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EXPLORING STUDENT PERCEPTIONS OF EMPLOYABILITY SKILLS DEVELOPMENT USING RADAR CHARTS IN FIRST YEAR SCIENCE

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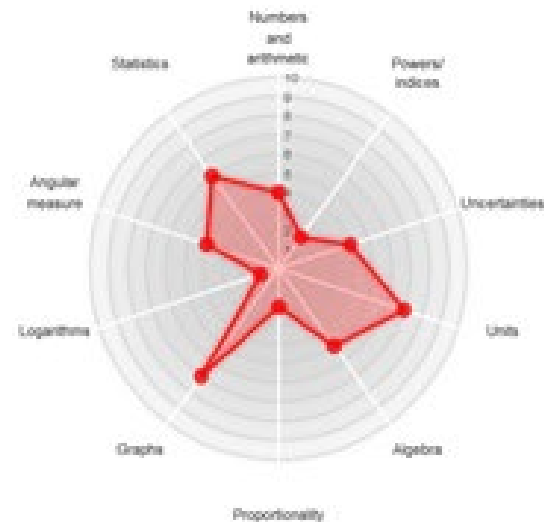
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Outline

1. Background
2. Context
3. Research questions and approach
4. Results and Discussion
5. Conclusions

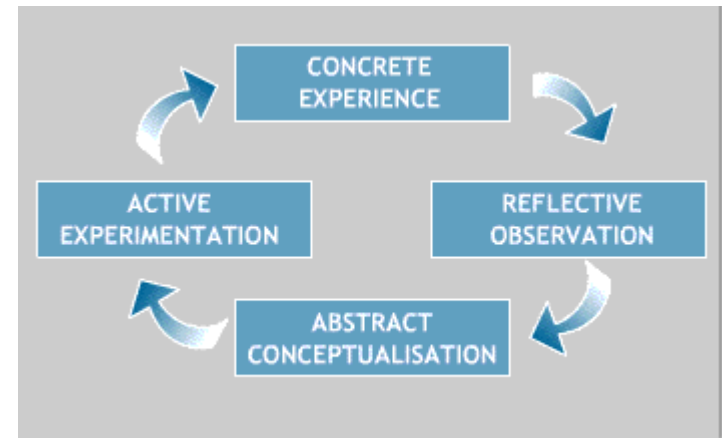




Background

The national picture

- Employability skills have to be embedded in all HE courses
- Key review – Wakenham, 2016
- Skills development is strongly linked to Personal Development Planning (PDP)
- Students are encouraged to self-assess skills, and then reflect to plan improvements.
 - E.g. Kolb's Learning Cycle



Skills development on S112

- **Science: concepts and practice**
 - New, multidisciplinary module from Oct 2017
 - 60 credits
 - UK FHEQ Level 4 (Year 1)
 - Focussed on **skills**
- Students regularly self-assess skills using a **radar diagram**
 - Required in each of 6 assignments, with reflection



Context

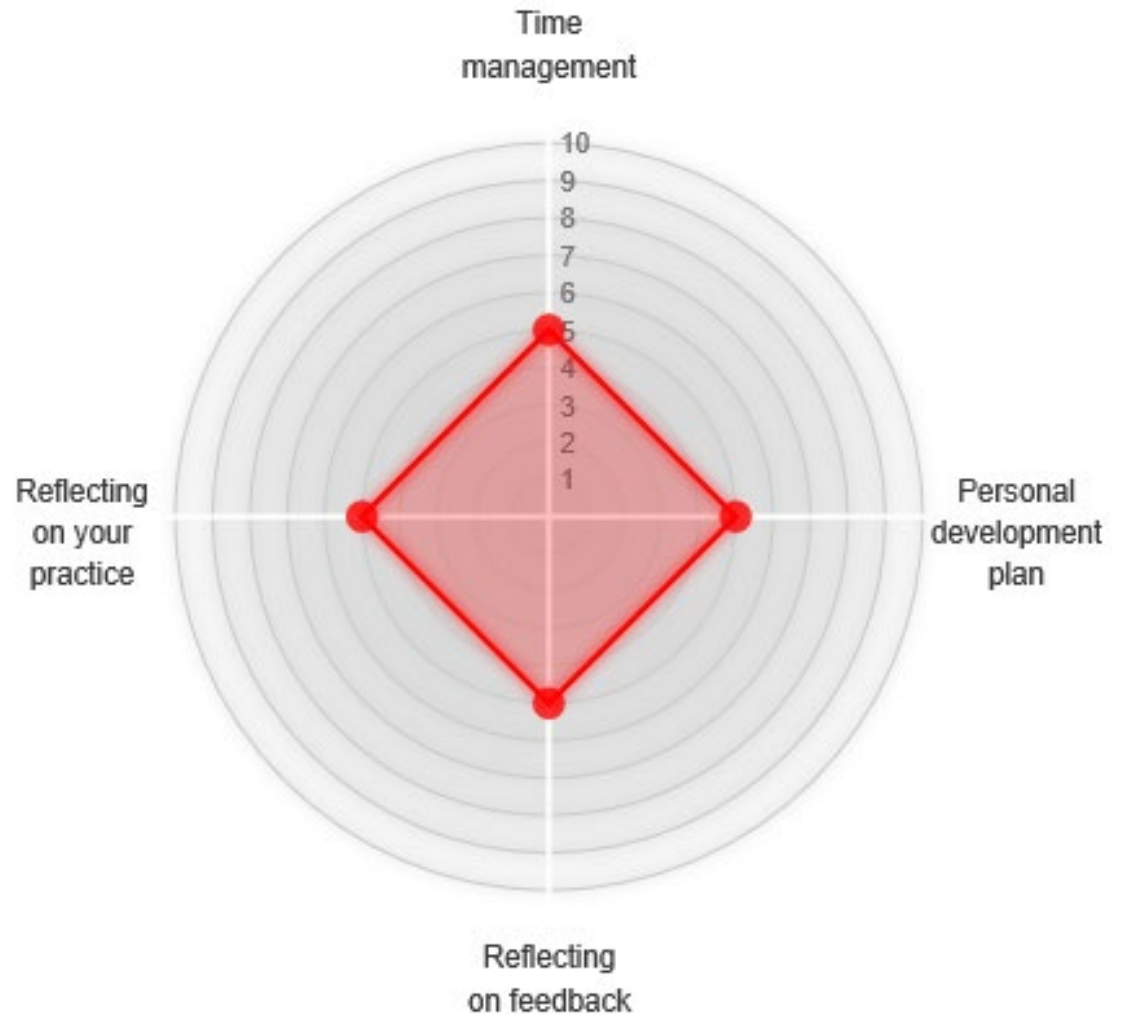
We looked at two groups of Learning Outcomes

1. Collaborating with others ...

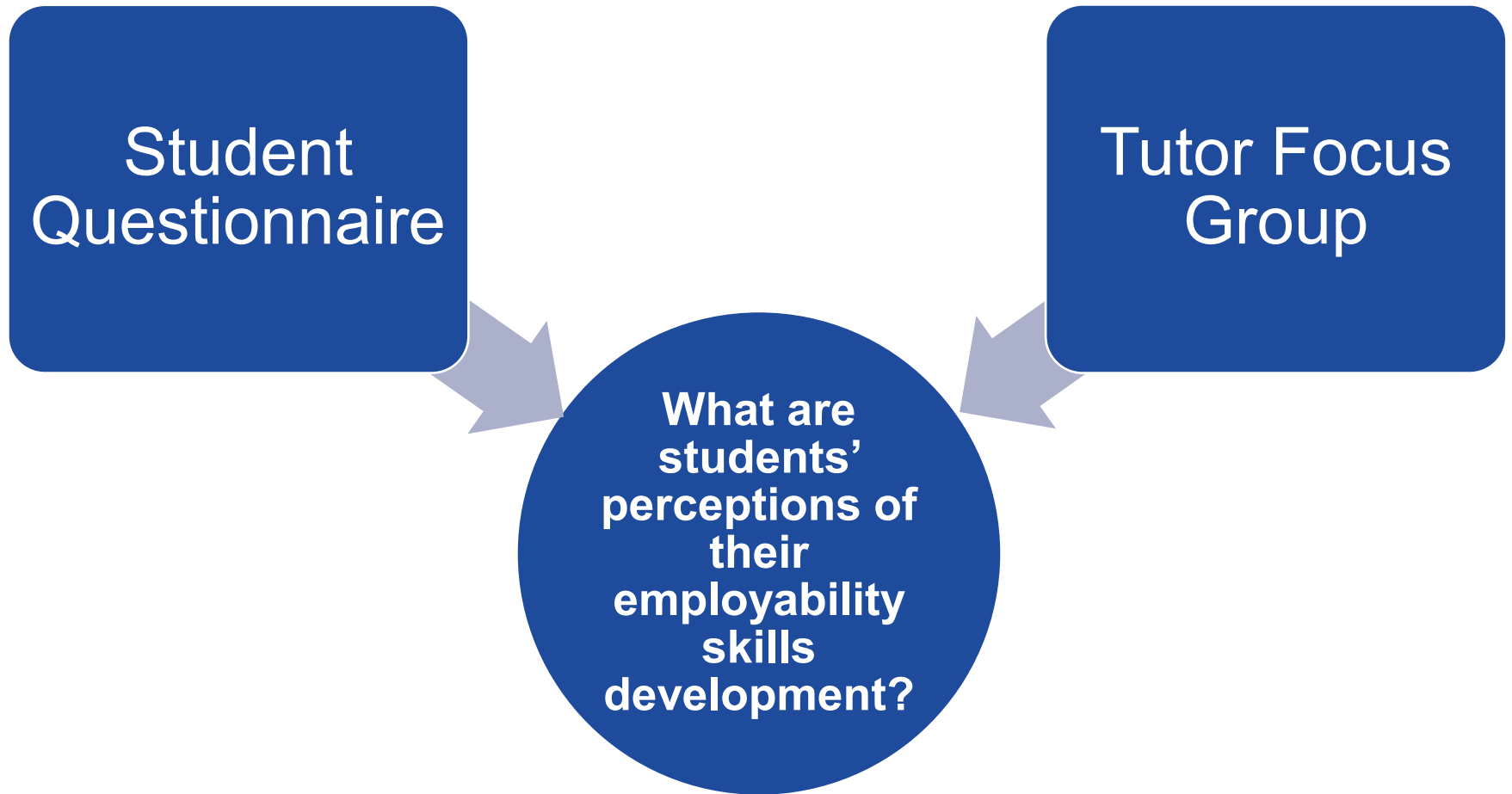


Context

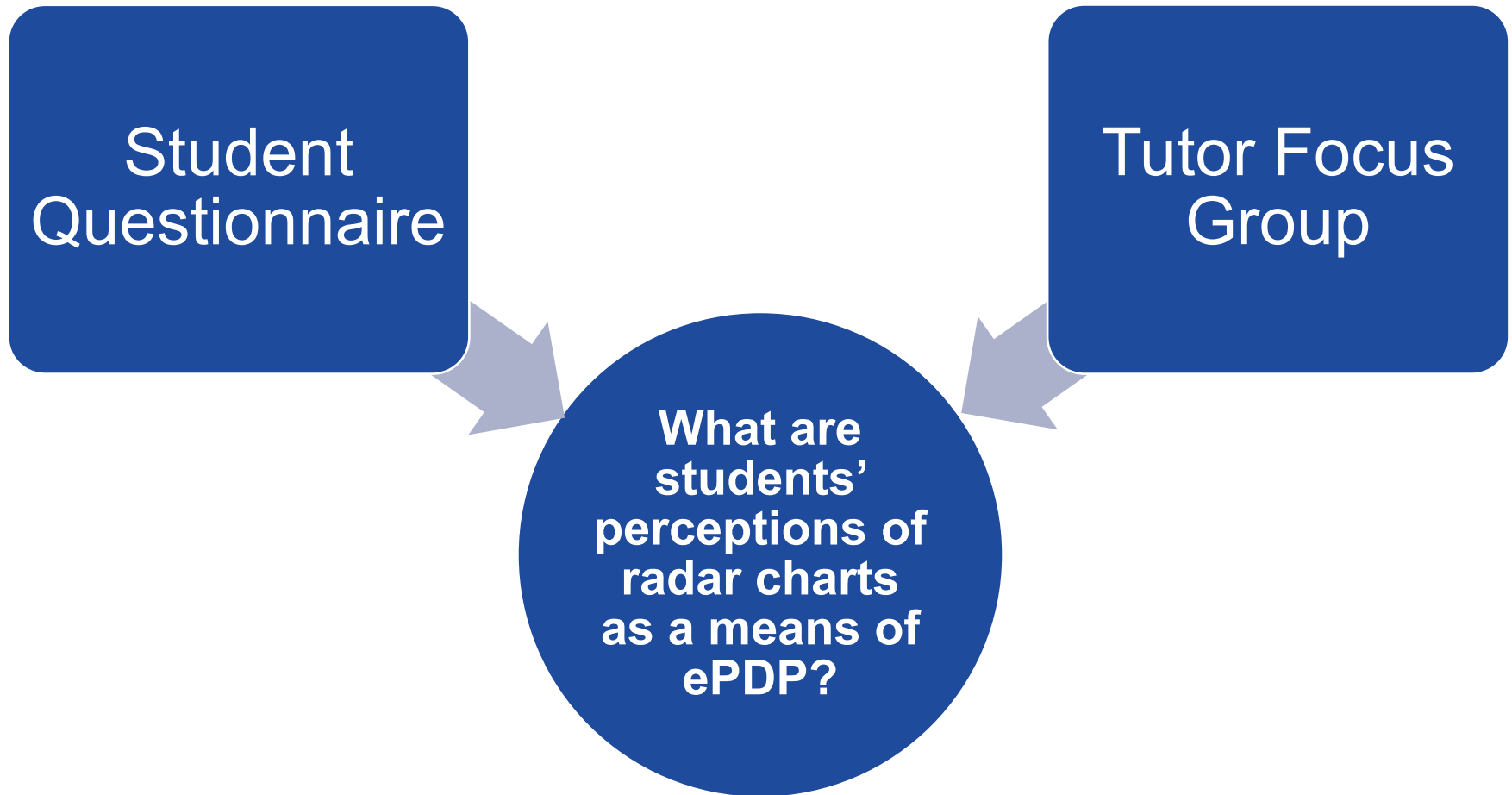
2. Self reflection and planning...



Research Question 1 and Approach

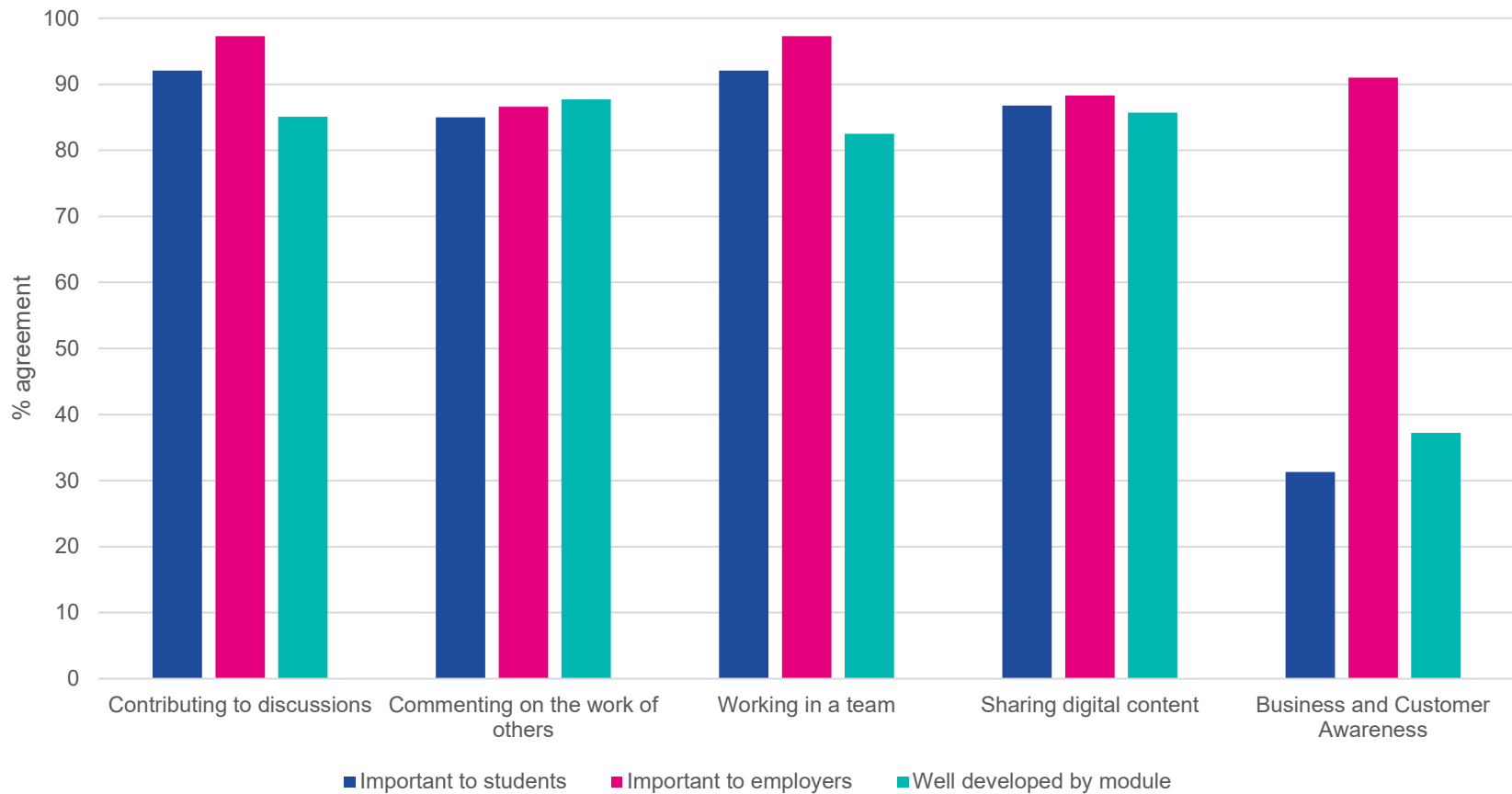


Research Question 2 and Approach



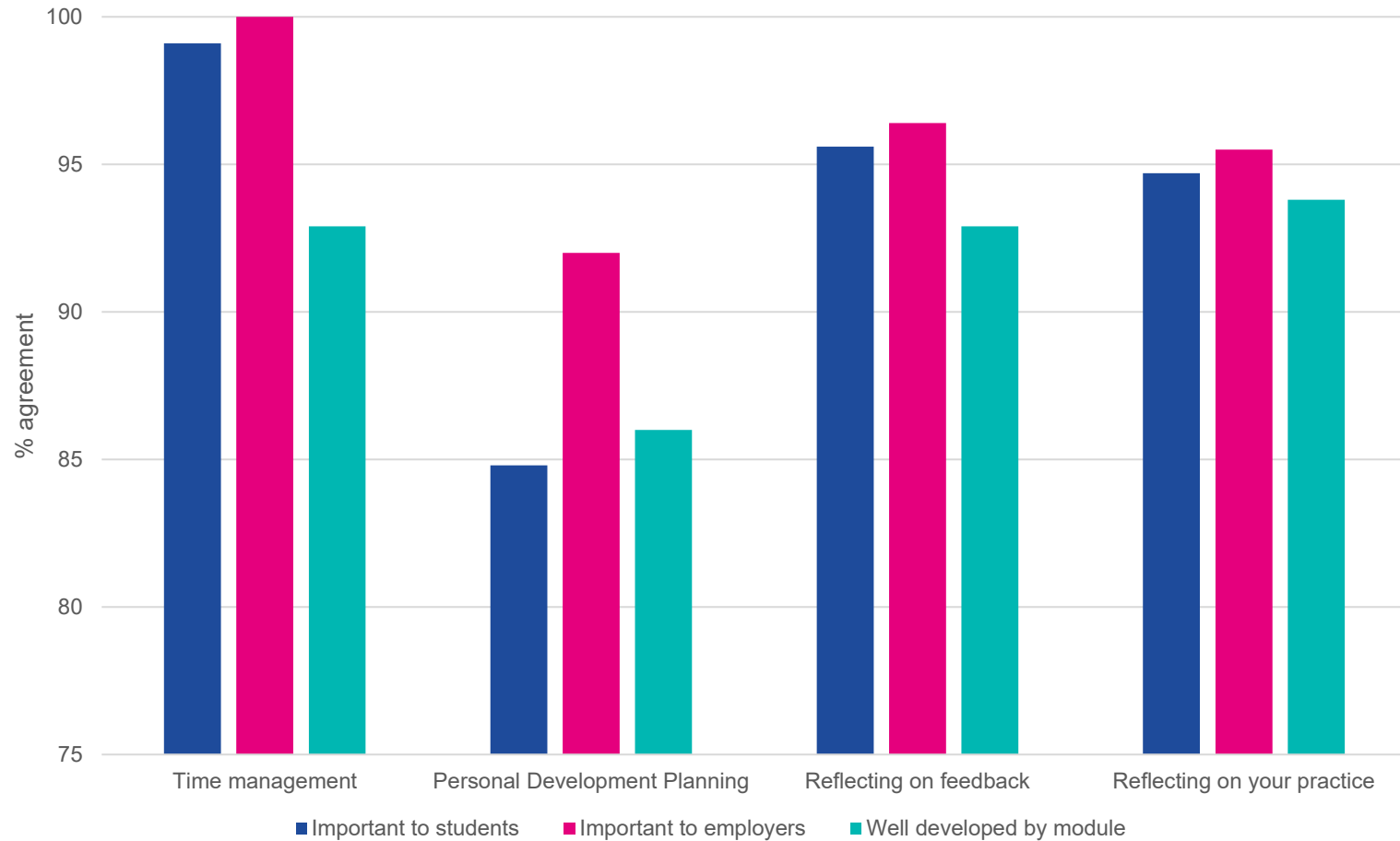
Results and Discussion

Student questionnaire (n=115, 18%): Collaborating with others



Results and Discussion

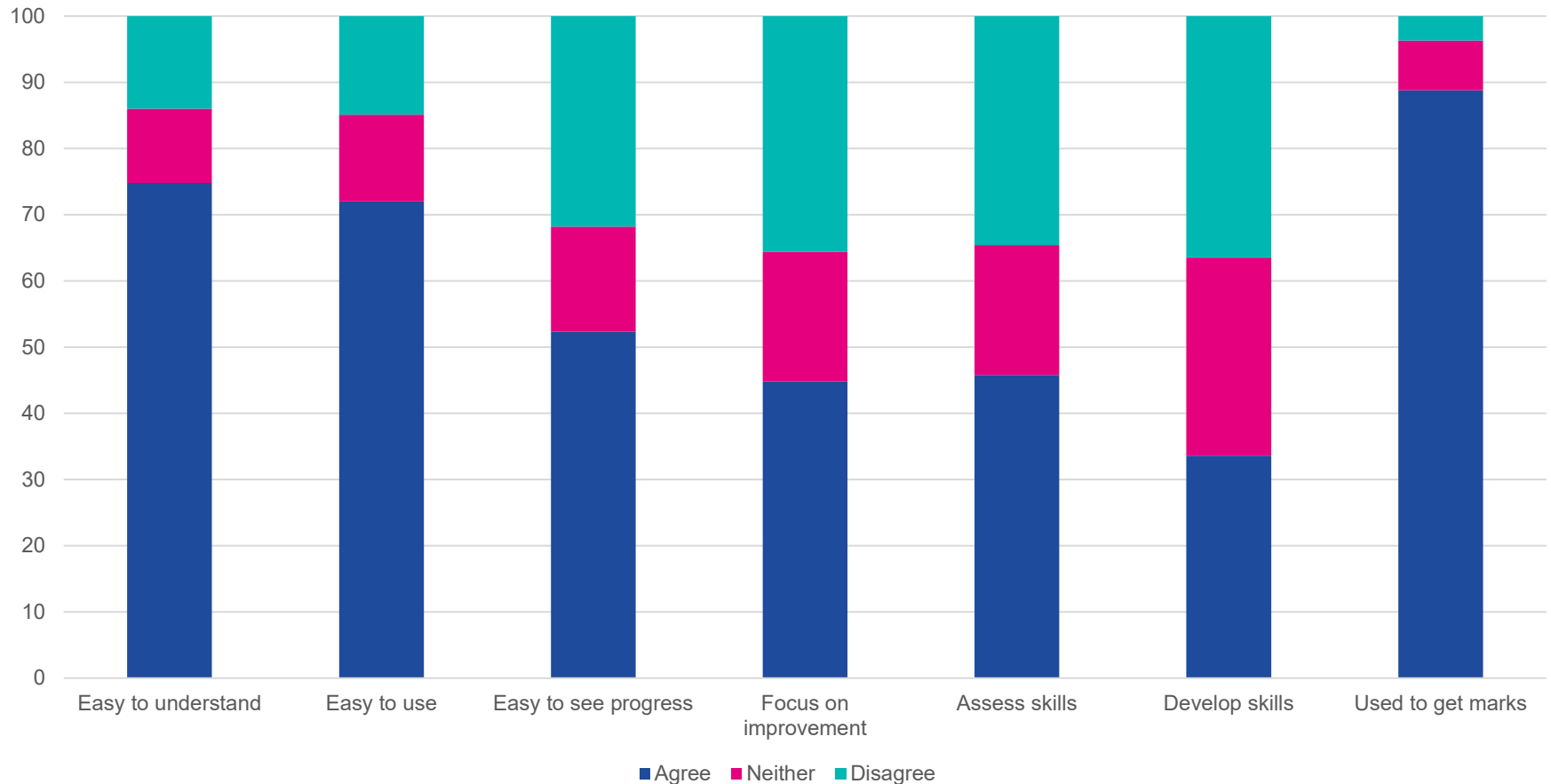
Student questionnaire (n=115, 18%): Self-reflection and planning



Results and Discussion

Student Questionnaire (n=115, 18%): 93% used radar diagrams

Percentage agreement on radar diagram questions



Results and Discussion

Student questionnaire: skills development

Theme	Coded positive / negative comments (number comments)
Time management	Negative (6) Positive (10)
Communication	Negative (3) Positive (4)
Group work	Negative (11) Positive (10)
Reflecting on feedback	Negative (0) Positive (7)
IT skills (3)	
General (21)	

Results and Discussion

What do students say about skills development?

As time went on [...] I felt my skills getting more honed & activities set were very well tailored.

Reflecting on my practice and feedback was shown to be important in a lot of [my Associate Lecturer's] online tutorials.

Contribution to discussions, commenting and teamwork will only work, if all members of the assigned tutor group participated and in a timely manner.

Results and Discussion

Student questionnaire: radar charts as a tool

Theme	Coded positive / negative comments (number comments)
Radar diagrams as a tool	Negative (53) Positive (17) Just for marks (20) Problems self-assessing (40) Technical problems (18) Bad idea for progression (40) Good idea for progression (8)

Results and Discussion

What do students say about radar charts?

Filling in the radar charts at the start of the course was a mistake for me as I overrated myself and quickly found during the course that I was not as good as I thought in many skills.

I personally didn't find them that helpful, but I think it depends on the person and the kind of learning they benefit from most.

I feel that the radar charts were cumbersome and actually got in the way of any real reflection on how my studies were progressing.

Results and Discussion

Associate Lecturer Focus Groups

Focus group	Theme
Associate Lecturers involved in project	Confidence in skills (7)
	Driven by marks (4)
	Radar Diagrams (1)
	Self-assessment of skills (8)
	Time management (7)
	Tutor skills development advice (5)
	Working with others (3)
Associate Lecturers not involved in project	PDP (4)
	Radar Diagrams
	Skills development (1)

Results and Discussion

What do Associate Lecturers say about skills development and radar charts?

I think the fact that a lot of these things are tied to marks, because students are forced to do them, they are doing them.

I think this structured reflection helps, especially as we return to it regularly.

I think students tend to comment that the skills that they perhaps make the most progress with are those that they get the most experience doing like practical skills, maths skills.

Conclusions

- *What are students' perceptions of their employability skills development?*

There is evidence that students perceived development of most employability skills in the module, most strongly in the case of collaboration, time management and communication.

- *What are students' perceptions of radar charts as a means of ePDP?*

Student engagement with ePDP could be better encouraged by allowing radar charts to be an optional tool alongside other means of recording ePDP, e.g an e-portfolio.

References



- Aiken, F.J., & Hutton, C., (2021, June 29-30). Evaluation of students' employability skills development and the use of radar diagrams in Personal Development Planning [Conference presentation] Horizons in STEM higher Education conference, United Kingdom, on-line.
- Ahmed, E., & Ward, R. (2016). Analysis of factors influencing acceptance of personal, academic and professional development e-portfolios. *Computers in Human Behavior*, 63, 152-161. DOI: 10.1016/j.chb.2016.05.043 6
- Braun., V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, 11(4), 589-597. DOI: 10.1080/2159676X.2019.1628806
- Bodily, R., Ikahihifo, T.K., Mackley, B., & Graham, C.R. (2018). The design, development, and implementation of student-facing learning analytics dashboards. *Journal of Computing in Higher Education*, 30, 572-598. DOI: 10.1007/s12528-018-9186-0
- Chang, B., & Kang, H. (2016). Challenges facing group work online. *Distance education*, 37(1), 73-88. DOI: 10.1080/01587919.2016.1154781
- Chou, C.Y., Tseng, S.F., Chih, W.C., Chen, Z.I., Chao, P.Y., Robert, L.K., Chan, C.L., Yu, L.C., & Lin, Y.L. (2017). Open Student Models of Core Competencies at the curriculum Level: Using Learning Analytics for Student Reflection. *IEEE Transactions on Emerging Topics in Computing*, 5(1). DOI: 10.1109/TETC.2015.2501805.
- Cowan, J., & Peacock, S. (2017). Integrating reflective activities in eportfolios to support the development of abilities in self-managed experiential learning. *Reflective Practice*, 18(5), 655-672. DOI: 10.1080/14623943.2017.1307723
- Creswell, J.W., & Creswell, J.D. (2018). *Research Design* (5th edition). SAGE Publications Ltd.
- Delors, J. (2013). The treasure within: learning to know, learning to do, learning to live together and learning to be. What is the value of that treasure 15 years after its publication? *International Reviews in Education*, 59, 319-330. DOI 10.1007/s11159-013-9350-8
- European Commission (1996). *White Paper on Education and Training: Towards the Learning Society*. European Commission. EN/22/95/01590500.P00 (FR) [BOOK] (europa.eu)
- Gillies, D. (2015). Human capital theory in education. In M. Peters (ed.), *Encyclopaedia of educational philosophy and theory*. Springer Science + Business Media. DOI: 10.1007/978-981-287-532-7_254-1
- Harrison, R.L., Reilly, T.M., & Creswell, J.W. (2020). Methodological Rigor in Mixed Methods: An Application in Management Studies. *Journal of Mixed Methods Research*, 14(4), 473-495. DOI: 10.1177/1558689819900585
- Jorre de St Jorre, T., & Oliver, B. (2018). Want students to engage? Contextualise graduate learning outcomes and assess for employability. *Higher Education Research & Development*, 37(1), 44-57. DOI: 10.1080/07294360.2017.1339183
- Lackner, C., & Martini, T. (2017). Helping University Students Succeed at Employment Interviews: The Role of SelfReflection in e-Portfolios. *Teaching and Learning Inquiry*, 5(2), 3-15. DOI: <https://doi.org/10.20343/teachlearningqu.5.2.2>
- Marginson, S. (2019). Limitations of human capital theory. *Studies in higher education*, 44(2), 287-301. DOI: 10.1080/03075079.2017.1359823.
- McKenna, G., Baxter, C., & Hainey, T. (2017a). E-portfolios and personal development: a higher educational perspective. *Journal of Applied Research in Higher Education*, 9(1), 147- 171. DOI: 10.1108/JARHE-05- 2016-0035
- McKenna, G., Baxter, C., & Hainey, T. (2017b). Adopting a virtual learning environment towards enhancing students' self-efficacy. *Journal of Applied Research in Higher Education*, 9(1), 54-69. DOI: 10.1108/JARHE-05-2016-0038
- Peyrefitte, M., & Nurse, A. (2016). e-Portfolios: evaluating and auditing student employability engagement. *Advance HE*. <https://www.advance-he.ac.uk/knowledge-hub/e-portfolios-evaluating-and-auditingstudent-employability-engagement>
- Wakeham, W. (2016) *Wakeham review of STEM degree provision and graduate employability*. HM Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/518582/ind-16-6-wakeham-review-stem-graduate-employability.pdf
- Wheelahan, L., Moodie, G., and Doughney, J. (2022) Challenging the skills fetish. *British Journal of Sociology of Education*, 43(3), pp. 475-494. DOI: 10.1080/01425692.2022.2045186

Any questions?...

Thank-you for attending

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