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Students' perception of authentic assessment in higher education: Exploring the relationship between assessment preference and motivation in higher education

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ABSTRACT

There is an increasing shift from traditional knowledge-testing exams to more effective learning-oriented assessments in Higher Education. There is limited evidence examining students' perception of the authenticity of different Higher Education assessments predicted by intrinsic, extrinsic, and amotivation levels. Ninety-six young adults (19-49 years; 68 females) completed an online survey to investigate the role of motivation in preference ratings for 25 different assessments. Results showed that students only had a slight preference for certain assessments. In more detail, they had a significantly higher preference for poster submission predicted via intrinsic motivation, poster presentation predicted via intrinsic (to know) and extrinsic (introjected) motivation, multiple choice question exam (within a set framework), predicted via extrinsic (identified and introjected) motivation and amotivation, essay exam predicted via amotivation, and lab report predicted via extrinsic (introjected) motivation and amotivation. Therefore, alongside the facilitation of knowledge and understanding, assessments in Higher Education should be designed to foster interest and passion to conceptual learn and enjoy the content.

IMPACT STATEMENT

In higher education, there's a move from traditional exams to assessments that focus more on effective learning. This study with 96 young adults (mostly women) explored how students' motivation affects their preferences for different types of assessments. The results showed only slight preferences overall, but some trends emerged. Students preferred poster submissions and presentations due to intrinsic motivation (enjoying the activity) and some extrinsic factors (like wanting to do well). Multiple-choice exams were preferred for identified and introjected extrinsic motivations (like seeing the value in the task and internal pressure) and amotivation (lack of motivation). Essay exams and lab reports were often linked to amotivation and certain extrinsic motivations. Therefore, assessments should not only measure knowledge but also inspire genuine interest and passion for learning.

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Introduction

The 21st century is an era of rapid technological advancement and globalisation, fundamentally altering the skills required for success in the graduate world (Bengoechea & Bell, 2022). This paradigm shift has placed an emphasis on 21st century skills, which encompass critical thinking, creativity, collaboration, and problem-solving among others. These skills are essential not only for personal and professional success but also for addressing complex global challenges. The intersection of motivation and these skills is a growing area of educational research, underscoring the importance of both intrinsic and extrinsic motivation in enhancing students' capabilities (Ryan & Deci, 2020; Serin, 2018; Talmi, Hazzan, & Katz, 2018).

To achieve excellence in higher education (HE) one must consider a number of multi-dimensional factors. These include the quality and standard of the education provided, novel teaching and assessment

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methods, and student development-focused strategies (Cardoso et al., 2016; Hamshire et al., 2017, 2024). This is often underlined by a strong commitment to rigorous evaluation methods, continuously assessing and enhancing the quality and standard of a student's effectiveness and learning (Evans et al., 2021). To uphold and withstand these standards, over the years, academics have employed varied assessment methods ranging from traditional examination frameworks (e.g. focusing purely on recall of information) to novel methods (e.g. take-home exams, poster presentations, debates) aimed at continuously improving a student's learning, knowledge acquisition, and overall success. Methods of assessment and learning outcomes depend on various factors, including curiosity, persistence, dedication, and, most importantly, motivation, which could be either intrinsic or extrinsic (Deci & Ryan, 1985; Vallerand et al., 1989). In the current study, we followed the definitions as provided by Ryan and Deci (2000). Intrinsic motivation comes from the person themselves and related to the tendency 'to seek out novelty and challenges, to extend and exercise one's capacity, to explore, and to learn' (Ryan & Deci, 2000, p.70). Extrinsic motivation refers to people's engagement driven by external factors such as rewards or other consequences (Ryan & Deci, 2000).

Evidence suggests a growing apprehension concerning assessment format and learning styles among HE institutions across the United Kingdom (Sambell, 2016; Wu & Jessop, 2018), where most students (Home/Europe vs International) come from diverse educational backgrounds. Given these differences, one would expect some students to have an advantage over others by using specific forms of assessment formats (e.g. traditional pen-paper exams requiring memorisation and recall of information). In the past decade, a tremendous shift from knowledge testing-oriented assessments (e.g. focusing on recall of information without applying the knowledge learned) to learning-focused assessments (e.g. multiple-choice based exams, course works, group discussions/projects, lab reports) has been seen (Nicol, 2010; Sambell et al., 2012). Judgements have been mixed, with some supporting this new approach (Nicol, 2010; Sambell et al., 2012), while others question the effectiveness of it (McConlogue, 2012; Panadero, 2016; Panadero et al., 2023).

Beyond the nature and quality of assessments in HE, their authenticity has been argued to be of utmost importance (Sambell, 2011). 'Authentic assessments or tasks' refers to the relevant and meaningful assessments that pose potential employability gains and provide a comprehensive and systematic evaluation of a student's knowledge, skills, and abilities (Rodríguez-Gómez, & Ibarra-Sáiz, 2014). Authentic assessments have proven to be successful methods of assessing intellectual accomplishments and/or capabilities since they require students to demonstrate their advanced cognitive skills and problem-solving by executing a variety of tasks. Assessments that are considered authentic often simulate genuine tasks and performance criteria that professionals or experts commonly encounter in a particular field.

'Assessment' is an umbrella term for assessing students' learning outcomes using various methods, focusing on constantly improving the quality of education. However, the focus on quality improvement may overlook the curiosity, interest, effective communication, higher engagement, and motivation of students, which improves learning process and outcomes (Deci & Ryan, 2008; Nolen, 2011; Kusurkar & ten Cate, 2013). Recently, Kusurkar et al. (2023) also suggested the role of different assessments in fostering various aspects of motivation in students' learning. The learning-focused assessments can be seen as a form of authentic assessment.

Intrinsic motivation, driven by internal rewards such as personal satisfaction and a sense of accomplishment, is crucial for deep, engaged learning. Research has consistently shown that when students are intrinsically motivated, they are more likely to engage in critical thinking and creative problem-solving. For instance, Deci and Ryan's Self-Determination Theory posits that fostering intrinsic motivation through autonomy, competence, and relatedness enhances learners' engagement and performance (Ryan & Deci, 2000). This intrinsic drive propels students to explore subjects more deeply, ask probing questions, and develop innovative solutions to problems, thereby honing their 21st century skills.

Extrinsic motivation, on the other hand, involves external incentives such as grades, praise, or rewards. While often viewed with some skepticism, extrinsic motivators can also play a significant role in education when used appropriately. Recent studies indicate that extrinsic rewards, when aligned with students' personal goals and interests, can complement intrinsic motivation and enhance overall engagement. For example, a study by Eisenberger and Aselage (2009) suggests that appropriately framed extrinsic rewards can boost motivation without undermining intrinsic interest. This combined

approach can help students develop perseverance and resilience, essential components of problem-solving and critical thinking.

Linking the concepts of intrinsic and extrinsic motivation to the development of 21st century skills, it becomes evident that a balanced motivational strategy can significantly impact students' abilities. Educators can design learning environments that incorporate both intrinsic and extrinsic motivational elements to foster these essential skills. For example, project-based learning (PBL) is an authentic instructional methodology that aligns with this approach (Bell, 2010). PBL engages students in complex, real-world problems, requiring them to think critically and creatively and the same holds true for Team-Based Learning (Otermans, Baines, Livingstone, & Barbosa Bouças, 2024). By providing autonomy in choosing projects (an intrinsic reward) and the opportunity for public presentation of their work (an extrinsic reward), PBL can stimulate both intrinsic and extrinsic motivation.

Despite these recent advances and a shift from knowledge testing-oriented to learning-focused assessments, students' preferences and perceptions of assessments in HE and factors predicting it have been largely overlooked. Integrating motivation research with the development of 21st century skills offers a holistic approach to education. It addresses not only the need for skill acquisition but also the underlying motivational factors that drive student engagement and learning (Collie & Martin, 2019). By creating learning environments that nurture both intrinsic and extrinsic motivation, educators can better prepare students for the challenges of the modern world. This approach aligns with the latest educational research, which calls for a shift towards fostering critical, creative, and problem-solving abilities essential for the 21st century. Therefore, we aimed to investigate students' perception of authenticity in HE assessments and hypothesise that preference ratings for each assessment would be predicted by levels of intrinsic, extrinsic, and amotivation.

Methods

Participants and design

The study employed a cross-sectional design. One hundred young adults aged between 19 and 49 completed an online survey on a platform named 'JISC' between 12th May and 24th July 2023. Of these, six participants were excluded due to their non-student status, leaving the final sample of 96 participants (68 (72.3%) female-identifying, 24 (25.5%) males, and two (2.1%) preferred not to say). The mean age of participants was 30.5 years with a standard deviation of 7.8 years (five did not provide their age). Four (4.3%) participants were registered in Framework for Higher Education Qualifications (FHEQ) Level 4/Year 1, 14 (14.9%) in FHEQ Level 5/Year 2, 7 (7.4%) in FHEQ Level 6/Year 3, 52 (55.3%) in FHEQ Level 7/Postgraduate taught, 12 (12.8%) in Other, and 5 (5.3%) preferred not to say. In terms of ethnicity, 46 (48.9%) identified as Black, 19 (20.2%) identified as Asian, 15 (16.0%) as White, 6 (6.4%) as Mixed, 6 (3.2%) as Other, 6 (3.2%) as prefer not to say, and 2 (2.1%) as Chinese. Participants were recruited via social media and word of mouth. The inclusion criteria required all participants to be aged 18 years and above as well as must be enrolled in higher education in the UK. The online survey was completed in one single session. All participants provided consent after being familiarised with the purpose of the study. Upon completion, those enrolled in undergraduate psychology degree at a UK University were given 2-course credits. This study was approved by the authors' institution Research Ethics Committee (Ref: 42324-MHR-May/2023- 44779-2).

Self-Report measures

Academic motivation

The *Academic Motivation Scale* (Vallerand et al., 1989) was used to assess academic motivation in students. It is 28-item self-report measure with high internal consistency ($\alpha = .81$) and test-retest reliability ($\alpha = .79$). Each item belongs to one of the seven subscales, of which, three assessing *intrinsic motivation* (12 items covering aspect of motivation to know and learn; experience stimulation and engagement, as well as motivation towards achievement and accomplishment), three subscales assessing *external motivation* (12 items covering aspects of motivation through bursaries, self-regulation, and projection of

internal motives), and lastly one subscale assessing *amotivation* (four items covering aspects of lack of motivation linking outcomes of an individual's action). Each item requires a response on a 7-point Likert scale with 1 representing 'does not correspond at all' and 7 representing 'corresponds exactly'. Each item was summed to obtain an overall score with higher scores indicating higher academic motivation. The scale had a high internal consistency in the current sample for the intrinsic motivation to know ($\alpha = .92$), the intrinsic motivation-to accomplish things subscale ($\alpha = .92$), the intrinsic motivation-to experience stimulation ($\alpha = .95$), the extrinsic motivation-external regulation ($a = .90$), the extrinsic motivation- introjected motivation ($\alpha = .94$), the extrinsic motivation-identified regulation ($\alpha = .87$), and amotivation subscale ($\alpha = .83$).

Assessment preferences

To assess the *Assessment Preferences* of students they were given a 25-item self-report questionnaire designed by the authors. Each item represents a type of assessment at higher education in the UK (Table 1). For example, item 1: an *oral presentation*, item 9: *combined exam-short-answer and essay questions*, and item 24: *oral debate*. Each item requires a response on a 6-point Likert scale with 1 representing 'do not like it at all' and 6 representing 'I have never done this type of assessment'.

Statistical analysis

Data were analysed using Statistical Package for Social Sciences (SPSS, for windows, version 28; IBM Corp, 2021, New York, United States). We considered motivation as a continuous variable and explored how different forms of motivation (intrinsic, extrinsic, and amotivation) predict likelihood of students liking each of the 25 assessment types (Table 1) using multiple linear regression. Prior to all analyses, the data properties for all key study variables were examined and considered appropriate for parametric statistical methods. The statistical significance was maintained at $p \leq .05$, unless stated.

Results

No violations were observed in regression assumptions, normality, and auto-correction (Table 2). The Variance Inflation Factor (VIF) values were between 1.38 and 8.35 and tolerance values between .12 and .73, indicating no multicollinearity in the predictor variables (Field, 2013).

Table 1. List of assessment preferences.

Item No	Assessment Type
1	Oral presentation
2	Poster submission
3	MCQ exam (within a set timeframe)
4	Essay exam (within a set timeframe)
5	Essay exam (within a set timeframe)
6	Short answer questions exam (within a set timeframe)
7	Combined exam (MCQ question and short-answer questions)
8	Combined exam (MCQ question and essay questions)
9	Combined exam (Short-answer and essay questions)
10	Coursework essay long (more than 1,000 words) - theoretical
11	Coursework essay long (more than 1,000 words) - applied (e.g. case study, real-life examples)
12	Coursework essay short (1,000 words or less) - theoretical
13	Coursework essay short (1,000 words or less) - applied (e.g. case study, real-life examples)
14	Lab report
15	Qualitative research report
16	Dissertation/final year project
17	Written reflection
18	Blog post
19	Video
20	Podcast
21	Group project with a group oral presentation
22	Group project with a written report
23	Pitch
24	Oral debate
25	Take home exam

Table 2. Durbin-Watson values for each of the 25 regressions.

Dependent variable	Durbin-Watson
Oral presentation	1.97
Poster submission	2.04
Poster presentation	1.95
MCQ exam (within a set timeframe)	2.26
Essay exam (within a set timeframe)	2.24
Short answer question exam (within a set timeframe)	1.90
Combined exam (MCQ question and short-answer questions)	2.11
Combined exam (MCQ question and essay questions)	2.13
Combined exam (Short-answer and essay questions)	2.22
Coursework essay long (more than 1,000 words) - theoretical	1.89
Coursework essay long (more than 1,000 words) - applied (e.g. case study, real-life examples)	1.98
Coursework essay short (1,000 words or less) - theoretical	1.92
Coursework essay short (1,000 words or less) - applied (e.g. case study, real-life examples)	2.14
Lab report	2.07
Qualitative research report	2.29
Dissertation/final year project	1.86
Written reflection	1.88
Blog post	2.05
Video	2.18
Podcast	1.88
Group project with a group oral presentation	1.87
Group project with a written report	1.79
Pitch	1.93
Oral debate	1.86
Take home exam	2.00

Of these 25 assessments, students showed a significantly higher preference for *poster submission* attributed to intrinsic motivation ($F(7,86) = 2.62$, $p = .017$), explaining 10.9% variance in the data (adjusted $R^2 = .11$). In addition, preference for *poster presentation* attributed to intrinsic (to know) and extrinsic (introjected) motivation ($F(7,86) = 3.57$, $p = .002$) explaining 16.2% variance in data. Preference for *Multiple choice question (MCQ) exam (within a set framework)* attributed to extrinsic (identified and introjected) motivation and amotivation ($F(7,86) = 4.18$, $p < .001$), explaining 19.3% of the variance. Preference for *essay exam* attributed to amotivation ($F(7,86) = 2.15$, $p = .047$), explaining 8% of the variance. Finally, preference for *lab report* attributed to extrinsic (introjected) motivation and amotivation ($F(7,86) = 3.98$, $p < .001$), explaining 18.3% of the variance (Table 3).

Regression model showed no significant association between motivation and the preference of students for the following assessments: oral presentations ($F(7,86) = 1.02$, $p = .422$); short answer questions exam (within set timeframe) ($F(7,86) = 1.07$, $p = .392$); combined exam (MCQ and short-answer questions) ($F(7,86) = .49$, $p = .843$); combined exam (MCQ and essay questions) ($F(7,86) = .47$, $p = .853$); combined exam (short-answer and essay questions) ($F(7,86) = 1.11$, $p = .367$; coursework essay long (more than 1,000 words) theoretical ($F(7,86) = 1.06$, $p = .39$; coursework essay long (more than 1,000 words) applied ($F(7,86) = .74$, $p = .638$; coursework essay short (1,000 words or less) theoretical ($F(7,86) = 1.51$, $p = .175$; coursework essay short (1,000 words or less) applied ($F(7,86) = .77$, $p = .618$; qualitative research report ($F(7.86) = 1.55$, $p = .162$); dissertation/final year project ($F(7,86) = 1.39$, $p = .220$); written reflection ($F(7,86) = .73$, $p = .646$); blogpost ($F(7,86) = 1.88$, $p = .083$); video ($F(7,86) = 1.89$, $p = .081$); podcast ($F(7,86) = 1.94$, $p = .073$); group project with a group oral presentation ($F(7,86) = .66$, $p = .707$); group project with a written report ($F(7,86) = .83$, $p = .565$); pitch ($F(7,86) = 1.48$, $p = .184$); oral debate ($F(7,86) = 1.11$, $p = .366$); take home exam ($F(7,86) = 1.35$, $p = .238$).

Discussion

Summary of findings

This study investigated students' perception of authenticity in HE assessments. The key findings were: A higher preference for i) poster submission (purely a submitted pdf of a poster) was predicted via intrinsic motivation, ii) poster presentation (not only creating the poster but also presenting this to an audience) was predicted via intrinsic (to know) and extrinsic (introjected) motivation, iii) MCQ exam (within a set framework) was predicted via extrinsic (identified and introjected) motivation and amotivation, iv) essay

Table 3. Model coefficients of how motivation subscales predict each of the assessments.

	Poster submission			Poster presentation			MCQ exam (within set timeframe)			Essay exam (within a set timeframe)			Lab report		
	β	t	p	β	t	p	β	t	p	β	t	p	β	t	p
Intrinsic motivation (to know)	.43	1.79	.077	.53	2.24	**.028**	.28	1.24	.220	.27	1.09	.277	.35	1.52	.132
Intrinsic motivation (to accomplish things)	−.30	−1.05	.296	−.46	−1.68	.097	.05	.20	.845	−.52	−1.81	.074	−.46	−1.69	.095
Intrinsic motivation (to experience stimulation)	.22	.88	.381	.21	.86	.391	.05	.19	.849	−.36	1.44	1.52	.23	.97	.335
Extrinsic motivation (identified)	.15	.73	.470	.23	1.13	.262	.57	2.87	**.005**	.35	1.65	.103	−.10	−.51	.610
Extrinsic motivation (introjected)	−.59	−3.19	**.002**	−.62	−3.45	**<.001**	−.62	−3.51	**<.001**	−.26	−1.38	.173	−.43	−2.41	**.018**
Extrinsic motivation (external regulation)	.07	.43	.669	.07	.44	.659	−.05	−.31	.760	.01	.05	.957	.25	1.50	.139
Amotivation	.02	.19	.854	.07	.56	.557	.22	2.04	**.045**	.24	2.08	**.040**	−.26	−2.32	**.023**

exam was predicted via amotivation, and v) lab report was predicted via extrinsic (introjected) motivation and amotivation. These findings are explored further below, in the context of wider literature.

With respect to our hypotheses, our findings demonstrated a higher preference for poster submission, attributed to intrinsic motivation. *Poster submission* provides a space for creative ideas, critical thinking, and skill development, which leads to higher and more meaningful engagement with the content, skill reflection, experiential learning, and increased interest in the assessment (Leadbeatter & Gao, 2018; McNamara et al., 2010; Ross et al., 2019). The sense of autonomy drives a long-term interest in learning-focused assessments (Deci & Ryan, 1985; Wormald et al., 2009), suggesting that higher interest in learning triggers intrinsic aspects of motivation (Entwistle, 2005). The preference for poster submission predicted by intrinsic motivation could be due to the autonomy, creativity, mastery, and enjoyment associated with creating a poster, as well as the relatively low pressure compared to other submission types (Cromwell, Haase, & Vladova, 2023).

While intrinsic and extrinsic motivation predicted a higher preference for poster submission, it is unsurprising that poster presentation involves both orientations of interest and learning through experience while engaging in communicative actions, which may create pressure to perform better. The preference for poster presentations, particularly both creating the poster and presenting it to an audience, can be understood through the lens of intrinsic and extrinsic motivation (Hennessey, Moran, Altringer, & Amabile, 2015). In other words, poster presentation can potentially stimulate a pressure to perform better in front of others, may include external awards (i.e. good grades and social praise or approval), higher self-expectations, and a fear of performing more poorly than others (Cassey et al., 2011), thereby triggering external motivation in students (Kusurkar & ten Cate, 2023; Weurlander et al., 2012). In summary, intrinsic motivation encourages individuals to engage in poster presentations for the love of learning and mastery, while introjected motivation (extrinsic) drives them to do so to meet internalised expectations and gain social approval. Both types of motivation can predict a preference for not just creating a poster, but also actively presenting it to an audience.

The preference for MCQ exams being predicted by extrinsic motivation (identified and introjected) and amotivation can be understood by examining how these types of motivation influence student behaviour and preferences in educational settings. In terms of identified regulation, this may be explained because students might prefer this format because they perceive it as a more straightforward path to achieving good grades or fulfilling academic requirements (Griche, 2024). As introjected regulation involves internal pressures, students may prefer MCQ exams because they want to avoid the negative feelings associated with failure or poor performance in more subjective or open-ended exam formats. In terms of amotivation, as some students may not see the importance of certain academic tasks, MCQ exams might be preferred because they are often seen as less demanding or requiring less effort compared to other formats like essays or problem-solving tasks. MCQs typically require recognition rather than recall, which may feel easier or less engaging for students who are not intrinsically motivated (Griche, 2024; Turhan, 2020).

Essay exams were predicted via amotivation. Essay exams typically allow for more flexibility in answering questions compared to multiple-choice exams. Students can approach the question from different angles, choose what to emphasise, and even include information they are more comfortable with. This format gives students a sense of control over how they present their knowledge (Norvilitis, Reid, & O'Quin, 2022). For a student experiencing amotivation, this control might be appealing because it allows them to approach the task on their terms, even if their overall motivation is low. They might prefer an exam type where they can at least partially dictate the content, which might feel less stressful than the rigid structure of other exam types like MCQs. Another element, essay exams might be perceived as more subjective, where students can argue their point of view or express ideas that are not just about rote memorisation. This subjectivity might make essay exams seem less threatening because students can argue their case or hedge their bets on partial knowledge, which might feel like a safer option if they do not believe they can succeed in a more straightforward, right-or-wrong format (Gupta, Jain, & D'souza, 2016). Also, students with amotivation might perceive essay exams as fairer because they think their grade will depend more on how they express themselves rather than strictly on content knowledge. This perception might lead them to prefer essay exams, even if their amotivation means they are not deeply engaged with the learning material (Garay & Orjuela-Segura, 2022).

A higher preference for lab report was predicted via extrinsic (introjected) motivation and amotivation. When students are introjectedly motivated, they might prefer tasks like lab reports because they believe these tasks are necessary to meet external standards (e.g. getting good grades, pleasing teachers or parents). They might feel that completing a lab report is an obligation or a duty that will prevent negative feelings like guilt or shame (Dohn, Fago, Overgaard, Madsen, & Malte, 2016). If students are amotivated, they might prefer tasks like lab reports because these tasks are often more structured and provide clear guidelines. Lab reports can offer a sense of predictability and control, which might be appealing to students who feel disengaged or disconnected from other types of learning activities.

Although the nature of these assessments may vary, for example, *MCQ exams* and *lab reports* involve learning retention, an ability to demonstrate knowledge acquisition, and problem-solving skills, *an essay exam* is subjective and requires an individual to demonstrate higher learning, comprehensive, and critical thinking skills. The latter may foster a sense of ambiguity, lack of direction and self-determination, and a negative belief towards task completion and performance, further exacerbating a sense of amotivation. In most cases, students undertake a task (e.g. essay exam, lab report) not because they enjoy it but simply because they must comply (Jackson & Zmuda, 2014), reflecting a lack of interest and effort, thereby stimulating aspects of controlled motivation and amotivation. Cobb and colleagues (2013) suggested that students use a surface approach to learning for examinations with no feedback (i.e. MCQ-based exam), perhaps due to no motives for deeper understanding and learning of content, external/internal pressure to pass an exam, and involvement of bursaries (e.g. good grades or reputation at stake). These factors lack a genuine interest and passion for learning.

In summary, a higher preference for some assessments may potentially arise from an interest to know and learn, meaningful engagement, autonomy over learning, enjoyable development processes, and a sense of accomplishment which stimulates intrinsic motivation. On the contrary, factors such as the ambiguous nature of an assessment, negative past experiences, lack of perceived relevance, external pressures from family/friends, and internal reasons may prompt extrinsic motivation and/or amotivation in students.

We found no significant relationship between a preference for oral presentations, short answer questions exam (within set timeframe), combined exam (MCQ and short-answer questions), combined exam (MCQ and essay questions), combined exam (short-answer and essay questions), coursework essay long (more than 1,000 words) theoretical, coursework essay long (more than 1,000 words) applied, coursework essay short (1,000 words or less) theoretical, coursework essay short (1,000 words or less) applied, qualitative research report, dissertation/final year project, written reflection, blog post, video, podcast, group project with a group oral presentation, group project with a written report, pitch, oral debate, take home exam and motivation types. The majority of these assessments involve traditional feedback processes in a controlling condition (i.e. evaluating and grading an individual's learned knowledge), which may hinder the intrinsic motivation to conceptually process, understand, and learn the material (Grolnick & Ryan, 1987; Ryan & Weinstein, 2009). While the design and implementation of some assessments (e.g. podcast, written reflection, oral presentation, debate) are different from the traditional assessment methods (e.g. coursework short answer question exam), they still might be perceived as challenging given these assessments may induce nervousness, a fear of presenting and being judged, internal pressure to perform better in front of others, stimulating anxious and stressful behaviour (Grieve et al., 2021), further negatively impacting their learning. While the design of these assessments may enhance a students' transferrable skills, they can still foster controlled extrinsic motivation to acquire and demonstrate knowledge, learning, critical thinking, and communication skills. When an individuals' behaviour is controlled, they feel pressured to think and learn which may result in a lack of interest and non-engagement as well as undermining intrinsic and/or extrinsic motivation (Deci & Ryan, 1985; Ryan & La Guardia, 1999; Ryan & Weinstein, 2009); Kusurkar & ten Cate, 2023). In other words, traditional assessments remain a primary source of assessing students' performance in a controlled manner which may or may not attribute a student's learning to motivation.

There are some limitations to the present study. Firstly, there is sample bias as participants belonged to one degree programme (psychology students), limiting the generalisability of the results. Psychology students may possess certain characteristics, such as a greater familiarity with psychological concepts, theories, and research methods, which could influence their responses or behaviour during the study.

Additionally, they may share similar cognitive styles, values, or attitudes that are not representative of individuals from other academic disciplines or the general public. As a result, the study's conclusions may not be applicable to other groups with different educational backgrounds, interests, or demographic characteristics. To enhance the external validity of future research, it would be beneficial to include participants from a more diverse range of academic disciplines and backgrounds which could also reduce the sample bias. This would help ensure that the findings are more reflective of the broader population, thereby improving the robustness and applicability of the research outcomes. Secondly, there could be measurement errors in the design of the study. The study did not take into account or control for factors influencing individual differences in assessment preference (unaccounted variable). Also, the assessment categories in the assessment preference inventory were not very detailed, somewhat broad, and open to multiple different interpretations. This could have negatively influenced the results and can be addressed in future research (next paragraph). Thirdly, the findings must be taken with caution due to the sample size. Therefore, these results need to be replicated in a larger, more diverse sample across various institutions and programmes before being taken conclusively.

Future research could involve replicating the current study design with different student populations in terms of level of study (e.g. postgraduate student), subject of study (other subjects beyond psychology), other countries (beyond the UK). Future research should also focus on developing an assessment preference inventory scale that measures what quality of an assessment a student is rating and why. This scale would provide nuanced insights into how various factors—such as fairness, clarity, relevance, difficulty, and feedback—impact student preferences and perceptions. By understanding these dimensions, educators can better align assessment methods with student needs and learning styles, ultimately leading to more effective and equitable educational practices. Moreover, this scale could guide instructional design, ensuring that assessments foster engagement, motivation, and deeper learning. Another element future work could look at is longitudinal studies whereby motivation is studied across a students' degree to determine whether motivational factors change across the time course of a degree.

Based on the current study, we believe there are some recommendations for improving assessments in HE. Firstly, educators could prioritise intrinsic motivation in assessment design. This means that educators should focus on creating assessments that align with intrinsic motivation, as students showed a higher preference for assessments like poster submissions and presentations that are intrinsically motivating. This could involve designing assessments that allow for creativity, personal interest, and deeper engagement with the subject matter. Secondly, it is important to incorporate a variety of assessment types to tailor to the diverse preferences among students. Incorporating a mix of assessment types can cater to different motivational orientations. This might include a combination of poster presentations, multiple-choice exams, and essays, ensuring that students with varying motivational profiles find assessments that resonate with them. Thirdly, for assessments like essay exams and lab reports that are linked with amotivation, educators could consider providing additional support to help students find relevance and meaning in these tasks. This might include offering clearer guidelines, providing examples of successful work, or integrating feedback loops to build motivation. Finally, it is crucial to evaluate and adapt assessment practices regularly based on student feedback and motivational patterns. Conducting surveys or focus groups with your own students to understand how different assessments impact their motivation and engagement may help to refine and enhance assessment strategies over time. In sum, it is important that educators design a diverse suite of assessments that foster creativity, personal interest and enhanced motivation.

Conclusion

We observed a limited preference for assessments (5 of 25 were rated as most preferred) in an adult homogenous sample. A student's preference for an assessment was predicted via levels of motivation (intrinsic, extrinsic, and amotivation). It is important to note that specific assessments like poster submission and presentation may stimulate interest, enjoyment, and a sense of autonomy. In contrast, others (e.g. essay exam, lab report) may evoke a feeling of pressure to perform better, lack of perceived relevance, poor self-efficacy and disengagement with content. The traditional assessment form may enhance a deeper understanding of content but is not driven by internal motivation or interest to learn and

know. Therefore, alongside the facilitation of knowledge and understanding, assessments should be designed to foster interest and passion to learn and understand the content thoroughly. Developing diversity and authenticity in the type of assessments designed is a practical step educators can take to achieve this goal. Assessment design should also align with self-determination theory, emphasising autonomy, competence, and relatedness to foster intrinsic motivation and enhanced engagement in learning. Thus, for educators to effectively support both learning and motivation in students, assessments should be designed so that they balance fostering a deep understanding with strategies that enhance interest and motivation, and a sense of autonomy for students.

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