Open Education and Global Competence: Advancing Glocalized Practices

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Abstract: *In response to the educational demands of the 21st century, integrating open education into global competence development has evolved into a necessary consideration for educators and administrators. A comprehensive learning framework proposed by the Organization for Economic Cooperation and Development (OECD) in 2019 refines competence with focus on a cyclical process of anticipation, action, and reflection. By adopting glocalized strategies that address the Sustainable Development Goals (SDGs) through local perspectives, an undergraduate general education program utilizes open resources and massive open online courses as access to understanding global issues, meanwhile engaging students in self-initiated actions towards relevant local challenges. Under structured guidance in stages, students explore target issues on social networking sites, probe further with MOOCs, and share action plans using new media platforms. A mixed-methods approach combines quantitative data from students' summative self-assessment and qualitative insights from forum posts collected throughout one semester. Preliminary findings reflect the positive impact of open educational practices in cycles on growing globally competent learners who confidently anticipate and act with openness, though expanded reflective opportunities are necessary to ensure meaningful learning support and to drive continuous improvements in impactful local actions on global issues.*
Keywords: 21st century competencies, sustainable development goals, cyclical learning process, open education, glocalized approach

1. Introduction

To enhance human well-being by 2030, the Organization for Economic Cooperation and Development (OECD) (2019a) proposed an educational framework prioritizing multi-faceted competencies—knowledge, skills, attitudes, and values—across personal, local, societal, and global aspects. The dynamic relationship between the varied aspects and the desired transformative competencies is characterized by a continuous cycle of improvement. In this cyclical progression of anticipation (A) and actions (A) constantly improved via reflection (R), the OECD learning framework aims to prepare students for adaptability in today's changing world. The transformative competencies in the OECD Learning Compass 2030 (2019b) emphasize sustainability for students themselves, for others, and for the planet to achieve. Students are encouraged to contribute to the real world by creating new value, reconciling tensions and dilemmas, and taking responsibility in action. While the OECD Learning Compass promotes student-centered and multi-faceted competency building for 2030, ethnic variations across and within nations remain integral to the changing environment and therefore deserve a culturally responsive approach. To counter the long-standing assimilationist notion of global citizenship, responsible citizens must refine their competencies via self-initiated actions for bringing justice on both national and global scales (Banks, 2004). This ideal combination of global and multicultural aspects merges inter- and intra-national ethnic diversity and enhances students' interrelated identifications across cultural, national, and global dimensions (Banks, 2015), most ideally realized through the anticipation-action-reflection (A-A-R) cycle of continuous improvement.

2. Theoretical Assumption and Educational Practice

2.1. Focused on the Glocalized Perspective of Core Competencies

The cyclical OECD framework for building global competencies adopts a *glocalized* approach, aimed at "blending and connecting local and global contexts while maintaining the significant contributions of the different cultural communities and contexts" (Patel & Lynch, 2013: 223). Within the highlighted higher education curriculum core was the researchers' clear reference to Boyd's (2006) and Khondker's (2004) description of glocalization where both point toward the necessary blending approach, and the latter further emphasizes the negative mentality removed (i.e., "the fear of difference [erased] but not the differences"). In a broader sense aligning with a necessary shift towards the glocalization of learning (Niemczyk, 2019), higher education programs should prepare competent and culturally responsible 21st century citizens with not only knowledge and skills for consciousness and creation, but also attitudes and values, evolving from perceptive to appreciative. As shown in Figure 1, this glocalized attempt is clearly captured in the local framework for building core competencies through general education on the local tertiary level. By widening disciplinary coverage and merging intra- and inter-personal communication, a balanced approach is introduced to local and international perspectives, intended to connect local concerns with global thinking, meanwhile responding to the spirit of "connecting with local and global communities and creating a better future," as stated by the Ministry of Education (Education in Taiwan, 2023/2024) in depicting a lifelong, ongoing learning path for all.

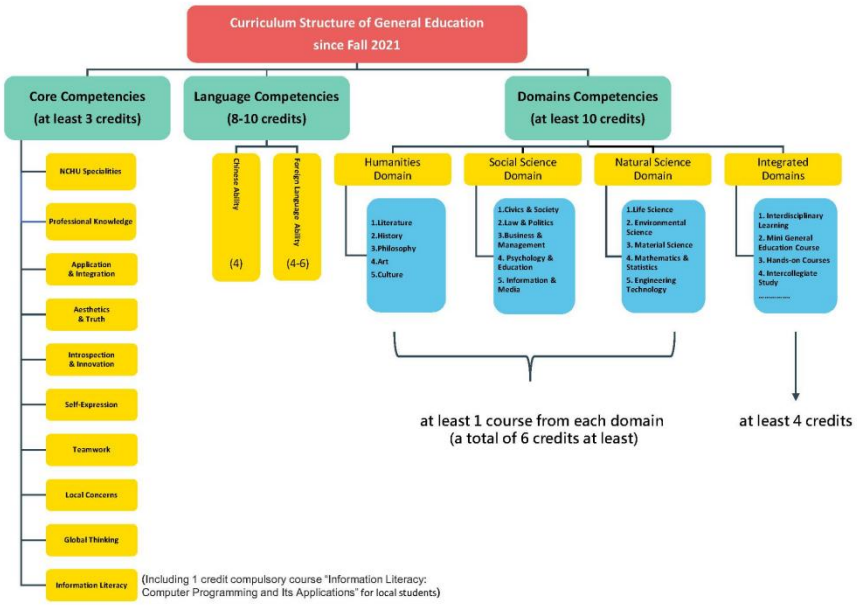

Fig.1 2021/2022 Taiwan framework for college-level general education (Curriculum Structure of General Education, 2021)

2.2. Integrating Glocalized Learning and Open Education for SDG Competence Development

The OECD Learning Compass strengthens a glocalized approach in general education while encouraging a personalized, cyclical A-A-R progression for achieving the Sustainable Development Goals (SDGs) proposed by the United Nations (UN) in 2015. The UN's call for transformative action by 2030 supports a step-by-step educational process—understanding SDGs, defining priorities, establishing goals, integrating actions, and communicating outcomes—positioning global competence as a lifelong commitment to socially responsible values, up-to-date SDGs knowledge, and effective problem-solving skills. Central to this effort, as noted in prior research (e.g., Ossiannilsson, 2024), is the rise of open education whose milestone in 2012 redefines educational practices with technology-enhanced open courses and inclusive learning opportunities. From word-spreading to online collaboration, and to digital content sharing, inclusivity in education has been significantly expanded with the widely varied practice options, including social networking platforms, massive open online courses or MOOCs, and new media channels (Euler & Poupart, 2018; Kramer & Bosman, 2018; Steiner, 2022), in contrast to traditional classroom practices. Open education's close alignment with SDG 4 is recognized by the recent 2nd World Open Educational Resources Congress and is expected to help "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" (United

Nations, 2015), meanwhile laying the groundwork for testing and advancing planned actions toward development goals that include the culturally diverse and emerging SDG 18 (e.g., Visseren-Hamakers, 2020).

To evaluate the role of open education within the A-A-R cycle and its impact on global competence development, the study addresses the following research questions:

1. How does students' self-evaluation reflect the effects of cyclical open educational practices on their global competence?
2. How does class participation demonstrate students' engagement with the learning cycle in open education settings?

3. Course Description

3.1. Learning Objectives and Instructional Design

The course focuses on SDGs and global sustainability, guiding students with the OECD Learning Compass (2019) through a cyclical A-A-R process for continuous improvement. On an open learning path toward whole-scale well-being, students develop global competencies by anticipating action plans toward world issues, acting on sustainable development goals, reflecting to evaluate action plans, contributing solutions to SDG-related challenges, and utilizing open learning tools in various positions (careful planner, topic explorer, open learner, idea contributor, critical thinker). Structured guidance supports students as they navigate diverse open learner positions and engage in individualized development of global competencies through stage-by-stage web-based practices, including investigation, focused exploration, and participatory actions. Students follow a progression of learning stages: (1) social networking for issues as conflict causes in target regions, (2) self-directed open learning for deep understanding, and (3) collaborative contributions as citizen journalists. By the end of the semester, students are expected to grow effective competencies in balancing different perspectives on global issues, in communicating ideas with diverse audiences, as well as in proposing appropriate ongoing actions to reinforce the SDGs framework.

3.2. Class Schedule and Learner-Centered Activities

To encourage the use of OECD Learning Compass, the course is structured into stages of work in alignment with each student's self-developed action plan that in general, engages personal anticipation and ongoing reflection. Table 1 presents an overview of the 18-week semester, highlighting three primary stages of work. The first four weeks are dedicated to building familiarity with the course, while the final two weeks focus on self-assessment, encouraging students to evaluate their overall learning progress and the effectiveness of their SDG action plans.

Table 1. Tentative timetable for class arrangements

Week	[redacted]	Content	Activity	Platform
1-2		Course overview		School's class/learning management system
3-4		Open learning and global sustainability	Pick the SDG you care	United Nations on SDGs (at un.org)
5-8		Social networking for relevant topics and issues	Explore with one tool and check for readiness: Reflection (1)	Social media: Facebook, Instagram, Twitter or else
9-12		Self-directed open learning for deep understanding	Proceed with one tool and check progress: Reflection (2)	MOOCs: Coursera, edX, FutureLearn or else
13-16		Collaborative contribution as a citizen journalist	Contribute with one tool and check success: Reflection (3)	New media: Blog, vlog, podcast or else
17-18		Self-assessment		School's class/learning management system

The flowchart in Figure 2 summarizes class activities in time order, underlied by a learner-centered approach, as well as the clear attempts to position students in multiple roles in their open learning process: careful planner, topic explorer, open learner, idea contributor, and critical thinker.

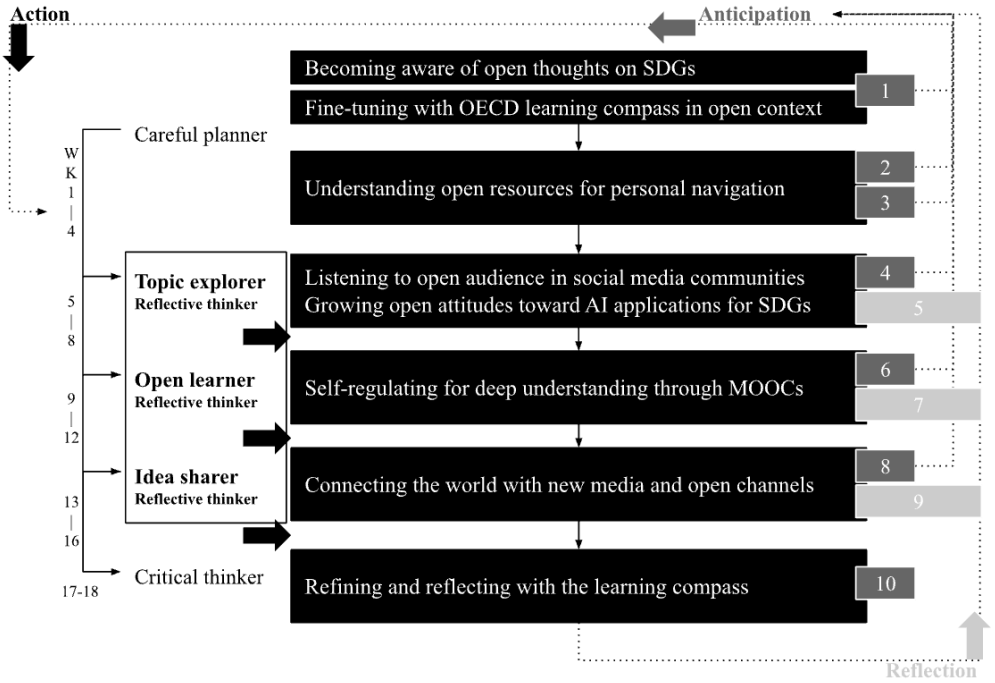

Fig.2 Learner position and activity design in anticipation-action-reflection cycle

Aggregated by the class portal (as shown in Figure 3), the learner-centered activities are designed to engage learners and continuously evaluate outcomes through various forms, purposes, and interaction patterns. These include Activity 1, a whole-class polling session for class warm-up; Activities 2 and 3, individual online surveys for personal reflection and action plan preparation, respectively; Activities 4, 6, and 8, whole-class open forum discussions centered on Open Educational Practices (OEPs 1-3); Activities 5, 7, and 9, individual online surveys for personal reflections (1-3); and Activity 10, an individual online self-assessment to conclude the course. Figure 4 displays a sample radar chart depicting students' self-report on their alignment with the core dimensions (anticipation, action, reflection, openness, and contribution) as they progress through the structured activities, develop action plans, assess their impact on SDG-related initiatives, and apply open learning tools in various roles.

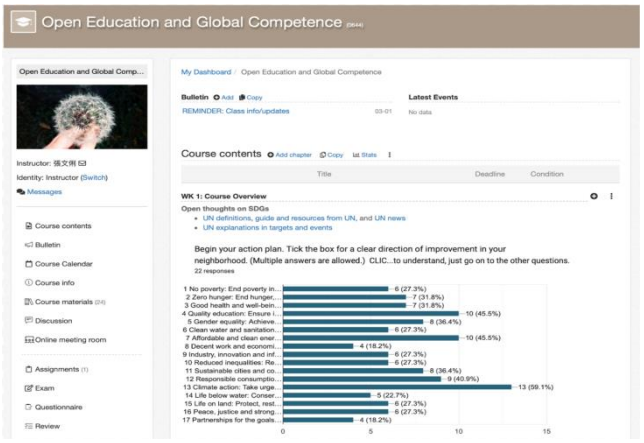

Fig.3 Screenshot of class/learning management system welcome page

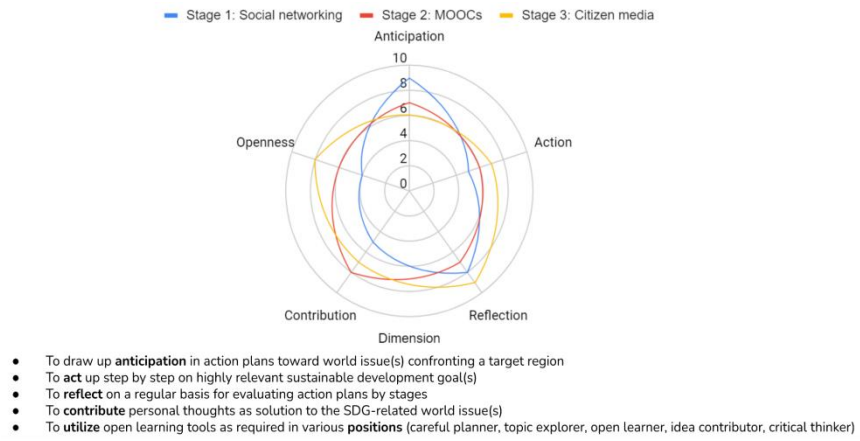

Fig.4 Self-assessment of global competencies and personal sustainability: Sample radar chart

3.3. Data Collection and Analysis

Within the school-wide general education framework, 47 valid responses were collected through the enrolled university students' self-assessment on a 10-point Likert Scale, based on pre-announced evaluation criteria derived from the OECD Learning Compass dimensions and course objectives (anticipation, action, reflection, contribution, and openness) (Figure 4). The scale enabled finer distinctions in student perceptions. Statistical analysis of the grading points included identifying overall trends and calculating Pearson correlations between the core dimensions. Additionally, the students' forum posts, which focused on perceived open elements in their action plans, were coded and analyzed within the reflective cycle framework for common themes and further compared with quantitative findings. This mixed-methods approach integrates both quantitative and qualitative data to provide a comprehensive understanding of the topic.

4. Student Perception and Feedback

With the core dimensions representing the cycle of localized open educational practices toward global issues, results of the students' self-assessment reveal a relatively high satisfaction in their general performance across all three stages. As shown in Figure 5, the students perceived Openness as the most satisfying dimension (M = 7.96, SD = 1.00), while Contribution, the least satisfying (M = 6.51, SD = 1.16). In line with prior research on open education as an accessible and inclusive ecosystem aligning with SDG 4 (e.g., Ossiannilsson, 2024), the course's stage-by-stage preparation builds the students' familiarity with open learning tools and enhances their confidence in associating with various learning positions. Their comparatively weaker perception and recognition of Anticipation (M = 7.60, SD = 0.88), Reflection (M = 7.11, SD = 1.07), Action (M = 6.66, SD = 1.26), and Contribution (in a descending order) exhibit potential to grow with targeted practice in cycles, given that the students have demonstrated strong awareness of their ability to anticipate in action plans and to regularly reflect for improvement by stage. The higher standard deviations in Action and Contribution, compared to the low variability in Openness, suggest diverse experiences and perceptions in these areas that require tailored interventions such as structured reflection prompts, guided discussions, and iterative feedback mechanisms.

By further examining the correlations between the core dimensions, Action and Contribution (r = 0.48) demonstrate a moderate positive relationship in Figure 6, while Anticipation and Openness (r = -0.17) reveal a weak inverse relationship. The other dimension pairs generally show low correlations (e.g., Reflection and Action, Reflection and Contribution). The correlation differences reflect that the students' perceived openness and effectiveness of their action plans builds on their active engagement in taking actions to address issues. To ensure that student contributors continuously advance toward impactful actions, structured interventions for well-guided anticipation and meaningful reflection practice should be introduced in an ongoing learning cycle. This approach will contribute to the underlying

glocalized framework, as highlighted in prior research (e.g., Patel & Lynch, 2013), with strengthened integration into core dimensions and improved global perspectives on localized action.

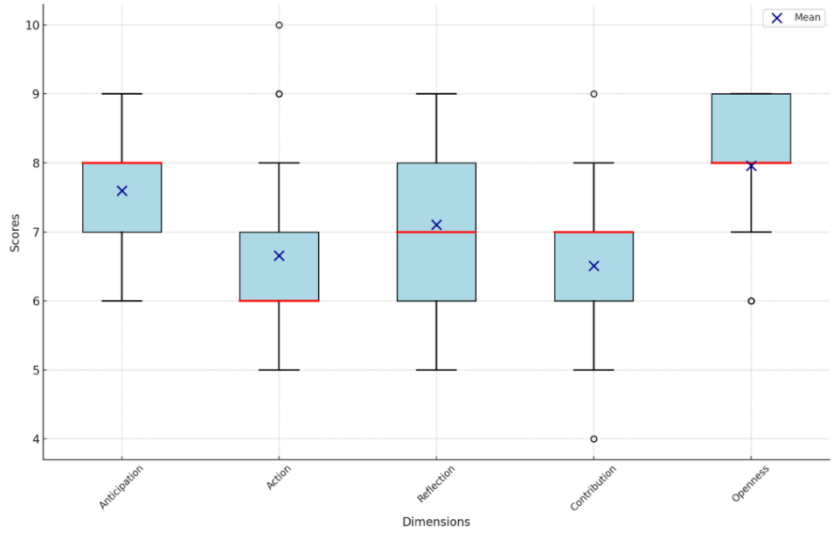

Fig.5 Average score by core dimension

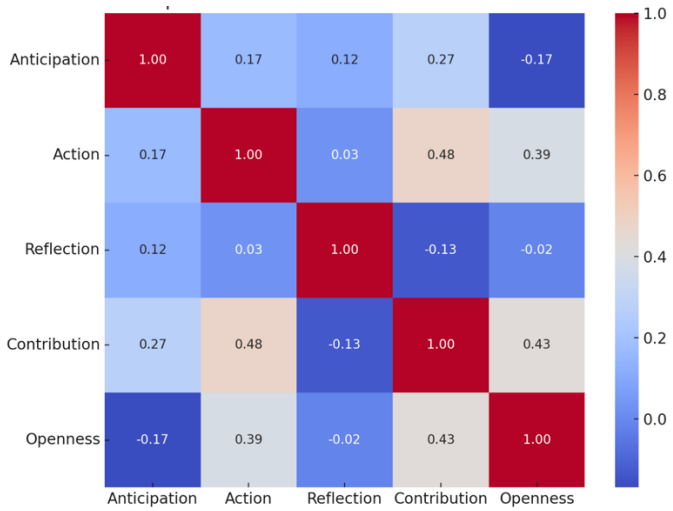

Fig.6 Heatmap of correlations between core dimension

The students' open forum posts were analyzed within the framework of a reflective cycle that comprises the core dimensions. In a close alignment with the learning cycle, Anticipation, Action, Contribution, and Openness – all these dimensions were well-represented in their posts; the students explicitly planned, executed, and openly shared their initiatives while promoting inclusive sustainability. By contrast, Reflection was not consistently performed and demonstrated a sheer focus on past experiences, as exemplified by one student's post, "About SDG 7, I am going to consume energy by taking bus and walking more. Furthermore, I can use products which have less carbon footprint." To ensure a more robust implementation of the A-A-R cycle and the OECD Learning Compass (2019), the emphasis on the Reflection stage is crucial and should be enhanced with not only structured interventions (e.g., prompts, questions) but also explicit reflection tasks (e.g., forums, journals, presentations), meanwhile integrating peer or community feedback for authentic glocalization.

5. Conclusion

Students' self-evaluations generally reflect positive impact of cyclical open educational practices on global competence, though implementing the core dimensions of an A-A-R process require additional support and structured

guidance. Students' active class engagement highlights their participation in anticipation and action during the process, while inconsistent reflection suggests the need to expand reflective practices in meaningful cyclical progression and continuous improvement. Social networking sites, MOOCs, and citizen media – these web-based channels have certainly brought the world closer to students, especially with the embedded open learning opportunities that connect global perspectives with local action. In higher education settings, the design and implementation of this course may challenge teachers whose perspective on global competencies can be biased or limited, therefore affecting their expertise in operating and incorporating open learning tools. Given that being globally competent encompasses the necessary knowledge, skills, attitudes, and values for effective engagement with the world, teachers who lack awareness or fail to recognize the benefits of global competencies and open learning may be reluctant to invest in or continue their development of the required expertise. Considering actions towards SDGs, possible resistance to change, insufficient professional development, and limited exposure to diverse perspectives - all these can further hinder their ability to utilize these tools effectively, and certainly their ability to provide meaningful guidance. To mitigate the challenges, teachers should seek ongoing professional development opportunities for digital pedagogy and reflective assessment, while also broadening their contextual understanding of global competencies for the purpose of enabling their incorporation of open learning practices that prepare students and themselves for a globalized society. Future studies should address self-reporting bias, limited generalizability, and cultural adaptability through advanced statistical analyses, along with triangulated assessments and cross-context research to enhance the credibility and applicability of findings.

Acknowledgements

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