(Literature Review)
Unraveling Conceptions of Learning

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ABSTRACT

This article aims to provide a synthesized review of the literature on conceptions of learning in both the western and Asian contexts. It follows Cooper's (1988) steps for synthesizing the literature. The review begins by examining definitions of conceptions of learning, a process that enables analysis of the quantitative and qualitative dichotomy. It then moves to the potential interrelationship between various conceptions, specifically the hierarchical structure proposed by researchers. The following section explores the significance of conceptions of learning by examining the close relationship between learning conceptions and learning approaches. Next, the review focuses on the conceptions of learning uncovered in the Asian contexts, particularly the Chinese context. Finally, the article concludes that studies on the conceptions of learning are meaningful and conceptually helpful, thereby calling for more empirical and theoretical works.

INTRODUCTION

Conceptions of learning as a research theme has attracted numerous researchers in the past decades in both western and Asian contexts. A predominant reason is that conceptions of learning are closely related to approaches to learning. As Peterson et al. (2010, p.168) claim, the "reason many researchers have persisted in trying to identify key conceptions of learning is the underlying belief that conceptions of learning can explain different learning behavior" or learning approaches. Furthermore, Gibbs (1995) contends that learning conceptions can perhaps predict learning quality. Therefore, till now, we can see fruitful achievements have been made. This article aims to present a synthesized review of the literature on conceptions of learning in both the western and Asian contexts.

METHODS

To achieve the aim of this research, a literature review was conducted by using Cooper's (1988) steps for synthesizing the literature. Firstly, the core research topic of conceptions of learning was formulated. Then in the data collection procedure, several databases were used, such as Web of Science, Google Scholar, Educational Resources Information Centre (ERIC), JSTOR, and EBSCO HOST. The keywords and phrases that were used included "conceptions of learning", "learning conceptions", "perceptions of learning", "understanding of learning", "higher education", "student", "undergraduate", "approaches to learning". Next, the content analysis approach (Strauss, 1987) was utilized to organize and analyze the relevant articles; uncorrelated papers were weeded out. Then, the content of articles was categorized into topical themes, and new themes were created when the data themes reached saturation. Finally, the results of the literature review are presented below.

RESULTS
Conceptions of Learning Defined

A conception "is used to refer to people's ways of experiencing or making sense of their world" (Sandberg, 2000, p.12), and it "reflects a simultaneous awareness of particular aspects of the phenomenon" (Marton & Booth, 1997, p.107). Conceptions, thus, represent "particular way[s] of viewing, thinking about and interpreting an aspect of the world" (Ballantyne et al., 1994, p.27) and focus on the relationship between the experiencer (people) and the experienced (phenomena) (Johansson et al., 1985).

The phrase 'conceptions of learning are commonly used to describe how students perceive what learning means to them (Ellis et al., 2008), and it is similar to "personal epistemologies: beliefs about the nature of knowledge and of coming to know" (Ellis et al., 2008, p.268). Byrne and Flood (2004, p.26) contend that "[a] conception of learning captures how a person views learning, that is, what learning means to him/her." Marton and Booth (1997) claim that conceptions of learning are reflected in how learners see learning, how they go about learning, and what they think it is.

Quantitative and Qualitative Conceptions of Learning

Early work by Säljö (1979) identified five categories of conceptions of learning, namely, learning as a quantitative increase of knowledge, learning as memorizing and reproduction, learning as the acquisition of practical knowledge and application, learning as the abstraction of meaning, and learning as an interpretive procedure with the aim of understanding reality. Independent of this work, Giorgi (1986) found similar conceptions of learning. It is now generally acknowledged that Säljö's (1979) early work started research on conceptions of learning (Tsai, 2009), providing basic conceptions for subsequent studies. Decades later, Marton et al. (1993) found comparable results, namely, learning as 'increasing one's knowledge, 'memorizing,' 'applying,' 'understanding,' and 'seeing differently,' but added a sixth dimension, learning as 'changing as a person. However, Marton et al. (1993) were not the first to identify the new conception of learning as changing as a person because van Rossum and Taylor (1987) had found a similar learning conception before Marton and his colleagues. While interviewing a sample of art students, van Rossum and Taylor (1987, p.19) labeled the most advanced learning conception as "a conscious process, fuelled by personal interests and directed at obtaining harmony and happiness or changing society," which is similar to 'changing as a person identified by Marton et al. (1993).

Marton et al. (1993, pp.297-298) further distinguished between these six conceptions of learning by drawing on the absence or existence of meaning. Similarly, Biggs (1994) identified two learning perspectives, namely 'quantitative' and 'qualitative.' Finally, Burnett et al. (2003, p.56) claim that the quantitative view on learning "is concerned with acquisition and accumulation of content" and, conversely, the qualitative view "suggests that learning is about understanding and meaning-making through relating or connecting new material with prior knowledge."

Thus, there appears to be a dichotomy within these qualitatively different ways of experiencing the phenomenon of learning. The quantitative conception "views learning as a process of accumulating information in order to reproduce or apply it" (Duarte, 2007, p.781) and perceives learning as "a passive accumulation of external fragmentary information" (Chiou et al., 2012, p.169). These perspectives emphasize what is learned and "dwell upon the accumulation, reproduction and (sometimes) use of pieces of knowledge" (Ellis et al., 2008, p.269). Those who adhere to such conceptions "fail to personalize learning; rather, they regard it as functional and external to themselves" (Byrne & Flood, 2004, p.28). Learning is regarded as simply a means to increase knowledge and memorization to the extent that a deep understanding of the meaning of what has been learned is not achieved. Knowledge is perceived as an external entity that needs to be stored. The concern of those who subscribe to a quantitative perspective is gaining factual information, and their endeavor is acquisition and storage. What may attract their attention are scattered pieces of information (Marton, 1988). Students with quantitative conception tend to rely on teacher-centered learning (Täks et al., 2016).

In contrast, the qualitative conception "implies that learning has to do with comprehension and interpretation of meaning" (Duarte, 2007, p.782). Learning is perceived as "an active transformation of external information into meaningful, understandable, and applicable knowledge" (Chiou et al., 2012, p.169), and this conception of learning presents "a more relativistic, complex, and systematic view of

knowledge and how it is achieved and used" (Ramsden, 2003, p.28). Conceptions "include ideas about new learning causing the restructuring of existing knowledge, conceptual development and change as a person" (Ellis et al., 2008, p.269). Thus, the process of learning is more important than what is learned. Students with qualitative conception tend to emphasize more constructive and student-centered learning (Täks et al., 2016). The qualitative conception seems more valuable since learners may view learning as individualized and become more reflective (Byrne & Flood, 2004). McLean (2001) argues that this could even influence the personal lives of students and their future career development.

Interestingly, researchers may use different labels to describe learning conceptions within this duality. In the first group, which emphasizes what has been learned, there is surface understanding (Purdie & Hattie, 2002), which has variously been described as 'reproductive' (McLean, 2001), 'quantitative' (Chalmers & Fuller, 1996; Duarte, 2007), or 'fragmented' (Ellis et al., 2008). The second cohort of researchers depict deep understanding (Purdie & Hattie, 2002), which is regarded as 'transformative' (McLean, 2001), 'qualitative' (Chalmers & Fuller, 1996; Duarte, 2007), or 'cohesive' (Ellis et al., 2008), all of which stress how something has been learned.

The Hierarchical Relationship between Conceptions

Having identified the several conceptions of learning, the next question is whether they are related and, if so, in what way. This question concerns the nature of the relationship between conceptions. Marton and Booth (1997) claim that they are related in that conceptions are all orientated toward the same phenomenon. Furthermore, the internal relationship between qualitatively various conceptions is usually hierarchical (Cope & Prosser, 2005; Pang & Ki, 2016). Åkerlind (2008, p.637) explicates that "less sophisticated conceptions are regarded not so much as wrong, but as incomplete, lacking awareness of key aspects of the phenomenon that are focal in more sophisticated conceptions."

Therefore, higher-level conceptions of learning are often based on and include lower-level conceptions. It is a one-way inclusive relationship, i.e., more sophisticated conceptions involve the elements that less sophisticated conceptions do not have (Prosser & Trigwell, 1999). As Åkerlind (2003, p.378) claims, "the hierarchy of inclusiveness that phenomenographic analysis searches for is one of the increasing awareness of different aspects of the phenomenon being investigated."

However, so-called inclusiveness and hierarchy will likely conceal and oversimplify complex reality. Patrick (2000) suggests that it may be prejudicial to assume the existence of a hierarchy, regardless of the data collected. Kember (1997, p.263) refers to several studies such as those by Martin and Ramsden (1992), Samuelowicz and Bain (1992), and McKay (1995) to argue that the relationship between conceptions could be "regarded as an ordered set" rather than a hierarchy and add that "[i]t seems unlikely that all scenarios are best understood by the reader if portrayed as a list of categories in hierarchical order." Although the research by Kember (1997) was based on conceptions of teaching, the hierarchical nature of the inter-category relationship could also be explored by conceptions of learning.

In addition, the boundary between different categories may not be as clear as expected; for example, between conceptions of memorization and understanding, which are discussed in the following sections. Several influential researchers in the West, such as Säljö (1979) and Marton et al. (1993), propose that understanding is located in a higher position than memorization; however, when the argument is expanded to include the East, particularly China, the border between the two, arguably, becomes extremely blurred (Marton et al., 2005). Furthermore, it cannot be asserted that understanding is more sophisticated than memorization or vice versa (Zhao & Thomas, 2016). Their hierarchical relationship should not be excessively rigid; "forks and branches" (Åkerlind et al., 2005, p.95) are also accepted.

Significance of Conceptions of learning

The significance of the conceptions of learning stems from its intimate relationship with learning approaches. Marton and Booth (1997) discussed how students approach their learning to understand why some are better learners than others. Their findings showed that the students' conception of learning was an important factor that could significantly impact approaches to learning (Byrne & Flood, 2004). Peterson et al. (2010, p.168) claimed that the "reason many researchers have persisted in identifying key conceptions of learning is the underlying belief that conceptions of learning can explain different learning behavior" or learning approaches.

The approach to learning is a qualitative description, which "describes a relation between the student and the learning he or she is doing" (Ramsden, 1992, p.44). The aim of investigating different approaches to learning is not to reveal student learning habits but rather to identify the factors that hamper the learning process and determine solutions to moderate or eradicate them (Sharma, 1997).

Traditionally, different ways of perceiving learning have supported the establishment of two fundamental approaches, namely, surface and deep, identified by Marton and Säljö (1976) in an early study. The division between these two approaches is still prevalent. Deep approaches to learning aim to comprehend the meaning of the materials learned, while surface approaches aim to reproduce the information for external demands, such as examinations (Edmunds & Richardson, 2009). Approaches held by individual students may also vary based on their "perception of the content, context, and demands of different learning tasks" (Edmunds & Richardson, 2009, p.296). While learners who adopt a deep approach play an active role and demonstrate intrinsic motivation in learning, those who adopt a surface approach often react to learning tasks passively and view them as externally imposed (Biggs & Tang, 2007).

While the deep/surface division has been an enduring concern, there is a consensus that a deep approach is more productive than a surface approach. Nonetheless, Webb (1997, p.206) questions this by posing reflective questions such as, "Is all 'surface' learning bad?" and "What if surface learning approaches produce high academic achievement?". Furthermore, Haggis (2003) criticizes the consensus that the deep approach should be prevalent within university campuses and contends that although deep learning approaches represent certain elite goals and the values of academics, they can hardly be related to learners in a mass HE context.

Conceptions of learning could affect approaches to learning. The close connection between the two has been identified by numerous researchers (Chiou et al., 2012; Edmunds & Richardson, 2009; Marton & Booth, 1997). Conceptions of learning and approaches to learning are so intimately related that "it is possible to predict the quality of the learning outcomes directly from students' conceptions of learning" (Gibbs, 1995, p.23). For example, learners who only or largely possess some basic, naive, and less advanced conceptions (e.g., learning as knowledge increasing, memorizing, and application) may adopt a surface approach to learning. In contrast, those with relatively more sophisticated and advanced learning conceptions (e.g., learning as understanding, interpreting reality, and personal change) will normally adopt a deep approach.

Van Rossum and Schenk (1984) asked university students to read a text before discussing two issues: how they approached this reading task and their daily learning. This empirical work enabled them to identify different categories of conceptions similar to those proposed by Säljö (1979). Interviewees with 'reproductive' conceptions were more inclined to adopt surface approaches, while those with 'transformative' conceptions tended to adopt deep approaches; therefore, a relationship was established between conceptions of and approaches to learning. Similarly, Marton and Säljö (1976) also demonstrate that students with more sophisticated conceptions of learning are more likely to adopt deep approaches to learning than students who perceive learning in a superficial and less advanced way. In a non-western context, Yang and Tsai's (2010) investigation demonstrates that college students in Taiwan also see the connection between conceptions of and approaches to learning.

However, the strong relationship between learning conceptions and approaches has not gone unchallenged. Based on quantitative results, Fuller (1999, p.1) argues that there is little proof to support this generally-believed relationship; rather, it is the learning context that "exert[s] a stronger influence on learning than the beliefs about learning." In addition, it is not uncommon to find that the way of understanding learning and the way of approaching learning tasks are incompatible. For instance, a study by Boulton-Lewis et al. (2004) indicates that learners' conceptions are more advanced than the strategies they adopt. Furthermore, they discovered that high-level and more sophisticated conceptions of learning did not always lead to deep approaches to learning. Therefore, the seemingly natural and close connection between learning conceptions and approaches is questionable.

Conceptions to learning are further closely linked to the quality of learning outcomes (Biggs & Tang, 2007). Asikainen et al. (2013, p.36) contend that "understanding students' conceptions of learning is important in understanding how to enhance the quality of student learning." Therefore, exploring the conceptions of learning is one of the key steps toward improving the quality of learning. Ellis et al. (2008, p.268) account for learning outcomes by arguing that research "[f]rom a phenomenographic perspective

has shown that students' conceptions of learning and their approaches to learning are related to each other and the quality of learning outcomes." Several early studies produced abundant evidence of this claim (Prosser & Millar, 1989; Trigwell & Prosser, 1991). Ellis et al. (2008, p.73) further argue that "a relatively high-quality learning outcome must be especially associated with a deep-level approach and a constructive learning conception."

Conceptions of learning in the Asian context

Studies conducted in past decades identified analogous learning conceptions and those findings over time appear to be fairly consistent. Nonetheless, learning conceptions "cannot be taken to imply a universality of meaning concerning learning" (Purdie & Hattie, 2002, p.18) since "the same individual may experience the same phenomenon differently under different circumstances" (Åkerlind, 2005, p.7). According to Säljö (1987, p.106), learning is to "act within man-made institutions and adapt to the particular definitions of learning that are valid in the educational environment in which one finds oneself." Therefore, it is inappropriate to separate learning activities from their educational environment or context, which is subjected to profound influence by historical, social, and cultural factors. Hence, "different educational contexts define learning according to different social and culturally established conventions" (Byrne & Flood, 2004, p.29). Therefore, an examination of learning conceptions in distinctive contexts could be valuable.

The South Asian context

Cross-cultural studies, especially those that adopt non-western perspectives, offer new insights into conceptions of learning. For instance, Asian learners can reconcile memorization with understanding because they perceive these entities as intertwined rather than contradictory (Byrne & Flood, 2004). It is in sharp contrast to the majority of western students, who perceive memorization and understanding to have an adversarial relationship (Byrne & Flood, 2004).

Researchers arrived at a similar conclusion in an early study conducted at a Nepalese university (Dahlin & Regmi, 1997) that memorizing and understanding were interlinked. Furthermore, 'changing as a person is acknowledged as a high-level qualitative conception in Western cultures. However, Watkins and Regmi (1992) found that Nepalese cultural and religious beliefs may result in the emergence of the conception of learning for character development at a much lower cognitive level than in the West. The investigation into a group of Sri Lankan undergraduate accounting students by Abhayawansa and Fonseca (2010) revealed that, despite immersing themselves in the pedagogical tradition of Australia, the ways of conceptualizing and approaching learning, these students were still influenced by their traditional collectivist culture. Thus, the generalisability of conceptions of learning obtained from Western culture is questionable. In this sense, the value of cross-cultural research is that it challenges monocultural bias and improves understanding of various aspects of learning.

The Chinese context

Efforts by Western researchers to determine conceptions of learning held by Chinese learners appear to be intensely focused on the so-called 'paradox of Chinese learners' (Marton & Booth, 1997; Marton et al., 1997). While the memorization-understanding nexus is part of a wider research tradition in the West, its shift to a culturally-different eastern context has attracted more significance for many researchers who now invest their time in this field (Biggs, 1996; Marton, Dall'Alba & Tse, 1996; Marton et al., 2005).

Chinese students are usually deemed diligent and highly motivated in learning (Lee, 1996). These characteristics can be attributed to the Chinese culture, especially the Confucian tradition, in which education is believed to be crucial "not only for personal improvement but also for social development" (Lee, 1996, p.26). Chinese students often perform extremely well in international competitions, particularly in mathematics and natural sciences, thereby establishing the stereotype of 'brainy Asians.'

In contrast to this informal label, there is a co-existing stereotype, namely, 'rote-learning Asians' (Kember & Gow, 1991), the cause of which may be largely due to the Confucian-heritage culture or CHC (Ho, 1991). The teaching environment associated with CHC, which is frequently presented as inferior to the teaching environments of western culture, is characterized by poor quality learning, the notion of

which is often deeply rooted in the thoughts of non-Chinese people, especially the majority of culturally-different westerners (Biggs, 1996).

Several early studies provided insights and explanations for this problem (Marton, Dall'Alba & Tse, 1992; Marton, Wen & Nagle, 1996; Wen & Marton, 1993). Whereas non-Chinese participants in research by Marton et al. (1993) distinguished memorization from understanding, Chinese learners exhibited a different understanding. They were not found to pit memorization against understanding but made a clear differentiation between mechanical memorization and memorizing with understanding; in other words, they distinguished within memorization. The opposing conceptions of memorization and understanding are intimately related in this sense. The processes of memorizing and understanding are concurrent for most Chinese learners.

Furthermore, many can remember something they do not initially understand by repeating it, generating understanding. In this sense, memorization and understanding positively influence each other, and Marton, Dall'Alba, and Tse (1996) argued that the 'paradox of Chinese learners' could be resolved by understanding this. Dahlin and Watkins (2000) also found similar results in their research which compared German and Chinese students. Of particular significance is the finding that Chinese learners can integrate memorization and understanding, i.e., remembering is perceived as a factor integrated into understanding that differs from the German perception.

However, those homogenous findings have not been unchallenged. The intimate relationship between memorization and understanding may need re-examination, especially when a different research approach is used. For instance, Sachs and Chan (2003) produced opposing conclusions based on quantitative results. In Sachs and Chan's (2003) study, participants distinguished memorization from understanding; therefore, perceiving memorizing as a component of understanding was not applicable. Sachs and Chan (2003, p.188) argued that, since "interview research usually tackles questions in situ, whereas questionnaire items are general," the contradiction could be attributed to the context, as "Chinese students may view memorization-understanding as integrally related only in specific contexts, and not for learning in general." It is also possible that the Chinese students in this study could develop and change in response to certain contextual needs.

While exploring the memorization-understanding nexus is crucial, another research orientation follows the more traditional phenomenographic tradition, uncovering various conceptions of learning held by Chinese students.

Early research into the Chinese learning conceptions began with Pratt (1992), who interviewed 19 visiting Chinese scholars in Canada and 38 adult educators in mainland China, although they were not university learners strictly. The participants' learning conceptions were categorized into four groups: learning as the acquisition of knowledge or skills from others, fulfillment of responsibility to society, change in understanding of something external to the self, and change in self-understanding. Some of these categories, especially learning as the fulfillment of social responsibility, are distinctive characteristics of Chinese culture.

The research findings of Fung et al. (2001), which drew on a mixed-methods approach using questionnaires and semi-structured interviews to investigate Hong Kong student teachers, verified the findings of Marton et al. (1993) with one significant substantive difference, namely, that none of the participants perceived learning as memorization. Instead, Fung et al. (2001) contended that pure memorization represented common and superficial understanding which was only part of the learning process. In their study, follow-up interviews also illustrated that the conception of the 'increase of knowledge was more complex than the mere accumulation of factual information. These results highlight "the dangers of cross-cultural generalization in the area of students' conceptions of learning" (Fung et al., 2001, p.51).

Lu and Yu (2003) have uncovered five conceptions of learning, the first three of which were identical to the early findings of Marton et al. (1993). However, Lu and Yu (2003) combined the categories of 'seeing something differently' with 'change as a person and named this mixed conception 'personal change and development.' They claimed that the students did not separate conceptual change from personal change because they believed that there were many aspects of personal change, including ways of thinking and ideas for life, which were the key components of personal development. The final and new conception identified by the researchers was called the 'creation of new knowledge.

Nevertheless, the intention to create was strongly influenced by external requirements, i.e., to satisfy social demands while failing to meet intrinsic needs.

The Chinese researcher's Lu et al. (2006) and Wong and Wen (2001) also employed comparison to highlight conceptions of learning in differing contexts. Lu et al. (2006) conducted a study based on their earlier work (Lu & Yu, 2003) mentioned above, but this time with groups of students from 30 private universities. Comparisons were made between students from different types of HEIs. The findings were significant since the desire to gain an increase in knowledge was the only similarity between these groups of learners. Many private university students perceived learning as 'getting a certificate,' 'the acquisition of capabilities, and 'quality improvement,' indicating a strong pragmatic orientation. Again, the comparison of distinctive HEIs in the two studies supported the argument that conceptions of learning depend on the context. Wong and Wen (2001) further argued that students in different places in China could hold diverse conceptions of learning. In their study, questionnaires were used to research the learning conceptions of two groups of students from the University of Hong Kong and Nanjing University. The reference point of the study was provided by the six conceptions concluded by Marton et al. (1993) and Marton, Dall'Alba, and Tse (1996). Only participants who were studying the humanities were chosen in order to reduce complexity. The findings indicated that, although the two cohorts came from the same country and had a shared cultural background, their learning conceptions were quantitatively different, thereby challenging the assertion that learners from different places in China are homogenous.

Comparative studies of Chinese students and non-Chinese students in different countries with distinctive cultural contexts have generated insights into conceptions of learning and highlighted the uniqueness of learners in Confucian culture. For instance, a comparative study by Zhu et al. (2008) demonstrated that more Chinese learners emphasized personal change and social competence via learning than Belgian students. In addition, many Chinese students regarded learning as understanding, while memorization was much less valued.

A focus on Chinese learners has facilitated a new analytical framework for research into conceptions of learning. Based on a study of Hong Kong students, Marton et al. (1997) reframed early work on learning conceptions (Säljö, 1979, Marton et al., 1993). This reframing was integral to the research since participant conceptions of learning were so sophisticated that the existing six conceptions were inadequate to explain their learning experience (Pillay & Boulton-Lewis, 2000). The researchers could not "afford the complexity of factors – such as context, prior experiences and an individual's intention – fully into the equation describing conceptions of learning" (Pillay et al., 2000, p.69). Therefore, Marton et al. (1997) introduced a two-dimensional framework. The first temporal dimension of variation concerns acquiring, knowing, and making use of or applying. The second dimension of depth gauges surface and deep conceptions of learning. Marton et al. (1997) claimed that the categories devised by Marton et al. (1993) could also be placed into the redesigned two-dimensional framework. This more sophisticated framework by Marton et al. (1997) provided an alternative way to analyze conceptions of learning from a perspective that may facilitate better understanding (Pillay & Boulton-Lewis, 2000). Marton, Wen, and Nagle (1996) further employed this analytical framework to compare Chinese and Uruguayan students. While Uruguayan learner conceptions resembled traditional western learners, the Chinese students exhibited prominent features of CHC learning, such as emphasizing repetition and distinguishing between mechanical and meaningful memorization.

CONCLUSION

This article has synthesized and evaluated existing literature related to conceptions of learning, which critically explores the definition of conceptions of learning, major quantitative and qualitative conceptions, and the structural relationships between conceptions. An important reason for studying learning conceptions is their close relationship with learning approaches. Therefore, the literature reviewed in this article also includes arguments by researchers on the connections between learning conceptions and learning approaches. Given that conceptions of learning may vary in different environments, several studies have been carried out that have contrasting conceptions in various contexts and countries. Moreover, numerous publications are interested in Asian countries that are socially and culturally different from the West, where most previous studies were conducted. Pertinent studies on Chinese students' conceptions of learning are also reviewed and evaluated in this review.

Overall, research on learning conceptions is meaningful, and it helps deepen our understanding of students' conceptualization of their daily study. In recent years, however, studies on the conceptions of learning seem to be decreasing (Asikainen et al., 2013). It is, therefore, necessary to call for more empirical and theoretical works on this topic.

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