by which learners relate transformative experiences, focusing on what learners do, feel, and experience (Baldwin, 2019; Zaky, 2019). Another term that is close to transformative learning is transformative education. Transformative education refers to educational programs, experiences, interventions, and planned sets of pedagogical practices designed to enable people to experience transformative learning and as a result of being transformed in some way or at least the initial process for transformation (Chang, 2021; Walker & Ngara Manyamba, 2020; Zunariyah et al., 2018).

Furthermore, view transformative learning as an approach that directs students to transform and use their knowledge in real-life (Yuzer Ed & Kurubacak Ed, 2010). Changes that occur in transformative learning are qualitative. The indication of behaviour change affected by transformative learning is when individuals critically question themselves regarding their beliefs and expectations that lead to new ways of individuals living in this world (Harder et al., 2021; Oh et al., 2021). In this case, the transformation that occurs in each individual will affect the transformation of society, because when an individual acts differently in the world as a result of transformative learning and shares his new perspective with people, there is a possibility for the transformation of society (Lorenzetti et al., 2019; Mehmood et al., 2020).

In proposing an ID framework we need to understand the basic component of transformative learning. Mezirow (1985), classifies 3 main components of transformative learning encompass: (2) critical reflection; and (3) dialogue (Kitchenham, 2008; Mezirow, 2003). Each of these components has an interdependent relationship.

Besides the three components of transformative learning, it is also important to ensure the learning scheme of transformative learning was covered in the development model framework. Mezirow divides the process of transformative learning into three learning schemes: (2) learning in new meaning schemes; and (3) learning in transformative means (Rodríguez Aboytes & Barth, 2020; Suškevičs et al., 2018). In the learning in meaning schemes, students were introduced to the conceptual scaffolding delivered by the lecturer as a transformative learning facilitator. In learning in new meaning schemes, students were challenged with a case or project, so they need to implement the knowledge they have before into real conditions while the lecturer still acts as a facilitator who triggers students on projecting the solutions. While learning in transformative means, students were having the opportunity to share and present their experience in running the project in the class.

The Systematic Instructional Design Framework
As transformative learning believes that students will construct the meaning of their own experience, ID plays an important role on maintain the learning setting and supporting the achievement of learning

outcomes (Gordon et al., 2018). ID refers to a systemically organized procedure that is intended to develop an instructional program as a solution for a learning problem, to guide the process of developing an instructional model focused on the achievement of intended learning outcomes (Chung, 2008; Gordon et al., 2018; Richey et al., 2011).

In the instructional process context, we can see instruction as a system whose purpose is to achieve learning outcomes through the integration of each component (Brown & Green, 2016; Gordon et al., 2018; Richey et al., 2011). The components of the instructional system are the learners, the instructor, the instructional materials, and the learning environment, all interacting to achieve the goal (Dick et al., 2015). For example, in a learning session, the instructor might facilitate the student in accessing some references and case studies. At the end of the session, the instructor gave a quiz related to the topic in the textbook and gave a case study to ensure the learning process was taking place. If student achievement is not satisfactory, then components must be modified to make the system more effective and bring about the desired learning outcomes.

One of the most logical and widely used ID model approaches by an instructional designer is ADDIE. Instead of calling ADDIE a development model, some researchers call ADDIE a development concept from the acronym Analysis, Design, Development, Implementation, and Evaluation (Branch, 2009; Muliyati et al., 2021; Sudarwanto et al., 2021). Following its acronym, ADDIE contains 5 basic stages of development which are described as follows:
1. Analysis: at the analysis stage, the identification of possible causes is carried out to analyze the gap. This stage includes; validation of performance gaps, determining learning objectives, confirming desired goals, identifying learning resources needed, determining potential delivery systems, and designing project management plans. The final result at this stage is a summary analysis.
2. Design: while at the design stage, verification of the expected performance and appropriate testing methods is carried out. This stage consists of efforts; to run task inventories, set performance goals, generate test strategies, and calculate return on investment. The final result at this stage is an explanation of the design.
3. Development: then, at the development stage, the generation and validation of learning resources are carried out. This development stage consists of efforts; content generation, selection or development of supporting media, development of guides for students, development of guides for an instructor, implementation of formative revisions, and implementation of pilot testing. The final result at this stage is a learning resource.
4. Implementation: after going through the development stage, and then entering the implementation stage. at the implementation stage, preparation of the learning environment and student participation is carried out. The efforts made at this stage are; to prepare learners and prepare learners. The final result at this stage is the implementation strategy.
5. Evaluation: at the evaluation stage, an assessment of the quality of the product and learning process is carried out, both before and after implementation. The efforts made at this stage are; to determine evaluation criteria, select evaluation tools, and conduct evaluations. The final result at this stage is an evaluation plan.

In this study, the systematic ID framework will be proposed based on the ADDIE model approach, it's just that some modifications are needed in the stages of development so that it is more specific and follows the needs of developing a transformative learning model. Modifications will be made by combining the transformative learning component with the ID component in the ADDIE framework.

METHOD

This study followed a systematic literature review to explore the relevant literature through a pre-defined search strategy and methods (Kitchenham, 2004; Tikka & Oinas-Kukkonen, 2019). Systematic literature review supports the reflection of praxis by summarizing existing evidence regarding the

research topic, as well as identifying the gaps in the existing literature, and providing comprehensive background to give further direction for future research (Kitchenham, 2004). The present study conducts a literature review to answer 2 research questions to propose a systematic ID framework. The comprehensive exploration of relevant literature was concluded through pre-defined search strategies (B. Kitchenham, 2004). The systematic literature review followed three main stages; planning the review, conducting the review, and reporting the review (Kitchenham, 2004). The stages and activities included can be described in Fig. 1.
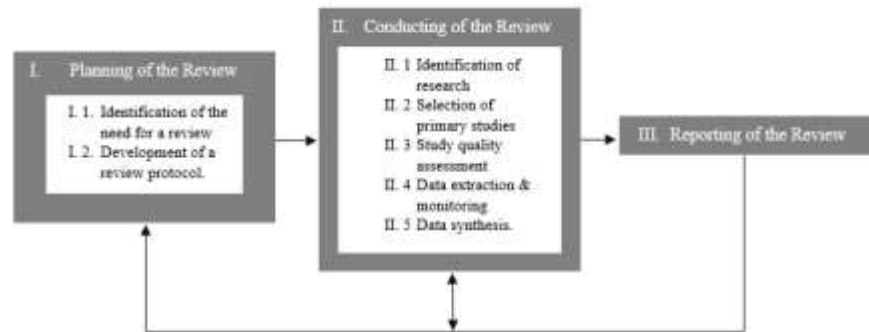

Fig. 1 Stages and Activity of the Systematic Literature Review

Planning the Review

Before the research, we identified and reviewed any existing systematic reviews related to transformative learning, specifically to review the research that supports the epistemology of transformative learning. Among the literature, we found the gap in current research is the lack of a systematic ID framework model. Therefore, we set the objective of our research to answer the following research questions: (1) what are the components that need to be considered in designing transformative learning? (2) what is a systematic framework for designing a transformative learning model? Based on the identified research question, we set the parameter of this research, including the strategy used to search the primary studies, the study criteria and selection and procedures, study quality assessment checklists and procedures, data extraction strategy, synthesis of the extracted data, as well as the project timetable.

Conducting the Review

This phase mainly focuses on collecting and selecting the literature. The main database used in this research is the Scopus database. Scopus is the largest abstract and citation database curated by unbiased experts who are distinguished leaders in their respective fields (Elsevier, n.d.). In preliminary searches, we searched articles using various patterns of search derived from the research question. We intended to both identify existing systematic reviews and examine the number of potentially related studies. The next stage is the review of research results where we reviewed the abstract of articles to ensure the alignment of an article with our research questions. The selected article then be assessed in the study quality assessment stage to check the articles meet the criteria checklist. The QA passed articles and then were reviewed for the data extraction and synthesis stage. The selection and sorting stages can be seen in Fig. 2.
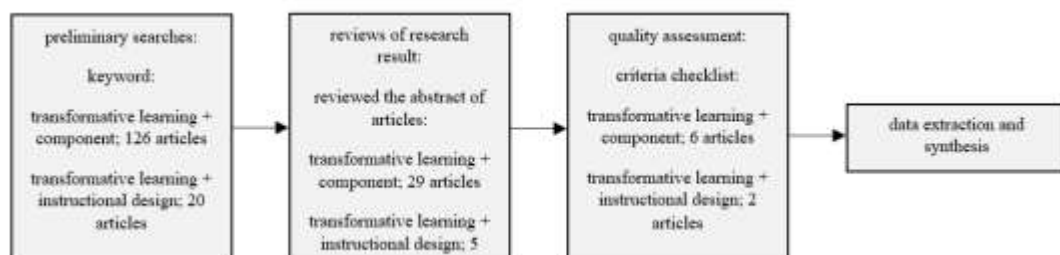

Fig. 2 Conducting of the Review

Data Extraction and Synthesis
In the final phase of this research, we extracted data based on articles that met the criteria. Extraction is done to see the components of transformative learning. Based on the identified components from the existing literature, we synthesized the ID component in transformative learning. At the end of the study, we propose a model ID framework for transformative learning.

RESULTS AND DISCUSSION

Results
The most produced type of coffee in South Sumatra is Robusta coffee. Robusta grows and thrives in dry areas. The quality of Robusta coffee berries is lower than Arabica coffee but higher than Liberica coffee. The average plantation area of South Sumatra is more than 250,000 hectares or above the national average.

One objective of the present review was to identify the ID components in transformative learning. Another objective was to initiate a systematic framework for designing a transformative learning model. As regards these two objectives, the selected literature does present viewpoints and practical considerations that have not to date made an appearance in the field of instructional design, educational technology, more broadly, in the field of education and pedagogy.

Of the 29 selected studies, only six satisfied the criteria to the fullest degree. Identified transformative learning components of the six reviewed articles are presented in Table 1. The bold column was our synthesized ID components to be considered to initiate the ID Framework in transformative learning.

Based on the review of selected literature, we synthesize 3 main ID components in transformative learning, namely (1) transformative outcomes, (2) transformative scaffolding, and (3) transformative learning experience. Transformative outcomes refer to the intended learning outcomes to be achieved in transformative learning. Transformative scaffolding refers to the base that is important in transformative learning to ensure learning that transforms students and ensures the achievement of the desired learning objectives. In the context of transformative learning, this base includes content and community experience. Content attends to provide a knowledge base that can equip students in transforming themselves and the surrounding community. Meanwhile, community experience attends to provide real experience in the real world setting in the community around students, including social problems, community needs, community characteristics, cultural values, and community environmental conditions. The Transformative learning experience refers to the planned learning activity that applies 3 transformative learning schemes.

Regarding ID components of transformative learning, we propose the ID framework based on the ADDIE approach model which consists of analysis, design, development, implementation, and evaluation phases. The framework model could be described in Table 2.

Table 1
Transformative Learning Components in the Reviewed Literature

Synthesized Components	Author (Year)					
	Mezirow (1985) in Kitchenham (2008)	Moon (2011)	Foshee et al. (2017)	Sawatsky et al. (2018)	Bryant et al. (2021)	Schnepfleitner & Ferreira (2021)
Transformative Outcomes		New behaviours		Perspective change Commitment to future action	Hope and Agency	Autonomous Components
Transformative Scaffolding	Individual experience	Acute distress		Disorienting experience	Experience of the community; concepts and content	Identification of stakeholder expectations; a respected selection process; appropriate English levels
Transformative Learning experience	Critical reflection	Reflection	Attitudinal; cognitive	Critical reflection	Place; pedagogy	Inclusion of sufficiently time-framed, designed, pre-program stage
	Dialogue	An emerging sense of change in perspectives	Behavioural	Emotional response		Awareness of Participants' Professional/ Cultural Context; Personal and Cultural Exchanges

Table 2
Mapping ADDIE Components to ID Framework for Transformative Learning

ADDIE Components	ID Framework for Transformative Learning
Analysis	Analyze transformative learning context
Design	Write transformative outcomes
	Select transformative scaffolding
	Design a transformative learning experience
Development	Develop learning resources and materials
Implementation	Implementation
Evaluation	Evaluation

We initiate the Systematic ID Framework Model in Transformative Learning that consists of 7 stages as follows:

1. *Analyze transformative learning context:* The initial stage in the design of transformative learning is to analyze the learning context. In this stage, learning needs, student characteristics, and community background or where learning will take place are identified. Regarding the last information mentioned, it includes local cultural values, community conditions, government systems, and the environment in which the learning will be applied. The output in this phase is to generate the learning needs specification that can be a consideration in the next stage.

2. *Write transformative outcomes:* This stage answers the learning needs that have been analyzed in the first stage. As a start in designing transformative learning programs, instructional designers need to formulate learning outcomes. The learning outcomes are written based on the learning needs according to common guidance on writing learning outcomes, including the guidance that advises the learning outcomes should be assessable, observable, single behaviour, and answer the learning needs. In the context of transformative learning, the learning outcomes need to encompass the real contribution to be carried out by students in improving or responding to the community's needs. The output in this stage is the learning outcome statements.

3. *Select Transformative Scaffolding:* After having a transformative goal, the next stage is to select transformative scaffolding. Contents and community experiences should be selected based on the targeted learning outcomes. The output in this stage is mapping content to the community experience.

4. *Design Transformative Learning Program:* this stage is about how to organize the contents, community experiences, and assessment method, into a planned transformative learning program. It is important to design the learning experience based on 3 main transformative learning schemes sequentially and to ensure the three main components of transformative learning are available in the learning activity. The output in this stage is the lesson plan to achieve the intended transformative outcomes.

5. *Develop Learning Resources and Materials*: Based on the designed lesson plan from the previous stage, we can list all the needed learning resources and materials, as well as instructional media, and other supported equipment. Some of the resources might be not available, therefore in this stage, we should ensure all the needed learning resources and materials are ready to be used for learning. In this phase, all needed learning resources and materials were developed with consideration of learning needs, budget, and time allocation on developing the resources and materials. It is important to ensure the developed learning resources and materials can be used in the real learning setting and are effective to support the learning needs.

6. *Implementation*: This phase will focus on the implementation of all the written plans to the real transformative learning activity setting. It is important to maintain all the designed activities were delivered to the same designed standard to ensure the learning quality. The role of the facilitator is to keep the learning pace and maintain the 10 perspectives transformation phase of students are happening.

7. *Evaluation*: The objective of the evaluation stage is to measure and evaluate the effectiveness of designed transformative learning. The criteria encompass the learning result of intended transformative outcomes and students' satisfaction. At the end of this stage, the designer will analyze the possible problem and initiate continuous improvement related to the funding problem.

Discussion

This study tries to make the comprehensive yet compact component from the instructional design point of view of transformative learning instructional systems. We enrich the previous studies that identify the transformative learning component only from a partial point of view in transformative learning (Bryant et al., 2021; Foshee et al., 2017; Kitchenham, 2008; Mezirow et al., 1997; Moon, 2011; Sawatsky et al., 2018; Schnepfleitner & Ferreira, 2021). We can mention a study such as a study conducted by Bryant et al. (2021) which identified the essential components that support transformational change. This study indeed gives a fresh direction among the researcher and practitioners to retain the essential components in developing a transformative learning model.

However, the proposed components by Bryand et al. lack clear direction on ensuring transformative learning happened since the designing process.

This study is based on literature searches addressing specific concepts and keywords. The review discovered a relatively small amount of existing research on the defined ID framework in designing transformative learning (Gordon et al., 2018; Ortega-Alvarez et al., 2018). With this gap, researchers and practitioners will not have a clear idea of what to be considered in designing a transformative learning model. However, ID plays an important role on maintain the learning setting and supporting the achievement of learning outcomes (Martin & Reigeluth, 2009).

The result of this study will help researchers and practitioners in designing transformative learning models. The theoretical frameworks in the present study are a matter for future research. Another future research that would bring more practical prominence to the discussion of transformative learning is to analyze how the components matter in supporting the effectiveness of designed transformative learning. Further avenues of future work would include exploring whether this systematic ID framework will work on online and distance education, and examining the present paper's conclusions regarding the continuance of the ID framework in designing transformative learning.

CONCLUSIONS

This study reflects the praxis on transformative learning research to synthesize the ID components in transformative learning and to initiate a systematic ID framework for designing a transformative learning model, we synthesized the 3 main components in designing a transformative learning model: (1) transformative outcomes, (2) transformative scaffolding, (3) transformative learning experience. Transformative outcomes refer to the intended learning outcomes to be achieved in transformative learning. Transformative scaffolding refers to the base that is important in transformative learning to ensure learning that transforms students and ensures the achievement of the desired learning objectives. The Transformative learning experience refers to the planned learning activity that applies 3 transformative learning schemes.

To facilitate instructional designers in ensuring the availability of the 3 main components we initiate 7 stages of systematic ID framework in designing transformative learning. The ID framework is based on the ADDIE approach model which consists of analysis, design, development, implementation, and evaluation phases. Each stage has specific outcomes and systematically builds the transformative learning experience that consists of the 3 main components: (1) analyze transformative learning context, (2) write transformative outcomes, (3) select transformative scaffolding, (4) design transformative learning program, (5) develop learning resources and materials, (6) implementation, (7) evaluation.

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