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基于学习数据挖掘的国际中文慕课评价可视化及智能推荐 (Visualized Evaluation and Intelligent Recommendation of International Chinese MOOCs Based on Learning Data Mining)

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摘要：在教育数字化转型的背景下，人工智能技术正推动国际中文教育朝着规模化教育与个性化培养并重的方向发展。然而，如何从学习者的角度来评价规模化的国际中文教育，比如大规模的在线开放课程（MOOCs）仍不清楚。首先，文章在数据驱动的理念下，对“Coursera”和“中国大学 MOOC”平台上的 51 门国际中文慕课在线评论文本进行采集和分析，共得到 10050 条有效的二语学习者评论文本。其次，文章通过语义网络分析、文本聚类、LDA 主题模型、情感分析等一系列地技术操作，“自下而上”地构建了国际中文慕课课程评价量规，设计并研发了“国际中文慕课智慧学伴系统”，实现慕课多维度评价结果的可视化呈现，以及课程的智能化、个性化推荐。最后，文章立足数据挖掘结果，探讨了该研究带来的理论和实践贡献，并为建设高质量地国际中文慕课高质量提出了四条建议。

Abstract: In the context of digital transformation in education, artificial intelligence is steering international Chinese education toward a direction that emphasizes both scaled education and personalized training. However, the evaluation of scaled international Chinese language education, such as Massive Open Online Courses (MOOCs), from a learners' perspective remains unclear. This paper, following data-driven approaches, collected and analyzed online comments from L2 learners participating in 51 international Chinese MOOCs on Coursera and Chinese University MOOC, resulting in a total of 10,050 valid comments. Employing a series of advanced statistical and textual analyses, including semantic network analysis, text clustering, topic modeling, and sentiment analysis, the article proposes a quantitative evaluation framework for international Chinese MOOCs from a bottom-up approach. This study also designed and developed the 'International Chinese MOOCs Smart Learning Companion System,' achieving the visual presentation of multi-dimensional evaluation results of MOOCs, as well as providing intelligent and personalized recommendations. Based on the results of data mining, the paper puts

forward four suggestions for the construction of high-quality international Chinese MOOCs.

关键词: 国际中文慕课、学习数据挖掘、评价可视化、智能推荐、情感分析

Keywords: International Chinese language MOOC, learning data mining, evaluation visualization, learning resource recommendation, sentiment analysis

1. 引言

2012年被称作“慕课元年”，这一年大规模在线开放课程（Massive Open Online Courses, MOOC）迅速兴起并席卷全球，成为了“互联网+教育”时代在线学习的新载体。自2012年以来，许多世界顶尖大学纷纷加入慕课建设的队伍，也形成了世界闻名的慕课平台，包括由斯坦福大学牵头的Coursera、由麻省理工学院和哈佛大学联合创建的edX等。2022年，中国全面实施教育数字化转型战略行动，“国家智慧教育公共服务平台”的问世是一项重要的标志性成果。慕课正逐步成为国内外非正式学习的关键教学资源。据官方数据显示，截至2022年11月，中国上线慕课超过6.19万门，学习人数达9.79亿人次（中华人民共和国教育部，2022）。

随着全球对中文学习的需求持续旺盛，180多个国家和地区开展中文教学，82个国家将中文纳入国民教育体系（马箭飞，2023）。目前，已建成的国际中文慕课485门，主要分布于“中国大学MOOC”“Coursera”等11个国内外平台（教育部中外语言合作交流中心，2021）。但国际中文教育领域的慕课资源在不断建设与发展的同时，也暴露出若干问题：一是，网络辍学率高，慕课平台公开的用户数据显示，慕课大多存在注册人数远超过完成课程人数的情况，可见大量学习者开始学习后不久便放弃了（郑永和等，2023）。二是，难以找到适合自己的慕课。笔者访问了多位中文学习者，他们不愿意使用慕课学中文的主要原因是不知道哪门课程更适合自己，甚至有些慕课名称十分相似，如“初级汉语语法”，这会导致他们无法判断哪一门课程更适合自己。已有研究指出，这些问题是慕课资源建设过程中的共性问题（唐晓君等，2018；谢梅 & 陈文俊，2021）。

总之，在国际中文慕课的建设过程中，我们迫切需要关注慕课的评价问题，即学习者学习课程后的评价如何？为什么这些慕课无法吸引他们持续学习？面对海量的学习资源学生如何从中遴选出适合自己的慕课？这些问题都尚待解决。因此，本研究秉持数据驱动的理念，探索基于慕课评论文本数据挖掘的评价思路，健全国际中文慕课建设和评价标准；同时，根据评价结果实现学习者与慕课的智能匹配，从而帮助学习者找到符合自己语言水平和认知偏好的课程，避免检索困难、需求不符等造成的“厌学”情绪，使其在“最近发展区”中学习语言。最终，本研究将二者集成为“国际中文慕课智慧学伴系统”，以期助力中文学习者开展个性化的在线学习。

2. 相关研究综述

2.1 学习数据挖掘

大数据作为“互联网+”时代教育发展的新引擎,是个性化学习研究与实践的重要基石,推动着教育智能化不断走向深入(杨丽娜等,2020)。教育大数据指在整个教育系统及其运转过程中产生的一切能够服务于教育教学且具有潜在价值的数据集(朱佳 & 黄昌勤,2022)。学习数据是教育大数据中极为重要的一部分,随着智能学习终端、可穿戴设备的普及,学习者在学习过程中产生了多模态数据,可分为四类:①眼动、姿势等物理体征数据,②心率、脑电等情感认知数据,③评论、收藏等人机交互数据,④讨论、报告等学习行为数据(牟智佳,2020)。面向海量多源异构学习数据的挖掘技术包括:分类与聚类、关联规则、文本挖掘、社会网络分析等,具体流程可以归纳为:数据采集→数据处理→数据分析→可视化呈现→决策优化。

其中“可视化”是数据挖掘结果的重要呈现方式。数据可视化主要通过图形图像手段,以清晰有效的方式传达和沟通数据和信息,具有“一图胜千言”的表达优势(阮士桂 & 郑燕林,2013),Excel中的各类图表就是数据可视化的结果。本文所说的“评价可视化”是指慕课评价数据的可视化呈现,即用词云图、柱状图、雷达图等来表征评价数据,详见下文。此外,本文还将这种可视化手段嵌入到教学系统中,这样做可以用更形象、直观的方式表示教学数据的各个属性值,呈现数据间的关联关系,从而帮助学习者从不同维度观察数据。

迈入数据智能时代,教育大数据的深入挖掘和合理利用可以发现教育系统的潜在规律,从而形成数据循证的教育理念与模式,助力规模化因材施教(杨现民等,2022)。教育领域的已有研究指出,学习数据挖掘与分析可以为学习者画像、成绩预测、资源推荐、学情预警等不同教育场景提供量化支持(岳俊芳 & 陈逸,2017;吴青 & 罗儒国,2017;朱佳 & 黄昌勤,2022)。

面向国际中文教育领域,特别是国际中文慕课的教育数据挖掘研究还相对较少。雷莉(2015)较早地提出了数据挖掘技术在孔子学院慕课微视频教学中的应用与意义,能发现海量教育数据中潜在的规律和模式。郑艳群(2022)提出了大数据时代基于教学实录的中文教学研究数据库的建设与应用思路。现有研究多为理论探讨,对于采集什么数据、用什么技术处理数据虽有探讨,但仅停留在理论阐释阶段。此外,鲜有论文结合自然语言处理技术上来对教育数据加以挖掘,大多采用的仍是统计方法,因此有待进一步深入研究。

2.2 在线开放课程评价

随着各级各类学校研制大规模慕课、微课等在线课程资源,如何评估这些在线开放课程的质量以及应用情况是目前课程研发者面临的一大难题(余胜泉 & 李晓庆,2020)。为解决这一问题,部分学者们尝试运用扎根理论、德尔菲法

(Delphi)、层次分析法等理论与方法“自上而下”地构建了一套评价系统。例如, 邱均平等 (2015) 通过广泛征求专家意见, 结合慕课特点, 设计了包含教学队伍、教学内容、教学资源、教学效果和教学技术5个一级指标和13个二级指标的慕课评价指标体系。这种方法构建的评价量规虽具有较强的权威性和示范性, 但不能较好地反映学习者的真实需求 (唐晓君等, 2018)。

随着慕课平台积累了大量用户行为数据, 这些开放的评论数据较为真实地反应了学习者的学习感受、体验与建议, 并成为其他学习者选课的重要参考。依托自然语言处理技术, 可以获取更多学习者反馈的评价信息, 实现“自下而上”的评价。例如, 张新香、段燕红 (2020) 采集了中国大学慕课平台的外语、计算机、医学等10个不同学科的10门在线课程的评论文本, 构建了评论文本的主题集, 计算了各主题的情感得分, 并基于灰色关联分析实施了慕课质量评判, 该研究的评论主题集构建和情感得分计算对本文有较大启发。王洪鑫等 (2021) 综合运用词云图、LDA (Latent Dirichlet Allocation) 主题模型以及卷积神经网络 (Convolutional Neural Networks, CNN) 算法构建了主题挖掘与情感分析模型, 并对中国大学MOOC平台的“面向核心素养的信息化教学设计”课程的950条评论进行挖掘。该文的研究方法同样具有借鉴意义, 但评论数据规模较小。总体上看, 这些研究都秉持了“以学习者为中心”的理念, 为慕课质量评估提供了新视角、新方法; 但这些研究都是面向其他学科领域展开的, 面向国际中文教育领域慕的相关研究目前还较为缺乏。

2.3 智能推荐技术

除了帮助学习者从多个维度了解慕课的评价信息外, 还可以借助智能推荐技术帮助学习者快速找到适合自己的课程。个性化推荐是指根据学习者特征来实现精准化、适需化推送, 基于智能推荐技术可以帮助学习者实现个性化选课。在计算机科学领域, 传统推荐技术包括基于内容过滤、基于协同过滤、混合推荐三类 (于蒙等, 2022)。首先, 基于内容的推荐主要依据用户历史行为数据 (浏览视频的记录、选修课程的记录) 理解用户的兴趣喜好, 从而完成推荐; 但该方法在处理规模较大的信息内容时, 常常因为耗时久而造成信息时效性降低。协同过滤推荐则是依据用户的历史行为数据进行协同分析, 找出具有相似兴趣 (喜欢某一门课程) 或行为 (选修某一门课程) 的学习者, 然后通过这些相似用户的行为向目标用户进行推荐; 但该方法在面对新项目时容易遇到冷启动 (在没有用户数据时应如何进行第一轮推荐) 的问题。混合推荐是将上述两种技术相结合的推荐技术, 它保留两种技术的优点, 但其混合模式效率较低且推荐过程复杂, 较难实现。新型的推荐技术大多基于卷积神经网络、循环神经网络和图神经网络等深度学习算法 (黄立威等, 2018)。

在教育领域, 随着不同领域学科知识图谱的构建, 基于图谱的学习资源个性化推荐开始普及。知识图谱 (Knowledge Graph) 是人工智能的重要分支技术, 它在2012年由谷歌提出, 是结构化的语义知识库, 可以表示为“实体—关系—实体”三元组, 体间通过关系相互联结, 构成网状的知识结构。教育知识图谱是指将知识图谱技术应用到教育领域, 教育知识图谱可以帮助教师快速建立课程知识点间的结构关系, 还可以用于推荐学习资源 (曹钢 & 梁宇, 2023)。例如, 基于国际中文词汇

知识图谱可以构建词汇自适应学习平台, 个性化为学习者推荐释义文本、例句等词汇学习资源(曹钢等, 2023)。为促进深层次学习的发生, 万海鹏等(2021)将融合知识图谱、认知推理和逻辑表达等能力的认知图谱引入教育领域, 提出“学习认知图谱”的概念, 并指出通过在已有学科知识图谱基础上叠加学习者的过程性动态认知状态信息, 可以更好地为其提供适应性学习服务。总之, 通过发挥数据智能技术的优势, 能够将种类各异的学习资源按需推荐给学习者, 生成个性化的学习路径, 更好地帮助教师读懂“千人千面”的学习者, 让规模化“因材施教”的育人理念照进现实。

2.4 已有研究的启示及本研究的具体问题

已有研究为本研究提供了重要启示: 在国际中文教育慕课资源建设的过程中, 应该坚持“学习者为中心”的评价思路, 并尝试采用学习数据挖掘的方法来“自下而上”地构建国际中文慕课评价量规; 接着, 基于该评价量规对慕课进行多维度评价, 以弥补已有慕课平台课程评价信息较少, 不足以支持学习者个性化选课的问题; 最后还需要引入有效的智能推荐技术, 让系统帮助学习者快速找到适合自己的课程, 学习者再结合被推荐课程的评价信息最终决定是否选课。然而, 目前主流慕课平台主要包括的课程评价信息还不足以实现这些目标, 据本研究前期调查, 不同慕课平台的评价数据信息见表1, “√”表示平台有该数据类型。

表1 不同慕课平台课程评价数据类型

平台名称	选课人数	收藏人数	星级分数	评论文本	认证标签
国家智慧教育公共服务平台	√				√
中国大学MOOC	√		√	√	√
Coursera	√		√	√	
学堂在线	√				√
智慧树					
学银在线	√		√		√
优课在线					√
华文慕课	√				
好大学在线	√	√			
融优学堂	√				

由上表可知, 在各类慕课平台中, 中国大学MOOC平台的评价信息最为多元, 包含了4类评价数据。具体来看, 共有5个平台为课程提供了认证标签, 最为常见的标签为“一流课程”, “国家智慧教育公共服务平台”“学堂在线”“学银在线”3个平台使用了该标签, 其中“优课在线”进一步细分为国家级和省级。此外, 中国大学MOOC平台主要使用“国家级精品课程”这一标签, 而“优课在线”则主要使用“高校推荐课程”。在各类平台中, 仅有“好大学在线”设计了“收藏人数”这一反映用户态度的评价数据类型。学习者在选修慕课时可能会因其个体差异做出不同选择, 例如

部分学习者更加看重课程的师资情况, 有些学习者则更加在意教学内容是否符合学习动机, 等等。因此, 从总体上看, 这些慕课平台的评价信息颗粒度较粗, 还不足以支持学习者从多个维度了解课程。

综上, 为满足不同认知偏好的学习者的需求, 亟需开发出一款帮助学习者从多个维度了解课程评价信息, 进行个性化选课的国际中文教育软件。本研究面临着如下具体问题:

1. 如何运用语义网络分析、LDA主题词模型、情感分析、情感值预测等方法对评论数据进行多维度挖掘?
2. 如何将学习数据挖掘引入国际中文慕课评价, 通过挖掘与分析公开评论文本数据, “自下而上”地建立国际中文慕课评价量规?
3. 如何基于前期的数据挖掘工作, 搭建包含数据可视化、智能推荐两大功能模块的“国际中文慕课智慧学伴”系统?

3. 研究设计

3.1 研究思路

本研究尝试通过学习数据挖掘、评价量规设计、智能推荐实现等一些流程与步骤, 研发“国际中文慕课智慧学伴”系统, 最终为学习者提供可视化评价与智能化推荐的学习支持服务。该系统对其他学科的慕课评价与推荐也有一定的借鉴价值。研究技术路线见图1。

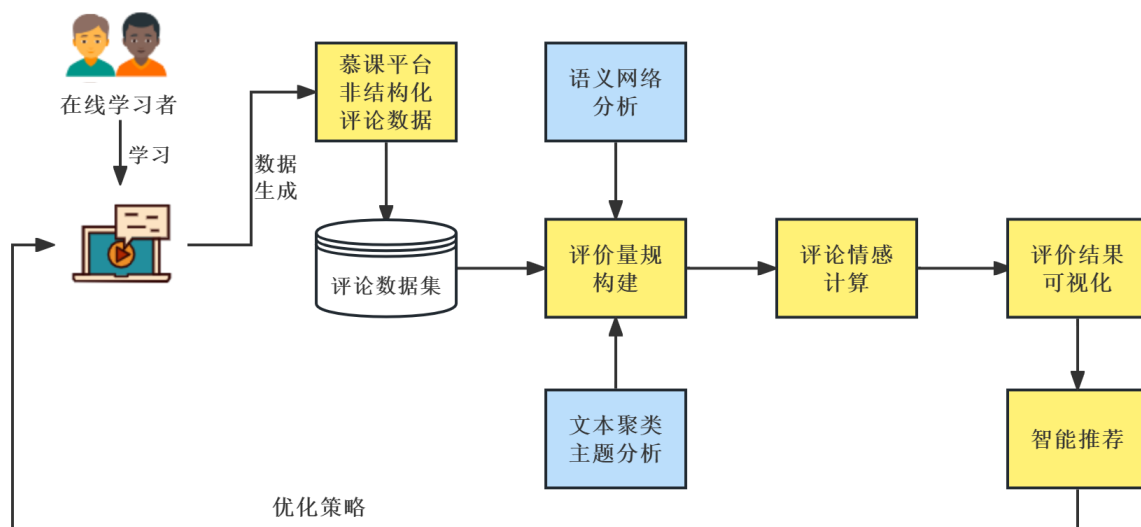


图1 评论数据挖掘的技术路线图

3.2 研究方法和工具

为构建“国际中文慕课智慧学伴系统”本文主要涉及如下研究工具和方法。

第一, 语义网络分析是以词频分析为基础, 用于识别出文本中词汇之间的关联和意义, 并以图形化的方式呈现和解释词汇之间结构关系的文本分析方法 (Kenett & Faust, 2019)。本文使用ROST6.0¹来进行评论文本的语义网络分析。ROST 6.0是由武汉大学虚拟学习团队研发的内容挖掘系统, 该款软件能够较好地进行中文信息处理。

第二, LDA (Latent Dirichlet Allocation) 主题模型是一个用以对文本进行主题建模, 获取文本主题分布的机器学习模型。它包括词语、主题、文档三层, 可以用来找出一篇文档的主题, 以及这些主题所对应的词, 并计算出这些词所占的权重 (陈二静 & 姜恩波, 2017)。本文主要使用Python中的Gensim第三方库来实现评论文本的主题建模。Gensim目前已较为成熟并广泛用于各类自然语言处理任务中。

第三, 文本聚类 (Text clustering) 作为一种无监督的机器学习方法, 聚类不需要训练过程, 不需要预先对文档标注类别, 具有一定的灵活性和自动化处理能力, 已经成为对文本信息进行有效地组织、摘要和导航的重要手段 (Abualigah, et al., 2021)。本文主要使用Python语言编程来对评论文本进行K-means聚类, 并将聚类结果 (K个簇中心点) 作为构建评价量规时确定一级指标数量的参考。

第四, TF-IDF (Term Frequency-Inverse Document Frequency) 是一种基于计算特征项权重的文本分类算法, 可以用以评估某一个词对于某一语料库中的特定文档的重要程度。其中TF是词频 (Term Frequency), IDF是逆文本频率指数 (Inverse Document Frequency); 词的重要性随着它在文件中出现的次数成正比增加, 但同时会随着它在语料库中出现的频率成反比下降 (叶雪梅, 2019)。本文主要使用Python编程语言实现对评论文本的TF-IDF值计算。

第五, 情感分析包括基于情感词典的情感分类和基于深度学习模型的情感值预测, 前者主要是通过识别文本中的情感词将评论文本分为两类或多类 (王东春等, 2022); 后者则需要运用人工神经网络 (深度学习模型) 计算出每条评论文本的具体情感数值, 一般情况下, 数值越接近于1, 说明情感越积极, 反之数值越接近于0, 说明情感越消极 (Kottursamy, 2021)。本文兼用了两种情感分析方法, 基于情感词典的情感分类任务可以从宏观上分析51门课程的所有评论的整体情感倾向, 而基于深度学习的情感值计算则可以从微观上得到每条评论的具体情感系数, 并用作慕课评价结果可视化呈现的数据来源。其中, 前者主要通过调用Python中的TextBlob第三方库来完成情感分类任务, 而后者则使用了Pytorch框架对Bi-LSTM神经网络模型进行搭建与训练, 从而完成评论的情感值计算任务。

¹ 软件的下载链接为: <http://www.fanpq.com/?p=14#comment-16>。

3.3 数据集构建

第一, 数据采集。本文选择中国大学MOOC和Coursera两个平台的国际中文慕课作为数据采集对象, 在中国大学生慕课平台上抓取了相关课程31门, Coursera平台上采集了带有开放评论功能的课程20门, 共计51门。在确定慕课课程时须仔细研判课程的授课对象, 如“魅力汉语”是面向母语学习者的, 故不将其纳入采集范围。采集的内容包括: 课程名称、课程评论、参与人数、开课状态、课程介绍、师资信息等所有课程相关内容, 以待后续学伴平台能够为学习者提供更为详细的课程信息。需要说明的是, 由于慕课学习平台无法查看用户的基础信息(学生的隐私得到保护), 且本文主要运用学习大数据挖掘的分析方法, 因此忽视了学习者的个体因素对慕课评价结果的影响。

为确保评论数据的完整性, 本文选择2023年1月8日为评论数据的抓取日期, 从而确保所有课程已全部完成授课。最终从中国大学慕课平台共获取评论2581条, 从Coursera平台共获得评论7631条, 合计10212条。据统计, 两大平台含有评论文本数据的课程及其评论数量见表2和表3。

表2 中国大学 MOOC 平台的中文慕课评论数据信息

序号	慕课名称	评论数量
1	学成语 知中国	1337
2	初级汉语语法(北语)	160
3	中国文化与当代中国	120
4	走进中国	108
5	中国概况	93
6	汉语精读	79
7	速成汉语语法课堂	72
8	基础写作I	68
9	你好, 中文(中级) Intermediate Chinese	67
10	学汉字 知中国	54
11	初级汉语口语	49
12	汉语 upup	46
13	古代汉语入门	41
14	中国文化	38
15	功能汉语速成	28
16	初级汉语口语入门	27
17	跟我学发音——实用汉语语音教程	27
18	初级汉语综合	24
19	HSK4 级强化课程	21
20	初级汉语语法进阶	18
21	商务汉语(中国商务概览)	17
22	初级综合汉语	16
23	商务汉语(中国经济聚焦)	13
24	汉语初级入门	12

25	通用学术汉语: 思辨与表达	11
26	中级汉语视听说	10
27	汉语——直通 HSK	8
28	汉语写作进阶	7
29	初级汉语语法 (上外)	6
30	初级汉语听和说	4
31	医学汉语	0
合计		2581

表 3 Coursera 平台的中文慕课评论数据信息

序号	慕课名称	评论数量
1	Chinese Characters for beginners	4934
2	Chinese for HSK 1	658
3	Mandarin Chinese 1 Chinese for Beginners	308
4	More Chinese for Beginners	301
5	Chinese Characters for beginner	265
6	Chinese for HSK 4	223
7	Chinese for HSK 2	215
8	Chinese Culture and Contemporary China	161
9	Chinese for HSK 3	148
10	Chinese for HSK 5	76
11	Translation in Practice	66
12	Mandarin Chinese 2 Chinese for Beginners	59
13	Chinese for HSK 3	56
14	Mandarin Chinese for Intermediate Learners Part 1	43
15	Mandarin Chinese 3 Chinese for Beginners	34
16	Learn Mandarin Chinese Capstone Project	28
17	中国人文经典导读	23
18	现代汉语核心语法	19
19	Mandarin Chinese for Intermediate Learners Part 2	8
20	Mandarin Chinese for Intermediate Learners: Part 3	6
合计		7631

由表2和3可知, 两大平台中“Coursera”平台学习者的评论数量远高于中国大学MOOC平台, 可见, “Coursera”是外国学习者学习慕课的主要平台。《中文入门》《Chinese for HSK 1》《Mandarin Chinese 1 Chinese for Beginners》是“Coursera”评论量居于前三的课程, 而《学成语 知中国》《初级汉语语法 (北语)》《中国文化与当代中国》则是中国大学MOOC评论量居于前三的课程。但同时, 两大平台上不同慕课间的评论数量分布不均, 且并未呈现规律性分布, 但大体上看, 初级阶段课程的总体评论数量要多于中高级。

第二, 数据清洗及入库。由于慕课平台支持多语种评论, 抓取到的评论除中文外共涉及英、日、韩、泰、阿拉伯等13种语言, 故使用百度翻译的API将不同语

言的评论统一译为中文。同时,删除了评论中包含一些表情符号、数字、无意义的字符等,以及仅有“棒、很好、不错”等无法准确识别具体意义的评论后,最终得到有效数据10050条,304519字符的评论文本。在此基础上,本文又搭建了包括课程基础信息表、课程详细信息表和课程评论信息表3张数据表的慕课课程数据库。为提升推荐的适应性,又精细标注了类型、教学理念等课程字段信息。

4. 慕课评价可视化及智能推荐机制设计与实现

4.1 慕课评价量规构建

4.1.1 语义网络分析

为深入分析学习者对慕课的整体感知情况,研究采用语义网络分析法对评论文本内容句法与概念之间的语义路径进行解构,从而识别出文本词汇的关联和意义。本文通过“提取高频词→过滤无意义词→提取行特征→构建网络→构建矩阵”五步操作可以得出慕课评论语的语义网络分析结果,详见图2。

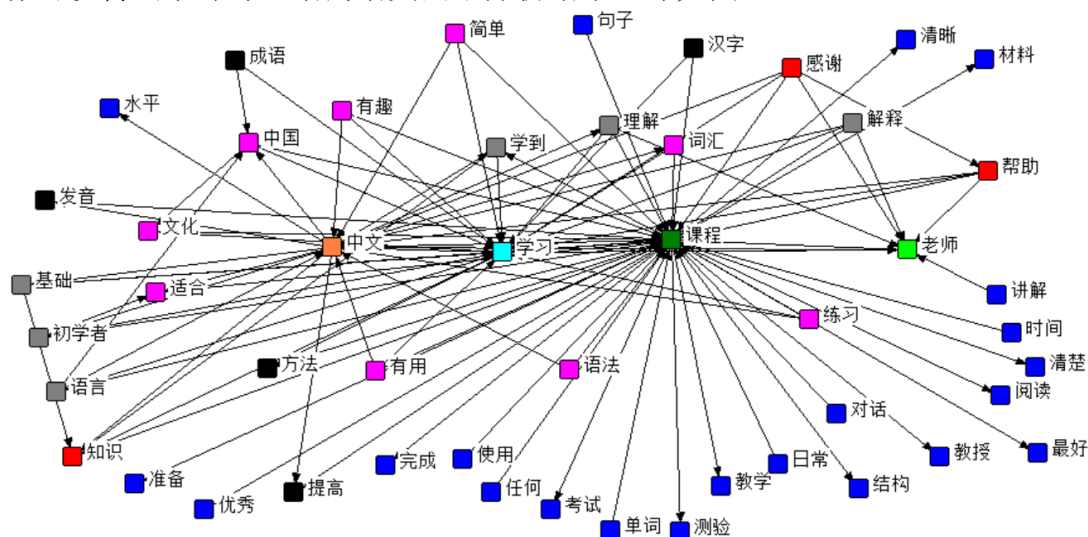


图2 慕课评论的语义网络分析

从整体上看,慕课评论的语义网络图展现出一种“核心—拓展—边缘”的结构,构成了三个不同层级:第一层为核心层(节点的度大于10),按词频高低依次由“中文”“课程”“学习”“老师”四个词汇构成,主要与慕课的学习对象、师资情况、课程内容等紧密相关,这些词汇共同作用组成了中文学习者对慕课感知的内核。第二层为拓展层(节点的度介于5—10之间,节点为红色、粉色),是对核心层四个核心词汇的扩充,例如,面向“中文”这一核心词可以拓展出“语法”“汉字”“词汇”“发音”等语言要素相关词语;面向“学习”这一核心词可以辐射出“理解”“学到”“适合”“有用”等标识学习结果的词汇。第三层为边缘层(节点的度低于5,节点为蓝色、灰色和黑色),是学习者对慕课课程外在因素的感知,例如,面向“课程”可以进一步引申

出“考试”“阅读”“材料”等描写课程基本内容或学习活动的词汇。总之, 评论语义网络通过三层结构, 将学习者对中文慕课的整体认知和感知直观地展现出来。

4.1.2 文本聚类与主题分析

本研究采用“自下而上”的思路构建慕课课程评价框架及维度。首先, 本文将清洗后的评论数据分别进行LDA主题分析, 可以得到主题词以及主题相关的关键词与权重; 接着, 本文又对评论文本进行TF-IDF计算, 基于TF-IDF结果进行K-means聚类, 当K值设定为4时可以较好地将评论分为四个簇; 最后, 本文结合之前语义网络分析的结果, 最终将所有评论文本分为四类: 教师师资、课程内容、系统环境、学习效果。四个主题的主题词权重见表4。

表4 文本聚类及LDA权重计算结果(部分)

主题	LDA主题词及权重
教师师资	0.112×“老师”+0.068×“辛苦”+0.041×“讲解”+0.032×“喜欢”+0.029×“优秀”+0.027×“有条理”+0.021×“逻辑”+0.017×“到位”
课程内容	0.082×“课程”+0.044×“成语”+0.039×“非常”+0.036×“内容”+0.029×“学习”+0.023×“丰富”+0.020×“中文”+0.014×“不错”
学习支持	0.075×“作业”+0.025×“课件”+0.019×“平台”+0.018×“字幕”+0.018×“清晰”+0.017×“播放”+0.012×“证书”
学习效果	0.068×“很大”+0.051×“很多”+0.049×“课程”+0.040×“帮助”+0.029×“学到”+0.025×“受益匪浅”+0.023×“很棒”

综上, 本研究根据文本聚类的结果确定慕课评价的一级维度, 再根据主题词的提取结果人工设定评价量规的二级维度, 从而构建出包含4个一级指标, 9个二级指标的慕课评价量规。本文基于前文提到的LDA主题分析后, 根据数据结果, 结合已有的慕课评价量表, 人工设定了各一级维度下的二级维度, 选取或整合能够反映该维度特征的高频词汇作为标签词。例如, 在“教师师资”维度下, “辛苦”“喜欢”等词汇的频度和权重较高, 但与“教师风格”和“讲授方式”相关度不高, 故不将之选用为标签词; 而“讲解”“有条理”“逻辑”等词与教师的讲授方式紧密相关, 故可以选为该维度的标签词。经过人工干预后, 评价量规及相关特征词, 再将该量规和标签词提交给国际中文教育、教育技术、教育评价的相关专家以及一线中文教师进行审阅, 在专家和教师的意见下进行微调, 最终的量规和标签词内容呈现为表5。

表5 评价量规及标签词设计

一级维度	二级维度	标签词示例
教师师资	教师风格	发音、清晰、亲切、平和、可爱、有魅力、认真、负责、和蔼等
	讲授方式	语速、优秀、出色、清楚、逻辑、透彻、有条理、有趣等
课程内容	教学设计	课程、设计、由易到难、策略有用、通俗易懂、内容、丰富等

	教学实施	照本宣科、容易理解、循序渐进、互动少、枯燥、测试、太快等
学习支持	学习资源	材料、作业、参考资料、练习题、资源、课件、证书等
	技术支持	课件、平台、精美、字幕、播放流畅、卡顿、闪退、脚本等
学习效果	认知领域	获益匪浅、听懂、学到、理解、了解、帮助、丰富、理解等
	技能领域	口语能力、阅读技巧、沟通、写作技法、专业能力、表达方式等
	情感领域	继续、学习、中国、文化、爱上、继续、快乐等

4.2 慕课评论情感分析

4.2.1 基于情感词典的慕课评论的情感分类

基于情感词典的慕课评论情感分类,可以帮助我们宏观上分析学习者对51门国际中文慕课的整体情感倾向,即学习者对这些中文慕课总体上是否感到满意。据此,本文基于情感词典对10050条评论进行情感分析,并对结果进行人工检查,得出评论的情感分布情况,见表6。同时,本研究还计算出积极与消极情感的程度分类结果,见表7。

表6 评论情感分布情况表

情感类型	评论量	占比
积极情感	8496 条	84.54%
中性情感	1174 条	11.68%
消极情感	380 条	3.78%

表7 积极与消极情感程度分类结果

程度	积极情感		消极情感	
	评论量	占比	评论量	占比
低度 (0—10)	3641 条	36.23%	282 条	2.81%
中度 (10—20)	2514 条	25.01%	72 条	0.72%
高度 (20 以上)	2341 条	23.29%	7 条	0.07%

由上述两表可知学习者对于中文慕课整体的情感态度,整体上看,二语学习者对国际中文慕课的总体评价较高,正向情感评论占比为84.54%,负向情感评论仅占3.78%。进一步分析,在两类情感中,随着程度的加深,评论数量呈递减趋势,从两级维度看,积极情感得分高于20的评论占总评论的23.29%,消极情感则只占0.07%。通过对评论的词频分析可以进一步绘制三类情感的词云图,见图3至图5。



图 3 积极情感评论的词云图



图 4 中性情感评论的词云图

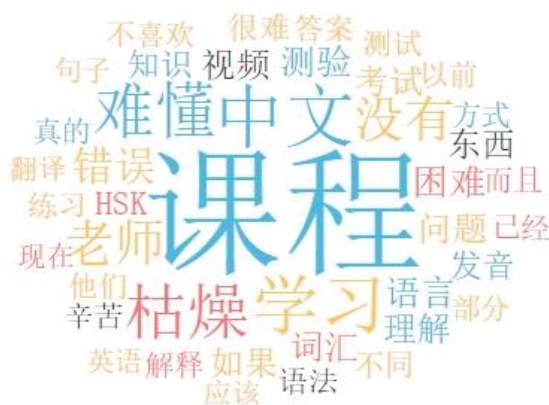


图 5 消极情感评论的词云图

由上三图可知,三类评论都围绕着核心词汇“课程”展开。进一步看,在积极情感评论中除了“中文”“学习”等几个位于核心的高频词外,还可以看到“有趣”“适合”“清楚”等课程内容的评价词,以及“受益匪浅”“知识”“喜欢”等学习结果的评价词语。在中性情感评论中,兼有表示正向或负向情感的词汇,但从评论的整个句子看,评论内容多为对课程的客观评价或描述自己的学习经历、体会,例如“我在15年前

学习中文1年半后暂停了学习, 直到现在。所以这门课程可以让我复习中文的拼音。”在消极情感评论中, 可以看到“难懂”“枯燥”“困难”等课程内容的评价词语, 以及“不喜欢”“问题”“错误”等学习结果的评价词语。

4.2.2 基于深度学习的慕课评论的评论情感计算

不同于前一节基于情感词典的慕课评论情感分类(仅需要将10050条评论分为积极、中性或消极三种情感中的任意一种), 基于深度学习的慕课评论的评论情感计算则可以帮助我们得到每一条评论的具体情感分值, 而不再是属于某一种情感类别, 例如经过计算, 评论“课程挺不错的, 虽然短, 但内容丰富, 涵盖很多知识点”的情感值为99.93%。基于深度学习的情感值计算为后续实现多维度的情感评分和评价结果可视化提供了数据来源。

本文使用双向长短时记忆神经网络模型(BiLSTM)对评论内容进行情感值计算。BiLSTM模型是在深度学习神经网络——长短时记忆模型(Long Short Term Memory, LSTM)的基础上构建了两个相反方向的LSTM层, 已有研究将该模型用于商品评论的情感分析, 取得了较好的效果(徐鹏等, 2022)。基于对采集到的慕课评论的文本长度分析, 本文发现, 评论文本平均长度在50~100字左右, 但能提取到较多维度评价信息的高质量评论文本可能会达到200~300字, 可见, BiLSTM对本任务的适用性较强, 故本文选用该模型。由于国际中文慕课评论总量不大, 故本文导入了英语、语文等语言类慕课评论10万条训练模型来提高在本任务上的准确性, 再用训练后的模型逐条计算评论的情感值。本文以《初级汉语语法》课的部分评论情感分值示例结果见表8。

表8 部分国际中文慕课课程评论情感分值

序号	评论内容	情感值 (%)
1	很有帮助, 提高了语言表达能力	92.21
2	对学习汉语很有帮助	98.83
3	学习了语法结构, 收获很大	99.72
4	我发现一处字幕有错别字。不知如何告知改正	23.01
5	太基础了, 没找对课程。	36.99

最终, 本研究将课程所有评论的情感值均值作为得分, 公式如下:

$$\text{Score} = \frac{\sum_{i=1}^n x_i}{n} \quad (1)$$

根据公式1, 本文以中国大学慕课平台三门国家级精品中文慕课为例, 展示上述方法得出的褒贬情感总分值, 见表9。

表 9 三门国家级精品课的课程总分值

课程名称	参与人数 (个)	开课次数 (次)	平台分数 (分)	评论量 (条)	情感值 (%)
初级汉语语法	45411	第 10 次	4.8	151 条	88.07
速成汉语语法课堂	27109	第 10 次	4.8	67 条	90.74
功能汉语速成	14648	第 9 次	5.0	28 条	94.00

由上表可见,“初级汉语语法”和“速成汉语语法课堂”同样开课10次,但学习者人数前者明显多于后者。同为速成类语言教学资源,“功能汉语速成”虽开课次数比“速成汉语语法课堂”略少一次,但其情感总分值更高。其原因可以通过分析学习者的评论文本发现,该课程以其新颖的形式以及情境化的对话教学获得了学习者的青睐,有助于为学习者打造沉浸式的语言学习环境。例如,学习者评论称“小情景、小对话的进行,更易于理解与学习。”

4.2.3 基于情感计算的慕课多维度评价

为获取该课程更多维、详细的评价信息,本文以前文设计的不同维度的标签词为索引,逐条检索评论文本中是否含有对应的标签词。对于含有标签词的评论样本,便将该评论归属到标签词所属的特定评价维度下。需要说明的是,由于部分评论内容涉及两个或多个维度,故同时将其归入所涉维度,故各维度的评论数量加和大于等于总评论数。例如,学习者的某条评论内容为“老师的脉络很清晰,普通话标准、语速刚好,仿佛跟着来到高山平原,走入一段历史。”通过关键词匹配可以发现,该评论包含了“老师”“普通话”“语速”“清晰”等与“教师师资”两个维度都有关的关键词,因此该条评论同时分别归入“教师风格”和“讲授方式”两个子维度。完成分类后,我们将该维度下的所有评论的均分作为该课程在这一维度的所得分数。若某一门课程的评论数量总体较少,从而导致某一维度的分数无法计算时,则用“unknown”表示该维度的分值缺省。例如,“速成汉语语法课堂”的66条评论中缺少与“学习资源”相关的评论,我们会将该维度的情感预测均值标记为“unknown”。

本文以《中国概况》慕课为例,展示其多维度评价结果。经过爬虫共得到该课程相关评论93条,数据清洗后共获得有效评论81条,情感评分均值为0.938750336。再通过上述方法可以自动分类出“教师师资”相关评论24条,“课程内容”相关评论25条,“学习支持”相关评论5条,“学习效果”相关评论30条,不同维度的评论内容及权重见附录1,该课程的多维评价结果见表10。

表 10 《中国概况》多维度评价的情感计算结果

一级维度	情感均值 (%)	二级维度	情感均值 (%)
教师师资	97.35	教师风格	97.64
		讲授方式	96.40
课程内容	93.74	教学设计	93.19
		教学实施	99.98
学习支持	83.94	学习资源	85.28
		技术支持	73.35
学习效果	93.58	认知领域	93.40
		技能领域	97.58
		情感领域	93.54

由上表可知, 在《中国概况》4 个一级维度中“教师师资”的好评度最高, 足见该课程拥有强大的教学团队, 其中学生对教师个人风格评价要优于讲授方式。学习者对该慕课的课程内容和学习效果的情感值整体趋高, 表达了学生对课程较为满意。而学习支持维度下的技术支持好评度最低, 进一步挖掘评论文本可以发现, 学生反馈部分章节的课件存在缺失情况, 这为未来课程建设指明了方向。

4.3 系统的功能实现

本研究基于 Django 框架来开发“国际中文慕课智慧学伴”系统。系统适用于有在线课程学习需求、微认证学分互认的国际中文成人学习者, 集“评价与推荐”为一体, 功能主要包括慕课的评价和推荐两大模块。学习者注册完成后, 就可以看到推荐结果, 再根据推荐结果进一步了解每门慕课的评价情况, 最终抉择是否选修课程。

4.3.1 慕课评价可视化模块

该系统除了调用并呈现课程数据库中采集的开课单位、课程介绍等公开信息外, 还将上述情感分析结果进行可视化呈现, 帮助学习者从更为多元的维度来深入了解课程。基于每门课程 4 个一级维度和 9 个二级维度的评价预测值, 再调用 python 中的 numpy、matplotlib 等可视化工具包, 使用雷达图、柱状图、折线图等手段加以表征, 从而完成课程评价结果的可视化, 助力学生个性化选课。如 4.2.1 所述, 学习者对国际中文慕课整体评价较好 (表现为积极评论远多于消极评论), 故本文仅选择一节代表性慕课, 展示其评价结果可视化的界面 (见图 6)。



图 6 平台的课程评价模块展示

4.3.2 慕课智能推荐模块

本系统采用协同过滤推荐的思路,这是因为在传统的推荐方法中,协同过滤是应用最为广泛的推荐算法(于蒙等,2022)。它仅需要利用用户的历史评分数据,因此简单有效,且在当前任务缺少课程特征的情景下也表现良好。其算法的核心是通过分析评分矩阵(通常是用户对项目的评分)来得到用户、项目之间的依赖关系,并进一步预测新用户与项目之间的关联关系。在该系统中,用户评分具体体现为学习者个体对课程的偏好(浏览、喜欢、选修、收藏等行为均可作为标志),通过“学习者—课程”双向匹配完成课程的智能推荐。为提升课程推荐效果,系统开发过程中需要重点完成如下工作。第一,构建用户模型,学习者在注册账户时,平台通过采集其基础信息、语言水平、学习动机、课程偏好(课型、内容、师资等)等信息,形成学习者画像;第二,构建课程模型,根据《国际中文教育中文水平等级标准》的要求和评价结果来为慕课添加语义标签:{类属,子类,等级,适用课型,情感分值}。例如《初级汉语语法》的标签为{语言要素,语法,初等,一级,综合,0.88}。第三,推荐策略模型,通过将标签和用户进行匹配后,再将课程按总分由高至低排列,在同等情况下按照学习者偏好优先推荐某一维度分数更高的课程,最终达成智能推荐的目标。

以初级中文学习者为例,其学习需求主要为语法知识,系统为其推荐的课程结果见图7,如果用户为短期来华旅游的中文学习者,系统会为其推荐的课程为速成类慕课课程,见图8。此外,系统还支持学习者自主检索课程,学习者也可以参考系统推荐的“热门慕课”(见图9)。最终,每位学习者都可以借助系统形成个性化的慕课学习路径。

课程推荐列表

刷新 自主检索

课程名称	开课平台	主讲教师	评分	适合等级	是否开课	操作
初级汉语语法	爱课程 (中国大学M)	王瑞峰、于淼、王瑞、...	★★★★★	初等	是	喜欢 不喜欢
初级汉语口语入门	爱课程 (中国大学M)	常娜、李燕、莫丹、...	★★★★★	零基础	是	喜欢 不喜欢
初级汉语语法	爱课程 (中国大学M)	李盼萍	★★★★☆	初等	是	喜欢 不喜欢
初级汉语语法进阶	爱课程 (中国大学M)	牟世荣	★★★★★	初等2级	是	喜欢 不喜欢
汉语初级入门	爱课程 (中国大学M)	张艳莉、朱璇、李亚梦...	★★★★★	零基础	是	喜欢 不喜欢
初级汉语口语	爱课程 (中国大学M)	胡秀梅	★★★★★	初等1级	是	喜欢 不喜欢
初级汉语综合	爱课程 (中国大学M)	陈海芳	★★★★★	初等	是	喜欢 不喜欢

图7 面向初级学习者的慕课推荐结果展示

课程推荐列表

刷新 自主检索

课程名称	开课平台	主讲教师	评分	适合等级	是否开课	操作
功能汉语速成	爱课程 (中国大学M)	徐雨霁	★★★★★	初等	是	喜欢 不喜欢
速成汉语语法课堂	爱课程 (中国大学M)	种一凡、张倩、蔡建永...	★★★★★	速成	是	喜欢 不喜欢

图8 面向短期来华学习者的慕课推荐结果展示

自主搜索 ×

按题目搜索

搜索

按慕课名称选择

搜索

慕课热门课程选择

中国文化
 汉语upup
 功能汉语速成
 中文入门
 中国概况
 初级汉语口语入门

搜索

图9 平台课程个性化检索模块展示

5. 讨论与分析

5.1 理论价值

第一,革新了慕课评价量规的构建方式。如 2.2 的文献综述所述,传统国际中文慕课的评价量规多采用“自上而下”的构建方式,主要使用德尔菲法、层次分析法等。依托这种构建方式构建的量规容易被专家的个人经验主导,无法反映学习者的真实的学习体验。因此,本研究力求弥补这一不足,秉持“以学习者为中心”的理念,从学习者的真实学习需求出发,采用语义网络分析、情感分析等一系列方法,“自下而上”地构建国际中文慕课评价量规。从已有研究来看,这种基于学习数据挖掘的慕课评价量规构建方法虽已在其他学科领域有过一些尝试,但在国际中文教育领域还较为缺乏。因此,本研究可以看作是对国际中文教育数字教学资源评价的一次创新尝试,有助于提高国际中文慕课建设的科学性、规范性,并为微课、直播课等其他国际中文教育的教学视频提供参考。

第二,随着教育评价理论和方法的发展,基于证据的评价成为教育评价的新趋势,学习大数据的采集、挖掘、分析和可视化技术为学习过程中的证据获取提供了技术支持,使得教学评价更为精细、多维(马宁等,2022)。本研究正是采用了这种基于证据的评价观,通过采集中文学习者学习慕课过程中产生的学习行为数据,通过运用各类方法对这些数据进行处理,从而挖掘中文学习者在评价慕课时的关注点,更好地指导国际中文慕课开发。例如,中文学习者在学习语法类慕课时较为关注教师对句法结构的讲解是否清晰,且对有真实交际情境的慕课内容更加青睐。

5.2 实践价值

随着国际中文慕课建设工作的不断推进,资源建设需要发挥评价的导向作用,以确保所建设的资源能够做到“适用、好用、爱用”。目前,国际中文教育领域尚缺少这种从学习者视角出发的评价量规,也没有相关的课程推荐系统。因此,本研究另一个贡献是完成了“国际中文慕课智慧学伴”系统的设计与开发工作,真正将数据挖掘技术和智能推荐技术相整合,开发出能够支持学习者个性化选课的系统。该系统的优势在于,它能够呈现更多样、细颗粒的课程信息,在一定程度上帮助学习者挑选出更加符合自己需要的慕课课程,通过差异化慕课推送的方式,让学生的语言学习更加贴合其最临近发展区,实现可理解性输入,缓解学习者因为课程不合适而导致的网络辍学率高等问题,助力国际中文教育实现“因材施教”。

6. 国际中文教育慕课建设的优化建议

为推动国际中文慕课的高质量发展,未来,国际中文教育领域应尝试构建“以评促建、数据驱动”的慕课建设机制,从而推动其可持续优化与高质量发展,下文重点从内容、师资、服务、评价四个方面提出建议。

第一, 内容为王, 提升课程品质。总体上看, 42.52%的评论与课程内容相关, 可见课程内容使学生最为关切的核心内容, 也是慕课育人性科学性的重要体现。慕课开发者需要结合其时长、体量等特点, 将识记、理解类知识的讲解任务交由慕课来承担, 同时遵循多媒体认知规律, 精心择定教学内容, 巧妙设计互动活动来增强慕课学习的体验感和临场感, 最终促成在线深层次学习。

第二, 赋能师资, 增强数字素养。国际中文教师的数字素养与慕课教学质量直接相关。从已有慕课评论中可以看出, 60%以上的学习者对能够灵活、合理运用数字媒体来讲解学科知识的教师具有较高的评价。因此, 国际中文教师需要树立终身学习理念, 在《国际中文教师专业能力标准》的指导下, 不断优化 TPACK 知识结构框架, 积极开展技术整合的创新教学实践, 不断增强自身在线教学的数字胜任力。

第三, 服务至上, 优化学习支持。为打破当前慕课“重建设、轻服务”的现状, 构建“以服务驱动建设, 以应用改进体验”的慕课发展模式(杨重阳 & 武法提, 2022), 慕课建设者应不断优化课程作业、学分兑换、证书获取、资料补充等学习支持服务, 通过智能评阅、留言评论等方式, 尽可能为学习者提供即时化、个性化的学业辅导。

第四, 积聚数据, 推动评价改革。从已有慕课数据看, 参与课程的人数远高于评论留言人数, 因此教师 and 平台可以鼓励和引导学习者在慕课学习过程中主动留下学习文本数据, 从而更好支持研究者汇聚学习大数据来支持文本分析、认知诊断等数据挖掘行为, 进一步优化慕课资源的评价方式。

7. 结语

在国际中文教育数字化转型的宏观背景下, 为充分释放数据要素在中文教学变革中的重要作用(徐娟 & 马瑞凌, 2023), 本文锚定慕课课程, 以构建高质量国际中文在线“金课”课程体系为目标, 尝试运用语义网络分析、LDA 主题词模型、情感分析、智能推荐等技术, 对中文学习者学习慕课时产生的 10050 条评论进行数据挖掘, 构建了包含 4 个一级指标、8 个二级指标的国际中文慕课评价量规, 并在此基础上研发集“评价可视化”与“智能推荐”功能为一体的“国际中文慕课智慧学伴”系统, 以期帮助学习者从海量慕课中择取适合自己的课程资源, 形成个性化的语言学习路径, 助力突破慕课的“认知天花板”困境。

未来, 我们还需要不断完善“国际中文慕课智慧学伴”系统。一方面, 我们需要将该系统应用到中文教学中, 收集用户体验数据, 从而不断优化和迭代评价与推荐机制; 另一方面, 随着国际中文慕课学习人数的增加, 必然会产生新的评论文本, 为实现国际中文慕课的动态评价, 在每一次开课结束后平台管理员会采集新增评论并补充到数据集中, 不断优化情感计算结果, 让慕课评价和推荐更加科学、精准。最后, 我们还将推动 GPT-4 Turbo、讯飞星火等大语言模型(Large Language Models)与该研究的结合, 将最新的智能技术融入到该系统中。

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Engaging Students in the Online Classroom: A Case Study on Teachers of Chinese as a Foreign Language (促進學生在線課堂的參與：一項基於對外漢語教師的案例研究)

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Abstract: Compared to traditional face-to-face classrooms, engaging students in online Chinese as a foreign language (CFL) classroom poses unique challenges. In light of the importance of fostering student engagement for academic achievement, this case study collected data through interviews and observations with three CFL teachers to investigate their challenges and strategies in terms of enhancing student engagement in the online classroom. The results suggest that while the teachers encountered challenges in enhancing students' emotional engagement in online CFL classrooms, they valued the direct and indirect impacts of emotional engagement on language learning. Consequently, they employed various strategies, such as using multilingual resources to scaffold understanding, providing technology-enhanced constructive feedback, and increasing "personal touch", to promote online student engagement. Drawing on these insights into teachers' experiences of online student engagement, this study provides recommendations for training and professional development initiatives aimed at preparing CFL teachers for the online classroom.

摘要：提高學生的課堂參與度對其學業成就至關重要。與傳統的面對面課堂相比，促進學生對外漢語在綫課堂的參與面臨著特殊的挑戰。鑒於此，本案例研究結合半結構化訪談和課堂觀察，探究三位對外漢語教師促進學生參與在綫課堂時面臨的挑戰及其採取的相應策略。研究結果表明，儘管提高學生在綫課堂中的情感參與存在挑戰，但是教師重視情感參與對語言學習的直接和間接影響。同時，他們也採用各種策略促進學生參與在綫課堂，例如使用多語資源協助學生理解、提供技術強化的建設性反饋、增加“個人接觸”等。基於以上研究發現，本研究提出促進學生參與在綫課堂的相關建議，以期為對外漢語教師進行在綫教學做好準備，並為未來的教師培訓和專業發展活動提供參考。

Keywords: Student engagement, online classroom, challenges, strategies,

Chinese as a foreign language (CFL)

關鍵詞： 學生參與、在綫課堂、挑戰、策略、對外漢語教學

1. Introduction

Over the last two decades, there has been a growing demand for Chinese language teaching and learning all over the world (Gong et al., 2020; Gong et al., 2018). As of 2021, the Chinese language is taught in more than 180 countries and regions globally, with over 20 million learners of Chinese as a foreign language (CFL) worldwide (Center for Language Education and Cooperation, 2021). Due to the unique characteristics of the Chinese language, CFL learners can encounter various challenges in learning Chinese. For instance, they need to master the different tones associated with Chinese character recognition, memorize a large number of Chinese characters, and understand the syntactic relationships in modern written and spoken Chinese (Ma et al., 2017). To address these challenges, a high degree of student engagement is necessary in the CFL learning process to enhance their learning outcome and performance (Lee & Kalyuga, 2011). Student engagement has long been topic of interest in educational research, with numerous studies conducted in traditional face-to-face classrooms (Bao et al., 2021). However, compared to offline teaching, language teachers have reported that online teaching often suffers from limited student engagement (Tarrayo et al., 2023; Vurdien, 2019).

Regardless of the instructional environments, student engagement is considered a crucial factor for students' learning and academic achievement (Fredricks et al., 2016; Rasheed et al., 2020). Specifically, engaged students are intrinsically motivated to learn, attend classes, and participate in classroom activities, making them more likely to achieve good learning performance (Bakker et al., 2015). Meanwhile, language learning emphasizes active behavior and encourages students to engage in authentic communication in the target language context (Lightbown et al., 1993; Savignon, 2018). Thus, student engagement is of great importance in online CFL classrooms.

Previous studies have suggested strategies that teachers use to engage students in the context of traditional classrooms (e.g., Bond et al., 2012; Hawtrey, 2007), while only a few have specifically addressed strategies to promote student engagement in online classrooms (e.g., Abou-Khalil et al., 2021). Indeed, engaging students in online classrooms is often more challenging for teachers compared to traditional face-to-face classrooms due to constraints such as time, internet connections, and the lack of physical contact (Bao et al., 2021; Gillett-Swan, 2017; Hew, 2016). Therefore, further research is needed to explore how language teachers can effectively engage students online, especially in the context of CFL classrooms. This case study presents the experiences of three teachers in promoting student engagement in online CFL classrooms. By investigating the challenges and strategies related to engaging students in online CFL classrooms from the participants, this study aims to provide insights for CFL teachers facing similar dilemmas and offer practical implications for online CFL teaching and learning.

2. Literature Review

2.1 Challenges and strategies regarding online CFL teaching

Even though technological enhancement has benefited language teaching, there are a variety of challenges that teachers face when teaching CFL online (Zhang, 2020). These include common challenges in other disciplines, such as limited online interaction (Alsheikhidris, 2020; Stickler & Shi, 2013), little experience in online teaching (Lin & Zheng, 2015), lack of support and training in the use of technology (Gong, Fan, & Wang, 2021; Wang, 2023), but also the difficulties of teaching CFL online in general (Xu et al., 2021; Zhang, 2020; Zhang, 2017).

In a review of empirical research on teaching foreign languages online, Zhang (2014) reported the impact of the tonal features of Mandarin Chinese itself on online CFL teaching and pointed out that teaching Chinese online was inherently more challenging than teaching a phonetic, non-tonal language. Stickler and Shi (2013) also found that CFL teachers might not be able to recognize students' comprehension difficulties in a timely manner due to the lack of facial expressions in online classrooms, and the similarity between the second tone in Putonghua and the questioning tone in English could lead to errors easily when students spoke Chinese. Such a situation affected the communication between teachers and students as well as further interaction, making it difficult for CFL teachers to give proper language modeling and instruction through online conversations to further develop students' Chinese speaking skills (Alsheikhidris, 2020). In addition, as noted by Zhang (2020), online CFL classrooms also hinder teachers from observing students' handwriting and demonstrating the strokes of Chinese characters to students through handwriting, which makes it challenging for teachers to know and guide students' Chinese character development. Given the above difficulties of teaching CFL online, teachers need to make efforts to enhance online interactions and develop students' language skills in Chinese.

To overcome these challenges and enhance teaching effectiveness, a range of strategies for online CFL teaching have been proposed. For example, breaking down language tasks and providing additional digital scaffolding materials (e.g., meanings of difficult words, and multimedia resources) are considered useful in enhancing online interactions and students' understanding (Chen, 2021). Similarly, Stickler and Shi (2013) suggested that CFL teachers could increase the proportion of using English appropriately in online classrooms to promote students' understanding of the teacher's discourse, especially when teaching difficult grammar rules. In terms of enhancing students' Chinese speaking skills, verbal repetition and feedback were found to be effective in improving the accuracy of their L2 production (Yang & Lin, 2020). It may ensure that students can get enough information in case of an unstable network and help them to correct their pronunciation. CFL teachers are also encouraged to adopt technology-enhanced pedagogical tools in online CFL teaching, such as the Chinese characters teaching model relying on multimedia and mobile applications (Zhan & Cheng, 2014), and online grammar modules designed following multimedia design principles (Zhang, 2017). Overall, faced with the challenges posed by the online context for CFL teaching, teachers tend to employ

different strategies to address the challenges and achieve their teaching goals. Yet, students are more likely to disengage rather than find new learning strategies when facing the difficulties of learning Chinese online, as they have more freedom to withdraw in an online classroom (Bao et al., 2021; Tseng, Lin, & Chen, 2018).

In the context of online CFL teaching, previous studies have focused on some factors related to student engagement, such as teachers' self-efficacy (Bao et al., 2021), students' learning performance (Fan & Tian, 2022), and students' motivation (Jiang & Xie, 2022). However, little research has been conducted to date on how to promote student engagement in online CFL classrooms. Given the importance of student engagement to successful language learning, this issue needs more attention from educational stakeholders.

2.2 Enhancing student engagement in language education

In the field of language education, Hiver et al. (2020) defined student engagement as the extent to which students actively participate in language learning tasks and goal-directed psychological and physiological activities. Student engagement is generally understood to encompass three dimensions: behavioral, emotional, and cognitive engagement (Fredricks et al., 2004). Previous studies have shown that this three-dimension conceptualization of learner engagement has been widely used in studies on second language acquisition (SLA) (e.g., Ellis, 2010; Sulis, 2022; Zhang, 2022). Therefore, the present study adopted these three dimensions to guide the data analysis related to engaging students in online CFL classrooms.

Behavioral engagement is often described as visible or measurable behaviors that engage students in teaching (Fredricks et al., 2004). Examples of behavioral engagement in SLA include learners' voluntary speech, initiating interactions, time spent on the task, the amount of semantic content produced in the task, and persistence in the task without assistance or guidance (Philp & Duchesne, 2016). Regarding emotional engagement, language education researchers often focus on students' emotional responses when engaging in language activities or tasks in the target language (Hiver et al., 2021). Cognitive engagement mainly refers to learners' mental effort and mental activity in the learning process (Hiver et al., 2021), emphasizing that students have their own learning goals and can understand the importance of education. In language classrooms, both verbal interactions (e.g., exchanging ideas or providing feedback) and nonverbal communication (e.g., body language) are recognized as critical indicators of cognitive engagement (Fredricks & McColskey, 2012; Hiver et al., 2021). Notably, emotional engagement is the most important driver of student engagement because students' subjective attitudes or perceptions in the classroom or in language-related tasks directly or indirectly affect other dimensions of engagement (Dao, 2021; Henry & Thorsen, 2020).

After the COVID-19 leads to a shift to online teaching and learning, research focusing on online language teaching has explored the role of teachers in fostering student engagement in the online language classroom. For instance, teacher support is found to be able to promote student engagement in the context of teaching English as a foreign language (EFL) online (Sadoughi & Hejazi, 2022). Similarly, Luan et al. (2020) revealed a positive relationship between teacher support and behavioral engagement in online EFL

classrooms. Moreover, Mihai et al. (2022) pointed out that teacher-student interaction was also an important factor in supporting the engagement of EFL learners in online classrooms, which means that more online interactive tasks should be designed by EFL teachers. Previous studies emphasize that language teachers can engage students in the online language classroom by providing support and enhancing interactions. In line with this, some studies have further suggested strategies for language teachers who teach online, looking at aspects such as feedback and communication (e.g., Tanis, 2020; Moore, 2018).

To engage students in online language classrooms, teachers are encouraged to provide students with feedback on their learning performance, since feedback is usually considered one of the effective means to create interaction in the online context (Gaytan, 2005). Specifically, Tanis (2020) found that providing students with constructive written or audio feedback was essential to keep them engaged in the online language classroom. At the same time, constructive feedback should be timely and clear, encouraging students and containing appropriate suggestions for improvement (Hamid & Mahmood, 2010). In addition to feedback, timely communication by teachers also helps engage students and bridge the distance between online teaching and learning (Moore, 2018). There are several technology-assisted approaches that can be adopted to enhance teacher-student communication or encourage cross-cultural communication when teaching foreign languages online (Hiver et al., 2021), such as email and video calls (Tanis, 2020), and authentic social media (Henry & Thorsen, 2020). Although these technologies are generally used outside of the classroom, Mercer (2019) pointed out that these could promote students' meaningful use of the target language and increase student engagement in language learning. Notably, due to geographic isolation, online communication between teachers and students may be one of the most important ways for teachers to know about their students. Thus, it may also allow teachers to identify disengaged learners so that targeted interventions can be made to motivate students in online language learning (Hiver et al., 2021).

The above studies emphasize the important role of teachers in fostering student engagement in online language classrooms, and they also provide some pedagogical implications for engaging students. However, most of them have been conducted in the context of EFL teaching and few studies have focused on the setting of online CFL classrooms. Thus, these experiences and approaches may not be applicable to CFL teachers in promoting student engagement in online classrooms. With this in mind, the present research aims to address the following two questions:

- RQ1: What challenges did CFL teachers encounter in engaging students in online classrooms?
- RQ2: How did CFL teachers address these challenges in online classrooms?

3. Methodology

A case study approach is adopted in the present study since it is grounded in real-life situations, offers an insightful and comprehensive account of teachers' personal experiences and teaching practices, and is commonly suitable in educational research

(Merriam, 1998).

3.1 Participants

To identify participants who exemplify the characteristics of interest in this study, snowball sampling was adopted for participant recruitment (Merriam, 1998). The participants were required to be CFL teachers and have experience in teaching CFL online. Three teachers - Ms. Yu, Mr. Zhao, and Ms. Wang, who taught Chinese as a foreign language were recruited to participate in this study. The researchers first approached Ms. Wang, an experienced CFL teacher, who then recommended Ms. Yu and Mr. Zhao as potential participants. The participants were affiliated with Confucius Institutes, which are language and culture promotion projects initiated by the Chinese government (Zhao & Huang, 2010). All participants were native speakers of Chinese and possessed experience with online CFL teaching, with variations in their CFL teaching experience. In addition, as shown in Table 1, the participants exhibited diverse demographic characteristics, including gender, language background, and prior experience, thereby contributing to the study's richness by offering multiple perspectives.

Table 1 Participants' profiles

Name	Gender	Language background	CFL teaching experience	Work experience	Employment status
Ms. Yu	Female	Putonghua, English	6 years	Chinese language teacher at a Chinese university's international college	Volunteer teacher at a university's Confucius Institute
Ms. Wang	Female	Putonghua, English	5 years	No	Volunteer teacher at a university's Confucius Institute
Mr. Zhao	Male	Putonghua, English, Portuguese	3 years	No	Online teacher at a university's Confucius Institute

Note: All names are pseudonyms.

3.2 Data collection

This study was conducted to explore the challenges and strategies of CFL teachers to engage students in online classrooms. Semi-structured interviews were used to collect data as interviews have the advantage of being focused, authentic, and in-depth, allowing researchers to delve into specific topics without being susceptible to respondent fatigue (Bryman, 2016). The researcher prepared a list of questions to guide the interviews, and participants were encouraged to comment on the topic by expressing any opinions, observations, associations, or examples related to the dominant theme of the conversation.

To introduce the topic, the three participants were asked about the level of student engagement in their online CFL classrooms and their perceptions and expectations of student engagement. They were also asked to share their perceptions of online teaching by comparing offline and online teaching, which may be related to the strategies they chose to engage students online. A further line of inquiry focused on the participants' perceptions of possible ways to enhance student engagement in online CFL classrooms. They were asked about specific techniques or strategies they use in this regard. A final question addressed their' overall feelings/opinions about facilitating student engagement in online CFL classrooms, reflecting the challenges they encountered in this process.

The interview questions were first reviewed and assessed by an expert and a teacher of Chinese as a foreign language. These questions, topics, and interview techniques were then pilot-tested with two CFL teachers, and the interview designs were modified accordingly. Before the interview started, each participant was informed about the process and possible risks of the study and signed the informed consent form with their electronic signature. Each interview lasted approximately 60 to 90 minutes and was conducted online. In addition, three semi-structured interviews were conducted in Putonghua, the participant's first language, to minimize language barriers. The interviews were digitally recorded and transcribed.

In addition, by observing some online classes of the participants with their permission, field notes were also taken to provide a comprehensive and contextualized account of how teachers enhance student engagement in online classes (Wolfinger, 2002). The field notes were descriptive, providing more detailed accounts of student engagement in online classes and enriching the interpretation of the research questions, given that some of the strategies chosen and used may not be fully reflected in the interviews.

3.3 Data analysis

According to Gibbs (2007), qualitative data analysis includes data processing and data interpretation. In the process of data processing and interpretation, this study adopted the six strategies suggested by Creswell (2003) for qualitative research data analysis, which are: 1) organizing and preparing the data for analysis; 2) reading all the data through; 3) starting detailed analysis with a coding process; 4) using coding to generate a small number of themes or categories; 5) advancing how the description and themes will be represented in the qualitative narrative; and 6) making an interpretation of the data.

Interviews and classroom videos for this study were conducted during the fall and winter of 2022. The second author first transcribed the qualitative material collected through interviews and observations into texts and collated, categorized, and screened the material. Then, the three authors reviewed all the interview transcripts and field notes three times to identify the sections of text relevant to the research questions and coded them using the original terms. The coding was conducted according to the three dimensions of student engagement: behavioral, emotional, and cognitive engagement. Within each dimension, the authors compiled the corresponding excerpts from all interviews and then coded and recorded the excerpts under each theme to produce descriptive codes. Similar codes were grouped together to create analytic categories. The initial coding of the analytic

categories was then compared between the participants to find overlapping ideas and evidence and to cross-validate the resulting categories. Finally, this study used a narrative passage to convey the findings of the analysis. Responses were cited, described, compared, interpreted, and analyzed to answer this study's research questions systematically.

Throughout the data analysis process, annotations and memos were used to record immediate comments and reflections on the data and assist in coding and categorizing the data (Maxwell, 2012). In addition, to ensure the accuracy of the data and the credibility of the subsequent analysis, the researcher conducted the member-checking procedure (Birt et al., 2016) by presenting the raw data to the participants and sharing a summary of the findings. One participant made minor annotations, and the other two made no comments.

4. Findings

After analyzing all the data collected from the three participants, the findings revealed various challenges they encountered in terms of enhancing student engagement in online CFL classrooms. To address the challenges, the participants adopted different strategies before, during, or after class to engage students in the online classroom. The strategies derived from the participants' intention to "test the waters", as was indicated in the interview accounts. These step-by-step strategies proved useful in effectively engaging students in online CFL classrooms.

4.1 Using multilingual resources to scaffold students' understanding

All participants reported that the first thing they became aware of during online teaching was the communication barrier with students. In traditional face-to-face classrooms, they would predominantly use Chinese as the medium of instruction, immersing students in a sole Chinese-speaking environment. When observing students becoming confused, they could use body language or facial expressions to assist, and peer-to-peer communication also proved effective in helping them understand the teacher's instructional words. The participants stated that using the target language for instruction is a common practice in CFL teaching, which can increase students' Chinese vocabulary and effectively promote their listening comprehension. However, the same pedagogical approaches seemed to have more drawbacks when applied in the online environment.

In online CFL classrooms, teacher-student interactions primarily rely on digital audio. For instance, Ms. Yu mentioned that without some non-verbal expressions and gestures, communication looked like a "listening test". Because Chinese is a tonal language, foreign students often find it challenging to differentiate and comprehend Chinese characters based on tones (Zhang, 2014), let alone pronounce the words accurately (Stickler & Shi, 2013). Meanwhile, objective contextual factors, such as internet lag and environmental noise, also affected the fluency and accuracy of online class audio. In this situation, mutual understanding between teachers and students was relatively hindered, influencing the progress of teaching. For instance, when Ms. Wang asked questions in the online classroom, students always requested her to repeat the questions one or two times for needing more time and prompts to think about. Although Ms. Wang could slow down

the teaching pace, she was concerned that such situations might affect the opportunities and confidence of students to engage in online language learning. Similarly, in one online class delivered by Ms. Yu, a student's misinterpretation of instructional words affected their performance in answering questions:

[1] Ms. Yu asked the students, “Do you like raising animals? (literally in Chinese: 你喜歡養動物嗎?)” One student volunteered to answer, but he heard “raise (literally in Chinese: 養yang3)” as “sheep (literally in Chinese: 羊 yang2)” and replied, “I don't like sheep; I like dogs. (literally in Chinese: 我不喜歡羊, 我喜歡狗。)” (Field note)

Even though this student provided the correct answer after Ms. Yu repeated and explained the question, he subsequently “became noticeably silent” for the rest of the class. The student's silence could be related to a lack of success after misinterpreting Ms. Yu's instructional questions. In the same vein, Ms. Wang, an experienced CFL teacher, also mentioned that the students mostly reduced their online class engagement because of no “sense of success”, while they actively participated in learning originally.

In response to this situation, the participants emphasized the importance of teacher support. They believed that students in online CFL classes were “isolated” (Mr. Zhao), and thus it was necessary for teachers to provide scaffolding for their online learning, ensuring that students could understand the class content and have equal opportunities to participate in online classes. A common strategy was to introduce multilingual resources during online teaching. Specifically, the participants adapted and supplemented teaching slides in online CFL teaching, increasing the proportion of English explanations in the class to help students understand the content. Ms. Wang described how she did this:

[2] I added Hanyu Pinyin (Chinese romanization system) next to Chinese characters, and some difficult words even have English explanations. In addition, to ensure that students understand the requirements of classroom activities and homework, I often explain to them in English. (Ms. Wang)

The participants usually used English in online CFL classes to enhance students' understanding, because the students came from different countries and had a certain level of English proficiency (Gong, Gao, Li, & Xue, 2021; Yang & Gong, 2023). However, in addition to English, they may also need to choose other appropriate linguistic resources for classroom interactions according to the student's language background, as some of them may not know English. For example, Mr. Zhao scaffolded his Brazil students in Portuguese in his online classes:

[3] When teaching online, I often use their native language for instruction, and gradually increase the use of Chinese. After students reach the advanced level, the use of Chinese and Portuguese in one class is about 50% each. I usually also open a Word document during class and write down important content in both Chinese and Portuguese. (Mr. Zhao)

According to participants' experiences, such support was very helpful for students with a lower level of Chinese proficiency, since it could facilitate them to reduce their anxiety in learning Chinese. Previous research has already demonstrated that teacher support is often considered to enhance student behavioral engagement in online language classes (Luan et al., 2020). Providing digital scaffolding materials has also been found to enhance interaction online and facilitate students' understanding (Chen, 2021). Therefore, this strategy can help students understand course content, keep up with the class, and have more opportunities to participate in online language learning tasks, thereby improving their behavioral engagement in online CFL classes. Additionally, the participants believed that this could facilitate students to successfully complete online language learning tasks. The strategy could finally create a positive learning experience for students and enhance their emotional engagement (Hiver et al., 2021).

4.2 Providing technology-enhanced constructive feedback to engage students emotionally and cognitively

Similar to the above situation, all three participants were concerned that students might experience reluctance and subsequently disengage from online CFL learning. Therefore, they chose to provide more positive feedback in online classes at the beginning. Ms. Yu believed that encouraging students to practice language skills through speaking in class was beneficial. As language learners, students need to build their confidence in the target language for effective communication. Positive feedback from teachers can increase their confidence and make the learning experience more enjoyable, further effectively promoting their emotional engagement (Hiver et al., 2021). Ms. Wang mentioned the positive role of encouraging students, and she always praised students' achievements in her online classes:

[4] When I teach, I try to encourage my students, no matter how they are doing, specifically by telling them it's great or excellent! This makes the students feel good, and they are more willing to respond to me in the online classroom or participate more actively in other activities. (Ms. Wang)

While positive feedback can motivate students to learn, the participants emphasize that corrective feedback should not be overlooked in online classes. Corrective feedback was considered an important way to improve students' Chinese language skills. Providing solely positive feedback may lead students to feel "overconfident" and they may think that not much effort to learn is needed. At the same time, students usually have more freedom to disengage from learning in virtual classrooms themselves (Bao et al., 2021). For example, Mr. Zhao found that while "abundant" praise increased his students' willingness to attend online classes, it also led to slow progress. Because students in such situations often fail to realize the importance of certain learning tasks and only participate on a surface level.

To address this issue, all participants reported to have developed a feedback template, which includes two components: positive comments, and corrective feedback on areas for improvement, such as pronunciation and grammar. Previous research has shown that feedback provided by teachers can effectively enhance student engagement in online language classes, especially when the feedback is constructive (Gaytan, 2005; Tanis, 2020).

Following the definition proposed by Hamid & Mahmood (2010), the feedback template that participants used to engage students in the online classroom is constructive feedback. Specifically, Ms. Yu provided constructive feedback to students like this:

[5] A student used the idiom “人山人海 (literally in Chinese: a sea of people)” when describing a tourist attraction she visited, and Ms. Yu said, “Fantastic! You used the new idiom we just learned to describe a large crowd, and you placed it correctly. If you could pronounce the tone of ‘海 (sea)’ more accurately, it would be perfect! This is a third tone. Could you try to say it again?” (Field note about Ms. Yu)

In addition to the verbal feedback, the participants in online CFL teaching also utilized digital technologies to provide constructive feedback to students. During online teaching, teachers might not have enough time to converse with each student, and using digital technologies to provide feedback both in and outside the classroom was a critical approach. For example, Ms. Wang provided audio feedback for her students’ recording assignments:

[6] I will play back their recordings on the computer, then pause at different points and provide verbal feedback. I record the whole process with my phone and then send the audio feedback to each student. Generally, I will praise the good parts of what they said, and then specifically point out where the vocabulary or pronunciation is not quite accurate, and how to improve. (Interview with Ms. Wang)

Compared to directly telling students, this digital feedback allowed students to replay and study repeatedly, which was particularly beneficial for students to imitate correct Chinese discourse. Similarly, Ms. Yu also sent written encouragement and guidance to his students in Zoom breakout rooms for their discussion activities. This pedagogical approach she used could assist students in a timely manner without interrupting their discussions. Overall, providing technology-enhanced constructive feedback not only boosted students’ confidence in learning Chinese and promoted their emotional engagement, but also stimulated their thinking and cognitive engagement in online CFL classrooms (Fredricks & McColskey, 2012).

4.3 Increasing “personal touch” to engage students emotionally and culturally

Regarding engaging students in online CFL classrooms, all participants identified another major challenge: a lack of emotional connection. They believed that if teachers and students had established a strong emotional bond from the previous face-to-face classes, students would be happier and more willing to participate in online classes, showing a high level of emotional engagement. However, in most cases, students and teachers in online language courses did not have the opportunity to meet in person, making it difficult to form the emotional connection. At the same time, considering “foreigner privacy” and students’ feelings, the participants did not require students to turn on their webcams during online classes. Therefore, it was more challenging for teachers and students to know each other in

the online CFL classroom. As Ms. Yu observed, online classrooms tended to be teacher-centered, with the teacher talking most and students speaking with little initiative. In addition, Ms. Wang described how the lack of an emotional connection affected the atmosphere in her online classes:

[7] There was a class that I used to teach offline, and then I switched to an online class. I was quite familiar with the class and had a good emotional build-up, so the class had a good online learning atmosphere. For a class that was taught online from the beginning, we were not familiar with each other, and sometimes there would be awkward moments, like when I asked a question, and nobody answered. (Interview with Ms. Wang)

In such a situation, the atmosphere in the class was more subdued, and students might become more silent and distant from the teacher. In traditional face-to-face classrooms, the participants often have the opportunity to chat with students before and after class, or even during breaks, to bridge the gap between them and students. However, all speech in online classrooms is public and recorded, making it unsuitable for casual conversations unrelated to the course content. In this regard, participants emphasized the need to increase “personal touch” before and after class. For example, Mr. Zhao often interacted with students on social media platforms during his free time:

[8] When I have time, I often chat with them privately, asking them how their recent learning was going, whether they could keep up with my teaching pace, or if they had any questions about their studies. They can feel that the teacher cares about them, and they will be more active in class. (Interview with Mr. Zhao)

He believed that this way allowed students to feel cared for and valued, thereby promoting their emotional engagement in online classrooms. Using authentic social media to enhance teacher-student communication could bring online teaching and learning closer together (Moore, 1997; Henry & Thorsen, 2020). Additionally, teacher-student communication allowed teachers to better understand students’ learning situations and adjust their teaching. Ms. Wang found that when teachers “met the learning needs of students”, students might become more aware of the importance of tasks, increasing their cognitive engagement in online classrooms (Hiver et al., 2021).

Another benefit of increasing “personal touch” is that it brings students closer to the Chinese language, facilitating cross-cultural communication (Hiver et al., 2021). Participants believed that CFL teachers represented not only teachers but also Chinese people and Chinese culture for students. Ms. Yu stated that getting in touch with students helped motivate them to learn Chinese:

[9] If they had a good relationship with the Chinese teacher, they would try harder to learn Chinese in order to communicate further with the teacher. Moreover, in the process of communicating with the teacher, students might have become interested in certain aspects of Chinese culture, making them more proactive in learning Chinese. (Interview with Ms. Yu)

This might also serve as a way to compensate for experiences that are harder to replicate online. All participants mentioned that they often organized Chinese cultural experience activities during face-to-face teaching, such as calligraphy or paper cutting, which were challenging to do online. Therefore, in online classrooms, CFL teachers had to strengthen contact with students, bridging the gap between students and teachers, as well as between students and the Chinese language. This could help students set their own learning goals and continue to engage in learning Chinese, enhancing their cognitive engagement (Hiver et al., 2021). Additionally, contact and communication with students also helped teachers identify disengaged learners and employ targeted strategies to engage them in online CFL classrooms.

5. Discussion

This study aimed to investigate challenges and strategies for promoting student engagement in online CFL classrooms by examining the experiences of three CFL teachers through semi-structured interviews and observed field notes. Consistent with existing research (Bao et al., 2021; Gillett-Swan, 2017; Hew, 2016), this study found that teachers faced greater challenges engaging students in online courses than traditional ones. The participants generally expressed low expectations for student engagement in online classes due to the non-obligatory nature of the classes and the lack of engaging elements that could entice students to remain actively involved. One major challenge identified by the participants was the absence of emotional connection, which significantly influenced the learning atmosphere in online CFL classrooms. As a result, the participants observed a noticeable decline in students' motivation to participate in speaking activities during online classes. Since language learning emphasizes active behaviors that encourage students to engage in authentic communication within the target language context (Lightbown et al., 1993; Savignon, 2018), this situation undoubtedly hampers students' learning in online language classrooms.

To address the challenges, the participants shared strategies that extended beyond lesson preparation and classroom sessions, and could also be implemented outside of the classroom. These strategies included offering more multilingual resources, providing technology-enhanced constructive feedback, and increasing "personal touch" to enhance students' engagement in the online CFL classroom. These strategies are consistent with the suggestions from previous studies (e.g., Luan et al., 2020; Sadoughi & Hejazi, 2022; Mihai et al. 2022) that emphasize the importance of enhancing interactions and providing various forms of support. Most importantly, regardless of student differences, the participants emphasized the need for online CFL classes to offer increased support and encouragement, enhance students' emotional experience of online learning, and recognize the direct and indirect impacts of emotional engagement on language learning (Dao, 2021; Henry & Thorsen, 2020).

The findings regarding the challenges faced by CFL teachers in online teaching can help educational institutions better understand and address the difficulties encountered in online CFL instruction. On one hand, CFL teachers recognized that the difficulties in learning Chinese might be more pronounced for CFL learners in the online context and that

teachers needed to provide comprehensive support for online Chinese language learning. Therefore, schools and institutes should increase opportunities for CFL teachers to interact with students during online teaching (e.g., organize online workshops; and create class groups on social media), fostering closer connections between CFL teachers and students and enhancing their understanding of students' needs. On the other hand, the lower requirements and expectations for student engagement in online CFL classrooms may lead to students not taking online learning seriously and being more inclined to disengage from the online classroom. Thus, CFL teachers should establish clear rules for the online classroom to facilitate students' engagement in the learning process (e.g., ask students to turn on their cameras; no eating or drinking during class). Meanwhile, there is no standardized benchmark for the acceptable degree of decline in student online engagement, as it depends on the individual CFL teacher's assessment, making it challenging to ensure the effectiveness of online teaching. Considering that online education will continue to evolve, schools and institutes can conduct surveys and scientific evaluations based on the issues raised by the teachers, carefully considering how to make online language teaching meaningful and effective, and establishing clear and consistent standards for intended teaching objectives.

In terms of strategies to engage students in online classrooms, CFL teachers emphasized the importance of a gradual and adaptive approach. Instructions marked by the gradual increase of Chinese language input, as well as tasks catering to students' multilingual backgrounds and emotional needs, proved effective in enhancing student engagement in online classrooms. However, these strategies alone may not fully address the challenges they encountered. Therefore, CFL teachers should reflect on how to actively engage students in online CFL classrooms, while educational institutions should provide appropriate training and support (e.g., offering videos or lectures showcasing successful online CFL classes). CFL teachers can benefit from more training on information and communication technologies (ICT) that provides effective strategies for integrating digital tools into online language teaching, fostering interactive and engaging learning environments. Promoting excellent online teaching experiences is also vital to CFL teachers' professional development, rather than simply training them to use online teaching platforms (Gong, Fan, & Wang, 2021).

6. Conclusion

This study investigated three CFL teachers and the challenges and strategies in terms of engaging students in online classrooms. Analysis of the interviews and observation notes from the online classroom revealed some challenges in engaging students in online CFL classrooms, one of them was the lack of emotional connection. In terms of the strategies, the participants felt that using multilingual resources, providing technology-enhanced constructive feedback, and increasing "personal touch" were crucial and helpful to increase student engagement in the online context. Notably, while CFL teachers were committed to students' behavioral use of the target language, they were equally aware of the dominant role of emotional engagement, focusing on engaging students emotionally to support their initiative and continuity in learning Chinese online.

There are some limitations in this study. First, at the time of the survey, most of the participants in this study had resumed offline teaching or adopted a mixed mode of online and offline instruction due to different local policies in and after COVID-19. The change may have resulted in their lack of clear recollection of online teaching and their inability to accurately reflect on the situation at that time. Another important limitation of this study is that only semi-structured interviews with teachers and classroom observations were used to collect data, which may not be sufficient to provide a holistic picture of student engagement. Thus, the participants' opinions and classroom observations cannot guarantee the effectiveness of their strategies. In this regard, future studies on student engagement should include both students and teachers to explore their challenges and strategies for learning or teaching CFL online and to identify the differences in their perceptions and practices. In addition, this study only investigated the situation of CFL teachers, and any generalization of the findings to other language teachers should be undertaken with caution. Given that the teaching and learning of each language has their own characteristics, other language education researchers should conduct research about promoting student engagement in the context of the classrooms of a particular language, which should be a field of their interest and has not yet been well investigated.

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數字布魯姆理論下國際中文教師的成語線上教學策略研究 (Online Teaching Strategies of Idioms for International Chinese Teachers Under the Digital Bloom's Theory)

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摘要: 數字布魯姆理論為認知目標分類匹配了不同類型的數字化工具，對新冠疫情後國際中文教育的線上教學新常態具有重要的參考價值。本文針對中文成語教學的複雜性，結合數字布魯姆理論探討了國際中文教師的成語線上教學策略。通過問卷和半結構訪談法，本研究調查了 20 位教齡為 1-5 年的國際中文教師。結果表明，國際中文教師大多能關注到學習者不同的認知目標，並通過插入搜尋引擎工具、播放音視頻、創設線上分組討論等線上教學策略幫助其進行學習，但設備網路、教師能力及學生配合問題會影響線上教學活動的開展。本研究將數字布魯姆理論與國際中文成語教學策略相結合，有助於教師線上教學時選擇合適的數字化教學工具，全面提升教師的數字化教學水平。

Abstract: The digital Bloom's theory matches different types of digitization tools for the classification of cognitive goals, offering significant reference value for the new normal of online teaching in international Chinese language education in the post-COVID-19 pandemic. Considering the complexity of Chinese idioms content teaching, this paper investigated online teaching strategies of international Chinese language teachers by combining the digital Bloom's theory. A questionnaire and a semi-structured interview were conducted with 20 international Chinese language teachers with 1-5 years of teaching experience. The results showed that most of the international Chinese language teachers were able to pay attention to the different cognitive goals of the learners, and assisted them in their learning by inserting search engine tools, playing audio and video, and creating online group discussions. However, the availability of equipment, internet connectivity, teacher's competence, and student's cooperation significantly impact the implementation of online teaching activities. By integrating Bloom's taxonomy with international Chinese idiom teaching strategies, this study aims to facilitate online teachers in selecting appropriate digital teaching tools, thereby enhancing their overall proficiency in digital instruction.

關鍵字: 國際中文教育、數字布魯姆、成語、線上教學策略

Keywords: International Chinese education, digital Bloom, idioms, online teaching strategy

1. 前言

國際中文教育, 又稱作對外漢語教學、國際漢語教育, 涉及了全球範圍內各種類型的漢語教學活動, 近年來進入了一個高質量發展的新階段。與之相關的綱領性檔相繼出臺, 如《國際中文教育中文水準等級標準》、《國際中文教育用中國文化和國情教學參考框架》、《國際中文教育數字資源建設指南(試行)》、《國際中文線上教育行動計畫(2021-2025)》、《國際中文教師專業能力標準》等¹。2022年12月8日, 國務院副總理孫春蘭在國際中文教育大會上指出全球有180多個國家開展了中文教育, 81個國家將中文納入國民教育體系, 正在學習中文的人數超過3000萬, 有力促進了中外交流, 彰顯了語言學習交流的重要性。²

作為中華文化傳播的主要手段之一, 國際中文教育具有語言教學和文化教學並存的特性(楊曉黎, 1996)。而成語作為國際中文辭彙教學的重要組成部分, 不僅具有歷史、文化價值, 是一個民族語言精華(杜家幸, 2019)。教師在開展有關成語的教學活動時, 需兼顧成語的語言知識和文化內涵。在數字化教育發展的今天, 成語教學更需結合自身特點選取合適的線上教學策略, 既幫助國際學生學好成語的字音、字形, 也能使其更好地掌握成語背後的中華文化。

2. 文獻綜述

2.1 國際中文教育研究現狀

國際中文教育一直是中文教學研究的重點, 研究問題主要集中在“偏誤分析”、“教材研究”、“教學與教學法研究”(那日松、樂明, 2018), 研究熱點包括但不限於“孔子學院”、“漢語國際教師”、“課程設置”及“培養方案”(李寶貴、李慧, 2019)。2020年, 新冠疫情爆發, 全世界範圍的線上教學觸發了國際教育領域的急劇變革, 線上教學成為教學的新常態(王萍等, 2022), 線上教學與線下教學的混合式教學生態形成(宋暉、白樂桑, 2020)。在此情景下, 國際中文教育應做到重視漢語作為外語教學的特點, 充分利用現代語言技術, 增加漢語的科技、思想、文化含量。做到適應全球漢語智慧化的同時, 提升漢語的國際聲譽, 發揮漢語在國際語言生活中的作用(李宇明, 2020)。

當前國際中文教育研究微觀層面論文的數量較多, 即“教學模式”、“教學方法”所面臨的改變, 多為實證性研究, 系統性和理論性都有待加強; 而宏觀層面, “應對與

¹ 馬箭飛, 《推動新時代新征程國際中文教育高質量發展》, 中國教育新聞網, 2023年1月9日。

² 人民日報, 《扎實推進國際中文教育高質量發展》2022年12月9日。

發展策略”有關的研究數量較少（高育花, 2021）。後疫情階段，經濟社會轉型和教育數字領域的發展使教學媒介、教學形式都發生改變（胡範铸、張虹倩& 陳佳璿, 2023），應加大對國際中文教師信息素養的提升（李寶貴、莊瑤瑤, 2021）。如何有效開展基於數字化信息技術的國際中文研究、推動新時代國際中文教學的創新發展與變革成為研究的新方向（汪曉鳳、王華珍、羅楊, 2022）。只有真正的了解後疫情階段線上教學還存在哪些問題，教育機構和組織才能夠有針對性的幫助教師選取合適的教學策略，開展教師培訓。

2.2 國際中文成語教學現狀研究

成語，是中國語言辭彙中一部分定型的片語或短句，多以“四字格”為基本格式，也包含少數“非四字格”格式（黃伯榮、廖序東, 2007）。與一般漢語辭彙相比，成語在語句中一般為整體出現，且表義精闢，富有深刻內涵。成語來源形式多樣，大致可分為源於上古神話、古今諺語、古代典籍、寓言故事四個大類（郝然, 2017）。正因如此，成語作為國際中文辭彙教學的重要組成部分，不僅具有歷史、文化價值，還是一個民族語言的精華（杜家幸, 2019）。2022年，《中國文化和國情教學參考框架》也根據學習者不同的認知水準，在傳統文化一級指標下有針對性地涉及了成語教學。可見，成語教學不是簡單的辭彙教學，也與中華文化內容相適應。

國際中文成語教學應該怎麼教？是學界一直所關注的問題。成語教學可以從特殊結構入手，將其分解為單獨的語素進行教學（呂必松, 1994）；或重視成語語義和句法功能進行教學（洪波, 2003）；又或是結合語境的教學（夏俐萍, 2010）以及結合文化內容的教學（石琳, 2008）。劉艷萍（2013）對學習者分析後得出結論，成語學習的難點主要集中在語法、語義、語形（語音）、語源及文化五個方面。可見，成語教學不是簡單的辭彙教學，它還覆蓋了漢語教學層面的語法教學和文化背景教學。近年來，在成語教學的實踐中總結發現，成語的神秘性給學習者帶來了一定的認知負擔（Long et al., 2018）。而有效的課堂互動（Zheng et al., 2022）可以調動學習者視覺、聽覺、動覺的多種感官參與，減輕一定的負擔，增強學習者的成語應用能力。

2.3 數字布魯姆理論

數字布魯姆（Digital Bloom's Taxonomy）最早由紐西蘭克斯汀學校（Kristin School）的教師 Andrew Churches 提出。他創造性地將 Web 2.0 工具與布魯姆認知目標分類學想法結合在一起，稱為“數字布魯姆理論”。數字布魯姆是以布魯姆認知目標分類學為基礎，為各個層次的教學目標賦予了數字時代新的關鍵字和可能使用的軟體，使教學目標分類和數字工具之間形成了一種匹配關係（葉冬連等, 2019），焦建利（2018）對實現各個目標可所使用的中國版 iOS 數字工具進行了詳細說明。³

³ 焦建利. (2018). <http://bit.ly/PWCHIV5>

該理論自提出以來, 被廣泛應用於各學科研究中, 備受學者們青睞。從最初 Michael Fisher 以金字塔分類學為樣本提出與各個認知目標相適應的軟體參照到陳丹、祝智庭 (2011) 對比和分析數字布魯姆中的信息化工具, 使用中國本土開發的對應性網站或軟體化工具來進行各層次和類別的對應替代, 構建出中國版的數字布魯姆模型。李煒等人 (2016) 基於數字布魯姆理論, 構建了系統化的國際中文線上教學活動框架。再到後來有關教師數字化線上教學的指導啟示 (Pongkendek et al., 2021), 有關數字布魯姆理論的應用研究不斷。由此可見, 數字布魯姆理論不僅是信息技術環境下, 不同教學活動及支持工具的更新模型, 更是數字工具下教學目標實現參照依據 (趙慧臣, 2017)。

上述研究聚焦數字技術介紹和教學活動設計上, 尚未關注數字化工具下的教學策略選擇問題。對語言教學來說, 特別是大規模線上教學活動的開展, 利用多媒體輔助工具開展的互動式活動, 可以在一定程度上彌補線上教學導致的真實語言環境缺失問題, 也可以幫助學習者減輕不同語系學習和文化交流所帶來的障礙 (劉永權, 2012)。數字布魯姆正是將這些數字工具和技術結合, 促進教師的教和學生的學, 對線上教學策略具有一定指導意義 (王佑鏞等, 2013)。基於此, 本研究擬針對中文成語教學的不同認知目標研究教師的線上教學策略。

2.4 線上教學策略研究

教學策略是根據具體的教學目標而詳細制定的。與教學設計、教學思想、教學模式、教學方法不同, 教學策略是教師在有一定組織能力的基礎上, 根據學習者實際情況進行調節和控制的一系列行為過程, 具有指向性、可操作性、靈活性特徵 (和學新, 2000)。故教學策略的選擇應根據學科特點、學生需求和教學目標來確定, 隨教學環境變化而改變。

新冠疫情到來迫使全球範圍的線下教學改為線上教學 (李泉, 2020)。然而這種轉變不是簡單的平移 (吳勇毅, 2020), 教師需要更多的時間對傳統課堂的教學活動進行再設計, 使其適應線上教學模式 (Lin & Zheng, 2015)。在此情境下, 教師應具備足夠的專業知識能力, 以及使用數字工具設計教學、開展活動、評價教學的能力 (王輝, 2021)。元海峰、丁安琪 (2021) 對海外漢語教師線上教學現狀分析後發現, 教師線上中在學生參與度、課堂內容和進度及教學任務變化三個方面採取教學策略的調整, 但並未對教學內容做具體說明; 而那些對學術漢語教學策略及漢語文化教學策略的研究 (張博, 2022; 唐棱棱、杜睿 & 穆仁宇, 2023), 又未將目光放在數字時代的背景。

綜上所述, 前人的研究從中文成語教學的不同內容、不同方式, 較為宏觀地展現了國際中文成語的教學策略。而由於成語的特殊性, 以及新冠疫情導致的線上教學特殊背景, 鮮有微觀層面的成語線上教學策略研究。事實上, 教師針對不同的成語教學內容及不同的認知目標可能會採取有針對性的教學策略。而教學策略的具體選擇又可能會受教學工具、教學平台等多種因素的影響。故本研究基於數字布魯姆

理論, 參照成語教學內容, 探討教師對成語教學中的不同認知目標所採取的教學策略, 主要研究以下三個問題:

- 1) 成語線上教學中教師一般選取何種教學平臺和工具?
- 2) 教師針對成語教學的不同認知目標分別採取何種教學策略?
- 3) 後疫情階段成語線上教學還有哪些問題值得我們關注?

3. 研究方法

3.1 研究參與者

中文成語大多出現在《等級標準》中的七至九級辭彙中, 故本研究主要的參與者為教授中、高級水準成人學習者的中文教師, 具備以下條件: ①為當前任職中的國際中文教師(包括兼職和全職); ②以線上教學的方式進行教學實踐; ③教授對象為成人學習者; ④教學內容中含有中文成語。

為保證資料的充足和有效, 本研究歷時四個月, 2022年9月至2022年12月, 共訪談位當前正在進行線上中文成語教學的教師。其教授對象來自世界各地, 包括美國、韓國、泰國、英國、加拿大、日本等23個國家。見表1。

表1 研究對象信息 (n=20)

變量	選項	頻數	百分比(%)	累計百分比(%)
性別	男	7	35.00	35.00
	女	13	65.00	100.00
年齡	25歲及以下	2	10.00	10.00
	26-30歲	12	60.00	70.00
	31-35歲	5	25.00	95.00
	35歲以上	1	5.00	100.00
學歷	學士及大學本科生	3	15.00	15.00
	碩士及碩士研究生	16	80.00	95.00
	博士及博士研究生	1	5.00	100.00
教齡	1年以內	0	0.00	0.00
	1-3年	11	55.00	55.00
	3-5年	6	30.00	85.00
	5年以上	3	15.00	100.00
職稱	無	5	25.00	25.00
	助教	7	35.00	60.00
	講師	8	40.00	100.00
	副教授	0	0.00	
	教授	0	0.00	

注: 參與者年齡均為當前年齡

參加訪談的教師多為女性（65.00%），年齡多集中在 26-30 歲之間（60.00%）且學歷以碩士及碩士研究生為主（80.00%）。從教齡來看，被試者教學年限均在 1 年以上，具備一定的教學經驗，對教學策略的選擇有相應瞭解，能夠使用數字工具開展線上教學活動。

3.2 研究設計

在獲得參與者同意後，本研究先通過問卷星發放問卷，以瞭解其基本背景信息，後再對其進行微信電話採訪。研究共發放問卷 21 份，其中有效問卷 20 份，無效問卷 1 份（由於被測者回答內容不詳細、完整，教學對象來自地區填寫為中國，沒有具體說明中國香港或中國臺灣，信息缺少準確性，為無效問卷），有效回收率達 95.24%。對問卷進行整理後，進行描述性分析及單獨的半結構化訪談。

問卷部分主要收集參與者的基本情況。通過對中文教師的個體特徵因素分析，探討是否會對教師線上成語教學策略選擇造成影響。另外，通過問卷可以瞭解教師線上教學策略的選擇是否與所使用的教學平臺有關，排除客觀因素對中文成語教學造成的干擾。

由於中文成語的教學涉及多方面內容，本研究參照有關辭彙教學的目標分類（錢揚安，2015；王靜、詹蓓，2019）、文化教學評價體系（胡勤，2023）及布魯姆指導下的漢語課堂教學活動設置（于淼，2018），將成語教學內容與認知目標相對應。在進行半結構化訪談時，就每一維度的認知目標進行逐一提問，以瞭解教師在進行不同內容教學時所具體採取的教學策略。具體對應標準如圖 1 所示：

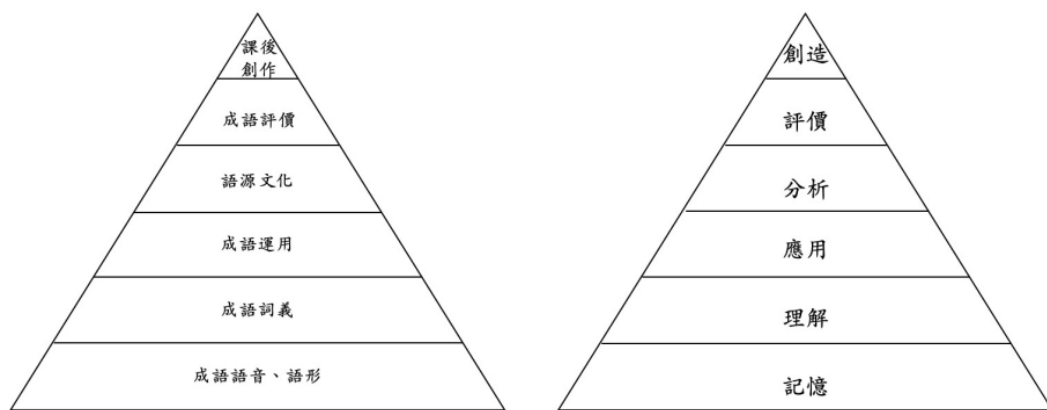


圖 1 成語教學目標布魯姆認知目標分類

在半結構化訪談中，通過瞭解教師在進行中文成語教學時所採取的數字輔助策略，可分析其策略達到的布魯姆認知目標層次。訪談內容具體流程圖如圖 2 所示：

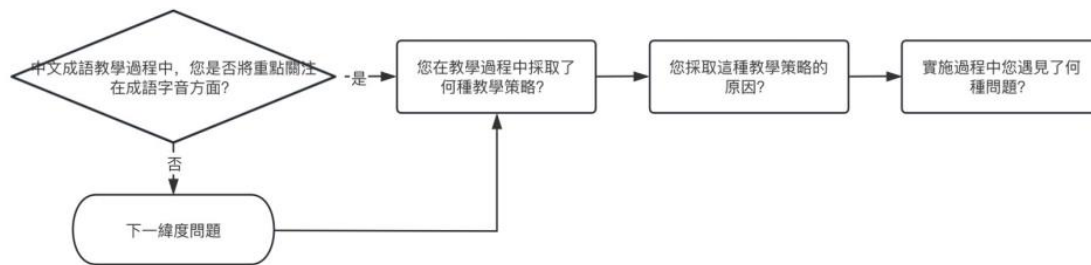


圖 2 訪談內容流程圖

4. 研究結果與分析

4.1 描述性結果統計

除被訪談者的基本信息統計外，筆者還對其線上教學所使用的工具和平臺進行了進一步的瞭解統計。見表 2 及表 3。

表 2 線上教學工具使用表

教學工具	使用該工具的人數	百分比
電腦	18	90%
手機	12	60%
平板電腦	10	50%
手寫板	7	35%
其他	0	0%

此題為多選題。統計結果說明，90%的教師線上進行成語教學時都會以電腦為主要教學工具，使用手機及平板電腦展開教學活動的教師也占較大一部分。另外，部分教師也會在教學中使用手寫板工具進行輔助。

表 3 線上教學平臺使用表

教學工具	使用該工具的人數	百分比
Zoom、釘釘、騰訊會議等網路會議軟體	20	100%
YouTube、Mooc 等線上視頻資源平臺	5	25%
微信等即時通訊工具	11	55%
雨課堂、學習通等課程網路管理平臺	4	20%

數據顯示，會議軟體工具為中文成語線上教學的主要教學平臺，所有教師都會選擇使用（100%），即時通訊工具也常被教師所使用（55%）；而線上視頻資源平臺，以及課程管理平臺使用較少。

為進一步探究教師個體特徵對線上成語教學策略選擇所產生的影響，本研究採

用 spss29.0 對問卷收集數據及訪談中教師所關注的教學內容進行相關性分析，見表 4。

表 4 個體特徵與教學策略相關性分析表

變量	語音、語形	詞義	運用	文化	評價	創作
性別	.044*	.478	.478	.660	.508	.478
年齡	.616	.731	.731	.616	.121	.072
學歷	.042*	.826	.826	.749	.079	.035*
教齡	.444	.429	.429	.849	.669	.429
職稱	.243	.856	.856	.791	.009*	.151

* 表示在 0.05 級別（雙尾），相關性顯著。

如表所示，教師線上成語教學過程中針對不同認知目標所採取的教學策略受個體特徵因素影響總體較小。其中，有關成語語音、語形的教學內容在教師性別（ $p=.044$ ）、及學歷的變數上有顯著差異；另外教師學歷的差異也會導致其對有關成語創作內容關注度不同（ $p=.035$ ）；有關成語的評價內容受教師職稱的影響。

之後，筆者又對教師線上進行成語教學的教學平臺及工具進行多重回應分析，後通過交叉表卡方檢驗，探究成語教學時具體策略的實施是否會受到教學平臺及設備影響。見表 5。

表 5 教學平臺及設備與教學策略相關性分析表

	語音、語形	詞義	運用	文化	評價	創作
教學平臺	.471	.368	.368	.083	.683	.835
教學工具	<0.01	.724	.724	.626	.715	.630

如表所示，各項認知目標的顯著性 p 值均大於 0.05。說明教師線上教學平臺的使用並不會對其造成影響；而教學工具的選擇會對教師有關語音、語形的教學內容策略選擇產生影響（ $p<0.01$ ）。

4.2 訪談結果分析

訪談結果顯示，被訪談的 20 位中文教師中，大多數教師進行線上教學策略選擇時考慮到學生的認知發展水準，詳細資料見表 6。

表 6 訪談結果統計

訪談題目	是	否	未關注該內容教師編號
線上中文成語教學過程中，您是否關注學生的字音掌握情況及準確性	90%	10%	T1、T6
線上中文成語教學過程中，您是否關注學生對於成語詞義的掌握	95%	5%	T2
線上中文成語教學過程中，您是否關注學生	95%	5%	T2

對於成語的運用情況

線上中文成語教學過程中, 您是否在教學時關注成語中所蘊含的歷史、文化背景	90%	10%	T1、T2
線上中文成語教學過程中, 您是否關注學生在學習後對中文成語的評價	80%	20%	T1、T6、T8、T20
線上中文成語教學過程中, 您是否關注學習者在學習後的話語、文章創作	95%	5%	T15

由訪談結果統計可知, 大部分教師開展線上成語教學活動時, 仍能關注到成語教學的不同方面。總體來看, 在教學中重視成語詞義、語法的教師較多, 且教師大多會將線上成語教學的重點放置在課堂練習及課後創作中。而在教學中關注成語評價的教師相對較少, 有四位受訪者明確表示沒有涉及此方面教學。

為進一步明確教師在教學中具體實施的教學策略, 本研究在訪談中對其中有價值且無重複的訪談內容做了編碼, 並結合 Barari et al. (2022) 的基於數字布魯姆指標下的教學策略(見下圖 3)對中文成語線上教學過程中針對不同認知目標教師所採取的教學策略進行歸納和總結。需注意的是, 列表中首位數字表示受訪者的編碼, 第二個數字表示其在第幾道題中的採訪回答, 見表 7。

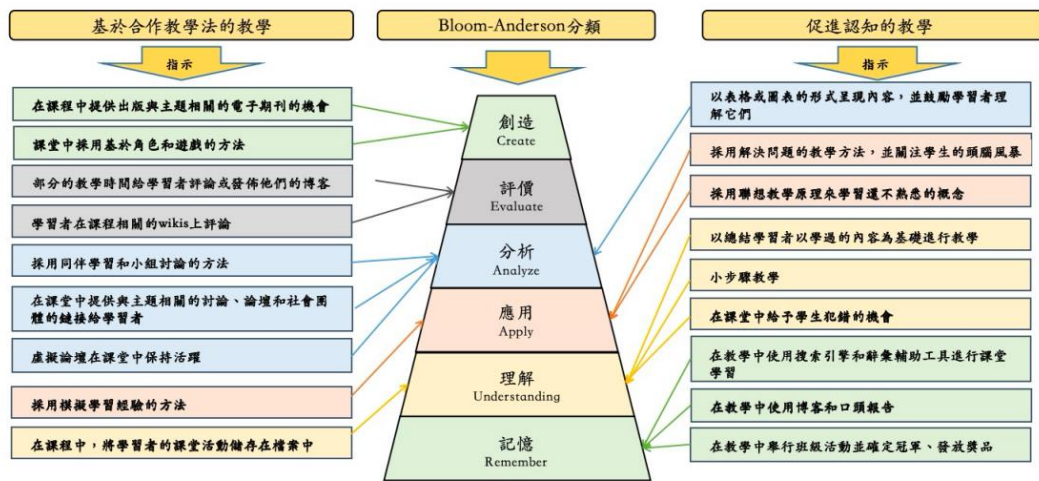


圖 3 數字布魯姆所對應的教學策略

表 7 線上教學策略訪談紀錄

訪談編碼	訪談記錄	所對應的教學策略
20-1	“自己會線上平臺中設置一些有關字音學習的小遊戲。即使是中高年級水準, 也不容忽視語音的重要性, 就通過一種趣味的方式來學習。”	基於遊戲活動的教學
13-1	“字音是國際中文教學的關鍵。當學習者有一定的檢索、使用工具的能力時, 就可以在課堂中插入字音檢索工具, 讓學習者自己檢索。一是方便查漏補缺, 二也能使字音記憶更為深刻。”	基於內容保護技術(搜尋引擎和字典)的教學
8-2	“利用圖片和視頻可以加深學生的記憶時長。並且有	基於教育視頻的教學

	許多成語很難從字面來進行講解, 如‘朝三暮四’。但如果先播放視頻, 以講故事的形式進行引入, 再介紹成語的意義及用法, 學生會記的更牢。”	
15-2	“有關成語詞義的教學, 教師可以在 PPT 中創設虛擬遊戲, 如以‘滾動球’、‘踢足球’等小遊戲進行成語詞義匹配, 以此幫助學習者進行記憶。”	基於遊戲活動的教學
7-2	“不少學習者在先前的學習中, 已經學習過成語中語素的具體含義。所以當介紹成語詞義時, 只需將單個語素含義結合起來, 直接介紹成語含義。這種方法高效、快捷, 且能夠將之前所學的知識進行串聯。”	使用聯想教學的方法
15-3、17-3	“這種利用音視頻來提問的方式, 能夠保證教師關注到每一位學習者, 也能夠減少相關由教師提問耽誤的時間。做到‘一碗水端平’。”	基於音播客的教學
1-3	“有關成語應用, 我贊同在會議中設置分組, 讓學生使用成語來自行討論。教師應當減少在教學過程中的參與度, 把更多的學習時間歸還給學生, 讓學生來自由發言。騰訊會議和 Zoom 課堂都很方便進行分組, 教師也可以隨時進入分組查看討論情況。”	提供同伴學習的機會
18-4、19-4	“教師的知識面畢竟是有限的, 很難做到面面俱到。所以我通常會提供一些論壇, 如‘知乎’的鏈接給學生, 他們可以就自己感興趣的話題進行深入瞭解。其實不少學生到了中高級階段, 已具備一定的學習能力了。我還有學生學習過英文版的《大學》和《中庸》, 說來慚愧, 我在此方面的研究或許還不如他們, 學生們的認知水準是很高的!”	基於虛擬論壇的學習
9-5	“可以留出部分課堂時間, 供學習者來評論或發佈他們的博客。因為師生關係比較融洽, 所以我經常會流覽學生的博客, 觀看其學習回饋。我也認為, 文字的輸出要比口頭輸出經過很多的思考, 更為準確。”	基於博客的學習活動
20-6	“教師們可以嘗試在課堂中採用角色扮演或開展遊戲的方法, 讓學生進行即興創作, 考察其應用能力。即使是成人學習者, 也會很喜歡這種 cosplay 的遊戲。”	使用角色扮演的的方式
12-6	“有條件的話, 可以在課堂中提供出版或與主題相關電子期刊的出版機會, 以此增強學習者的學習熱情和積極性。這麼以來, 學生在完成作業時也會變得更加認真。”	出版電子期刊

由訪談記錄可知, 教師在教學過程中會根據學習者的認知目標採取不同的教學活動設計。然而某一項活動的實施, 可能對應了學習者的多種認知目標實現。總的來說, 教師進行成語教學活動設計時, 還是能夠關注到認知目標的各個維度。

訪談最後, 筆者還對教師進行線上教學時所遇到的困難進行了概括性地統計說明, 具體內容見表 8。

表 8 線上教學教師所遇到的困難

影響線上教學的主要因素	受訪者名稱
學生自主學習能力和學習行為習慣。	T3、T4、T5、T8、T10、 T16、T17、T18、T20
教師的教學工具使用、平臺的穩定性及教學的策略和方法。	T9、T13、T17、T18、T19
學校政策對線上教學的支援、網路速度和穩定性、在線技術服務支援、教師教學空間和設備支援。	T1、T14
教師教學平臺及教學工具的熟悉程度、教師在課堂中提供的電子資源。	T7
教學評價和課堂秩序的維護。	T16

由統計可知，9 位受訪者在訪談中認為，線上教學主要受學生自主學習能力及學習習慣的影響；而教學工具和平臺穩定性會在一定程度上影響教師教學策略的選擇。在有關該內容的訪談中，教師認為受網路、技術等客觀因素的影響較小；另外，教學評價及課堂秩序對線上教學的影響較小。

5. 討論

5.1 成語線上教學中教師選取的教學平臺和工具

從數據分析結果來看，教師線上開展中文成語教學活動時，多使用電腦及手機設備，呈現以網路會議軟體為主，並與即時通訊工具多平臺並用的現狀，這與王瑞烽（2020）對疫情期間的漢語技能課教學模式分析結論基本一致。事實上，當前市面上多使用的網路會議軟體，本身已具有多種輔助教學的功能，如共享屏幕、互動白板和創建小組等，是極易於使用的同步教學工具之一（Kohnke & Moorhouse, 2020）。特別在語言教學中，網路會議軟體能夠增強師生間的同步交流，是多數外語教師的首要選擇（Cheung, 2023）。

結合教師個體特徵因素及教學、學習經歷來看，性別因素會影響教師對有關成語語音、語形內容的教學策略的選擇。男性教師（ $M=1.29$ ）會比女性教師（ $M=1.00$ ）更注重有關語音、語形的教學策略選擇；另外，教師的學習經歷（學歷）會影響有關成語語音、語形及成語課後創作相關內容的教學策略選擇。值得注意的是，教學平臺的使用差異並不會對教師教學策略選擇產生影響；而結合中文成語教學的難點來看，教師會偏向使用手寫板工具開展有關成語字形教學（劉艷萍，2013）。

5.2 針對不同認知目標教師所採取的線上教學策略

如果某項教學策略都能夠為教師更好地開展學習活動，豐富課堂活動內容、提高學生課堂參與度提供方法與技巧，我們就可以認為其是有效的（Bonk & Dennen, 2003）。由對中文教師的訪談結果可知，根據成語教學的不同認知目標，教師往往會採取不同的教學策略。

記憶目標：教師通過在 PPT 中展示成語語音、使用音視頻播放成語語音、插入檢索工具供學生進行線上字音檢索、設置虛擬遊戲輔助記憶等策略，可以幫助學習者記憶成語語音及字形，實現布魯姆認知目標分類中的記憶目標。

理解目標：教師通過 PPT 展示、播放相關音視頻、插入檢索工具、設置虛擬遊戲等策略，幫助學習者理解成語含義，實現布魯姆認知目標分類中的理解目標。

應用目標：線上進行中文成語教學時，教師可以使用音視頻輔助、雲對話提問、設置會議分組討論、創設虛擬語境等策略，幫助學習者在口語交際中準確使用中文成語，實現布魯姆認知目標分類中的應用目標。

分析目標：教師在進行中文成語教學時，還應採用分組討論、提供相關連結、開設虛擬論壇、播放音視頻等策略，來傳遞成語背後蘊含的文化、價值觀思想，以實現布魯姆認知目標分類中的分析目標。

評價目標：除實施教學活動外，教師還應在教學之後及時關注學習者的課後評價。可採用自由討論、學生發佈博客、評價彼此活動、課後接受評價等策略，瞭解學生的課後回饋及學習效果，以實現布魯姆認知目標分類中的評價目標。

創造目標：針對中高水準級別的學習者，教師可採用出版電子期刊、角色扮演遊戲、佈置視頻創作、佈置文本作業等教學策略，關注學習者在學習中文成語後的文本創作，實現布魯姆認知目標分類中的創造目標。

總體來看，這些基於線上視頻播放、創設小組討論的教學策略，有助於實現面對面課堂到線上課堂的轉變（Mehrpooyan, 2023）。在開展線上教學活動時，教師必須基於學習材料（Gasc et al., 2020），採取適當的策略來管理學習者各種形式的行為，來滿足不同學習者的需求（Taghizadeh & Amirkhani, 2022）。

綜上，針對中文成語教學的不同內容，以上教學策略的選擇重視學生的分析思考與創作、強調成語的建構學習，與絡互動式教學的類型相似（白雪, 2014）。這些教學策略不僅能促進學習者合作學習，也提高其認知水平（Barari et al., 2022）。同時也反映出，大多數教師能夠根據根據學習者不同的認知目標來選取合適的教學策略。這種基於數字布魯姆的線上中文學習有效地促進了學習者在語言技能、語言知識、學習策略及文化方面應用能力的提升。真正做到了在互動中逐步增強認知水準，提高學生獲取學習信息的層次（李煒、張潤芝, 2016）。

5.3 有關中文線上教學活動開展中所遇到的問題

線上教學活動的開展，改變了原有的教學環境，教師與學習者都身處虛擬世界中。與傳統教學的現實課堂相比，虛擬課堂教學是“去身體化”或身體缺場的符碼化活動，具有離身性的特點（趙楊, 2021）。這種改變不僅影響了學生的學習行為，

也影響了教師教學策略的選擇和採用, 對授施雙方都提出了新要求。因而, 本節將具體討論當前線上教學活動開展中存在的問題。

一、設備網路問題。受訪者 T1、T14 談到, 在教學活動實施過程中, 經常會出現由於設備、網路而引起的掉線、信號不暢問題, 這與 Al Khateeb 及 Son (2023) 的研究結果一致。為此, 教師要及時更換教學設備, 匹配信號較好的網路設備。在開展教學活動前, 教師應熟悉所使用的設備並進行練習, 避免在操作時反復出現問題, 耽誤教學時間。另外, 也可配備專門的輔助教師進行補充說明, 當出現網路狀況時, 由輔助教師進行其他內容的訓練或講解, 不耽誤學習者的寶貴時間。

二、教師能力問題。這裏主要又包括了教師自身的教學能力和使用教學設備的技術能力。受訪者 T9、T13、T17、T18、T19 表示自身教學能力不足, 難以吸引學生的課堂注意力, 課堂互動性弱。這說明了外語教師的專業培訓在線上語言教學中的重要作用 (Pikhart & Al-Obaydi, 2023)。在此情境下, 教師必須具備信息意識和信息能力, 瞭解互聯網+時代的發展, 掌握現代信息網路和智能技術, 並用將其融入於教學中的能力 (張旺熹, 2020)。Abalkheel (2022) 認為教師應適當的參加 Computer-Assisted Language Learning (CALL) 聯合研討會, 以適應和利用線上語言課堂中的技術工具, 從而促進其專業發展。而中文教師團隊普遍呈現年輕化、高學歷化, 這是極有利於開展線上技能培訓的, 可以通過虛擬教研室, 供教師進行研討學習 (王鶴楠、劉丹丹, 2023)。

三、學生配合問題。T3、T4、T5、T8、T10、T16、T17、T18、T20 九位受訪者談到, 線上教學最大的問題即學生有時不給予教師正向回饋, 教師收穫情感滿意度低。結合數字布魯姆理論下的教學策略要求來看, 教師應加強課堂管理, 改進教學實踐方法。如網路會議平臺在課堂中的使用, 正能夠被用來增加師生間的有效互動 (Kohnke & Moorhouse, 2022)。針對在線教學導致的注意力分散問題, 教師可以使用平台的輔助功能創設遊戲, 提高學習興趣; 或要求學生打開攝像頭, 保持高度注意力, 認真回答提問, 做到“事事有回應”。

6. 結語

本文以數字布魯姆指標為基礎探討教師線上進行國際中文成語教學時所運用的教學策略, 分析學習者在此學習活動中實現的認知目標。研究表明多數教師會使用 Zoom、釘釘等網路線上教學平臺, 以電腦或手機端展開教學, 在選擇教學策略前, 能夠根據中文成語的特性, 針對學習者不同的認知維度進行教學策略的選擇。但在評價維度上, 受時長限制、線上課堂學習者參與度低或網路設備落後等影響, 該部分教學策略往往難以實施, 與于淼 (2018) 的研究發現一致。

雖然新冠疫情已基本結束, 但線上與線下相結合的國際中文教學模式還將繼續, 本研究也僅是從教育學理論出發, 嘗試性地將其與國際中文教學策略相結合, 加深了有關數字布魯姆理論的理解, 為日後教師線上教學策略的選擇提供參考與啟示

未來, 基於不斷更新地數字化技術, 我們可以將數字布魯姆對應國際中文教育中的各種內容, 包括辭彙、語法及寫作。本文僅是拋磚引玉, 期待越來越多的學者關注數字化的國際中文教育, 促進國際中文線上教育的繁榮。

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基于项目学习法的国际中文文化教学研究 (Research on International Chinese Culture Education Based on Project-Based Learning)

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摘要: 语言和文化教学作为国际中文教学的两个主要方面, 相互依存、相互影响。文化教学有助于提升语言交际能力, 亦是中文学习者直观了解中华文化的主要途径, 是国际中文教学中的重要环节。《国际中文教育用中国文化和国情教学参考框架》为国际中文文化教育提出了更高的标准与要求。在教育信息化发展的大背景下, 为满足新时期国际中文教育标准, 本研究基于项目学习法 (Project-based learning, 以下简称为 PBL) 框架, 以建设文化数字教材作为切入点, 采取行动研究方法, 探求学习者视角数字教材感知、学习成效及其应用模式。研究发现, 在 PBL 活动中, 学习者充分发挥学习积极性与自主性, 充分拓展课堂材料, 在文化知识、文化理解、跨文化意识和文化态度等多维度达成学习目标。学习者对于数字教材的期待, 具体体现在图文表达、内容拓展与学习支持三方面。最后, 本研究提出“一项目、三环节、五流程”的 PBL 教学活动设计框架, 为满足新时期国际中文文化教育标准提供教学法参考。

Abstract: Language and culture teaching, as two main aspects of international Chinese teaching, are interdependent and influence each other. Cultural teaching helps improve learners' communication skills, and provides avenues to understand Chinese culture. Therefore, cultural teaching is an important part of international Chinese teaching. *The Framework of Reference for Chinese Culture and Society in International Chinese Language Education* puts forward higher standards and requirements for international Chinese culture education. In the context of the development of digital education, this action study reported a project-based learning (PBL) activity in order to meet the international Chinese education standards in the new era. The study found that PBL activities improved learning motivation and autonomy and achieved learning goals in multiple dimensions such as cultural knowledge, cultural understanding, cross-cultural awareness, and cultural attitudes. Meanwhile, learners' expectations for digital teaching materials are embodied in three aspects: graphic expression, content expansion and learning support. Finally, this

study proposed a project-based learning framework in international Chinese culture education.

关键词: 国际中文教育、文化教学、PBL 教学、信息化教学、数字教材

Keywords: International Chinese language education, culture education, PBL, digital learning, digital textbook

1. 引言

“强化标准建设，提高教育质量”是国际中文教育“高质量内涵式发展”的关键环节（马箭飞，2021）。自 2021 年《国际中文教育中文水平等级标准》推出后，《国际中文教育用中国文化和国情教学参考框架》（以下简称《参考框架》）随即于 2022 年出版。《参考框架》是国际中文教育领域第一部独立而系统的文化教学的大纲，对海内外大中小学中国文化教学提出了新的标准与要求。《参考框架》要求培养学习者对文化知识、技能、意识、态度的综合能力，恰当选择体验型、分析型、思辨型、独立学习等教学活动实现最佳教学效果（教育部中外语言交流合作中心，2022）。以角色扮演或情景模拟的体验型文化教学活动，突破教师讲授主导的认知型文化教学模式，获得了一定的教学成效（祖晓梅，2015），但现有文献对于分析、思辨、独立学习的教学活动模式探讨不足。此外，随着线上教学需求和实践的日益增长，不受限于时间地点的文化教学活动新模式值得思考。项目学习法（project-based learning，以下简称 PBL）由美国教育家克伯屈（1918）提出（杨明全，2021），基于建构主义理论而发展，是围绕教学主题进行的一系列调查、观察、研究，并在此基础上进行表达、展示和分享等学习活动的方法（秦亚欧 & 刘宝瑞，2008）。研究发现，PBL 可有效促进学习者学科知识、提升其方法技能并丰富情感态度体验（赫永达等，2022）。

由此，本研究的目标之一为探求 PBL 对《参考框架》的教学目标达成效果，以探求适合于新标准的线上文化教学实践。在 PBL 教学设计中，项目活动应具有真实意义。在国际中文信息化发展的大背景下，本教学实践以“文化数字教材”作为切入点，并透过学习者视角探究其对数字教材的感知。综上，本研究基于 PBL 展开教学研究，从促进学习效果、补充数字资源和丰富文化教学方法三个方面展开探究，提出研究问题如下：

- 1) PBL 教学活动如何促成学习者达成文化学习目标？
- 2) 学习者如何感知文化数字教材？
- 3) PBL 教学模式如何应用于国际中文文化教育？

2. 文献回顾

2.1 国际中文文化教学

文化教学是国际中文教学的重要组成部分, 增进学习者对中华文化的理解是国际中文教育的基本工作(吴勇毅, 2023)。面向中文学习者的文化教学实践, 主要经历了教师主导、情境体验和虚拟空间教学三阶段转变(祖晓梅, 2015; 吴勇毅 & 王漪璇, 2023)。

在国际中文教学的早期阶段, 教师将“文化”视为“客观知识”进行介绍, 采用“课本-讲授-讨论”的教学模式(祖晓梅 & 陆平舟, 2006)。在该模式下, 一方面, 学生作为知识的被动接受者, 易丧失学习过程中的主动性和能动性; 另一方面, 文化被当成客观知识易被过度概括, 形成文化偏见(祖晓梅 & 陆平舟, 2006)。此后, 以角色扮演或情景模拟为主要形式的体验型文化教学活动, 塑造了文化学习活动中的学生主体地位, 强调了学生个体对文化的理解, 教学目标则由总结文化知识向培养学习者交际能力和跨文化意识过渡(祖晓梅, 2015)。为增强真实的体验感, 体验型文化教学活动往往伴随沉浸式教学模式(赵红玉, 2019)。在目标语非母语的学习环境下, 研究者则主要通过虚拟现实(virtual reality, VR)增强学习过程中的真实感(Lan et al., 2019)。随着线上教学需求与技术的进一步扩大, 吴勇毅与王漪璇(2023)提出VR多模态中华文化教学模式, 主张以多模态教学为导向, 构建“知识教学→沉浸体验→知识教学”(p. 59)的教学过程。但由于实现VR教学需要一定的技术要求, 在当前的文化教学实践中的应用有限。

国际中文教育发展新时期对文化教学的目标与模式提出新的要求与标准。以《参考框架》为例, 首先, 国际中文文化教学目标应涵盖文化知识、文化理解、跨文化意识和文化态度四个维度。具体而言, 文化知识包括掌握中国文化社会特点与概况。文化理解指理解中国文化的内涵与观念; 理解中国文化多样性与动态性特征; 理解传统文化在当代社会生活中的体现。跨文化意识包括培养学习者的文化异同意识。在跨文化意识的基础之上, 培养学习者尊重文化差异, 避免刻板印象与文化偏见的文化态度。尽管长久以来学界强调培养文化理解、跨文化意识和文化态度的重要性, 当前的文化教学研究仍多围绕文化知识展开。在此研究议题上, 学者围绕文化内容选取(李泉 & 丁秋怀, 2017)、文化等级大纲(张英, 2009)、文化词汇分级(于小植, 2022)、文化教材编排(周小兵等, 2010)和文化资源建设(侯磊, 2013)等展开充分探讨。上述研究充分指明了文化教学中应涵盖的知识目标, 但对文化情感和技能目标的探讨不足。其次, 在教学方法上, 《参考框架》提出真实、思辨、探究的文化教学模式。以往体验式的教学活动(如角色扮演、演练结合)难以在线上教学中实现; 而VR教学则对技术有较高的要求。由此, 本研究在《参考框架》的教学目标指导下, 基于PBL教学原则, 探索低成本、易操作的文化教学新模式。

2.2 PBL 理论背景

PBL 主张学习发生于特定的情境, 需要学习者积极参与学习过程, 并通过互动和分享实现对知识的理解。PBL 被认为是一种探究式学习, 学习者通过一系列个人或合作任务, 以真实世界实践中的问题为学习背景, 利用必要的学习资源, 解决现实中的问题以获得知识和技能, 从而产生有意义的学习体验 (黄冬梅, 2016)。PBL 的实施过程包含六步: (1) 选定项目; (2) 制定计划; (3) 实施项目; (4) 总结成果; (5) 交流成果; (6) 评价项目 (高艳, 2010)。其中, “评价项目” 尤为重要。通过自评、互评、教师评价等多种形式, 学习者可增强对知识概念的理解, 形成反思、分析的能力与习惯 (Danford, 2006; Lou & MacGregor, 2004)。

外语教学研究指出, PBL 可有效提升学习效果。以英语教育为例, 2012 年由北京高等教育出版社出版的《新大学英语》是国内外语界大规模实践和研究 PBL 的重要标志 (余渭深, 2017)。该教材是国内第一本基于项目学习法思想的大学英语教材, 其项目任务的基本主题包括饮食健康、校园生活、家庭生活、保护地球、促进全球教育等日常热门话题。为达成项目目标, 学习者需要通过自主学习与团队合作, 以访谈、问卷、视频制作、辩论等多种形式进行探究式学习。余渭深 (2017) 通过对使用该教材一年的 229 名学生的问卷调查显示, 学习者对于学习活动的整体评价较高, 尤其体现在拓展学习维度 (即相关知识和技能的发展, 如文化意识和逻辑思维等)。此外, 对学习活动的态度最积极的群组对于学习效果的评价高于其他群组。此外, PBL 还可从教学内容和课堂关系两方面促进学生能力发展。从教学内容而言, 以项目形式展开的学习活动突破了知识点单一、零散的限制, 具体化知识点的内在联系, 促进了学习者对零散知识的整体把握。从课堂关系而言, PBL 充分调动学生积极性, 强化以学习者为中心的学习过程, 在项目活动中提高知识应用能力与团队协作能力 (薛志诚 & 蔺平爱, 2015)。

在国际中文教育中, 对于 PBL 的教学应用研究较少。在一篇近期的研究中, Chen 和 Du (2022) 将 PBL 应用于丹麦一所大学的“中国语言与文化”初级课堂。在该教学研究中, 学习者被要求完成“中国旅游手册”和“对比中/丹家庭和教育差异”的概念图。基础知识的前后测成绩表明, PBL 有效促进了学习者文化知识习得。此外, 相较于学习者间合作, 与母语者的线上合作更有助于学习者理解中国文化深层次内核、跨文化意识和专业能力表现。学习者同时指出, 缺乏指导是完成项目时的一大挑战。

综上, PBL 以解决真实世界中的真实问题为出发点, 以发展学科知识与应用能力为落脚点, 在框架指导下支持学习者进行自主探究学习, 促进学习者获取知识、技能和方法, 培养学习者的探索精神和解决问题的能力。国际中文教学研究中, PBL 的应用探讨不足, 虽有少数文献证实其教学效果, 但并未突出文化教学, 且未完整阐述其教学应用模式, 对国际中文教师的方法论指导不足。由此, 本教学研究基于 PBL 教学设计框架, 遵照其教学程序, 围绕文化教学开展应用研究, 为新时代下文化教学法做出有益补充。

具体而言, 本研究将 PBL 应用于国际中文文化教学, 在文化知识的基础之上, 以求充分达成文化理解、跨文化意识和文化态度等教学目标。在项目选取上, 本教学设计聚焦于数字教材建设。遵循 PBL 设计原则, 教学活动中项目选取的首要原则为“解决真实生活中的真实问题”(黄冬梅, 2016)。随着信息化技术发展和线上教育实践日益丰富, 文化数字教材的开发与应用问题仍有提升空间。研究发现, 相较于语言类数字教材, 国际中文文化数字教材数量少, 且形式单一, 多为纸质教材的电子版, 未能充分利用多媒体及信息技术优势(吴应辉, 2022)。以文化数字教材为教学活动项目, 从学习效果的角度而言, 可利用信息技术赋能学习过程, 增强学习动机, 辅助学习者对学习材料的理解。从建设数字资源的角度而言, 可从学习者视角出发探究其对文化数字教材的理解与需求, 从而裨益国际中文数字化发展。

3. PBL 教学框架

基于 PBL 理论指导与教学实践活动, 本文提出 PBL 教学模式在国际中文文化教育的应用框架(见图 1)。整体而言, PBL 围绕“项目”, 通过五个具体教学流程贯穿三大教学环节。三个教学环节分别为教学设计、教学实施和教学评估; 五个教学流程分别为项目选取、项目计划、项目实施、项目分享与项目评价。其中, 项目选取、项目实施和项目评价分别为教学设计、教学实施和教学评估的主体环节; 项目计划和项目分享则分别联结教学设计与教学实施、教学实施与教学评估。

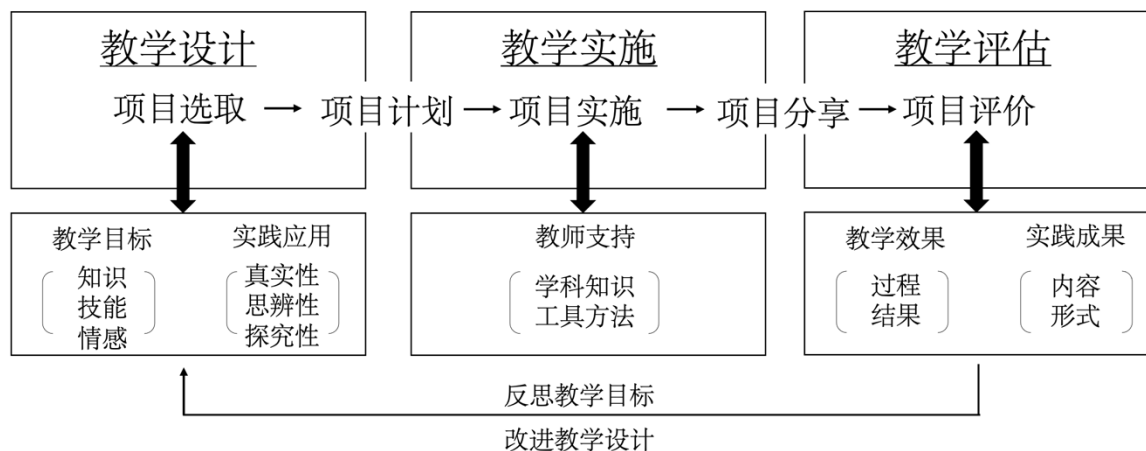


图 1 PBL 教学框架构建

在教学设计阶段确定活动项目。在选定项目时, 需从教学目标出发, 并思考教学内容在实践生活中的真实应用。如《参考框架》所要求, 为实现知识、技能、情感等多维度教学目标, 实践应用需满足真实性、思辨性与探究性特点。真实性驱动了学习者对文化知识的深入考察, 思辨性促进了学习者的文化理解与跨文化意识, 而探究式活动则为学习者创造了自我体验感, 促成其文化态度情感。由此, 教学目标与实践应用有机结合, 共同决定 PBL 中的项目选取。基于真实性、思辨性和探究性的教学目标, 表 1 所示为可供参考的活动项目。

表 1 基于真实性、思辨性和探究性的活动项目

教学目标	活动项目	描述
培养学生对文化知识的深入考察（真实性）	文化展览	学习者分组策划并设计一场关于中国文化的展览。每个小组负责一个主题，例如传统节日、艺术形式、建筑风格等。通过研究、整理展品，学生需要深入了解背后的文化含义，展示真实且深刻的文化知识。
促进学生对文化理解与跨文化意识的培养（思辨性）	文化对话视频	来自不同国家或地区的学习者合作，共同制作一系列文化对话视频。在视频中，学生们通过对话展示各自的文化特色、传统习俗，并进行思辨性的讨论，探究文化的异同之处，促进对跨文化意识的培养。
创造学生自我体验感，促成文化态度情感（探究性）	文化体验日志	学习者选择一个与中国文化相关的活动，例如中国茶道体验、传统书法课程等，并记录体验日志。学生需要描述体验过程、个人感受，以及对所体验文化的态度。这个项目活动将帮助学习者通过亲身体验建立情感联系，培养对文化的积极态度。

项目计划推动教学环节由设计进入实施。在项目计划阶段，以教师为主体，明确项目的具体内容、进度安排与评估标准等，为项目成果实施提供框架。需要注意的是，虽然 PBL 主张自我探究式活动，但在项目实施阶段，教师支持必不可少。教师支持可围绕学科知识和工具方法两方面展开。学科知识指学习者项目中涉及的专业知识内容，工具方法指为产出作品需要学习者具体使用的技术操作指引。

项目分享既是活动实施的一部分，又是教学评估的一部分。项目分享阶段由学生主导，需对自己的成果进行展示和说明，随后通过课堂互动问答，进一步促进对知识的深度加工整合。在本次中国文化教学中，学习者的跨文化意识即由项目分享这一流程所体现。在分享的过程中，学习者会提及中外文化的异同之处，并发表自己的观点，亦引发学习者对文化异同的讨论。表 2 提供了适用于活动项目展开的技术工具。

表 2 适用于项目开展的技术工具

技术工具	活动项目	描述
协作平台：Microsoft Teams、腾讯文档、Google Slides 等	协作文化展览	使用协作平台创建团队，每个小组在文化展览项目中协同工作。学习者可以共享文档、表格和幻灯片，进行实时编辑和反馈，促进团队合作。
虚拟展示工具：Padlet、FLBOOK、Book Creator	虚拟文化展览	学习者可以使用虚拟展示工具创建一个虚拟文化展览。使用虚拟展示工具上传图片、视频和文字，以呈现所研究的中国文化，与其他同学互动和分享。
多媒体创作工具：Adobe Spark、Canva	文化对话视频制作	学习者使用多媒体创作工具制作文化对话视频，以展示和解释他们所研究的中国文化。这可以包括图像、音频和文本的综合运用。
在线讨论平台：Discord、Flipgrid	在线文化讨论	学习者可以使用在线讨论平台参与文化对话，发表言论、回答问题，并与其他学习者互动，促进跨文化理解。
实时协作工具：Zoom、Microsoft Whiteboard	远程合作项目	学习者可以使用实时协作工具进行虚拟会议，共同制定项目计划、讨论项目进展，并分享他们的成果，实时互动有助于增强合作和交流。

社交媒体平台: Twitter、Instagram	文化展览宣传	学习者可以使用社交媒体平台宣传文化展览项目。分享图片、视频和相关文本, 与社交媒体上的真实用户互动, 拓展项目的影响力。
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教学评估阶段的主题任务是对项目成果进行评价, 评价对象同时包括教学实施效果和最终的实践成果。越来越多的研究指出, 学习评价应同时涵盖对学习过程和学习结果的评估(杨莉芳 & 王婷婷, 2022)。表 3 为教学评价提供参考。

表 3 适用于教学评价的数字平台与工具

技术工具	应用	描述
学习管理系统: Moodle	数字评分和评语	在学习管理系统, 学习者可创建并分享过程日志与对活动完成后的总结与反思。通过在线提交, 教师可以及时提供反馈和评价。
在线学习分析工具: Learning Analytics Tools	学习数据分析	利用在线学习平台的分析工具, 收集学生在项目中的学习数据, 包括参与度、网络资源访问频率等, 以了解学生的学习行为和参与程度。
在线调查和问卷工具: 问卷星	项目反馈调查	利用在线调查工具设计一份反馈问卷, 让学生评价整个项目过程、组员合作和项目成果。这可以为教师提供有关学生体验和项目效果的定量数据。

综上, 本研究基于该“一项目、三环节、五流程”的 PBL 教学活动设计框架, 着眼于国际中文文化数字教材设计, 围绕教学目标和数字教材设计展开实证研究。

4. 研究方法

4.1 研究对象

该研究的对象为三名来自俄罗斯的汉语为外语的学习者。三位学习者的汉语能力皆为中级水平(通过 HSK4 级考试), 修读硕士研究生课程, 其中一位的专业为国际法专业(S1), 另外两位为国际中文教育专业(S2 和 S3)。三位学习者均在俄罗斯修读线上课程。

4.2 研究过程

本研究遵循 PBL 教学活动的基本流程, 主要涉及的教学环节为导入、讲授、计划、探究、交流与反思, 如表 4 所示。

表 4 教学步骤

步骤	要点	内容
导入	教学目标 教学要求	<ul style="list-style-type: none"> ● 教学者明确在完成本单元的学习后, 学习者需要设计一本数字教材, 数字教材的主题为“中国哲学思想精神”, 围绕该主题, 自行选择设计内容。
讲授	语言点 文化点	<ul style="list-style-type: none"> ● 教学者依托《当代中国文化读本》(常大群, 2013) 第一单元《中国的哲学与价值观》的内容进行授课(包括儒、道、佛和当代中国的价值观)。 ● 在授课的过程中, 依照教学要求, 在讲解文化的同时, 进行字、词、句等层面的语言点教学, 进行语言点与文化点的有机结合。
计划	项目主题 流程步骤	<ul style="list-style-type: none"> ● 教学者说明数字教材制作意义, 告知本次项目中的预计成果。 ● 教学者在该环节中提供了相应的“脚手架”, 帮助学习者完成学习任务。具体包括技术支援(讲解设计网站的具体操作)和设计流程(如明确目标读者, 依照目标读者进行需求和内容分析; 从媒体开发、教学实施和评价等多角度设计思考数字教材的呈现方式)。
探究	教师支持 初稿修改	<ul style="list-style-type: none"> ● 探究环节由学生自主完成, 教师提供辅助支持。在该环节中, 学习者在教师完成授课后, 结合自己的学习体会和感悟, 自行选择文化点, 利用免费网站制作数字教材。教学者充分给予学生自主权, 由学生设计图、文及多媒体内容。 ● 完成初稿后, 教学者提供语言点上的反馈, 学生修改后提交。
交流	成果展示 分享交流	<ul style="list-style-type: none"> ● 提交最终版本后, 学习者围绕自己的作品进行分享与展示。在这一过程中, 学习者需要详细说明数字教材的目标读者、设计意图、亮点与局限性。 ● 设计问答环节, 在社会互动中加深对中国文化的理解与认识。
反思	学习评估 教学评估	<ul style="list-style-type: none"> ● 活动结束后, 学习者需要完成学习反思日记, 结合同伴点评与教师点评, 开展自我反思, 总结本次学习活动的经验与不足, 并为教学活动提供建议。

4.3 数据收集与分析

本案例作为探究式研究, 由于研究对象的样本量较低, 主要采用质性研究方式, 收集的数据及其分析方式包括:

- (1) 针对学习者设计的数字教材进行内容分析;
- (2) 围绕设计说明(包括设计意图、内容选取与技术运用)进行主题分析;
- (3) 根据学习反思日志(包括对学习过程的反思和教学活动的建议)进行教学评估与教学模式构建;
- (4) 对研究对象进行的一对一半结构式访谈。

5. 发现与讨论

5.1 文化教学目标实现

如前文所述, 国际中文文化教学目标涵盖文化知识、文化理解、跨文化意识和文化态度四个维度。上述四个维度的教学目标达成情况反映于学习者作品内容、学习反思日志和访谈。

首先, 图 2 展示了三位学习者的设计封面及标题, 内容可参见表 5。

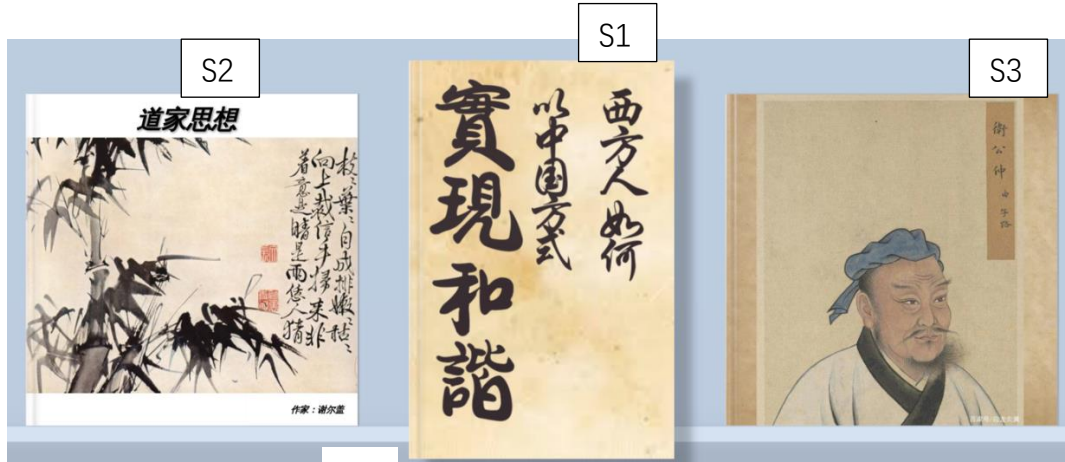


图 2 数字教材封面

表 5 学习者数字教材内容

学习者	文化点	目录
S1	儒家、道家与法家	简介 儒家 道家 法家 阅读练习 语法练习
S2	道家、老子与庄子	道家思想 老子 庄子 道家思想的影响 词语表 语法说明 阅读练习 语法练习
S3	子路背米	课文 生词 语法 练习

文化知识维度要求学习者掌握基本的文化知识, 文本内容分析发现, 学习者所阐述的文化知识并无理解错误, 如儒教、道教等的基本思想内涵概括, 代表人物介

绍等。学习者访谈表示, 与教师主导的课堂不同, 在 PBL 活动中产出的作品由于会在网络上公开, 因此更加重视内容的准确性。为呈现准确内容, 学习者在学习过程中充分体现学习自主性, 在课堂学习之外积极寻求课外参考资料。

在文化理解维度, 教学目标的实现体现在学习者对中国哲学思想多样性和时代性的理解。学习者表示, 在查找资料的过程中, 体会到“中国文化丰富”(S2-访谈 03) 和“深刻”(S3-访谈 01)。文化理解涵盖传统文化对现代生活的影响, 体现在学习者作品中, S1 表示“道家追求精神的宁静与自由, 在指导现代人实现自我心理调节、促进心理健康等方面起到重要作用”(S1-作品 p.10a), “道家思想崇尚的审美价值, 对中国艺术产生了重大影响”(S1-作品 p.10b)。

跨文化意识维度的达成反映在学习者的设计说明中。据学习者所述, 在选择文化内容时, “与自己国家文化不同的地方”会成为首选项。以 S3 所选的“子路背米”的故事为例, S3 认为中国文化中的亲子关系与其所在国俄罗斯有明显差异。中国文化中, “尊敬”和“孝敬”父母是延续至今的传统美德(S3-设计说明), “当父母老了后, 子女照顾父母”(S3-访谈 08), 在“俄罗斯不会这样”(S3-访谈 09)。

最后, 在文化态度上, 基于跨文化的比较和自主探究的过程, 学习者表示对中国文化情感上的认同。如 S3 在访谈中表示对中国文化中尊敬父母的“佩服”(S3-访谈 10)。除此之外, 在文化态度层面, 学习者还表示应避免文化偏见, 如 S1 的作品表示“当西方人听到‘东方哲学’这些词时, 人们通常会想到冥想、瑜伽……然而, 东方哲学是极其多样化的”(S1-作品 p.1)。

综上所述, 学习者认为 PBL 教学活动通过推动其学习积极性与自主性, 在课堂学习的基础之上, 经自主探究和资料查阅深入思考文化知识, 体会文化的独特性、多样性和时代性, 由此促进其跨文化意识和文化情感态度。

5.2 文化数字教材感知

通过 PBL 教学活动, 本研究还试图探究学习者对文化数字教材的感知。研究发现, 学习者表示数字教材应具备图文一致性、内容丰富性和学习个性化的特点。

首先, 学习者认为, 数字材料所具备的多模态语言优势应被充分利用。在设计过程中, 三位学习者均试图利用图片信息, 对文字进行补充说明, 以增强读者理解。如 S2 表示, 在设计封面时, 由于内容选取围绕道家, 因此特意选取了具有意象的竹林, 为读者传达“无为”的精神。此外, 学习者亦会在介绍思想的主要代表人物时, 配以相应的人物画像, 使人物形象更加具体生动。

其次, 学习者认为数字教材的另一优势是具备扩充内容的丰富程度。以 S3 所设计的作品为例, 该学习者选取的文化内容为“子路背米”的故事。与另两位学习者在生词旁标注拼音的方式不同, 该生在课本旁直接插入录音文档, 将其作为有声读物。S3 认为, 搭配声音可帮助读者便利地听读文章, 既有利于学习, 又使教材内

容更加丰富。此外, S3 还为其设计的作品加入了可联结至“游戏化问答系统”的超链接。在“游戏化问答平台”中, S3 自行设计问题, 而该平台可根据预先设置, 为读者的选择给予相应反馈, 为阅读活动增加趣味性。

最后, 学习者还一致认为, 运用数字教材时可实现个性化学习, 对于一些辅助理解和进一步拓展学习内容的材料, 可通过增加超链接的方式, 以提供给有相应需求的读者。如此一来, 在完成基本教学内容的基础之上, 读者可发挥自主性, 根据学习需求和兴趣, 实现个性化和多样化学习。

5.3 PBL 教学活动反思

本研究基于“一项目、三环节、五流程”的 PBL 教学活动设计框架, 通过教学设计、教学实施和教学评估三个环节, 经由项目选取、项目计划、项目实施、项目分享与项目评价, 围绕“设计文化电子书”项目活动, 一方面增强学习者对中国的文化的理解, 另一方面探索学习者对文化数字教材的感知与需求, 为今后设计数字资源提供启示。

前期研究指出, 缺乏教师指导会影响项目实施效果, 教师支持是推动教学活动进展的必要条件 (Chen & Du, 2022)。在本次教学活动中, 教师为学习者提供语言反馈和数字教材制作方法指导。在项目实施前, 教师进行技术平台演示, 解释平台的使用方法; 在成果分享前, 教师基于学习者提供的作品稿, 提供语言修正意见, 减轻学习者的“语言焦虑”(S3-反思日志)。而项目评价则是检验教学活动是否成功达成目的的重要环节 (Danford, 2006; Lou & MacGregor, 2004)。多维度、全过程的学习评价, 可综合评估学习者的学业表现、认知发展和情感投入, 并由此提供个性化教学指导 (张家华等, 2022)。在国际中文文化教学情境下, 对实践成果的评价可从语言形式和内容两方面展开。通过教学评估, 教师可反思教学目标是否达成, 教学设计是否完善。在本教学研究中, 学习反思日志作为教学评估的途径之一, 为学习效果达成提供实证依据。

然而, 本次教学仍存在一定改进空间。首先, 三位学习者的访谈均指出, 在此教学活动中, 需要更加充足的时间以产出更优质的实践成果。此外, 此次的教学效果评估主要由教师一人完成, 并未纳入学习者同侪评价, 在今后的教学设计中可组织学习者共同对实践成果进行评价。

6. 结语

本研究以文化教学目标为导向, 以 PBL 教学框架为指导, 着眼于文化数字教材设计, 意图在增强学习者语言能力和文化能力发展的同时, 从学习者视角出发, 探究学习者对于数字教材的感知, 并探究 PBL 在国际中文文化教学中的应用模式。研究发现, 在 PBL 教学活动中, 学习者充分发挥学习积极性与自主性, 充分拓展课堂材料, 在文化知识、文化理解、跨文化意识和文化态度等多维度达成学习目标。

通过此教学活动, 学习者亦表达出对文化数字教材的期待与要求, 具体体现在图文表达、内容拓展与学习支持三方面, 为研究者开发设计文化数字教材提供启示。然而, 学习者仍指出, 为产出高质量实践成果, 需要教师给予更为充足的时间。此外, 在项目评价环节可同时纳入同侪评价。

本研究提出 PBL 教学框架及其教学实践案例, 为满足新时期国际中文文化教育标准提供教学法参考。在未来的教学实践研究中, 可进一步通过(准)实验对比研究, 考察该教学设计的有效性及其可推广性。此外, 本次 PBL 教学活动在线上教学情境下实现, 未来可纳入线下或混合教学情境, 进一步拓展 PBL 教学框架, 探索其在不同教学情境下的具体应用。

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Teaching Chinese Language and Culture Through Chinese-American Virtual Exchange: A Pedagogical Reflection (虚拟文化交流与对外汉语教学: 教学反思)

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Abstract: Despite its increasing popularity and widely reported success, the use of virtual exchange has not been very popular in the field of Chinese as a foreign language (CFL). The Chinese language program at a U.S. liberal arts college has been experimenting with various types of virtual exchange projects in partnership with Chinese students at a Chinese university in China in the past years. To further promote virtual exchange in the CFL field, this article attempts to provide a pedagogical reflection of one of the telecollaborative exchanges implemented at this college, outlining the description of the exchange, the rationale of the project design, learning outcomes, pedagogical challenges, and practical implications for future Chinese-American virtual exchange projects. The positive learning outcomes of the described exchange indicate that the combination of the e-tandem model and the telecollaboration model poses a promising direction for future virtual exchanges. The reported pedagogical challenges reveal that Chinese language instructors need to take a wide range of factors into consideration in virtual exchange design, including time difference, target language proficiency gap, workload, task type, and more.

摘要: 虚拟语言文化交流近年来在外语教学领域备受推崇,然而其在对外汉语教学中的运用并不广泛,有关中美虚拟语言文化交流的教学材料和教学反思也不多见。近几年来,美国一家文理学院的中文项目一直致力于中美虚拟语言文化交流的探索,积累了一些实战经验。为了促进虚拟语言文化交流在对外汉语领域的推广,本文针对该文理学院尝试的一项中美虚拟语言文化交流活动进行教学反思,从活动描述、设计理念、学习结果、教学挑战、教学启示和未来方向等角度分析如何在中文教学中有效使用中美虚拟语言文化交流。该交流项目的成功经验显示将网络语言交换和跨文化远程协作结合起来是可行的思路。同时,该项目所经历的挑战也表明对外汉语教师在设计虚拟语言文化交流时应该考虑多重因素,比如时差、目标语言能力差距、学生工作量、任务类型等等。

Keywords: Virtual exchange, telecollaboration, Chinese as a foreign language, pedagogical reflection

关键词: 虚拟语言文化交流、远程合作、对外汉语、教学反思

1. Introduction

With the development of information and communication technology (ICT) over the past two decades, foreign language educators have been making use of technologies to connect their learners with users of other languages and engage in authentic communicative interaction and collaboration for the purpose of language and culture learning. The dramatic growth of interest in this pedagogical activity has also invited practitioners and researchers to critically reflect on the different terminologies that have been used (Colpaert, 2020). To date, virtual exchange has been adopted as an umbrella term to refer to the variations of this pedagogical approach, which “involves the engagement of groups of learners in extended periods of online intercultural interaction and collaboration with partners from other cultural contexts or geographical locations as an integrated part of their educational programs and under the guidance of educators and/or expert facilitators” (O’Dowd, 2020, p. 449).

In the field of foreign language education, the design of virtual exchange has mainly been guided by two models to develop language learners’ linguistic and intercultural competences: e-tandem and telecollaboration (Dooly, 2017). Informed by interactionist theories of second language acquisition, the e-tandem model (O’Rourke, 2007; Rahimi & Fathi, 2022) focuses on developing linguistic competence, fostering learner autonomy, and increasing exposure to authentic linguistic input outside of the language classroom. In this model, individual native speakers of two different languages from classes across different countries are paired in order to communicate together with the help of internet technology and the aim of learning each other’s language. Typically, online communication is conducted half in the target language and half in the native language so that students from each respective side are provided with an opportunity to practice their target language.

In contrast, the telecollaboration model is influenced by sociocultural theories of second language acquisition and reflects the trend of attaching importance to intercultural and sociocultural aspects of foreign language teaching in the late 1990s and early 2000s (Thorne, 2003). This model differs from the e-tandem model in that its focus shifts from language learning to culture-and-language learning. In addition to the development of linguistic competence, telecollaboration also emphasizes the development of intercultural competence (O’Dowd, 2016). Belz (2003) defines telecollaboration as “institutionalized, electronically mediated intercultural communication under the guidance of a language cultural expert (i.e., a teacher) for the purpose of foreign language learning and the development of intercultural competence” (p. 2).

A tremendous amount of research has documented various types of beneficial outcomes of virtual exchange, ranging from second language development to intercultural learning (Lewis & O'Dowd, 2016; Luo & Yang, 2018, 2022). The growing interest in virtual exchange has also been promoted by pragmatic factors. Due to the economic and environmental cost of study abroad programs, some scholars advocate virtual exchange as a potential low-cost alternative to physical mobility programs (Richardson, 2016). The challenges of study abroad programs or physical mobility programs have been exacerbated during global pandemics, making virtual exchange an attractive and cost-effective option for international learning.

Various types of networks and platforms have been established to support language instructors' virtual exchange initiatives. For example, primary and secondary school teachers interested in virtual exchange are supported by large networks and virtual platforms such as eTwinning (<http://www.etwinning.net>) and ePals (<http://www.epals.com>). In addition, the European Telecollaboration for Intercultural Language Acquisition (TILA) project is also dedicated to promoting the use of telecollaboration for secondary education. The TILA project (<http://www.tilaproject.eu/>) provides a platform to assist secondary school teachers and teacher training programs in implementing adequate integration of telecollaboration practices in foreign language education. Language teachers can find a wide variety of useful resources on TILA, including pedagogical materials on telecollaboration, task samples, virtual classrooms, a partner searching tool, technical assistance, teacher training materials, various online tools, best practice samples, and more.

Governmental and organizational support for virtual exchange at the university level has also been growing. In recent years, the Telecollaboration in Higher Education conference established a new academic organization UNICollaboration: The International Association of Telecollaboration and Virtual Exchange (<http://uni-collaboration.eu/>), which aims to provide support and training for university educators who are interested in engaging their learners in telecollaborative activities and finding telecollaborative partnerships. In 2018, a flagship program entitled Erasmus+ Virtual Exchange was launched by the European Commission to further expand the reach and scope of the Erasmus+ program via virtual exchange. In the United States, the SUNY group of universities initiated the Collaborative Online International Learning (COIL) model (<http://coil.suny.edu/>) to connect students and professors in different countries for collaborative projects in different subject areas and to provide training and support for educators and institutions who are interested in integrating virtual exchange in their curricula. This mission is also shared by the Stevens Initiative (<http://www.stevensinitiative.org>). For telecollaborative practitioners at the university level with more specialized interests, smaller networks and platforms have been created to focus on certain subject areas. Three examples of such networks are the Teletandem Brasil Project (<http://www.teletandelbrasil.org>) for foreign language learning, the X-Culture network (<http://x-culture.org>) for international business studies, and the mentor-led virtual exchange networks, such as *Soliya*, for important socio-political issues through connecting students from the West with students from the Muslim and Arabic world.

Despite its increasing popularity and widely reported success, the use of virtual exchange has not been very popular in the Chinese as a foreign language (CFL) field. With a significant upsurge of interest in telecollaboration in China, Japan, South Korea, and Taiwan (Lewis & O'Dowd, 2016), research on virtual exchange involving CFL learners has begun to emerge (e.g., Jin & Erben, 2007; Ryder & Yamagata-Lynch, 2014; Luo & Gui, 2021; Luo & Gao, 2022). However, documented Chinese-American virtual exchange projects and pedagogical reflections on such efforts are still rather sparse. Thus, established models of successful virtual exchange specific to the Chinese language are still hard to find. The Chinese language program at a U.S. liberal arts college has been experimenting with various types of telecollaborative projects in partnership with Chinese students at a university in Shanghai in the past five years. To further promote virtual exchange in the CFL field and facilitate meaningful pedagogical discussions on this topic, this article attempts to provide a pedagogical reflection of one of the telecollaborative exchanges implemented at this college, outlining the description of the exchange, the rationale of the project design, learning outcomes, pedagogical challenges, and practical implications for future Chinese-American virtual exchange projects.

2. Project Description

The Chinese-American telecollaborative learning program under discussion was a 15-week exchange project, involving two natural Chinese language classes, CHN102 (i.e., second-semester first-year Chinese) and CHN112 (i.e., second-semester second-year Chinese) at a U.S. college and a group of English majors who were also members of the English debate team at a Chinese university in Shanghai, who regularly attend national debate competitions in China. Twenty-one Chinese language students (12 males, 9 females, with an age range of 17 to 20 years old) enrolled in the CHN102 and CHN112 courses at the U.S. college, among which 13 students were from CHN102 and 8 were from CHN112. All the Chinese language students at the U.S. college were native speakers of English except two female Vietnamese international students, one in CHN102 and one in CHN112. All of the 21 students from the Chinese university (4 males, 17 females, with an age range of 18 to 22 years old) were native speakers of Mandarin Chinese and demonstrated an advanced level of English language proficiency.

The author of this article was the instructor of both CHN102 and CHN112 at the U.S. college. The assistant of these two courses was a Fulbright Teaching Assistant (TA), who served as an English language instructor and the academic advisor of the English debate team at the Chinese university before her Fulbright Teaching Assistantship in the U.S. The Fulbright TA, who was physically present at the U.S. college and assisted with the Chinese language program when the telecollaborative project was established and implemented, was responsible for convening and organizing the Chinese group consisting of her former students through internet-based technologies while the author was in charge of the American group.

In the first week of the semester, participants from both sides were required to provide a brief biography highlighting interests, hobbies, personalities, and learning

expectations for the Chinese-American program. All the biographies were then collected and made accessible to the participants who were instructed to choose their partners based on the information. As a result, each student from the American group was paired up with one from the Chinese group. The instructor created two WeChat groups respectively for CHN102 and CHN112 in which participants from both sides could socialize and discuss cultural topics with their partners. The two WeChat groups remained separate throughout the semester. More specifically, the Chinese-American telecollaborative project had the following four components: one-on-one Skype conversations, WeChat group cultural discussions, one-on-one WeChat conversations, and reflection journals (see Table 1 for a summary).

Table 1 The Four Components of the Chinese-American Exchange

Component	Requirements	Sample Discussion Questions
One-on-one Skype Conversations	<ul style="list-style-type: none"> • Half an hour per week • Half in English and half in Chinese • Record Skype conversations 	<ul style="list-style-type: none"> • Chinese part: 你周末常常做什么? 你有什么爱好? 你有男/女朋友吗? • English Part: What is the dating culture like in China/America?
WeChat Group Discussion	<ul style="list-style-type: none"> • English was the main working language • Student-generated discussion topics • Cultural comparison 	<ul style="list-style-type: none"> • What are college students' main activities outside school in China and in the U.S.? • What is drinking culture like in China and in the U.S.?
One-on-one WeChat Conversations	<ul style="list-style-type: none"> • Individual conversations on a daily basis • Topics were open • Communication modes were open 	<ul style="list-style-type: none"> • Students were encouraged to discuss anything they were interested in, ranging from Chinese language study to their daily life experiences, and any other cultural aspects.
Reflection Journals	<ul style="list-style-type: none"> • Weekly reflection journal • Final reflection journal • Guidance for Writing Reflective Journals 	<ul style="list-style-type: none"> • How they perceived the program and its components • What they learned from the exchange • Challenges they encountered • Recommendations for improvement

One-on-one Skype conversations: CFL students from the American side were required to spend at least half an hour talking to their Chinese partners over Skype on one of the department lab computers, half in Chinese and half in English. These conversations were to occur on a weekly basis except for the first week, the spring break week, and the final week, resulting in twelve Skype conversations over the course of the semester. For the part in Chinese, the instructor provided a list of questions/topics in Chinese involving the vocabulary the students were familiar with or had just learned to include in their conversations. This was supposed to aid the participants in easier dialogue and mitigate the

language barrier. For the part in English, the instructor provided a list of cultural topics concurrent with the cultural themes covered in their Chinese textbooks, but students were welcome to switch to any other topics that interest them. At the beginning of the semester, the director of the department language lab conducted a half-an-hour orientation workshop for students in CHN102 and CHN112 to familiarize them with the technology materials. Students were instructed to record their Skype conversations as video files and save them under appropriate folders on the lab computers. The instructor would view each Skype conversation video as soon as they were available and make notes while watching them.

WeChat group cultural discussions: A WeChat group was created for each class, CHN102 and CHN112, including students from both sides of the partnership. The two WeChat groups served as cross-cultural discussion forums for both classes and their respective Chinese partners. The main language for WeChat group cultural discussions was English. Students were asked to formulate cultural discussion topics with their partners. For eight weeks in the semester (i.e., weeks 4, 5, 6, 7, 9, 10, 11, and 12), one or two partner pairs posted a selected cultural topic as well as associated discussion questions in the class WeChat group to invite their classmates and Chinese partners' thoughts and opinions. In particular, the students were encouraged to compare and contrast aspects of Chinese and American cultures. The discussion topics were supposed to be posted no later than 10pm every Sunday and closed for discussion at 10pm the following Saturday. At the end of the semester, each class voted on which cultural topic generated the longest and most robust discussion and a prize was given to that pair. The Chinese language instructor and the Fulbright TA participated in the WeChat group cultural discussions mainly as observers and occasionally as facilitators when student participation was low. The instructor frequently took notes and posed questions in her notes during each WeChat group discussion for later analysis.

One-on-one WeChat conversations: The students from the American side were required to connect with their Chinese partners individually through WeChat on a daily basis. They were encouraged to discuss anything they were interested in, ranging from Chinese language study to their daily life experiences, and any other cultural aspects. They could type texts or send voice messages in English or Chinese for the daily WeChat conversations. To facilitate the completion of this component, the instructor also regularly assigned CFL students homework requiring WeChat communication with their Chinese partners. For example, the Chinese language students at the U.S. college may need to write a short letter to their Chinese partners through WeChat, ask questions about their partner's daily life by incorporating the new vocabulary covered in the latest lesson, send a voice message to their partner commenting on the day's news, or seek help in understanding a Chinese joke or idiom. Five minutes of each class meeting in CHN102 and CHN112 was reserved for students to share the most interesting things they learned from their Chinese partners through this component.

Reflective Journals: Almost every week, each student from the American side was required to write a one-page reflective journal on their experiences with the Chinese-American learning program due at 10pm every Sunday. The last journal was expected to be a holistic reflection of the program throughout the semester. In these journals, they could

reflect on how they perceived the exchange and its components, what they learned from the 30-minute Skype conversations, the WeChat group cultural discussion, the daily-based WeChat interactions, the challenges they encountered, and/or recommendations for improving the program. The goals and expectations of reflective journals were openly discussed in class at the beginning of the semester and a document titled “Guidance for Writing Reflective Journals” was handed out to the students and posted on the two classes’ online Moodle sites. The instructor would read the students’ reflective journals as soon as they were submitted, take notes, and schedule informal follow-up interviews with the students to clarify points and elicit further insights.

CFL students from the U.S. college were required to take part in this program as it was incorporated into the syllabi of CHN102 and CHN112 and their performances in this program accounted for 20% of their final grade. Table 2 presents a detailed breakdown of the grading for this program. In contrast, the Chinese group were selected on a volunteer basis and their participation and performance in this program were not related to their final grade in any course.

Table 2 Grading for U.S. Students’ Participation in the Chinese-American Program

The Chinese-American Program	20%
Weekly Skype conversation	5%
WeChat group cultural discussion	5%
One-on-one WeChat daily conversation	5%
Reflective journal	5%

3. Rationale of Project Design

As discussed in the Introduction section, the e-tandem model mainly focuses on developing linguistic abilities, whereas the intercultural model of telecollaboration seeks to foster intercultural competence. Since this Chinese-American telecollaborative learning program intended to promote the learning of both language and culture, it was designed to combine the e-tandem model and the intercultural model of telecollaboration. The weekly one-on-one Skype conversations conducted half in Chinese and half in English were largely based on the rules of the e-tandem model with emphasis on learning each other’s target language. Guided by the principles of the telecollaboration model, the WeChat group cultural discussions focused on the development of learners’ intercultural knowledge and competence through cross-cultural comparisons and discussions through learner-selected cultural topics.

In addition, this virtual exchange sought to integrate different task types. An increasing body of research has shown that tasks play an important role in determining the learning outcomes of telecollaboration (Hauck & Youngs, 2008; O’Dowd & Ware, 2009). O’Dowd and Ware (2009) identified twelve telecollaborative task types from the literature and further organized them into three main categories: information exchange tasks, comparison and analysis tasks, and collaborative tasks. In this Chinese-American exchange, the one-on-one WeChat daily conversations mainly involved information exchange tasks where partners were encouraged to ask whatever questions of mutual interests and establish

a close personal relationship. During the weekly Skype conversations, partners had the opportunity to share cross-cultural information and analyze a designated or self-selected cultural phenomenon together “face-to-face,” which was a combination of information exchange tasks and comparison-analysis tasks. The WeChat group cultural discussions, mainly utilizing comparison-analysis tasks, explicitly elicited both sides’ opinions and insights on Chinese-American cultural differences revolving around student-generated topics. Through the weekly reflective journaling, learners consistently reflected on their own telecollaborative experiences and received feedback from the instructor. Such reflective tasks helped learners and instructors identify potential difficulties, resolve issues, and seek solutions in the process of the exchange so that the learners could remain on the right track and make the best use of the exchange project. Considering the workload required of this program and the limited Chinese proficiency of the American students, collaborative tasks were not included in the design.

Moreover, measures were taken to alleviate issues associated with the target language proficiency gap. By now, it is well documented that the target language proficiency gap between the two sides of the partnership is one of the important factors resulting in failed communication in virtual exchange (e.g., Ware, 2005; O’Dowd & Ritter, 2006). This problem seems to be especially acute for more “difficult” languages like Chinese and Japanese. This is because Chinese and Japanese are linguistically more difficult for English native speakers than many Western European languages and reaching higher levels of proficiency requires much more time. In order to mitigate the issue of target language proficiency gap in this exchange, the instructor at the U.S. college provided the students with scaffolding and support whenever necessary and broke the rule of equal L1 and L2 usage. For example, in the weekly Skype conversations where half Chinese and half English were expected, the instructor spelled out a list of questions in Chinese within the learners’ vocabulary range and cultural topics in English relevant to the themes covered in their textbooks. Meanwhile, English was the main language for the WeChat group cultural discussion and the one-on-one daily WeChat conversation despite the use of Chinese from the American group being encouraged. This allowed flexibility for the participation of learners of different Chinese proficiency levels and accommodated students’ discrepant expectations towards language study and culture learning.

Finally, this exchange combined the use of different technological tools including Skype and WeChat as well as a wide variety of communication modes to make the best use of the advantages of each communication tool. Many scholars have recognized the important impact of technological mediums on online intercultural communication (Hauck & Youngs, 2008; Kern, 2014; Malinowski & Kramsch, 2014; O’Dowd, 2007). The norm of virtual exchange nowadays tends to use a combination of different online tools, characterized by “a less text-based and more multimodal form of communication” (O’Dowd, 2012, p. 352). The synchronous Skype conferencing allowed partners to talk face-to-face in real time, solve problems on the spot, and build more personal relationships. WeChat is an all-in-one communication app, with amenities such as free texting and voice messaging, voice and video calls, moments (known as “Friends’ Circle” among Chinese users), photo sharing, games, and online payment, incorporating the features of Facebook, Instagram, Skype, and Twitter (Luo & Yang, 2018). The WeChat group function allowed

asynchronous text-based forum discussion. Moreover, students from the American side were encouraged to explore the other functions of WeChat such as Friends' Circle on their own, which would provide them with immense exposure to various aspects of authentic Chinese language and culture.

4. Learning Outcomes

In order to evaluate student learning outcomes of the Chinese-American exchange, the instructor examined a variety of data, including naturally occurring interaction data (i.e., Skype conversations, WeChat group discussion transcripts), students' weekly reflection journals, informal interviews with the students throughout the semester, end-of-semester interviews with the students, the teacher-researcher reflective journal, and student responses to an end-of-semester questionnaire.

Based on the results of the end-of-semester questionnaire, the CFL students on the U.S. side, in general, reported positive overall experience with the exchange. For the item "Please rate how well you like the Chinese-American telecollaborative learning program this semester (on a 7-point scale)," the twenty-one Chinese language students in CHN102 and CHN112, on average, evaluated the exchange positively ($M = 4.45$, $SD = 1.48$). The learners in CHN112 ($M = 5.25$, $SD = .37$) enjoyed the program more than those in CHN102 ($M = 3.96$, $SD = .43$) and the mean difference in overall experience was significant at the $p = .05$ level ($df = 1$, $F = 4.37$), which was likely due to the difference in Chinese language proficiency between the two language classes.

A close examination of the qualitative data revealed two types of knowledge learning gains (i.e., promotion of cultural learning and improvement of Chinese skills) and two types of affective learning gains (i.e., enhancement of learning motivation and establishment of a supportive language learning community). Cultural learning surfaced overwhelmingly as a commonly recognized learning outcome of the Chinese-American exchange from the qualitative data. Every student in CHN102 and CHN112 discussed cultural gains in one way or another and this theme frequently emerged from all sources of qualitative data. According to the students, WeChat group cultural discussions, Skype conversations, and one-on-one WeChat conversations were all contributors to the learning of Chinese culture. Throughout the semester, each of the two WeChat groups (i.e., one for CHN102 and one for CHN112) initiated and discussed eight cultural topics. As shown in Table 3, the cultural topics proposed by the two Chinese language classes and their partners overlapped to a great extent. The students from both WeChat groups demonstrated strong interest in the daily life aspects of contemporary China and America, as well as an eagerness to compare the two cultures. Most of these topics generated interesting cross-cultural discussions, in which students from both sides usually provided facts, shared knowledge and personal experiences, identified cultural differences, and expressed personal opinions.

Table 3 Cultural Topics for WeChat Group Cultural Discussion

	CHN102	CHN112
Week 4	Holidays and food	Chinese New Year and the regular New Year
Week 5	Your favorite kind of music	Your favorite American/Chinese food
Week 6	Chinese New Year and the regular New Year	Getting a job after graduation in China and the U.S.
Week 7	Heroes in Chinese or American culture	Popular music in China and the U.S.
Week 9	Plans to visit China or the U.S.	Dating culture in China and the U.S.
Week 10	Main activities outside of school	The role of social media in people's life
Week 11	Reasons for learning a foreign language	Drinking culture in China and the U.S.
Week 12	Social lives on campus	Pets people raise in China and the U.S.

Additionally, all of the students in CHN102 and CHN112 mentioned their improvement in Chinese skills in one way or another, although some students in CHN102 confessed that they used English to communicate with their partners most of the time. As the Skype conversations were the only component in which the use of Chinese language was mandatory for half of the time, it served as the main source for American students to develop Chinese skills in this exchange. The Skype conversations helped improve Chinese skills in three ways: authenticity, reinforcement, and correction. These interactions provided an authentic conversational context, in which Chinese partners “spoke very fast” “with expansive vocabulary” and perhaps “with a local accent,” and moreover, learners had “no control over how the conversation would go.” These features provided learners with “the chance to apply the structures and new words learned in class to real life situations”. Not only was the linguistic knowledge learned in class reinforced in these real-time conversations, but also the mistakes that hindered comprehension were corrected, resulting in improved Chinese language skills.

Enhanced motivation in learning Chinese is another frequently discussed benefit, as reflected in students' highly positive perceptions towards the exchange as a whole. They described the Chinese-American exchange as “interesting,” “fun,” “enjoyable,” “innovative,” “a new format to learn Chinese,” and “a great platform for intercultural learning.” They found the virtual project to be “an extraordinarily good idea,” the cultural discussions “invigorating and quite humorous,” and the process of partnering with a Chinese student and constantly engaging with them as “a great way to learn the language.” Many factors contributed to enhanced motivation. Having a “fun,” “friendly,” “cool,” “outgoing,” or “knowledgeable” conversational partner stood at the top of the list.

“Friendship,” “bonding,” “attachment,” “connection,” and “rapport” were frequently used by the students in the data, which all contributed to students' perception of a Chinese language and culture learning community, virtual or physical, fostered by the virtual exchange. Different types of relationships combined to strengthen this community, including the friendships between partners, the bonding in the Chinese class, and the connection established among all the Chinese and American students through the WeChat groups.

In order to see how students evaluated the four learning gains quantitatively, they were phrased into four positive statements in the end-of-semester questionnaire (e.g., “This Chinese-American Telecollaborative Learning Program has helped improve my Chinese skills”). The students were invited to provide a rating on a 7-point Likert scale to indicate to what degree they agreed or disagreed with the statements, with 1 corresponding to “strongly disagree” and 7 indicating “strongly agree.”

Table 4 Means and Standard Deviations of Perceived Benefits

		Chinese Skills	Cultural Learning	Motivation	Community
CHN102	Mean	3.92	5.92	4.69	5.00
	SD	1.71	1.04	1.25	1.15
CHN112	Mean	5.88	6.38	5.88	5.63
	SD	.99	.74	1.25	1.19
Combined	Mean	4.67	6.09	5.14	5.24
	SD	1.74	.94	1.35	1.18

As shown in Table 4, the students in CHN112 (i.e., intermediate level) provided higher ratings for all four learning gains than those in CHN102 (i.e., elementary level), with the biggest difference relating to the ratings on the improvement of Chinese skills. Among the four learning gains, both groups gave the highest rating to cultural learning, indicating that the exchange promoted the learning of culture effectively. The students in CHN102 provided the highest rating for cultural learning, followed by community building and enhancement motivation, with improvement of Chinese skills receiving the lowest score. The students in CHN112 also gave the most positive evaluation for cultural learning, followed by improvement of Chinese skills and enhancement of motivation (with equal average ratings), and then by community building with a slightly lower rating. Notably, the intermediate-level students provided high ratings across all the four learning gains and the differences among the ratings for the four categories were minimal, with a highest mean difference of .75 between cultural learning and community building (6.38 vs. 5.63). In contrast, the elementary-level students provided highly different average ratings for the four learning gains, with a biggest mean difference of 2.0 between cultural learning and improvement of Chinese skills (5.92 vs. 3.92). The lowest average rating was associated with improvement of Chinese skills given by the students in CHN102 ($M = 3.92$, $SD = 1.71$), showing that elementary-level students, on average, did not perceive themselves to have benefited linguistically from this exchange.

5. Pedagogical Challenges

Despite positive student perceptions and a variety of learning gains, the CFL students also reported various challenges associated with this Chinese-American exchange based on a close examination of different sources of qualitative data. The pedagogical challenges included scheduling and technological issues with Skype conversations, target language proficiency gap, irrelevance to Chinese proficiency development, heavy workload, lack of depth in WeChat group discussion, avoidance strategy, and the demanding role of the teacher-researcher. These challenges are, to a large extent, consistent with the findings of virtual exchange projects in other language learning contexts such as German-English partnership (O’Dowd & Ritter, 2006).

The most frequently discussed challenge of this exchange was associated with the difficulties surrounding the Skype conversations. The students consistently expressed frustrations and concerns over the scheduling and connection problems of Skype in informal interviews and weekly reflection journals. The Skype conversations were synchronous, but the 13-hour time difference between China and the U. S., as well as the busy schedules of college students, made it extremely difficult to schedule a time that would work for both sides. The requirement of recording the Skype conversations on one of the department lab computers definitely made things even more difficult for the CFL students because the language lab was only open at specific times.

The huge target language proficiency gap between Chinese and American students was another commonly reported problem in this exchange, despite the organizer of the exchange having taken a number of measures to ease this issue in project design. Learning English is highly regarded in China because high levels of proficiency in English will open up desirable career opportunities. Thus, Chinese children often start to learn English at a very young age and they typically have achieved an advanced level of English proficiency by the time they enter college. In contrast, foreign language learning enjoys less attention in the U.S. and it is common for college students to start as beginners of L2 Mandarin learners. In this exchange, many students, especially those in CHN102, confessed that they perceived their partners' mastery of English to be much better than their level of Mandarin Chinese. Thus, the Skype and also WeChat group discussions were conducted in English most of the time. Not surprisingly, many students did not perceive themselves to have sufficiently benefited from this exchange in terms of language learning.

Because of the limited linguistic gains, many students, especially those from the elementary-level class, questioned the relevance of the exchange to achieving the learning objectives of Chinese language classes. Many students pointed out that the primary goal of Chinese language classes should be the development of Chinese language skills especially due to the difficulty level of the Chinese language. Although the CFL students, in general, appreciated the cultural gains from the Chinese-American exchange, they preferred to focus on improving Chinese language skills in a Chinese class and viewed culture learning as less urgent. Some elementary-level students believed they could learn Chinese culture on their own by watching movies or reading books from the library.

Another very common student complaint about this program was the heavy workload involved. The Chinese-American exchange was an add-on project to the existing CHN102 and CHN112, which automatically generated more work than the CHN101 and CHN111 courses the students took in the previous semester. On top of the added workload, the students also needed to deal with the difficulty and frustration with scheduling Skype conversations on a weekly basis. Not surprisingly, many students felt overwhelmed and described the classes in which the program was built into as "hectic," "too demanding," "too overwhelming," and "lots of busy work." Meanwhile, the students also worried that this increased level of work associated with the exchange would affect their grades negatively as this exchange accounted for 20% of their final grades.

As much as they appreciated the exchange as a successful platform for cultural learning, many students observed that the WeChat group cultural discussions tended to be superficial because the discussions mainly involved exchange of surface-level information and in-depth conversations never really ensued. Some students attributed this insufficiency to the characteristic of the WeChat app itself and suggested that other types of technology with the thread function for forum discussion may be able to solve the problem, since the thread function would allow people to join the discussion anytime without losing track of what has been talked about. Other students believed the teachers needed to step in more and guide the discussions in the right direction in order for deeper interactions to occur.

Lack of in-depth intercultural conversations were also related to another issue of the exchange, i.e., the avoidance strategy the students took when interacting with their partners from the other culture. The instructor observed that the CFL students tended to be overly polite towards their Chinese partners. Some CFL students confessed in the reflection journals or informal interviews that they chose to talk about safe topics with their Chinese partners because they worried about offending them or causing misunderstandings. Therefore, they missed many valuable opportunities for deep intercultural learning in order to be seemingly polite.

Finally, a very important challenge of the exchange was the demanding role imposed on the instructor. As discussed previously, this exchange added an extra workload to the students. Meanwhile, the workload added to the instructor was also tremendous. As the instructor noted in the teacher-research reflective journal, the Chinese-American exchange was “extremely time-consuming to organize” because the instructor needed to “coordinate students from both sides,” “constantly interview students,” “read reflection journals,” “view Skype conversation videos,” “participate in WeChat group discussions,” and “provide timely feedback.” Notably, the student evaluations of the courses did not become more positive because of the extra work the instructor invested in creating this Chinese-American learning opportunity for the students; instead, the students evaluated the courses less positively compared to those in the previous semester likely due to the various challenges (e.g., heavy workload) the students experienced during the exchange.

6. Pedagogical Implications and Future Directions

The overall positive feedback from the students and the four types of learning gains (i.e., promotion of cultural learning, improvement of Chinese language skills, enhancement of learning motivation, and establishment of a supportive learning community) indicate that the combination of the e-tandem model and the telecollaboration model poses a promising pedagogical direction of virtual exchange to facilitate the learning of Chinese language and culture for college-level CFL students in the United States. Meanwhile, the various types of pedagogical challenges that surfaced from the reported exchange reveal that Chinese language instructors need to take a wide range of factors into consideration in project design in order for the Chinese-American telecollaborative exchange to achieve the desired learning goals.

In the past five years, the Chinese language program at the U.S. liberal arts college has adopted a variety of strategies to overcome the potential issues in Chinese-American virtual exchange. To reduce the burden of scheduling synchronous conversations and lessen the workload for students, the instructor has relied more heavily on the asynchronous communication function of WeChat and lowered the requirement of synchronous conversations to three to five times per semester. In addition, in later Chinese-American virtual projects, the students have been allowed to conduct synchronous conversations on their own electronic devices with no recordings of the conversations being required, although some type of evidence (e.g., screenshots) needed to be provided to demonstrate the happening of the conversations.

In order to alleviate the issue of target language proficiency gap, the instructor has moved the Chinese-American telecollaborative projects to more advanced Chinese language classes with the understanding that more advanced-level Chinese language students are equipped with better Chinese language abilities to conduct conversations with their partners in Mandarin. To address the relevance issue of the telecollaborative exchange in Chinese language courses, the instructor has explicitly discussed the relationship between language and culture in Chinese language classes and has emphasized that the ultimate goal of foreign language learning should aim for the development of intercultural competence. More advanced-level Chinese language courses are often content-based and culture is a natural component, which has also helped with the relevance issue. The Chinese language program also plans to integrate virtual exchange in English-taught content-based courses such as 'Exploring Chinese Culture' or 'Intercultural Communication' to address the relevance issue more directly as learning culture is an essential goal in these courses.

To resolve issues associated with superficial communication, lack of in-depth interactions, and avoidance strategy, the instructor has focused on designing tasks and topics that could offer tangible discussion points and enhance students' motivation. For example, in the past years, the Chinese language program at the U.S. liberal arts college has experimented with telecollaborative projects centering around song sharing, Chinese idioms, sensitive cultural topics, issues in contemporary Chinese society, and Chinese behavioral culture. The author has observed that it is relatively easy to facilitate exchange of cultural information (i.e., the learning of cultural products and cultural practices) between the two sides, but it is more difficult for the students to engage in learning the cultural mind or cultural perspectives because cultural mind is abstract, invisible and intangible. It is thus important for the instructors to create topics or materials that turn the invisible cultural perspectives into tangible discussion points and guide the students to ask why in order to discover the cultural mind underlying cultural products, practices, and behaviors. For example, the project on sensitive cultural topics encouraged the students to focus on those topics that highly interested them but might be offensive to their partners. While they were always instructed to be polite and respectful when discussing these sensitive topics, they learned from the interactions that misunderstandings and communication breakdowns should not be deliberately avoided, but rather should be viewed as rich learning points.

The past five years of Chinese-American telecollaborative practice at the U.S. college has made the instructor fully aware of the significant role of the teacher in virtual exchange. There may be no way out to alleviate the demanding role of the teacher, but constant reflection and systematic learning have been crucial for the instructor to understand what competencies the teacher needs and what types of mentoring the teacher could offer in order to design and implement a rewarding telecollaborative exchange. O'Dowd (2013) proposed a four-domain model of teacher competencies required of the telecollaborative teacher: organizational competences, digital competences, pedagogical competences, and attitudes and beliefs. Language instructors who are interested in virtual exchange should strive to equip themselves with these competencies. In terms of the teacher role in virtual exchange, O'Dowd (2020) summarized three major types of pedagogical mentoring during virtual exchange based on a comprehensive literature review: presenting online interaction strategies before the exchange, leading online intercultural interactions, and integrating students' own online interactions into class work. Such pedagogical mentoring carefully provided by the teacher could hopefully help students avoid superficial engagement and provide learners with opportunities to reflect and learn from virtual exchange.

The insights gleaned from five years of Chinese-American telecollaborative practice at the U.S. college not only hold relevance for instructors of Chinese as a Foreign Language (CFL) but are equally applicable to educators of diverse languages engaged in various virtual exchange partnerships. Challenges such as time difference, disparities in target language proficiency, heavy workloads, and the demanding nature of the instructor's role are frequently reported hurdles encountered in virtual exchange programs across the spectrum of second language learning contexts. In any virtual exchange initiative, it is imperative to emphasize the development of effective task structures that foster profound rather than superficial discourse. Equally important is the ability to encourage students to venture beyond their comfort zones and leverage conflicts as valuable learning opportunities, rather than preserving superficial politeness or avoiding sensitive topics. It is hoped that the pedagogical implications derived from the Chinese-American exchange discussed here will prove valuable to all second language instructors interested in utilizing virtual exchange as a means for language and culture instruction.

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