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Examining the Definition and Measurement of Quality in Early Childhood Education:
A Review of Studies Using the ECERS-R from 2003 to 2010

对早期教育质量的定义和评估方法的考察：对 2003-2010 年使用《学前教育环境评价量表》的研究的回顾

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摘要

早期教育领域一直在关注对课堂质量的理解这一论题。质量的定义(或概念)的模糊以及对质量评估(或操作化)的相关能力的匮乏,使《学前教育环境评价量表》(Early Childhood Environment Rating Scale)的使用较为盛行,该量表经常被看做是课堂质量的同义词。同样,ECERS-R(尽管是一个评估工具)经常用来界定质量。由于这一量表作为评估工具的普及性,早期教育机构都力争达到这一量表评估的高分,因而量表的内容经常成为质量提高方案的聚焦点。本研究考察了过去8年(2003-2010年)使用了《学前教育质量环境评价量表》的研究中对质量是如何界定的(如,质量的操作化定义)。对美国的76项研究的内容分析发现,使用《学前教育质量环境评价量表》来评估质量的研究并没有使用一致的定义。相反,它们以多种方式界定质量,包括“质量就是《学前教育环境评价

量表》”，“课堂质量”或“环境质量”。在对这些不同定义分析的基础上讨论了它对早期教育的研究和政策的影响进行了讨论。

早期教育质量

对早期教育领域（ECE）*质量*的研究与我们的关系越来越密切，因为研究一直以来始终都显示了课堂质量的各个方面与幼儿社会性和学业成就的提高之间有密切关系(Belsky et al., 2007; Helburn et al., 1995; Howes et al., 2008; Mashburn et al., 2008)。正是由于这些研究，美国联邦政府和州政府的政策已经开始关注幼儿保教质量的提高。尽量*质量*是早期教育领域的主要关注点，对这一概念的界定和评估对研究方法论领域和旨在为早期教育机构儿童提供最优化学习经验的质量提升举措的实践领域都提出了挑战。

《学前教育环境评价量表》（ECERS-R）的运用情况的反思

为使《儿童早期研究与实践》（ECRP）继续免费面向全球读者，我们真诚希望您能为我们的杂志提供资金支持。您的点滴帮助将给我们带来极大的支持！

美国的《学前教育环境评价量表》（Early Childhood Environment Rating Scale, 简称 ECERS-R）的最初版本是为了给学前教育机构提供一个自我评价的工具，并为机构质量的持续提升寻找机构的优缺点(Harms, Clifford, & Cryer, 1998)。然而，随着时间的推移，ECERS-R 已经成为研究中评价质量，指导政策制定和系统决定的主要工具。作为早期教育领域的一个实验性自我评价工具，它在许多大规模的全国性研究，比如早期教育机构的费用、质量与儿童发展结果的研究 (CQCO; Helburn et al., 1995)和全国早期教育员工研究(NCCSS; Whitebook, Howes, & Phillips, 1989)中成为考察儿童保教质量的操作性定义的主要工具。因此，一些政策的制定和方案的形成与修订都是基于以上的研究成果。近来的关于课堂质量的大规模研究，如 NCEDL 在数州的幼教机构和学前班的研究和州内早期教育机构(SWEEP)的研究(如, Early et al., 2005)也将 ECERS-R 作为评估早期教育课堂质量的主要工具。ECERS-R 在全国性研究中的广泛使用，以及许多州都把 ECERS-R 作为推进质量提升举措，如包括多级质量评估和提升系统(TQRISs;

Tout, Starr, Soli, Moodie, Kirby, & Boller, 2010; Caronongan, Kirby, Malone, & Boller, 2011)或者管理系统,已经使 ECERS-R 的评分实际上成了早期教育质量水平的同义词。这一观念也进一步催生了对把 ECERS-R 作为*质量*的多维度概念的界定工具的前所未有的依赖性。

由于 ECERS-R 在研究中的广泛使用,本研究作者的兴趣在于把 ECERS-R 作为研究工具(如,质量的操作性评估)的研究是如何界定被测量的概念的(如,质量的概念)。概念的内涵与概念的操作性定义之间的关系对于确保一项研究的概念的正确性是至关重要的(Shadish, Cook, & Campbell, 2002)。因此,对测量对象的理解是研究的极为重要的环节,也对基于研究的政策制定起到决定性作用。考虑到 ECERS-R 的广泛使用和类似工具的缺乏,本研究的假设是,把 ECERS-R 作为研究工具的研究中对质量的界定或概念的理解是多种多样的。所以,对这些使用了 ECERS-R 的研究中的概念界定的考察很重要,以便能更好地理解研究人员运用 ECERS-R 的测量来呈现他们的概念(或相关特征)的方式。因此,本研究的目的主要有(1)分析近 8 年里,ECERS-R 作为一种质量评估工具,它的定义或内涵是什么(或者说方法论意义);(2)讨论把 ECERS-R 作为质量的操作性定义的启示以及早期教育中的政策和质量提升的多样化概念内涵。

质量的定义

早期教育中的质量的定义历史上包括了在不同领域内促进儿童发展的中心部分(如课程和课堂互动)和边缘(如机构和州政策的制定)部分(Dunn, 1993)。然而,由于对中心和边缘部分的最重要指标的内涵存在多样化的认识,相应对质量的界定也经常是宽泛和不确定的(Layzer & Goodson, 2006)。针对这些宽泛的定义,一些研究人员已经将早期教育机构的质量界定为一个总体质量的两个主要组成部分——“结构性”和“过程性”质量(参见 Vandell & Wolfe, 2000 文献综述)。结构性质量的指标包括教室材料、课程、教师学历和师生比等。这些指标经常反映了教室和机构中需要按一定规范行事的方面。过程性质量指标关注的是早期教育更加动态的方面,包括在教室里发生的人际关系如师幼互动和同伴交往(Cassidy et al., 2005a; Hamre & Pianta, 2007; Vandell & Wolfe, 2000)。

多项研究已经报告了过程性、结构性质量和总体质量变量之间的相关(Burchinal, Cryer, Clifford, & Howes, 2002; Phillipsen, Burchinal, Howes, & Cryer, 1997; Phillips, Mekos, Scarr, McCartney, & Abbot-Shim, 2000)。结构性质量和过程性质量,各自作为总体质量的一个组成部分,为理解早期教育课堂的独特性和至关重要的信息,然而在研究和政策报告中对这些术语的界定并不相同(Layzer & Goodson, 2006)。更有甚者,早期教育环境中对儿童发展很重要的质量其他组成部分可能并没有放在质量的操作性定义和概念性定义之中。操作性定义和概念性定义的精确性对于捕获概念(如质量这一概念)的内涵很有必要,这个概念有助于研究促进对有利于早期教育机构儿童的元素的理解。由于质量的多元的本质,这一概念的界定和测量可能不能用一个包罗万象或者“总体的”词汇表达出来,或者不能通过一个工具就能进行测量。例如,户外学习环境(Chakravarthi, 2009)和情绪氛围(Howes, 2000; Raver, 2004; Raver, Garner, & Smith-Donald, 2007)是影响儿童发展的重要变量,但是并没有包含在 ECERS-R 之中。

质量评估及对 ECERS-R 的依赖

25 年以来, ECERS 以及之后的 ECERS-R, 已经被看做质量的“标准”。ECERS-R 旨在评估 2 岁或 2 岁半至 5 岁儿童的课堂的总体质量,也是教育环境评估量表(ERS)大家庭中的一员。它提供了幼儿度过童年时代的环境的总体性的评估结果。该量表对课堂的评估基于 7 个子量表的 43 个项目:空间和设备、个人健康常规、语言/推理、活动、互动、课程结构以及家长和教师员工。每个项目得分从 1 分(差)到 7 分(优)。对 ECERS-R 的因素分析结果一般为双因素结构——“语言/互动”和“材料/活动”(Cassidy, Hestenes, Hegde, Hestenes, & Mims, 2005b; Clifford et al., 2005; Sakai, Whitebook, Wishard, & Howes, 2003)。同样, Cassidy 及其同事 (2005a)的内容分析发现, ECERS-R 的指标中有一半关注的是结构性质量、材料和活动;另一半测量的是过程性质量、语言和互动。基于以上识别的因素, ECERS-R 似乎包含了质量的两个截然不同的部分——结构性和过程性质量。

ECERS-R 所测量的信息的广度和类似工具和补充性工具的缺乏使 ECERS-R

成为早期教育机构评价中广泛应用的主要工具,也使其在该领域的实践和政策决策中产生深刻影响(Tout, Zaslow, Halle, & Forrey, 2009)。其中的一个例子就是多级质量评估和提升系统(TQRIS)的研究广泛使用了 ECERS-R 及其一组量表对质量的评估;为了帮助家长为自己的孩子选择优质机构,这些系统通过个别幼教机构的评分提供了早期教育机构质量可信的依据。这些评估系统也为专业发展提供了基础,并经常与机构获得资助经费的决策联系密切(NAEYC, 2009)。从目前来看,美国的 22 个州,哥伦比亚特区和美国军队幼教机构都已经运用了多级质量评估和提升系统(TQRIS) (Tout et al., 2010; NACCRRA, 2009),另外,除了 4 个州以外,其它所有州都在运行、实施预研究或探究这一评估系统。每个多级质量评估和提升系统(TQRIS)都关注了五个基本元素——质量标准、可靠性、机构支持、家长教育和财政支持(Mitchell, 2005; NACCRRA, 2009; NCCIC, 2010)。州范围内的多级质量评估和提升系统(TQRIS)大多使用了 ECERS-R 及其一组评价工具进行质量评估(Tout et al., 2010; NACCRRA, 2009; Tout et al., 2009)。随后,质量提升,包括培训和咨询,也经常向 ECERS-R 的评分靠拢。

总之,由于质量定义的多样,质量在早期教育领域仍然是一个界限模糊的词。使用 ECERS-R 从高分 7 分到低分 1 分来评估质量是一个比较宽泛的概念,这个概念淡化了对于儿童发展意义重大的,但是更为具体的那些幼教机构特征概念的潜在影响。对把 ECERS-R 作为重要质量评估工具以推进实践和政策决策的持续依赖不利于激励学界设计出有关质量的更加明确的概念维度,也不利于设计出能更进一步呈现这些概念维度的操作性定义。学界如何审视“质量”一词的使用,以及思考早期教育领域对儿童的经验和发展可能意义重大的其他一些特征的概念非常重要。对其它的质量特征需要加以探索,并放在指导研究和政策的定义之中。本研究旨在发起对质量的界定和测查的讨论,具体来说,是通过审视从 2003 到 2010 年间在运用 ECERS-R 的研究中质量的定义来进行。

研究方法

本研究考察了 2003 至 2010 年间使用 ECERS-R 评估早期教育机构质量的公开发表在同行评审杂志中的论文。选择这段时间进行研究,是因为在这一时期研

研究和州政府的多级质量评估和提升系统(TQRIS)都运用 ECERS-R 进行评估(NCCIC, 2010)的情况日益增长。为了保证所有的相关论文都纳入研究, 作者对 ERIC、PsycINFO 和 Google Scholar 进行了全面检索, 检索的关键词为: quality (global, structure, and process), ECERS-R, child care, 以及 early childhood education。任何通过这些关键词检索出来但是并没有把 ECERS-R 作为早期教育质量评估工具的论文都从本研究的样本中剔除出去。另外, 由于本研究关注的是 ECERS-R 的运用及其在美国范围内的影响(例如, 多级质量评估和提升系统或者政策决策和教师专业发展), 在其它国家做的研究也被剔除。根据这些要求, 本研究包含了 76 个研究。

所有的 76 个研究根据发表时间排序。研究团队的每位研究成员分头阅读指定的其中一年的研究文献以了解每篇论文的关注点。原始编码类型是在第一遍阅读每篇论文时列出的这些论文中使用的定义的基础上形成。在列举出这些研究中使用的所有可能的定义之后, 研究团队将概念相近的定义合并成同一类型。例如, 原始的关于可观察到的质量和可观测的质量的编码合并为“观察性质量”一类, 而机构质量和日托中心质量合并为“机构质量”一类。尽管有些类型是被合并了, 但大多数类型都反映了论文中对质量界定的准确用词。尽管这些研究使用了与质量相关的多样化的参考和文本, 本研究对原始论文在研究方法部分所呈现的定义进行了编码以进行审视。

在确定最后的编码之前, 研究团队随机选择了 20% 的论文以检验信度。原始论文是研究成员各自阅读和编码, 然后研究团队对编码和定义进行了讨论并确定了最后的编码。在检验信度的过程中, 研究团队三次通读了论文的研究方法和研究结果部分并确定了最终编码。最终对质量的界定的编码包括: 总体的、总体课堂、观察的、课堂、机构、整体的、环境的、过程性的、总体课堂过程质量, 质量即 ECERS-R 得分, 以及其他。除了质量即 ECERS-R 得分, 以及其他, 其它最终的编码就是所分析的论文中对质量这一概念进行界定的精确用词。质量即 ECERS-R 得分这一编码是指一个研究没有特别提出对质量进行界定的方法, 而仅仅直截了当说明采用了 ECERS-R 来考察质量, 或者指出高质量的环境就是能在 ECERS-R 测量中得到高分的环境。

编码结果

对这 76 篇论文的分析发现，质量的概念性定义和操作性定义都使用了多种定义。本文的附录部分呈现了这些论文所使用的定义和这些定义（或者概念）在论文中被使用的次数和百分比。这些论文中使用频次最高的两种定义是“质量即 ECERS” (23.68%)和“课堂质量”(18.42%)。“过程性质量”是使用频次最低的定义。编码为“质量即 ECERS”的 18 篇论文没有提出任何专门的关于质量的定义，而仅仅表明 ECERS-R 的高得分即是早期教育质量的体现，这强调了对把 ECERS-R 作为质量的定义和评估工具的依赖性。另外 14 篇论文将质量宽泛地定义为课堂质量。同样，有 10 篇论文(13.16%)使用了总体的质量来描述教室环境，9 篇论文 (11.84%)将总体的质量与课堂质量结合起来的定义作为总体课堂质量环境的定义。机构质量、观察性质量和全局性质量分别在 4 篇论文(分别为 5.26%)中被使用。环境的和过程性质量在 3 篇论文(3.95%)中被用到。

也许最模糊的定义包含了多种描述；特别是有两篇论文(2.63%)将早期教育环境质量定义为“总体课堂过程性质量”，一篇论文使用了短语“总体课堂环境质量”。最后，五篇论文(6.58%)各自使用了独特的关于质量的定义；这些定义包括结构性质量、发展适宜性实践的呈现、以及总体发展质量（参见附录）。需要注明的是，在那些没有对质量下定义或者将质量定义为 ECERS-R 得分的研究中，ECERS-R 使用的适宜性主要是指其测量在已有的研究与“儿童的成就密切相关”，且 ECERS-R 是一种“广泛使用的可靠性高的质量评估工具。”

讨论

对这些研究的考察表明，目前研究中使用 ECERS-R 来对一系列的质量概念进行操作化界定。在使用 ECERS-R 的研究中，对概念化或质量界定的方式并不一致。例如，本研究发现，尽管所考察的研究都把(ECERS-R)被用作主要的测量工具，但对质量的界定方式至少有 10 种。具体来说，ECERS-R 的开发组成员提出，“我们的量表用以评估早期教育或者学龄群体的过程性质量” (Frank Porter Graham 儿童发展机构，2005)。很明显，作者提供的定义（例如，“过程性质量”）

却很少在研究中得以运用。尽管 ECERS-R 具有坚实的心理测量学信息且信度较高，对这一工具的全球性的关注导致了对质量定义的多样化和模糊化(Beller, Stahnke, Butz, Stahl, & Wessels, 1996; Clifford et al., 2005; Cassidy et al., 2005b; Munton, Rowland, Mooney, & Lera, 1997; Perlman, Zellman, & Le, 2004; Sakai et al., 2003)。正如对研究文献的综述所揭示，与 ECERS-R 相关的研究使用了多种定义。如果在一项研究中使用了总体性质量的界定，那么基于该研究要提出政策建议或者提升质量的举措建议就很困难，因为这些研究结果不能提出能够指导这些举措的具体内容。也就是说，不具体的定义或者概念不能够给我们提供理解有利于儿童发展和为幼儿提供积极经验的最重要的课堂品质的信息。所导致的结果则是在有利于干预方案的形成和实施的信息提供上可能很有限和/或无法提供。

其它质量维度

尽管研究已经表明 ECERS-R 的高得分与积极的儿童成就之间的关系(如, Early et al., 2005; Howes et al., 2008; Mashburn et al., 2008)，正如上文提出的，质量的其他方面对一个更为综合的质量定义来说可能很重要。例如，关于户外游戏和活动、教师品质以及师幼互动领域的研究为评估质量的研究提供了颇有希望的导向(DeBord, Hestenes, Moore, Cosco, & McGinnis, 2002; Gerber, Whitebook, & Weinstein, 2007; Williams, Carter, Kibbe, & Dennison, 2009; Chakravarthi, 2009)。例如, Finn 及其同事(2002)发现，早期教育机构的一些特征是儿童活动水平的预测因素，意味着儿童体育活动的量取决于他们所在的机构的某些特征。尽管这一领域的研究并不多，幼儿的户外游戏和体育活动对早期教育机构的质量模型提出了要求。

另外，已有研究文献将教师品质与师幼关系与质量联系起来。随着研究领域对考察教师在课堂质量中的中心地位的持续关注，教师个人的品质，如个性和职业倦怠也成为课堂效果的可能性预测因素而受到越来越多的研究关注(Decker & Rimm-Kaufmann, 2008; Hamre & Pianta, 2004)。近来关注师幼互动的研究表明，这些互动在儿童发展中扮演着关键作用(Howes, 2000; Howes, James, & Ritchie, 2003; Gerber et al., 2007; Mashburn et al., 2008)。目前这些有关质量的重要元素在

质量讨论中受到的关注极其有限，包括 ECERS-R 在内，都没有把它作为课堂质量评价工具的一部分。

包含了多维度的质量观和重新界定质量的额外的研究将对政策决策产生作用。在过去几年里，这一问题已经非常清晰，在早期保教课堂中不仅要把握质量的广度，还要把握质量的深度。目前在考虑使用其它评价工具的研究，以及将来使用一个“工具箱”的方法来评估儿童的成就和质量的广度和深度(Dickinson, 2006)的研究能够提供有关最能体现早期教育特征的概念和操作性定义的信息。工具箱的方法既能包含总体的课堂测量和更加狭义更有针对性的测量，也包括不同内容或领域的测量。工具箱内部的不同组合能评估质量的不同方面和应对不同的研究问题(Dickinson, 2006)。与质量的概念和操作化定义相关的问题是，目前的质量评估一般为课堂提供了一个快照。尽管有些研究的数据表明，评估随时间的变化具有一定的稳定性(NICHD Early Child Care Research Network, 2002)，但是持续的长期的关于质量的综合评价在早期教育领域比较罕见。ECERS-R 似乎强调了课堂质量的广度并在总体层面上为课堂提供了充分的信息，但是它不能得到真实地了解教师和管理人员需要知道的，能从根本上影响儿童成就所需要的知识深度。

多级质量评估和提升系统(TQRIS)就是证明目前的质量评估方式如何对全国各地的儿童保教机构产生影响的一个基本案例。因为各州还在继续发展和修订多级质量评估和提升系统(TQRISs)，更好地对质量进行界定的重要性也日益提高。尽管各个机构是自愿采用了多级质量评估和提升系统(TQRISs)，许多州已经形成了鼓励机构采用该系统的激励机制。其中一个激励办法就是分级偿还津贴，包括为接受了机构补助金并在州的多级质量评估和提升系统评估中得分更高的儿童提供更大金额的补助，从而为机构和州的代理机构设计这些评估系统提供更多的奖励。考虑到这些机构的评估方法，“使它正确”很重要，从而能根据机构、入园的儿童人数、以及最终在这些机构接受保教的儿童的幸福来决定提供多少资金。

总之，强调早期教育质量是该领域的重要关注点。幼儿在早期教育环境中的经验与其发展、日后的学业成功和学校之外的成就密切相关(Cunha & Heckman,

2006)。使用多种质量定义或通过单一测量工具来界定的学前教育质量概念对研究、政策决策和实践有一系列的后果和影响。考虑到质量经验和质量评估在早期教育机构中的高相关利益，尤其是作为多级质量评估和提升系统的一部分，需要特别关注所要测量的内容的定义、匹配程度和理解所测的概念。同样极为重要的是，理解能够预测儿童成就的特定的课堂特征。尽管 ECERS-R 为至少一个宽泛的质量维度提供了某种具有代表性的评估内容这一点似乎比较明确，仍然不确定的一个问题是，将儿童的重要成就和其他或者额外的质量维度结合起来的话，儿童成就在多大程度上能得到预测。

建议

早期教育的消费对象家庭和政策决策人员一直在关注早期教育的可靠性。他们对机构的质量，以及最终投入幼教的资金与儿童成就之间的关系进行质疑 (Mitchell, 2009)。但是，目前对质量的评估一般来说本质上是一种整体性质的，并且为质量的提升所提供的信息较少。对于质量的评估，互有连带关系的建议是在考察早期教育质量的概念和操作化定义方面要关注投入的时间和资源，以期获得潜在的更为具体的结果，从而能有助于机构的提升和为幼儿提供更积极的早期教育经验。因为各州持续在幼儿教育机构质量的评估方面投入资源，而且多级质量评估和提升系统(TQRISs)的运用在全国范围内得到推广，强调质量的定义对于促进儿童发展方面的成就的提升和建议也极为重要。

管理人员、政策决策人员和研究人员必须更好地理解，就质量而言需要测量的到底是什么，以及整体评估的缺点。在提出机构提升的建议和方法并采取行动之前，他们也应该考虑评估质量的其他方法。尽管北卡罗莱纳的明智开端机构表明，在优质机构(运用 ECERS-R 评估)就读的学龄前儿童比在低质量水平的机构就读的儿童在入学准备测量中的得分更高(Bryant et al., 2003)。ECERS-R 的使用仅能为这些低质量水平机构的改善提供一种总体上的建议。不幸的是，与机构专门领域的提升有关的信息目前来说极其有限，这些专门领域包括对教师的支持、户外游戏环境、教学策略、或者阅读、数学、科学和社会性学习的方法等，这些方面对于儿童的积极成就相关较高。

正如上文提到的，一个“工具箱”的方法可能对于探索机构的单个特征以及这些特征作用的情境是有益的；并不存在采用一刀切的质量评估方法。机构运行的情境各异，相关员工的素质各异，学生和家长的素质也大不相同。一个合理的推断是，“质量”对于不同的机构有不同的含义，评估质量可能有着不同的目的。如果我们采用一刀切的方法，那么我们在不同的机构得到的是类似的信息，在有关建议和促进机构改善的干预方法上得到的指导较少。没有一个更具针对性的评估，我们只能获得对质量的总体性的把握，却可能失去了对某个机构的独特性的组成部分的理解。研究应该更加关注对质量的其他组成部分的界定，关注对这些部分进行正确的和适宜的评估，以及关注这些部分与儿童的经验 and 成就之间的关系。这样的研究结论和信息能够为机构和政策决策人员提供额外的工具，以持续地提升早期教育机构的质量。

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展与教育系主任。在此职位之前，Deb 是北卡罗莱纳大学格林斯博罗分校人类发展与家庭研究学院教授、从出生到幼儿许可认证培训课程的协调人、儿童日托教育机构主任，该机构是一个为超过 82 个儿童提供服务的大学附属日托机构。另外，Deb 在北卡罗莱纳大学格林斯博罗分校的近 10 年里，曾担任北卡罗莱纳许可认证评估项目的负责人。她的学历包括伊利诺斯大学早期教育的博士和伊利诺斯大学儿童发展的硕士。她已经独撰和合著了十几篇研究报告和论文，关注的是早期教育课题，尤其幼儿教育和工作者的专业发展。

附录

按编码排列的质量的定义

编码	数量 (%)	作者 (发表时间)
质量即 ECERS 得分	18 (23.68)	Bailet, Repper, Piasta, & Murphy (2009); Bassok, French, Fuller, & Kagan (2008); Cassidy, Lower, Kintner, & Hestenes (2009); Collins & Dennis (2009); Dowda et al. (2009); Dowda, Pate, Trost, Almeida, & Sirard (2004); Feil et al. (2009); Hallam, Grisham-Brown, Gao, & Brookshire (2007); Henry & Rickman (2007); Kantrowitz & Evans (2004); Poe, Burchinal, & Roberts (2004); Rigby, Ryan, & Brooks-Gunn (2007); Roach, Kim, & Riley (2006); Wachs, Gurkas, & Kontos (2004); Watamura, Kryzer, & Robertson (2009); Winsler et al. (2008); Yen & Chen (2005); Zan (2005)
课堂得分	14 (18.42)	Alkon, Ramler, & MacLennan (2003); Beardslee, Ayoub, Avery, Watts, & O'Carroll (2010); Burchinal et al. (2008); Campbell, Milbourne, Silverman, & Feller (2005); Castro, Bryant, Peisner - Feinberg, & Skinner (2004); Corapci (2008); Lloyd & Howe (2003); Miller & Bogatova (2009); Moller, Forbes-Jones, Hightower, & Friedman (2008); Montes, Hightower, Brugger, & Moustafa (2005); Raver et al. (2008); Raver et al. (2009); Roach, Riley, Adams, & Edie (2005); Sakai, Whitebook, Wishard, & Howes (2003)
总体性质量	10 (13.16)	Barnett, Yarosz, Thomas, Jung, & Blanco (2007); Barnett et al. (2008); Burchinal & Cryer (2003); Cassidy, Hestenes, Hegde, Hestenes, & Mims (2005); Clawson & Luze (2008); Cunningham (2010); Grisham-Brown, Cox, Gravil, & Missall (2010); Lower & Cassidy (2007); Shim, Hestenes, & Cassidy (2004); Weinraub, Shlay, Harmon, & Tran (2005)
总体性课堂质量	9 (11.84)	Bracken & Fischel (2006); Powell, Diamond, & Koehler (2010); Early et al. (2007); Jeon et al. (2010); La Paro et al. (2009); LoCasale-Crouch et al. (2007); Pianta et al. (2005); Powell, Burchinal, File, & Kontos (2008); Powell, Steed, & Diamond

		(2010)
机构质量	4 (5.26)	Henry, Gordon, & Rickman (2006); Hooks, Scott-Little, Marshall, & Brown (2006); Howes, Shivers, & Ritchie (2004); Jones-Branch, Torquati, Raikes, & Edwards (2004)
观察到的质量	4 (5.26)	Early et al. (2006); Knoche, Peterson, Edwards, & Jeon (2006); Loeb, Fuller, Kagan, & Carrol (2004); Torquati, Raikes, & Huddleston-Casas (2007)
全局质量	4 (5.26)	Jackson et al. (2006); Mashburn, Pianta, Hamre, Downer, Barbarin, Bryant, et al. (2008); Shivers, Howes, Wishard, & Ritchie (2004); Wall, Kisker, Peterson, Carta, & Jeon (2006)
环境质量	3 (3.95)	Gross, Fogg, Garvey, & Julion (2004); Tonyan & Howes (2003); Wishard, Shivers, Howes, & Ritchie (2003)
过程性质量	3 (3.95)	Howes et al. (2008); Mashburn (2008); Warash, Ward, & Rotilie (2008)
总体性课堂过程性质量	2 (2.63)	Chang et al. (2007); Clifford et al. (2005)
其他	5 (6.58)	Fuller, Kagan, Loeb, & Chang (2004)—structural; Chien et al. (2010)—global classroom environmental quality; Li-Grining & Coley (2006)—developmentally appropriate practices; Votruba-Drzal, Coley, & Chase-Lansdale (2004) and Votruba-Drzal, Coley, Maldonado-Carreno, Li-Grining, & Chase-Lansdale (2010)—global developmental quality

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