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General education competencies from students' perspectives: a case study of a sports university in Taiwan

Crystal Jia-Yi Lin [1]✉

In this highly competitive world, many students seem to focus more on getting a degree rather than on cultivating general education competencies. The study adopted importance-performance analysis (IPA) to assess sports university students' opinions of general education competencies and the quality of the general education programme. The findings showed that students thought highly of the competencies surveyed; however, there was a quality performance gap for the competencies. In addition, students' priorities of the competencies reflected the characteristics of their college; and their perceptions of importance could predict their satisfaction with the general education programme. It is recommended that features of competencies-based education (CBE) be utilized to allow learning to be more flexible and student-centred for sports university students. What's more, both teachers and students need to be made aware of what the competencies mean and why it is necessary to have these abilities. The study concluded that IPA provided information from students' perspectives, but improving students' satisfaction and providing quality education that students really need should go hand in hand. This requires the university to interpret IPA results with careful consideration of the context.

[1] National Taiwan University of Sport, Taichung, Taiwan. ✉email: lincrystal@gm.ntus.edu.tw

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Introduction

In this highly competitive world, many students see the value of higher education as a ticket to better employment opportunities (Moutsios, 2013; Kwiek, 2018). They focus more on their rights as consumers than on their responsibilities as students and on getting a degree rather than being a learner (Molesworth et al., 2009). Meanwhile, there is a growing demand for Higher education to deliver graduates with relevant competencies and skills (Brooks et al., 2021; Molesworth et al., 2009). This shift in higher education's focus from liberal education and equity to workforce orientation has generated debates in higher education circles (Kezar, 2022). Proponents who are against the workforce orientation of higher education think that vocationalism and practical subjects could cripple higher education's capacity to lead students to think independently, critically, and creatively (Deresiewicz, 2014). Wheelahan et al. (2022) pointed out the danger of reducing the purpose of education to serving the labour market. They argued that skill is exhibited in individuals who exercise skill in social contexts; the reification of skill in education policy as commodifiable things would degrade education, work and social life. On the other side of the argument, campaigners who advocate building better relationships between higher education and the business community believe that it can help institutions identify areas for improvement. Focusing on workforce needs can also address the issues of institutions being elitist, expensive and disconnected from the needs of individuals and society (Harnisch, 2022; Hunkerstorm & Prescott, 2022).

Despite the debate in education circles, given the mass institutions of higher education, it seems that the trend for higher education to emphasise its role in supporting national economies is inevitable. Kezar (2022) took a more optimistic stance, arguing that it should not be an either/or proposition. The root of higher education's challenges is in "higher education leaders' inability to embrace both mindsets" (Kezar, 2022, p.2). As Dewey warned, "the key problems of education reflect a commitment to dualisms that have never served educators well, ranging from the divide between mind and body, academic and social, to liberal education and vocationalism" (Kezar, 2022, p.2).

According to the Harvard Redbook (Harvard Committee, 1945), the divide between liberal education and vocationalism originated in slave-owning societies, where the society was divided into freemen and slaves. In contrast to the menial vocational training of the slaves, the education for the freemen was entirely in the liberal arts. Its purpose was to cultivate a well-rounded person with a full understanding of oneself and one's place in society and in the universe (p.52). Yet, in modern democratic society, democracy means that not only the few but that everyone is free. Special vocational education and liberal education that were given to separate social classes in the past, should be given together to all alike (Harvard Committee, 1945, p.54). Hence, today as universities face declining enrolments, higher education gravitates towards workforce orientation, and many students choose STEM majors over the liberal arts (Salai, 2023; Zakaria, 2015; Cameron et al., 2019), the need to preserve liberal education, to cultivate in our students an understanding of all that manifest the value of human existence cannot be stressed more.

However, do students value liberal education as much as we do or do they think it is a waste of time? The purpose of this study is thus to survey students' opinions about the importance of general education competencies and their satisfaction with the general education programme. In the following sections, literature is reviewed on the emergence of competency-based education (CBE) and the challenges it poses. This will be followed by a review of the situation in Taiwan and a discussion on the Importance Performance Analysis (IPA) as a means to gauge students' perspectives on general education competencies.

In the rest of the paper, the term general education will be used instead of liberal education. As explained in the Harvard Redbook (Harvard Committee, 1945), the two terms are similar in nature. The fundamental goal of both is to make individuals free. Only the term general education is applied to higher education and concerns the education of greater numbers of students, while liberal education might be associated with the education of a comparatively small group of elites.

General education competencies

One responsibility of higher education is to promote "students' general education outcomes and disciplinary expertise as complementary and mutually reinforcing to meet the diverse requirements of contemporary civilization" (Aloi et al., 2003, p. 239). To meet this end, it is recognized that traditional general education programmes that include a variety of introductory courses are not sufficient to fulfil the purpose of general education. But then what should general education encompass? How do we know that general education courses are teaching students what they are supposed to learn?

The Harvard Redbook (Harvard Committee, 1945) suggested that general education should foster students' abilities to think effectively, to communicate thoughts, to make relevant judgments, and to discriminate among values (p.65). Paloma and Banta (1999) proposed that general education should allow students to not only improve critical thinking and communication skills but also study cultures and develop their own personal qualities. Surveys among most educators, policy-makers, and employers suggested students attain abilities such as "higher-order applied problem-solving skills, enthusiasm for learning on a continuous basis, interpersonal skills, including teamwork and collaboration, oral and written communication skills, sense of responsibility for action both personal and collective, ability to bridge cultural and linguistic barriers, and sense of professionalism" (Aloi et al., 2003, p.241; Jones et al., 1994). The introduction of 21st-century skills went further to specify three types of skills that students need to develop: learning skills, e.g. critical thinking, creative thinking, collaboration, and communication; literacy skills, e.g. information literacy, media literacy, and technology literacy; and life skills, e.g. flexibility, initiative, social skills, and leadership (World Economic Forum (WEF) and Boston Consulting Group (BCG), 2015).

As a result, competency-based education (CBE) was introduced to make education relevant to the needs of modern society. CBE is described as a student-centred, experiential approach, facilitating the development of skill and competency, and offering students a flexible way to earn credits through the demonstration of knowledge and competencies (Anderson, 2017; Tan et al. 2018). One thing that makes CBE stand out is that it redirects the educational process towards mastery and application of knowledge and skills in the real world, and by doing so it connects academics and employers (Johnstone & Soares, 2014). However, this is also where it gets criticised. Opponents of CBE argue that through the emphasis of skill and competency, "all elements of curriculum have become vocationalised through the discourse of work-relevance" (Wheelahan et al., 2022, p. 482). In consequence, the meaning and purposes of higher education are reduced to its economic contribution to graduate employment and employability (Robson, 2023).

Perhaps, as Kezar (2022) points out, CBE does not have to be an either/or proposition. The challenge is in adapting general education to the needs of different groups and, whenever possible to carry its spirit into workforce development (Harvard Committee, p.58, 1945). General education as part of a student's whole

education which looks to human emotional experience and life as responsible human beings, is not entirely separable from workforce development which deals only with the student's competence in some fields (p.51). For general education, universities have often had difficulty making it clear and exact about what they expect from general education curricula (Stone & Friedman, 2002). So although general education is not only about skills, having clearly stated competencies can help general education stay focused making sure students develop essential abilities they need to enjoy modern life. In addition, to make CBE work, redesigning administrative, financial, and academic systems within institutions is necessary (Johnstone & Soares, 2014; Evans et al., 2021; Boyer & Bucklew, 2019); this would get institutions to adapt their rigid system to digital society and contemporary lifestyles.

What is challenging with applying the principles of CBE in general education though, is how to assess the quality and efficacy of general education. According to Wheelahan et al. (2022) the basis of competency-based models of curriculum is behaviourism, that is, learning outcomes are specified beforehand as observable behaviours for a particular task. "Each unit of competency is broken down into elements of competency (particular activities, tasks and roles), which are assessed using performance criteria. Units of competency also comprise assessment guidelines, knowledge requirements and 'range statements' which describe the contexts of application of the unit of competency" (Wheelahan et al., 2022, p. 485). This analytical way of assessing learning outcomes could potentially fragment students' learning experience and neglect individuals as a whole.

Another issue with the assessment of general education programmes is that it tends to have a course-based approach (Aloi et al., 2003). Since universities are not sure what exactly they can expect from general education curricula, and many general education courses are drawn from other disciplines, learning outcomes are often examined as in individual courses rather than as a whole (Aloi et al., 2003). And because the language of competencies and learning outcomes has been widely accepted as the basis for quality assurance policies and accreditation frameworks for universities and the programme they offer (Wheelahan et al., 2022), there is indeed a need to explore multiple ways of assessing learning outcomes. Using importance-performance analysis, this study is an attempt to examine the quality of general education in terms of how effectively it helps students develop competencies. However, this is by no means the only aspect of general education, nor is it the only way to evaluate the quality of general education.

In the context of Taiwan

The issues associated with the expansion and growth of higher education are not confined to the West but also observed in Taiwan. Between 1994 and 2005, Taiwan's higher education went through a period of massive expansion. Its purpose was to provide non-elite and underprivileged students with opportunities to attend higher education. With birth rate in decline, the growth of higher education has led to a surge in the number of young people attending higher education. In fact, statistics show that in 2020, the proportion of the population aged from 25 to 64 with a university degree or above is 36.9% in Taiwan, higher than the average of OECD countries (33.0%) (National Development Council, 2023 https://www.ndc.gov.tw/Content_List.aspx?n=97FB936F0DFAADEF).

As a result, many students enter higher education, not because they are interested in pursuing more knowledge, but because they think having a university degree can lead them to better employment (Tsai et al., 2020; Hsieh, 2021). Meanwhile, there are growing demands from employers for higher education to meet regional and local needs. In an increasingly knowledge-based economy and an accelerating process of globalization, like their Western counterparts, higher education in Taiwan is also under a lot of pressure to respond to the changing society.

As presented in the introduction, evolving from the European model of liberal education, general education plays an important role in addressing the challenges higher education is facing today. The ideas of liberal education and general education competencies may come from the West, yet the concepts are not strange to teachers and students in Taiwan. As early as 1046 B.C. in the ancient Chinese Zhou dynasty, the education for noblemen listed six arts (or six competencies) that all students have to master, these include manners, music, archery, riding, calligraphy, and mathematics. In modern terminology, the six arts cover virtues, social skills, communication skills, music, physical education, art, poetry, astronomy, and economy (Lee, 2023). In a sense, the idea behind the six arts is similar to that of general education in which it is to educate individuals to be responsible and well-rounded human beings. Deeply entrenched in Confucianism, students in Taiwan have all learned something about the Confucian Classics by which ancient sage-king was educated how to practice proper manners and rituals on the premises of benevolence or humanity (Dai & Li, 2020); unfortunately, most young people fail to see the relevance of Confucius' teachings to modern lifestyle, and as the avenue to success in today's world lies in one's choice of a specialized career (Harvard Committee, 1945), the education, the values, the virtues, the knowledge and the competencies embodied in the sage-king have been left aside.

In 2019, Taiwan's Ministry of Education began a series of educational reforms launching the National Curriculum Guidelines for 12-year Basic Education. The introduction of the new curriculum guidelines is to prepare elementary and high school students for future challenges in the world. The goals are to cultivate in young students, the following three main abilities:

1. to be proactive and innovative in solving problems and living their life;
2. to be communicative via languages, technology, media, and art forms, and able to appreciate beauty in life;
3. to be responsible and participate in societal development as well as developing interpersonal skills and appropriate ways of collaborating with others. (Taiwan's Ministry of Education, 2021)

To align with the goals of the new national curriculum guidelines, many institutions started to shift their focus from content-based to competency-based education. Researchers began to explore how competency-based education (CBE) can be incorporated into higher education (Wu & Chan, 2018); the relationship between CBE and general education (Huang, 2020); the planning of competency-based general education programmes (Chang & Yang, 2010); the application of competency-based pedagogy in general education courses (Chen, 2016; Su, 2019); students' general education learning experiences (Liu, 2010); and the competency-based assessment (Wu & Wu, 2021; Chang et al., 2010).

Indeed, there are many endeavours to apply the ideas of CBE in higher education; yet, despite the number of studies discussing the subject, little is researched about students' take on the matter. Wu and Chan (2018) proposed that from the perspective of CBE, learning is made possible when students can enjoy autonomy in choosing, interpreting, and constructing their understanding of the content and their learning experiences. Klemenčič (2018) in her discussion regarding students' voice in quality assessment and improvement, presented that students' involvement could help foster student self-formation and could promote quality through their contribution to decision-making. Therefore, it is important

to include students' views on the competencies they need, to get an insight into their priorities of the competencies as well as their satisfaction with general education's performance to help them acquire these competencies.

Importance Performance Analysis (IPA)

The research used importance-performance analysis (IPA) to assess the perceived quality of general education in cultivating competencies. As a tool to assist decision-making, importance-performance analysis (IPA) is a measure of performance, which also aims to identify the importance viewed by consumers based on the various quality attributes (Martilla & James, 1977; O'Neill & Palmer, 2004). This additional information about importance makes the method useful for guiding improvement in areas that matter to consumers.

Although the method was originally published to improve marketing strategies, it has gained popularity and been applied to other management fields for its simplicity, easy application, and diagnostic value (O'Neill & Palmer, 2004; Chen et al., 2022). In the field of education, IPA was used to evaluate course curriculum and leadership training programmes (Siniscalchi et al., 2008), to direct continuous quality improvement in higher education (O'Neill & Palmer, 2004), and to analyze the implementation of national education standards (Mujahidin et al., 2021).

IPA works by combining measures of performance and perceived importance in a two-dimensional plot to facilitate the analysis of data. With the horizontal axis representing performance, and the vertical axis representing importance, four quadrants are created (see Fig. 1). Quadrant I includes items with high importance and low performance, which call for attention and prompt action; Quadrant II shows items with high importance and high performance, indicating qualities that should be maintained; Quadrant III consists of items that are low in both importance and performance suggesting that though no immediate threat is presented some corrective action is still needed; and finally Quadrant IV covers items with low importance and high performance which represent possible overkill, and suggest that resources can probably be reallocated.

The IPA graph serves as a quick useful tool to identify the strong and weak areas of a given programme. However, it was criticised for not having enough discriminative power because most services and programmes have moderate importance and would be placed in quadrant II. To solve the problem, it was proposed to have the axis crossing at the empirical means of the data (Martilla & James, 1977; Rial et al., 2008). Furthermore, it was suggested that the concept of discrepancy (Sethna, 1982) could be incorporated into the IPA graph. That is, a diagonal line representing all points where performance equals importance (no discrepancy) is added to the graph. The coordinates above the diagonal indicate a negative discrepancy, meaning their performance value is smaller than the importance value, whereas the coordinates below the diagonal signify a positive discrepancy, meaning their performance value is bigger than the importance value. The discrepancy or the distance to the diagonal thus represents the level of satisfaction/dissatisfaction, increasing the discriminative power of the IPA graph (Rial et al., 2008).

The incorporation of the diagonal line in the graph requires some adjustment in the interpretation of the quadrants. According to Piñeiro et al. (2006), the items above the diagonal are the areas where improvement is needed, and the further away the item is from the diagonal the greater the need for improvement. The area below the diagonal is divided into three areas corresponding to the rest of the three other quadrants (see Fig. 2.) The items in quadrant II (keep up the good work) show positive discrepancy and have higher than average ratings for performance and importance, meaning the work done is satisfactory.
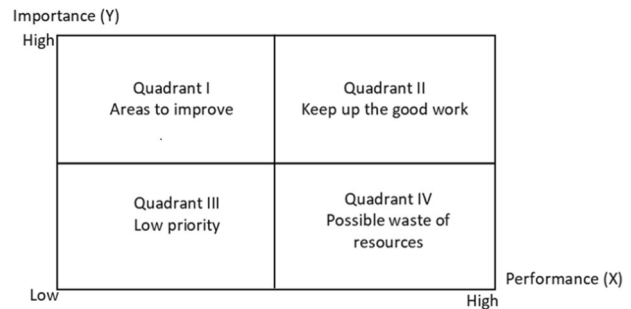

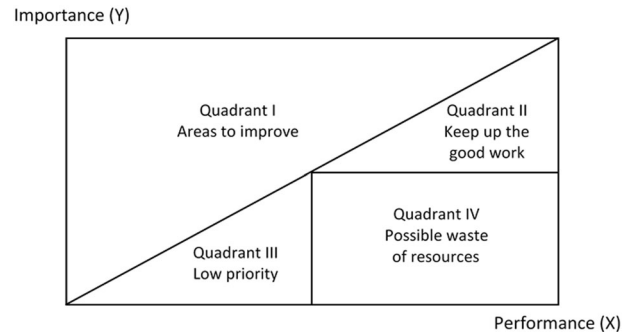**Fig. 1** The four quadrants of Importance-Performance Analysis (IPA).

Fig. 2 Revised IPA graph with a diagonal line.

The items in quadrant III (low priority) have lower than average ratings for performance and importance, suggesting that though there is a need for improvement, it is not urgent. Finally, the items in quadrant IV (possible waste of resources) have higher than average ratings for performance and lower than average ratings for importance, indicating that the service provider is putting valuable resources in minor areas. With these solutions to increase IPA's discriminative power, IPA should be a useful tool for evaluating the quality of general education programmes.

The study

The study is part of a larger project to examine the quality of general education at a sports university in Taiwan. It focuses on the aspects of how students view the competencies they are supposed to acquire and how satisfied they are about the performance of general education in fostering these competencies. The study chose to explore the subject matter with the case of a sports university because sports university students spend most of their time training and focus mostly on their sports, compare to comprehensive universities, it is perhaps more important for sports universities to have a well-rounded general education programme to help their students develop the competencies.

The sports university's general education programme offers courses in three main areas, namely, liberal arts and languages, social sciences, and natural sciences. A total of 28 credits is required to complete the programme. Among them, 12 credits are compulsory courses including Chinese, English, computer literacy and Olympic studies. For the rest of the 16 credits, students can select courses freely from each of the three areas, although a minimum of 4 credits from each area is required. The courses are usually taken during the first 2 years of university life, however, some students would delay taking some general education courses till their third and 4th years.

Method

The research employed a survey method to find out students' perception of the importance of the competencies, and their

Table 1 Importance-performance means for the competencies.

code	Competencies	Mean importance	Mean performance	P-I	t-value	Significance (two-tailed)
C1	communicative ability	4.37	4.00	−0.37	−9.89	0.000
C2	critical thinking	4.34	3.99	−0.34	−8.95	0.000
C3	awareness of civil responsibility	4.23	3.88	−0.35	−8.93	0.000
C4	languages for international mobility	4.23	3.90	−0.33	−8.04	0.000
C5	developing an interest in life	4.34	3.96	−0.37	−9.31	0.000
C6	ability to access & use information	4.26	3.96	−0.30	−8.05	0.000
C7	programming	3.84	3.77	−0.06	−1.59	0.111
C8	creativity & sensing beauty in life	3.97	3.84	−0.13	−3.60	0.000
C9	integrating skills across disciplines	4.23	3.93	−0.30	−7.48	0.000
C10	promoting physical and mental health	4.35	3.99	−0.35	−9.14	0.000
	Grand mean	4.22	3.92	−0.30		

perceptions of the performance of general education programme in helping them develop these competencies.

The competency items were compiled based on literature discussing the roles and goals of general education (Aloi et al., 2003; Huang, 2020; Liu, 2010), as well as on Taiwan's Ministry of Education's national curriculum reform which aims at cultivating students to be innovative in solving problems; to be communicative in using languages, media, and art forms; and to be responsible for sustainable development of world affairs and human civilization. To increase the validity of the study, the list of competencies was reviewed by two experts for its relevance, appropriateness and clarity. Both experts had experience of running a general education programme, and have been teaching at the centre for general education for at least 8 years.

The final questionnaire consists of three sections. The first section gathered information about respondents' college, year, and gender. The second section presented respondents with ten competencies; respondents were asked to rate the importance of these competencies on a five-point Likert scale anchored at (1) not very important and (5) very important. The third section presented respondents with the same ten competencies as in the second section, but this time the respondents were asked to rate their satisfaction with the performance of the university's general education courses as a whole, to help them acquire each competency. Based on their experiences of attending general education courses, students gave their ratings on a five-point Likert scale anchored from (1) very unsatisfied to (5) very satisfied. The reliability measures were high for all the sections. The Cronbach alpha for section two, the importance of the ten competencies, was .94; section three, the satisfaction of general education's performance in cultivating the competencies, .97.

Survey research was undertaken using google forms from May 31 to June 22, 2022 for 3 weeks. This involved asking teachers who teach at the university's centre for general education to share a link to the questionnaire with their students. Recipients who wished to take part in the research were asked to complete the form in their free time.

Sample
A total of 515 undergraduate students were surveyed. The demographic distribution shows that 289 (56.1%) were male and 226 (43.9%) were female. Among them, 332 (64.5%) were freshmen, 136 (26.4%) were sophomores, 28 (5.4%) were juniors, and 19 (3.7%) were seniors. The sample comprised students from all three colleges at the university, namely, 179 (34.8%) from Sport Education College, 155 (30.1%) from Sports Performance College, and 181 (35.1%) from Sports Industry College. These proportions are similar to the proportions of students registered
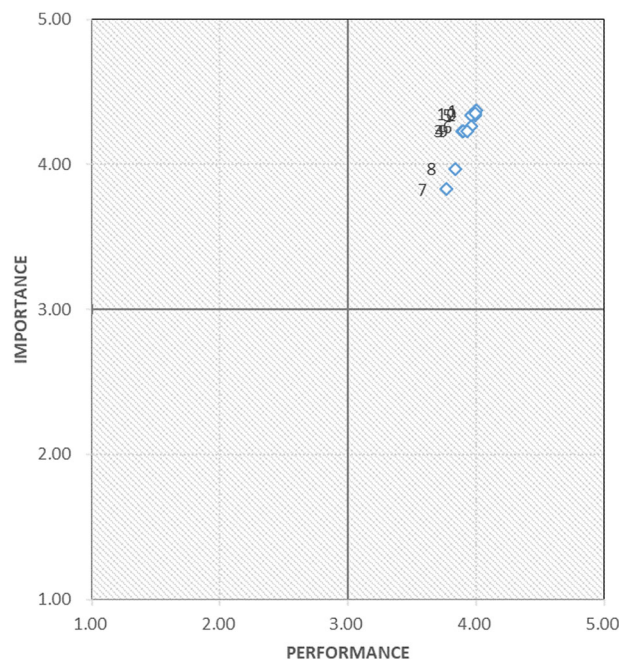

Fig. 3 The initial IPA graph with axis crossed at the mid-points of the scale.

at the university; thus, the sample of this study is considered suitable and representative for looking into students' perceptions of the competencies and the general education programme.

Results
Students' responses to the scale items were examined to assess their perceptions of the importance of the competencies and also their satisfaction with the general education programme in facilitating these competencies. Mean importance and performance scores for each competency were presented in Table 1. A paired-sample t-test was conducted to see if there was a significant difference between the mean performance scores and the mean importance scores. The results showed negative differentials for all the competencies; and except for C7 programming, the differences are all significant at the .00 level. This indicates that there is a quality performance gap for all competencies. That is, while the respondents consider each of the competencies to be of significant importance to acquire, the centre for general education does not seem to facilitate students' acquisition of these competencies at a level reflective of the importance assigned.

An initial IPA graph with axes crossed at the mid-points of the scale (see Fig. 3) showed that despite negative differentials, all the
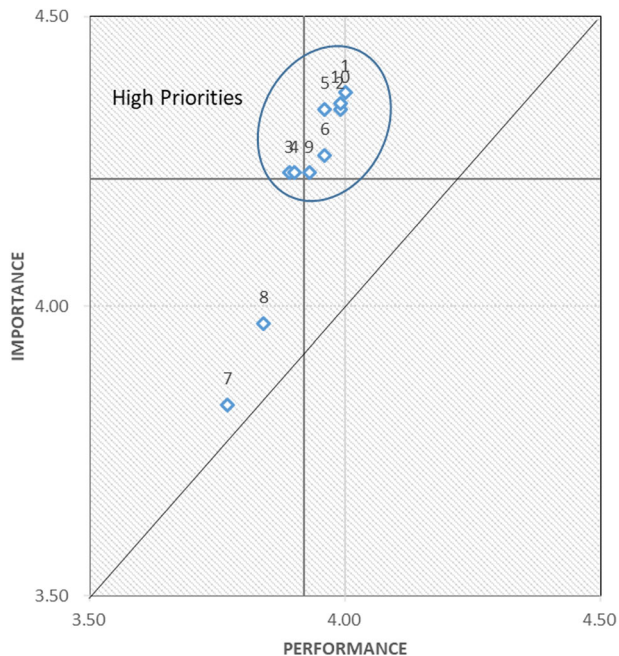
Fig. 4 The revised IPA graph with empirical means and diagonal of discrepancies.

◇ Sport Education College □ Sports Industry College △ Sports Performance College

Fig. 5 IPA graph with empirical means and diagonal of discrepancies for three colleges.

competencies appear in the upper right quadrant (keep up the good work). This suggests that the "initial" IPA graph could give a false impression about the performance of general education in facilitating the competencies.

Figure 4 shows the revised IPA graph with the axes repositioned at the empirical means and a diagonal line where performance matches importance. As can be seen in the revised graph, all the competencies are now above the diagonal (areas to improve); since the diagonal line represents points with zero discrepancies, the further the point to the diagonal, the bigger the discrepancy. Thus, apart from C7 (programming) and C8 (creativity & sensing beauty in life) which are relatively closer to the diagonal, the majority of the competencies are far above the diagonal, suggesting that they are the highest priorities.

A further examination of the responses based on students' colleges (see Fig. 5) reveals that with all their performance ratings below the empirical means, students in Sports Industry College were least satisfied with the performance of general education. As for the competencies, the priority could vary depending on the colleges. For example, although C7 programming had the lowest importance rating for all three colleges, it fell in the areas to improve quadrant for both Sports Industry College and Sport Education College, but for Sports Performance College, C7 programming can be considered as "possible waste of resources". With regard to C3 awareness of civil responsibility, its importance was much higher for students in Sport Education College and Sports Performance College than it was for students in Sports Industry colleges; and C4 languages for international mobility was less important for students in Sports Performance College than students in the other two colleges.

A one-way ANOVA was conducted to see if the differences among the three colleges were statistically significant. The results showed that in terms of the assigned importance, there were indeed significant differences, $F(2,512) = 4.018$, $p < .05$. A post-hoc test using Scheffe comparisons revealed that students in Sports Industry College ($M = 4.10$; SD $= .645$) tended to assign lower importance to the ten competencies than students in the Sport Education College ($M = 4.31$; SD $= .676$).

With respect to students' satisfaction ratings, a one-way ANOVA also showed significant differences among the three colleges, $F(2,512) = 12.480$, $p < .05$. A post-hoc test using Scheffe comparisons revealed that students in Sports Industry College ($M = 3.67$; SD $= .837$) were significantly less satisfied with the performance of general education programme than students in the Sport Education College ($M = 4.05$; SD $= .798$) and students in Sports Performance College ($M = 4.06$; SD $= .863$). It appears that students in Sports Industry College did not think highly of the importance of these competencies; and despite the same general education programme, they were least satisfied with the performance of the programme.

Furthermore, simple linear regression was used to test if students' assigned importance significantly predicted their satisfaction with the general education programme. The fitted regression model was: Satisfaction $= .81 + .738*$(importance of the competence). The overall regression was statistically significant ($R2 = .39$, $F(1, 513) = 324.85$, $p < 0.000$). It was found that the assigned importance significantly predicted satisfaction of the programme ($\beta = .738$, $p < 0.000$). Thus, it seems to suggest that the higher students rate the importance of the competencies, the more satisfied they can be with the general education programme.

Discussion
The purpose of this study is to see if sports university students take on board the competencies they are expected to acquire, and whether they are satisfied with the performance of the university's general education programme to facilitate these competencies. Results of the IPA showed that sports university students thought highly of all ten competencies, with communicative ability, ability to improve one's own physical and mental health, critical thinking, and developing an interest in life coming on the top, and programming and creativity and sensing beauty in life at the bottom of the list. This shows that students were aware of the value of these competencies in relation to their personal development. This is in line with findings from Brooks et al. (Brooks et al., 2021). In their study, they found that while there was a strong emphasis for the purpose of higher education to be on labour market preparation by students, policymakers, as well as governments, across six European countries, students rarely saw

labour market preparation as the only purpose of higher education. There were other common purposes that were equally important to them, such as opportunities to develop personally and contribution to societal development and progress. Indeed, as mentioned in the introduction, though students may see the value of higher education as a ticket to better employment opportunities, for these sports university students, they did recognize that apart from their special education, there were general education competencies they needed to acquire.

Another interesting finding of the study is that when examining students' responses by colleges, it was found that the results varied by college. For example, besides programming and creativity and sensing beauty in life which received lower than average ratings from all three colleges, languages for international mobility was low on the list of students from Sports Performance College; and for students in Sports Industry College, awareness of civil responsibility and integrating skills across disciplines had lower than average rating. This contrast seems to demonstrate differences in the groups of students. Given that the majority of students at Sports Performance College were student-athletes who had little time studying English, and often had people doing translation for them when they went abroad for games, it is not surprising that they cared less about acquiring languages for international mobility. As for the case of Sports Industry College whose students were expected to work in a diverse range of jobs in the field, it is speculated that they were probably not like athletes or PE teachers who were more aware of the civil responsibility that came with their roles. And unlike student-athletes who focused on excelling in their sport, students from Sports Industry College were probably used to using a variety of skill sets in managing their academic work, so they were less aware of the importance of integrating skills across disciplines. This finding highlights the need for general education to cater for different groups of students.

With regard to students' satisfaction with general education's performance to help them develop the competencies, the results of IPA showed a quality performance gap for the majority of the competencies. Apparently, this means a call from the students for the university's general education to improve its programme. This requires the university to put things in context to think about what works for its students. With a good portion of its students being student-athletes who have tight training schedules and often have difficulty incorporating studying with their busy lifestyle (Lin & Liu, 2017; Priambodo et al., 2020), the university can consider blending some features of CBE into its general education programme. According to Sistermans (2020), most successful competency-based education includes at least four characterizations. First, mastery of a competency for (micro) credit before advancing to the next level. Second, possibility for students to have self-paced learning and/or personal instruction. Third, including multiple measures in the assessment of students' mastery of a competency. Fourth, allowing learning to take place without the limitations of a traditional classroom setting, that is, learning can happen through online learning, during an internship, or through other forms (Sistermans, 2020; Boyer & Bucklew, 2019). These adjustments in the administration system would allow busy student-athletes to study more efficiently and develop competencies at their own pace.

In addition to adjusting its administration system, the university should also ensure that both teachers and students are clear about what these competencies mean, why it is necessary to have these abilities, and how they can be developed through general education courses. In a study trying to identify students' views about the barriers to learning critical thinking, Franklin et al. (2022) found that teachers were regarded by students as one of the obstacles to critical thinking development. Lacking a solid understanding of the competencies they needed to help their students develop, teachers were unable to adapt their instruction

to competency-based teaching. Another obstacle was from the students themselves. Students were unfamiliar with the concepts behind certain competencies and were uninterested in developing them because it took time and effort to master them. Indeed, many of the general education competencies like critical thinking and creativity are abstract and hard to grasp. They are not likely to be developed in one single course nor are they easy to assess.

Therefore, the university should encourage its teachers to participate in on-the-job training to learn how to design their lessons to facilitate the development of the competencies so that they can transform themselves from information carriers to facilitators. As the authors in the Harvard Redbook (Harvard Committee, 1945) pointed out, effective teaching depends on teachers' willingness to adapt a central teaching goal to varying forms. When both teachers and students understand the concepts and the need for developing these competencies, not only will teaching become more effective, but students can also track their own progress through various courses and become autonomous learners.

Finally, the results showed that students' perceptions of importance could predict their satisfaction with the general education programme. This offers us a glimpse of the relationship between perceived importance and satisfaction. To improve students' satisfaction with the general education programme is to improve students' perceptions of these competencies. The fact that among the three different colleges, students from Sports Industry College tended to give lower importance ratings and were also least satisfied with the performance of the general education programme, indicates that this is the group that needs to be communicated the most. Helping students see the relevance of these competencies to their personal development can motivate them to learn better and to appreciate the general education programme more. These competencies may not be able to increase students' employability as argued by Robson (Robson, 2023), yet, with these general education competencies, they will be better equipped to navigate their life.

A potential limitation of the study is that a convenient sample, data from only one university, was used. This may limit the possibility of generalizing the findings to a wider population. The study was also limited to survey research. It may be worthwhile for future endeavours to include interviews to gather qualitative data so that perspectives from students can be better presented and discussed.

What the university can do with IPA results in the future is to investigate why certain competencies were rated lower by certain groups of students, and whether the reasons were justifiable. For instance, in a study examining student-athletes' English language needs in Taiwan, Lin and Liu (2017) found that student-athletes had an ambivalent attitude towards learning English. They needed English language skills to exchange information with players from other countries, and they could become more confident when travelling abroad if they had the language skills. However, they found it hard to learn English because they did not have the time and methods to study it. As an educational institution, the sports university cannot simply draw conclusions from IPA results without considering the context. It needs to think about its role and responsibility to facilitate what its students really need.

Conclusion

With globalisation the world has evolved faster and become more connected, as a consequence, the need to prepare university graduates for future challenges has also become more important than ever before. To adapt to the fast-changing world, students need more than content knowledge and technical skills developed within major disciplines; it is essential that they cultivate competencies such as critical thinking, problem-solving, creativity, communication, and teamwork. To find out students' opinions

about the importance of these competencies and the performance of general education in fostering them, this study has adopted IPA as a diagnostic tool to guide future improvement of general education programmes. Based on the analysis of students' responses, the findings showed, first of all, the importance of these competencies was recognized by students across all three colleges. However, the performance of the university's general education to deliver the competencies fell behind the perceived importance. Secondly, students' responses reflected who they were and what they were like, that is, as sports university students, they thought highly of the abilities to communicate, to promote one's mental and physical health, to think critically, and to develop an interest in life. Programming and creativity and sensing beauty in life were, however, less important to them. Finally, it was found that there was a positive relationship between perceived importance and satisfaction, in other words, students' perceptions of importance could predict their satisfaction of the general education programme.

To improve its general education programme, it is recommended that features of CBE can be blended into the current administrative system to allow learning to be more student-centred, to happen inside and outside classrooms through different forms, and to include multiple measures in assessment. And on-the-job training should be provided to teachers to upgrade their pedagogical methods for meeting different students' needs. In addition, students should also be made aware of the relevance of these competencies to their personal development and long-term well-being. In sum, to achieve the purpose of general education, both teachers and students need to be on board with the goals, and the university needs to take measures to allow its general education to take on different forms and yet represent in all its forms the common knowledge, attitudes and virtues, and competencies which a responsible human being should have (Harvard Committee, 1945).

Lastly, as a diagnosing tool, IPA allows competencies that needed the most attention to be identified, and it is also useful for the assessments from three different groups of students to be compared. However, the results should not be interpreted without referring to the groups and the lifestyles of the students. The results may show that certain competencies were of low priority to sports university students, but it does not necessarily mean that the students do not need these competencies. It could be that the students were not aware of what they could gain from these competencies. IPA provides information from students' perspectives, but improving user satisfaction and providing quality education that students really need should go hand in hand. This requires the university to interpret IPA results with careful consideration of the context.

To conclude, from the six competencies required by ancient Chinese noblemen's education to the four abilities recommended in the Harvard Redbook (Harvard Committee, 1945), and to the skills specified in the 21st century skills (World Economic Forum (WEF) and Boston Consulting Group (BCG), 2015), the competencies prescribed for students to attain evolve with the needs of the era. The restrictions of the prescribed competencies mean that there may be a risk of over-emphasizing certain skills and overlooking other competencies. And in modern times, virtues are not always given priority. In our efforts to improve the quality of general education, let's not forget that there are other competencies that are no less important than the prescribed ones. The point is if we do not cultivate virtues and competencies that are unique to human beings, our greatest worry of being replaced by artificial intelligence might be right outside the door.

Data availability
The data presented in this study are available on reasonable request from the author.

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Author contributions

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

Ethical approval

Ethics approval was not sought for this study because of the minimal risk the study involved. That is, the risk participants face is not higher than those who do not participate in the research. In addition, the research protocol is considered to be within the scope of exemption categories for consent requirements for Taiwan's Human Subjects Research Act, as announced by Taiwan's Ministry of Health and Welfare (July 5, 2012).

Informed consent

All participants were informed about the purpose of the study and were also assured of confidentiality and anonymity. The questionnaire was administered to the respondents via google forms. A link to the questionnaire was shared with the participants. They were asked not to proceed with the questionnaire if they did not wish to participate in the research.

Competing interests

The author declared no competing interests.

Additional information

Correspondence and requests for materials should be addressed to Crystal Jia-Yi Lin.

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