







PAPER

# Using diagnostic and self-reflective tools for personalised learning: the perspective of Learning Developers

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## ABSTRACT

This paper examines how diagnostic and self-reflective tools are used within Learning Development to support an increasingly diverse student body. Universities are seeing greater variation in learners' needs, requiring more individualised academic support. Through a mixed-methods study involving a sector-wide survey and practitioner reflections, the research identifies the diagnostic models currently in use and evaluates their effectiveness in providing tailored learning opportunities. Thematic analysis highlights four recurring issues: the complex relationship between diagnostics and student confidence; the challenges and value of encouraging meaningful student reflection; engagement and accessibility concerns, particularly for non-traditional students; and the central role of learning developers in designing and delivering supportive interventions. The paper concludes that while diagnostics can enhance self-efficacy and learner identity, their impact depends heavily on thoughtful feedback and sustained, personalised follow-up support from learning developers.

**KEYWORDS:** diagnostic tools, self-reflection, personalised learning, tailored support, confidence.

**ARTICLE HISTORY:** Received 12 March 2026. Accepted 20 May 2026.

## Introduction

Learners arrive at university with a wide range of experiences and needs. Since the pandemic, the student body at United Kingdom (UK) universities has grown more diverse through the inclusion of students from non-traditional backgrounds and on widening participation access routes (UCAS, 2023). This diversity of learners necessitates a shift in academic support to a model which considers the student's individual strengths and development needs. Indeed, the Teaching Excellence Framework specifically commends academic support that is 'targeted and individually tailored' (Fung, 2024, p. 11). Learning development teams are often at the heart of that tailoring, particularly around transitional moments (Struan et al., 2023). The pivotal role of learning development in this landscape is at present largely undocumented and uninterrogated.

A key method of providing individualised support is through diagnostic testing. Diagnostic tests can be used broadly to support student induction, or more specifically in-curriculum to strengthen skills such as academic writing. In each case, engaging with diagnostics provides students with deeper insight into their learning and allows university staff to offer tailored support to individuals and cohorts. Whilst the impact of diagnostic approaches on staff and students has been discussed, little is known about the role that learning developers play in these interventions, or how the outcomes of diagnostics shape learning development work.

A range of evidence supports the relationship between student success and student efficacy (Bartimote-Aufflick et al., 2016). Diagnostic and reflection tools can promote growth in self-efficacy (Chateauvert, 2017), but this growth does not occur without well-designed scaffolding and support. This paper aims to evaluate good practice around diagnostic and reflective tools within the learning development community and asks the following research questions:

- What are the different models of diagnostic or reflective tools being used?
- How effective are these tools in supporting student confidence, reflection, and engagement?
- How can learning developers best integrate these tools within their practice?

## Literature review

The use of diagnostic and self-assessment tests within HE is a well-established field of enquiry. In 1988, Barker explored the use of diagnostic tests for admission to a civil



engineering programme (Barker, 1988). Nearly four decades later, diagnostic tests continue to measure students' abilities in areas such as mathematics (Carr et al., 2015; Hyland & O'Shea, 2022) and English for Academic Purposes (EAP) (Shahid & Kabilan, 2025). Much of the literature surrounding diagnostic testing focusses on these two areas, as they lend themselves to multiple-choice testing with clear correct and incorrect answers. In mathematics, diagnostic tests have correctly predicted students who were likely to fail, allowing additional support to be implemented (Wakefield et al., 2018). Researchers have also studied how to improve these tests using student feedback (Ní Fhloinn et al., 2014) and statistical analysis of test results (Akveld & Kinnear, 2024). Similarly, diagnostic tests are frequently used for placement in EAP instruction (Huhta et al., 2023; Jang et al., 2024; Kunnan & Jang, 2009). In these areas, skills-based diagnostic testing is widespread and effective.

In many disciplines, however, a simple multiple-choice test is insufficient to measure complex skills and understanding. In STEM fields, a two-tier test approach is often used to measure both students' knowledge and their understanding. These tests consist of an initial knowledge-based question, followed by a second question asking students to provide the rationale for the answer (Treagust, 2006; Yang et al., 2017). In some cases, the second question is used for students to rate their confidence in their answer (Farrell & Leung, 2004). These two-tier tests maintain the efficiency of multiple-choice tests but allow for a deeper exploration of student understanding. For more subjective fields, however, it becomes necessary to look beyond multiple-choice tests. Diagnostic assessments of academic writing, for instance, tend to consist of a sample of the student's writing analysed according to set criteria (Knoch, 2011; Palmer et al., 2014; Shahsavari, 2019; Xie, 2017). Such approaches can be effective but are often time-consuming and may fail to adequately distinguish between students' abilities in different aspects of writing (Erling & Richardson, 2010).

Beyond skills-based diagnostics, the use of self-assessment tools is also widespread. These tools do not ask correct/incorrect questions but rather encourage reflection by asking the students to rate their own confidence or ability in a variety of skills. The Get Set for Success project at the University of Queensland prepared students for entry to an engineering programme through a two-phase quiz, where the first half involved skills-based questions related to engineering and the second explored students' motivation and study approach (Burton et al., 2013). This two-pronged approach was effective both in helping students assess



their STEM knowledge (Johnston et al., 2023) and reflect on their learning approaches through a post-quiz group session (Wilkes & Burton, 2015). Similarly, the Personalised Approaches to Resilience and Community (PARC) project brought together practitioners across the UK utilising diagnostic approaches to improve students' transitions into HE (QAA Scotland, 2021). These diagnostics, such as the Discovery Tool at Abertay University, included questions on interests and study habits, which then guided students toward micro-credentials tailored to their development needs (Hogan & Millard, 2022).

A crucial element of diagnostic and self-assessment tools is the support available after completion. In some cases, diagnostics were used to divide students into groups for further instruction (Hillege et al., 2014), though quizzes were not always the fairest means of division (Doe, 2015a). In other cases, students with low scores were offered additional support, such as extra courses or workshops (Knight et al., 2022). These types of interventions were shown to increase attainment, but there is some concern over workload implications for both students and staff (Kinnear et al., 2022). To reduce workload and increase student autonomy, some diagnostics were followed by a curated selection of resources, allowing students to explore their own areas of interest based on their results (Wilkes & Burton, 2015). More broadly, diagnostic results have also been used to instigate changes to the teaching and assessment of the course itself (Read & von Randow, 2013).

Finally, there has been considerable interest in the type of feedback provided and its impact on student confidence. Huhta (2007) describes students' emotional responses when their results did not match their perceived skill, while Doe (2015b) notes that her students struggled to see the test as developmental rather than evaluative. To combat the potential dip in confidence, Read (2008) argues that diagnostics must be presented positively to both students and staff. Feedback plays a crucial role in student confidence, and care must be taken to ensure the type of feedback provided leads to engagement and learning (Tang & Zhan, 2021). The automated nature of diagnostic feedback can lead to disengagement (Ranalli, 2021), and educators must be ready to provide ongoing support to encourage student confidence and engagement (Lee et al., 2025). The administration of the diagnostic plays a crucial role in students' emotional response to their results, and thus their confidence and willingness to engage with the appropriate follow-up support.



Although diagnostic approaches have been explored in detail, existing research focusses primarily on individual tools embedded within academic disciplines. While diagnostics offer valuable support for subject-specific skills, current research (with the exception of the PARC project report) does not address their role in institution-wide transitions support. More specifically, little has been written about the role of learning developers in developing and administering diagnostic tools. Horrocks-Birss (2024) shared how learning developers can use a diagnostic approach to developing students' academic writing abilities, including lessons learnt regarding design, implementation, and ongoing support. Crucially, the individual focus of existing papers, with each evaluating a single tool in a single context, makes it a challenge to generalise the findings to the broader HE context. Further research is needed to understand how learning developers utilise diagnostics and reflective tools across the sector.

## Methodology

This study was undertaken in 2024/25 with ethical approval from De Montfort University. The study employed a largely qualitative design using open-ended questions and practitioners' accounts, with some underpinning descriptive quantitative data. The data collection process took place in two stages. Firstly, a mixed-methods survey gathered numerical data about the size and shape of diagnostic tools alongside practitioners' qualitative evaluation of their own tools. The use of an online survey is methodologically justified due to its efficiency, accessibility, and ability to reach a diverse, geographically dispersed professional sample (Evans & Mathur, 2018). This approach is also cost-effective and supports consistency using standardised, self-reported responses (Dillman et al., 2014). The survey was circulated via email to institutional members of the Association of Learning Development in Higher Education (ALDinHE) and the Scottish Higher Education Learning Developers (ScotHELD). The survey was also promoted at a workshop session at the ALDinHE conference in June 2025.

Following the workshop, learning developers at five higher education (HE) institutions — De Montford University, Queen's University Belfast, the University of Dundee, the University of Northampton, and University Studies at West Suffolk College — self-selected to provide detailed practitioner's written reflective accounts for thematic analysis. Building analysis and understanding from a group of practitioners who have been entrenched in the day-to-day work of creating and running diagnostic tools could be described as an ethnographic approach. The practitioners drew from their own experiences and perceptions to create data



(Mason, 2017). Practitioners were asked to write 500–1000 words reflecting on the design, delivery and follow-up of their diagnostic tool.

The results of the practitioner reflections were then analysed thematically to identify key themes and narratives that provide depth to the numerical findings (Braun & Clarke, 2006). The integration of the survey and the qualitative reflections enhanced the validity of the results by providing triangulation and contextualisation of quantitative trends through qualitative insights (Plano Clark & Ivankova, 2016). This holistic analysis ensures a richer, more nuanced interpretation of patterns identified in an online survey.

## Results

### *Survey*

The survey was completed by learning developers at 14 UK institutions who answered questions on the size and shape of their diagnostic provision. Of the 14, six reported they used a diagnostic tool. Of the eight negative responses, a further three discussed other ways that they individualise learning, such as action plans linked to professional practice, one-to-one support, and interactive engagement tools such as Woodclap. Institutions who did not use such tools overwhelmingly attributed that to a lack of time for implementation.

Of those who answered positively, a range of tools were discussed such as self-evaluation student confidence reflections, tests checking curriculum understanding against absolute answers, and technical writing tests where students identify errors in a piece of work. All positive respondents included options for students to access follow-up consultations, and a smaller subset (n=1) discussed feeding back overview results to programme leaders to identify areas of potential weakness across a cohort. Responses were evenly split between those who felt that students engaged meaningfully with the developmental follow-up offered and those who did not.

### *Case study practitioners' reflections*

Five practitioners who manage their intuition's diagnostic tool agreed to take part in the study and provided headline data on the size and shape of their provision (see Table 1).



**Table 1. Practitioner reflection demographic data.**

	De Montford	Queen's	Dundee	Northampton	West Suffolk
<b>When</b>	During pre-registration to undergraduate (UG) Yr 1, prior to starting their programme	At the first one-to-one appointment then at the 4th	Beginning of semester 1	Semester 2	Beginning of semester 1
<b>Who</b>	All UG Yr 1 who opt in (about 50%)	All UG students who book a one-to-one appointment	All Yr 1 UG Nursing students	All Yr 1 UG sport courses	All students
<b>How</b>	Through an online link prior to arrival	In person/over Teams with the student in their one-to-one appt	In a timetabled IT-suite tutorial led by programme staff and learning developers (LDs)	In a timetabled assignment support session led by programme tutors (using materials created by LDs)	Intro sessions that are booked into timetabled course sessions – completed on virtual learning environment (VLE) in computer rooms or via personal device.
<b>Design</b>	Self-assessment questionnaire ranking confidence with Likert statements: > Information literacy > Independent study > Personal development	Self-assessment questionnaire ranking confidence with Likert statements: > Becoming a student at Queen's > Developing your study skills	Multiple choice questions on technical aspects of academic writing: > Academic style > Sentences > Avoiding plagiarism > Referencing	Quiz on key academic skills paired with a confidence-based marking activity: > Academic conventions > Academic integrity > Paraphrasing	Self-assessment questionnaire ranking confidence in key areas: > Research, reading and making notes > Time management and personal organisation > Communication



	<ul style="list-style-type: none"> <li>&gt; Academic writing</li> <li>&gt; Academic reading</li> <li>&gt; Visual literacy</li> <li>&gt; Maths and statistics</li> </ul>	<ul style="list-style-type: none"> <li>&gt;Using the library</li> <li>&gt; Writing at Queen's</li> <li>&gt; Referencing</li> <li>&gt; Assessment and feedback</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Citations</li> <li>&gt; Punctuation</li> <li>&gt; Proofreading</li> <li>&gt; Capitalisation</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Academic presentations</li> <li>&gt; Statistics</li> <li>&gt; Reflective practice</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Writing and referencing</li> <li>&gt; IT and digita</li> </ul>
<b>Follow-up</b>	<p>Access to self-guided courses to build confidence in those key areas.</p> <p>Report provided to Programme Leaders highlighting areas of low confidence.</p> <p>Potential to design specific interventions, although this rarely happens.</p>	<p>Immediately work on these areas during the one-to-one session.</p> <p>Students emailed with links to relevant VLE resources based on responses/areas arising in the one-to-one, with a reminder of how to book another session if need be.</p> <p>Assessment repeated on students' 4<sup>th</sup> appointment or once every academic year for discussion.</p>	<p>Access to self-guided, online courses to build confidence in areas identified by the quiz.</p>	<p>VLE page with resources; tutor/student feedback.</p> <p>A separate VLE page was created called 'Skills Audit', where students could find the diagnostic quiz and later have access to support materials.</p> <p>Underneath the quiz section there were sections addressing each area of the quiz offering further support on each academic topic.</p>	<p>Students emailed with relevant VLE resources based on responses.</p> <p>Class results presented to tutors at course committee to inform planning of in-class sessions.</p> <p>University-wide results used to inform planning of generic, bookable workshops.</p>
<b>Requirement</b>	Expected but not enforced	Mandatory for students booking one-to-one appts	Expected but not enforced	Voluntary depending on tutor	Expected but not enforced



## Thematic analysis

Practitioner reflections were analysed thematically, with four key themes emerging: student confidence, development of reflexivity, engagement and accessibility, and the role of learning developers in designing and delivering diagnostics.

### *Theme 1: confidence*

Confidence is key in diagnostic testing; four of the five tools in this paper involve students self-assessing their confidence in particular skills. In some cases, questions were explicitly framed in terms of confidence, while others asked students to self-assess their ability or the level of help they would need to complete a task. In two diagnostics, students completed an objective skills test, with the potential for an impact on confidence if the test revealed a mismatch between the student's results and their prior assessment of their skills. Key issues included students' temptation to overstate their confidence in purely self-assessed tools, alongside the risk that a more objective skills test might demotivate students with poor results.

Firstly, practitioners must be aware that diagnostic tools relying solely on students' self-assessments are likely to be biased. Students may choose the answer they know to be 'correct,' regardless of whether it matches their own performance, or they may lack the requisite knowledge to accurately reflect on their strengths and weaknesses. The Dunning-Kruger Effect (Kruger & Dunning, 1999) suggests 'the expertise necessary to judge a person's performance ... is exactly the same expertise needed to produce competent performance in the first place' (Sheldon et al., 2014), leading to inaccurate and often over-inflated self-assessment. For example, at West Suffolk, students with low attainment were likely to present with a relatively 'flat' profile of answers, rating their abilities highly with a 1 or 2 in every area. Similarly, at De Montford, practitioners noted that confidence scores decreased when students took the diagnostic a second time, as their understanding of their strengths and weaknesses had developed.

For skills-based diagnostic tools, practitioners must recognise the potential negative impact on student confidence. At Northampton, students complete a self-assessment quiz followed by an objective skills test, while at Dundee students were asked to rate their confidence in academic writing before taking a multiple-choice quiz on technical elements of writing. These tests provided a more objective picture of students' abilities, yet in some instances the



mismatch between students' perceived abilities and their test results caused a significant drop in confidence and a lack of motivation to engage in follow-up activities. Learning developers should ensure students are well-supported when undertaking these tests, encouraging them to focus on reflection and development, rather than on their score.

### ***Theme 2: reflection***

All the diagnostic tools in this paper are designed to encourage student reflection, either explicitly or implicitly. However, in practice, it can be challenging to gauge how authentically or accurately a student may be reflecting on their skills, particularly if the diagnostic is performed asynchronously or as a standalone activity. One potential barrier is the requisite experience needed to accurately engage in reflection upon their academic skills. As discussed above, some students display an inflated confidence in their academic skills, leading them to overestimate their actual academic abilities (observed at West Suffolk). This can make it difficult for students to engage in meaningful reflection based on confidence measures alone. On the other hand, a competency-based diagnostic with binary outcomes of 'right and wrong' answers can potentially lead to frustration and disengagement in student reflection (as at Dundee). In these cases, diagnostics may expose students' deficits rather than identifying areas for development, leading to a more negative or fragile academic self-concept and discouraging student engagement in reflection.

Despite these challenges, student feedback on all five diagnostics demonstrates that students appreciated the opportunity to reflect on their academic skills, particularly during the transitional time of coming to university. Reflection was particularly evident in diagnostics that measured both confidence and competence (as at Northampton) or where students were given the opportunity to take the diagnostic multiple times during their degree (as at West Suffolk and De Montford). In these instances, students were able to reflect on the gap between their expectations and their performance, or between their past and their current results.

To support and encourage reflection, diagnostics should be supplemented with face-to-face support, whether that is through full-class workshops or one-to-one appointments. This support allows students to ask questions and obtain clarification around the diagnostic, thus inviting discussion and reflection upon completing the test. This may mitigate some overestimation of student confidence and allow for a more accurate understanding of their



results. The one-to-one environment, particularly, provides a supportive framework to address learners' individual needs as highlighted by the diagnostic. Moreover, the learning developer may be able to provide a more holistic approach to reflection, drawing attention to interrelated skills areas and guide students to make connections they might not have made when reflecting alone. Although diagnostic tests may be delivered digitally and at scale, all five examples in this paper demonstrate that interpersonal connection is essential for encouraging students' reflexivity.

### ***Theme 3: engagement and accessibility***

One aim of the diagnostics in all five cases is to increase accessibility and encourage engagement with academic skills support services, particularly among students from non-traditional backgrounds. However, when self-marking is involved, often a level of self-awareness and confidence in their academic positioning is required by the students (Langendyk, 2006). For instance, West Suffolk and Queen's noticed that those who engage most with the follow-up resources and one-to-ones signposted by the diagnostic tend to be students who are more academically confident to begin with. Along these lines, the pattern of students with low attainment marking themselves highly on self-assessment diagnostics could be either due to a lack of awareness or a desire to avoid academic interventions. Further work is required to overcome barriers to engagement and accessibility of diagnostic tools, which are likely to uncover deeper engagement issues.

For diagnostic tools to be effective, students must engage with follow-up support. Dundee, De Montford, and Northampton have all created self-led resources in the form of online modules and activities, whereas West Suffolk and Queen's have focused on a signposting approach, ensuring students are aware of the academic support available, including one-to-one appointments. Where self-led resources are available, however, student uptake has remained low, suggesting that students do not recognise the value of those materials. This suggests there may be less value in asynchronous or self-led practice of academic skills information especially after a diagnostic quiz (Karkar-Esperat, 2018; Ó Ceallaigh, 2021). In addition, this pattern of engagement could raise questions around students' understanding of the importance of engaging with supplemental resources and their struggle to acknowledge the diagnostic as a developmental tool (Doe, 2015b).



One response to this tendency is to embed face-to-face support more directly alongside the diagnostic. Three of the five diagnostic tools (Dundee, West Suffolk, Northampton) involve students completing the initial quiz in a timetabled tutorial session, with members of staff available to answer questions and provide further support. Furthermore, learning developers at Queen's have students fill in the diagnostic quiz during academic skills one-to-one appointments. Facilitating the diagnostic in tutorials, whether group or individual, could bring the diagnostic dialogue and feedback into a more academic context and increase student's understanding of its value (Tang & Zhan, 2021). Furthermore, student-centred support in a tutorial context could meet some of the needs of the diverse student body by addressing some of the social barriers recognised above (Hoidn, 2017). In short, the diagnostic tools discussed in this paper suggest that a purely digital diagnostic is less engaging and accessible than one supplemented with face-to-face support.

#### ***Theme 4: the role of learning developers***

Although diagnostic tools are often embedded within disciplines (Hillege et al., 2014; Wilkes & Burton, 2015), learning developers are well placed to manage such tools for several reasons. Firstly, being situated outside of disciplinary schools (as many learning developers are) can allow for broader reach across an institution. At De Montford, being situated centrally allowed the tool to be embedded in institutional pre-induction activities, resulting in high completion rates. Similarly, at West Suffolk the diagnostic is embedded in timetabled course induction sessions, thus generating valuable data about the overall student body. Learning development units at these institutions used the holistic programme overviews to gain an understanding of confidence gaps, which was viewed with interest by programme leads and senior management. Such centrally situated tools may provide useful baseline data for the institution when considering Teaching Framework related issues such as learning gain.

The institutional situation of learning developers (as part of the institution but outside of disciplinary schools) was also significant in terms of how students engaged with the diagnostic. Where the diagnostic is administered at scale, as at De Montford and West Suffolk, learning developers expressed some uneasiness about its 'compulsory' nature and the potential effect on student engagement. At Dundee and Northampton, the administration of the diagnostic by programme tutors within timetabled module settings resulted in high completion rates but could make the tool feel like a course assessment rather than a



development opportunity. In contrast, the diagnostic at Queen's is completed during voluntary one-to-one sessions where students can communicate their learning needs more openly than with a faculty or school-based representative. The position of learning developers as outwith academic programmes can allow for a more developmental approach, when coupled with strategies to encourage student uptake.

All five practitioners agree that buy-in from course teams was central to the success of the diagnostics. In several cases, buy-in depended on the involvement of course teams at the design stage. Where such involvement was strong, such as at Dundee, staff were willing to step up and co-lead the tutorial sessions in which the diagnostic was introduced. Where involvement was limited, such as at De Montford, the diagnostic was then less integrated into curriculum activities, and personal tutor engagement with the results of the diagnostic was inconsistent. Meanwhile, Northampton highlighted how collaboration in design did not guarantee success. Here, the diagnostic tool was created in close collaboration with programme tutors but was delivered only by subject lecturers. This led to inconsistent messaging about the diagnostic's purpose, which hampered student engagement, as tutors saw the diagnostic as assessment preparation rather than developmental.

Several of the case studies highlighted how expertise specific to learning development was valuable to the successful delivery of diagnostic tools. Of particular importance was learning developers' emotional sensitivity and interpersonal skills in introducing, discussing and following up diagnostic tools with students, often on a one-to-one basis. Such interpersonal skills are informed by learning developers' nuanced understanding of the variety of challenges faced by students, particularly in relation to self-confidence and self-efficacy. In all cases, practitioners highlighted the importance of learning developers' 'personal touch' in delivering diagnostics and described how this can mitigate some of the potential negative impacts on student confidence.

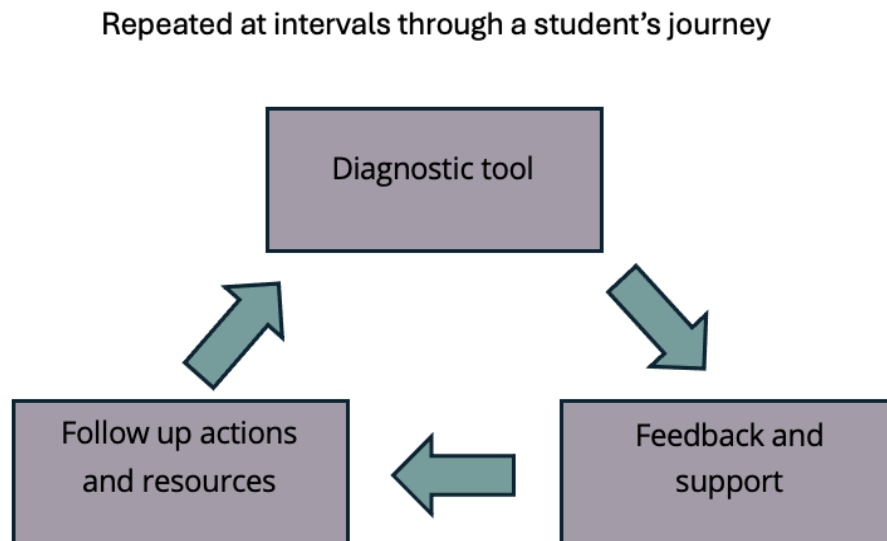
## Discussion

The findings in this paper begin to explore how learning developers can use diagnostic tools to support a diverse range of learners to develop an understanding of their individual strengths and development needs. According to Jones et al. (2025), students from widening participation backgrounds are typically awarded lower grades than non-widening



participation students. Jones et al. (2025) account for this difference in performance using a social identity analysis. They suggest that where students can identify themselves as *university students*, rather than *consumers of education* their performance gap decreased. These findings support the idea that students' sense of their own learner identity is vital to their success, especially if they come from less traditional backgrounds.

**Figure 1. Key elements in diagnostic testing.**



Diagnostics, then, aim to provide tailored support across a diverse student body, thereby enhancing students' self-efficacy and reinforcing a strong learner identity. Given this aim, the practitioner reflections offer valuable insight into how such tools can be designed to support that goal. Figure 1 illustrates the three key elements central to effective diagnostic interventions: the diagnostic test, feedback, and follow-up. More importantly, the findings of this study shed light on the relationships between these three elements.

### ***Design of the diagnostic tool***

Most of the tools discussed in this paper utilised a confidence-based reflective approach, though practitioners noted the gap that may exist between students' actual and perceived ability. When considering this from a learner identity perspective, however, validation for the design can be found in the process rather than the accuracy of the result. This focus on the reflective process is supported by previous learning development research such as Frith and

Wilson's (2014) VALUE MaP programme, where learners positively evaluated their opportunity to explore concerns and map out their confidence in academic skills.

In contrast, practitioners also expressed concerns about more objective aptitude-based tools, due to their potential for negative impact on learner identity through binary 'right and wrong' frameworks. These findings supported insights from the literature review that binary and often automated tools can lead to disengagement (Ranalli, 2021). Practitioners underlined the importance of well thought-through feedback and follow up which can support students with the emotional side of undergoing a diagnostic test leading to a summative score.

Outcomes from this paper indicate that either confidence reflections or aptitude-based tools can play a part in successfully building strong learner identities, but both are dependent on follow-up feedback and support which engages with the emotional work of identity building (Forster, 2020).

### ***Feedback and support***

The need for meaningful feedback and support arose in several themes. This support often consisted of face-to-face workshops or one-to-one appointments and was discussed in contrast to the third element, which is concerned mainly with asynchronous support resources. Practitioners spoke positively about the value of face-to-face follow-up conversations or workshops in all the institutions where this was part of the diagnostic intervention. They also indicated that these interactions increased continued student engagement with their developmental journey and ongoing work with learning development services.

In two institutions, the diagnostic was accompanied by a tutorial. These practitioners reported that one-to-one discussions helped cement the value of the experience, especially for non-traditional students (Hoidn, 2017), as they provided the opportunity for reflection and discussion. In particular, diagnostic tools that were administered in person by a learning developer allowed support to be given immediately to address areas of low confidence and reinforce student belonging. Therefore, we suggest that it is the relationship between the diagnostic tool and the personalised feedback or facilitation which is the key to its value.



### ***Follow-up actions and resources***

This part of the diagnostic process represents what the student might do independently of the learning developer. In some cases, they were expected to access learning resources, and in others they were encouraged to use further learning support services. We might ask, why provide self-guided resources if most of the value is to be found in the exchange between student and learning developer? However, as Colton (2019) argues, learner identity is formed in the interactions between human and non-human elements, where the student 'breaks out' of the classroom and moves into a self-guided mode of discovery.

Asynchronous materials can allow institutions to upscale reflective or diagnostic tools across the student population. However, practitioners reflected on the disadvantages of this approach. Three practitioners designed interventions which relied heavily on students' engagement with asynchronous resources, but reported these were only engaged with by a small percentage of students, and more often engaged with by students who were already confident and making developmental progress.

Again, it is the link between the three elements which offers a solution to this issue of engagement. Where face-to-face, personal interactions with learning developers were present, it was possible to foreground the value of interacting with self-guided resources as part of an action plan. Without this practitioner involvement, students struggled to make the leap from diagnostic tool to self-guided action.

### **Limitations**

While this research provides insight on learning developers' use of diagnostic tools, several limitations must be acknowledged. Most notably, five institutions represent a small sample size when analysing implementation across the sector, and as participation was voluntary, an element of self-selection bias cannot be ruled out. Similarly, the disparate nature of the tools within the study makes it challenging to address the strengths and challenges of diagnostics more generally. A broader survey of diagnostics, with greater attention to different types of tools, would increase transferability of findings.

Further research should also look beyond practitioner reflections to explicitly incorporate the student voice. Our findings in this paper were solely derived through professional reflection by learning developers, with discussions of students' engagement entirely based on



practitioner observations. No formal student feedback was collected, meaning the efficacy and impact of the diagnostic activities cannot be assessed from the student perspective. Future studies should seek to address this gap by incorporating student voice through a mixed-methods approach, increasing generalisability by building on practitioner reflections with quantitative student data.

## Conclusion

Our research has explored how learning developers can utilise a diagnostic approach to provide tailored academic skills support across an increasingly diverse student body. The survey and case studies demonstrate that diagnostic and reflective tools are already widely used across UK HE, including both knowledge-based quizzes and more confidence-based self-assessment tools. Diagnostics have been shown to improve student confidence, reflexivity, and engagement, but it has become clear this growth will not occur without intentional support from the learning developers implementing the tool. Although diagnostic tools are often seen as a one-size-fits-all approach to personalised support, the examples of practice analysed in this paper demonstrate that face-to-face, human support is necessary to help students make sense of and implement the information provided by diagnostics. At a broader level, this paper highlights diagnostic tools as a rich topic for further cross-institutional collaboration among learning developers, as well as a potential area of learning development expertise with significant value to institutions navigating the evolving HE policy landscape.

## Disclosure statement

The authors did not use generative AI technologies in the creation of this manuscript.

## Funding

The research presented in this paper was supported through an ALDinHE grant received in 2024. The authors report there are no competing interests to declare.



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