



OPEN ACCESS

EDITED BY

Anje Ros,
Fontys University of Applied Sciences,
Netherlands

REVIEWED BY

Estela Costa,
University of Lisbon, Portugal
Bart Kleine Deters,
Expertisecentrum Beroepsopleiding,
Netherlands

*CORRESPONDENCE

Giel Kessels
✉ giel.kessels@ou.nl

RECEIVED 08 September 2023

ACCEPTED 25 March 2024

PUBLISHED 10 April 2024

CITATION

Kessels G, Xu K, Dirx K and Martens R (2024)
Flexible assessments as a tool to improve
student motivation: an explorative study on
student motivation for flexible assessments.
Front. Educ. 9:1290977.
doi: 10.3389/educ.2024.1290977

COPYRIGHT

© 2024 Kessels, Xu, Dirx and Martens. This is
an open-access article distributed under the
terms of the [Creative Commons Attribution
License \(CC BY\)](https://creativecommons.org/licenses/by/4.0/). The use, distribution or
reproduction in other forums is permitted,
provided the original author(s) and the
copyright owner(s) are credited and that the
original publication in this journal is cited, in
accordance with accepted academic
practice. No use, distribution or reproduction
is permitted which does not comply with
these terms.

Flexible assessments as a tool to improve student motivation: an explorative study on student motivation for flexible assessments

Giel Kessels^{1,2*}, Kate Xu², Kim Dirx³ and Rob Martens^{2,3}

¹Summa College, Institution for Vocational Education, Eindhoven, Netherlands, ²Faculty of Educational Sciences, Open Universiteit, Heerlen, Netherlands, ³Faculty of Applied Sciences, Zuyd University, Heerlen, Netherlands

Introduction: This study focuses on what choices in assessments students want to make in order to enhance their motivation. A flexible assessment can enhance students' perceived autonomy and thereby contribute to more intrinsic motivation for working on these assessment tasks. Autonomy is more than offering choices, rather it is about the autonomy that students actually experience. An increase of autonomy and motivation leads to more fun in learning and deeper learning. Providing choices during assessment -also referred to as flexible assessments- in order to enhance students' motivation for working on assessment tasks has not been researched extensively. Research on the topic of flexible assessments in order to enhance student motivation is valuable because motivation is the start for learning and assessments can serve as a starting point for learning.

Methods: The study took place in the context of Vocational Education and Training (VET) and consists of two approaches. A cross-sectional survey study to find out on what assessment characteristics students prefer to have choice on. Focus group interviews are used to gain more understanding on how such assessment choices should be designed according to the interviewed students.

Results and discussion: The participated students preferred to make choices in the moment of assessment, in the number of attempts and in the assessment form. The interviewed students suggested an increase in number of choice options and ownership in choice making decisions during their study. They would like to be coached by their teachers in the decision-making process and, as their study progresses, the guidance of their teacher should decrease. Giving students choice in assessment in order to support their perceived autonomy and thereby contribute to their intrinsic motivation is quite unanimously perceived as positive.

KEYWORDS

motivation, assessment, autonomy, VET, self-determination theory

1 Introduction

Motivation is key to learning (Broekkamp and Van Hout-Wolters, 2007; Cilliers et al., 2012; Sambell, 2013). When student motivation is supported, learning will be more easy, more fun, and study success will improve (Martens et al., 2004; Vansteenkiste et al., 2005; Van Nuland et al., 2010). Higher student motivation can also ensure deeper learning (Chin and

Brown, 2000) and prevent school dropouts (Organisation for Economic Co-operation and Development, 2016). However, student motivation to complete difficult learning tasks is decreasing in numerous countries across different levels of education, and motivation is relatively of short duration (Peetsma et al., 2005; Organisation for Economic Co-operation and Development, 2016). Because motivation is such an important but challenging factor for study engagement, there is an ongoing search to increase student motivation in education (Martens et al., 2004; Meusen-Beekman et al., 2016; Ros et al., 2017). Most of this research focused on ways to stimulate students' intrinsic motivation for learning, a type of motivation in which students are intrinsically motivated to achieve a predefined goal.

The current study builds theoretically on the self-determination theory (SDT) of Ryan and Deci (2000a), which assumes that learning and the learning environment must meet certain psychological needs in order not to disrupt intrinsically motivated behavior. These psychological needs are competence, relatedness, and autonomy. A possible solution to the motivation problem is sought in supporting students' autonomy regarding learning tasks and assessments (Leadbeater, 2005; Sebba et al., 2007). Autonomy is considered as an important precursor to intrinsic motivation (Loon et al., 2013). Many teachers and schools looking for ways to support personalised learning, a form of learning that accommodates individualised choices of learning and assessment. However, most assessments are still teacher- or school-centred. This leaves rather little space for student autonomy and choice which, according to the SDT, can harm student motivation. Assessments are therefore still rather often an example of a controlled form of motivation which has few or no autonomy-supporting characteristics. This can hinder students' learning and motivation as assessments guide the learning process of students and students adapt their learning process with the assessment in mind.

Flexible assessments may provide a solution to better align learning and assessment in personalised learning contexts. Flexible assessments may increase student motivation by supporting student autonomy. However, studies on flexible assessment and its effects on student motivation for assessments in a vocational education and training (VET) context are lacking.

The reason to gain insight into giving students choice in assessment in order to enhance their perceived autonomy and thereby supporting the motivation is because motivation is the start for learning (Dochy and Janssens, 2018), and flexible assessments can serve as a starting point for personalised learning paths (Gulikers et al., 2018). Assessments will guide the learning process of students, and students will learn with the assessment in mind.

1.1 Motivation

Motivation is a process whereby a goal-directed activity is instigated and sustained (Pintrich and Schunk, 2002 p. 5). The SDT (Ryan and Deci, 2000a) is a well-known theory on motivation and distinguishes between two main types of motivation: controlled motivation and autonomous motivation. Self-determined motivation, intrinsic motivation, or autonomous refer to people's behavior performed in their own interest, controlled motivation or extrinsic motivation is defined as doing something for an instrumental reason (Ryan and Deci, 2000a).

According to SDT, three basic psychological needs must be met to support intrinsic motivation. The three basic psychological needs are autonomy, competence, and relatedness (Ryan and Deci, 2000a). Autonomy is one of the three basic psychological needs (Ryan and Deci, 2000b) and is described as the need of students to feel in control of their own behavior and goals. This sense of being able to take immediate action while learning contributes to student motivation. Choice, acknowledgment of feelings, and opportunities for self-direction were found to enhance intrinsic motivation because they allow people a greater feeling of autonomy (Deci and Ryan, 1985). Moreover, the more autonomy students will experience the more they will be intrinsically motivated. Relatedness is one of the other basic psychological needs (Martens, 2019). Relatedness is the need of students to experience a sense of belonging and attachment to other people. A positive climate in the classroom will contribute to relatedness. Students should feel free to ask questions and not be afraid to make mistakes (Verbeeck, 2010). Competence is the third basic psychological need. Competence is the need of students to gain mastery of tasks and learn different skills. When students feel that they have the competence needed for success, they are more likely to take actions that will help them achieve their goals.

Within the motivation continuum, students who are not motivated at all to learn are followed by students who have an external regulated motivation. External regulated motivation occurs when punishments and rewards regulate behavior, and tasks are performed to satisfy an external requirement. External regulated motivation is followed by introjected regulation, whereby tasks are carried out to avoid feelings of guilt or fear or to achieve a sense of pride. Both forms of motivation are subsumed under the heading of controlled motivation. Working on assessment tasks can often be observed as an example of controlled motivation because of the lack of autonomy and the urge to perform well.

1.2 Definition of flexible assessment

A promising way to provide students' choice within the context of assessments is flexible assessments. Rumsey (1994, p. 20) was the first researcher to define flexible assessment. He defined the term as, "assessment practices are flexible if they can accommodate the scope of knowledge and skills encompassed by the assessment criteria, the variations in context in which assessment may be conducted, and the range of needs and personal situations of potential candidates".

However, this explanation focuses on giving students choice within assessment, but giving students choice does not necessarily mean that students experience more autonomy (Patall et al., 2008; Loon et al., 2013). Instead, the choices students can make should be well considered, comparable, and, in most cases, limited between two and five options (Patall et al., 2008) in order to enhance the perceived autonomy. Otherwise, students can easily be overwhelmed by the number of choices they can make, and the decision-making process becomes too complex for student to handle. Moreover, stimulating student motivation is not about giving students choice rather it is about providing students the feeling they have autonomy in making a decision.

The definition of "flexible assessment" developed in later studies. The term "flexible assessment" was applied when the student could choose, which or how many assessments they had to complete (Cook,

2001), how those assessments could be administered and how skills could be demonstrated (Irwin and Hepplestone, 2012), when the student had to complete the assessment (Wood and Smith, 1999; McCurdy, 2000), how the result of the assessment weighted within a larger set of assessments (Francis, 2008; Varsavsky and Rayner, 2012), or when students could create their own assessment criteria (Catlin et al., 1999). This interpretation gave a broader scope and more focus on the choices that could be made by students and led to the definition of “flexible assessment” as it is used in this study: “flexible assessments are assessments in which the student is offered choice with the aim of supporting the students’ autonomy and in which the student can make her or his own choice independent of influences of others. In other words, students feel free to make their own decision in the offered choice options regarding flexible assessments”.

Over the years, some studies are done about the choices that students can make in assessments. However, previous studies focused on the extrinsic characteristics of assessments such as the assessment results in relation to student motivation. For example, Lo et al. (2022) found that more motivated students scored better on assessments. The research took place in a higher education or a university context. In a previous study, Dochy et al. (1999) analysed 63 studies in the field of higher education, whereby students were offered a choice about the type of assessment: self-, peer-, and collaborative assessment and how this affects student motivation. The conclusion was that a more open assessment form had a positive impact on student motivation. Students became more responsible for their own learning process and their ability to reflect on their learning increased through the use of self-, peer-, and collaborative-assessment types.

Irwin and Hepplestone (2012) explored the possibilities of technology to facilitate students’ choice in the way they proved their learning and presented their study. The research focused on online assessments in the context of higher education. Irwin and Hepplestone (2012) concluded that the flexibility of online assessments could be observed as a starting point for a more student-driven pedagogy while increasing student engagement in the assessment process and criteria setting. “If the assessment criteria are clear about the desired learning outcomes, students could use a variety of formats to meet those outcomes” (Irwin and Hepplestone, 2012, p. 774).

Pacharn et al. (2013) had the same intention in their research, encouraging students’ participation in the learning process and thereby self-regulating learning skills. They took an approach whereby they allowed students to determine the weights allocated to each course component. Students were also able to re-allocate the weights in response to the achieved scores. Pacharn et al. (2013) found that allowing students to finalise their allocations late in the term significantly and positively impacted motivation, grades, and attitude. The results suggested that self-regulated learning skills may be enhanced if students have an opportunity to make more informed choices.

Rolim and Isaias (2019) did a quantitative methodological approach research into flexibility of the location of an e-assessment. An online survey was completed by 622 respondents. The conclusion was that teachers and students benefitted from this type of assessment.

These studies gave a broader scope and more information on the type of choices that can be made by students. However, most of the research in the field of student motivation for (flexible) assessments, thus far, took place in the context of higher education and focused on grade weighing or assessment results of flexible assessments in relation

to student motivation. Higher education focuses, for example, more on a theoretical knowledge. VET focuses more on practical skills in authentic settings which are needed to pursue a profession. For example, a car mechanic must proof her or his competence in servicing a car in a car workshop. This type of competences can only be proofed in an authentic professional situation, such as a car workshop, whereas higher education uses mainly essays, thesis, and other forms of cognitive assessments to assess a more abstract form of the students’ knowledge. Due to the differences between higher education and VET, the results of earlier studies cannot be generalized one-on-one to VET contexts and more research in the VET context is needed, especially since personalised learning gets more and more attention in VET.

This explorative research contributes to improve the understanding of student motivation in relation to student choice in assessments and provides insights into how assessments can be redesigned so that students’ perceived autonomy, and therefore intrinsic motivation of the students, can be supported.

1.3 Research questions

In this study, we aim to explore on which assessment characteristics students can be offered choice in order to support their perceived autonomy. With the results of this study, a redesign study can be developed to redesign a standardised assessment into a flexible assessment, whereby the student motivation can be enhanced.

This study gave us answers to two research questions:

- 1 What choices in assessment characteristics do VET students want to be offered in order to enhance their perceived autonomy?
- 2 How can choice within assessments be offered according to VET students and how does the choice affect their motivation for assessments?

2 Methods

2.1 Research design

This explorative study consisted of two parts. A cross-sectional survey study (Creswell, 2012) to gain insight into which assessment characteristics students would prefer to be able to choose. The second part of the study is a focus group study to investigate how the choices can be offered according to the students in order to enhance their perceived motivation. The research design, procedure, and materials of this exploratory study were approved by the ethics committee of the Open University (file number: U202101536).

2.2 Cross-sectional survey study

2.2.1 Participants

The cross-sectional survey study was fully completed by 157 students and took place at three different schools within five different

Dutch VET-courses: technical automotive engineering, technical vehicle specialist, commercial vehicle technician, all-round assistant business services, and business and management assistant. The first three courses are in the automotive domain and the last two courses are in the business domain. The business courses were added later to conclude whether different rankings are made by students from a different sector.

Four of the participated courses are full-time studies (BOL). A BOL study consists of 80% of the total study time and lessons at school and 20% of the study time is filled with internships. The other course which participated in this research is a part-time (BBL) study. A BBL study consists of 20% of the total study time and lessons at school. The lessons at school are planned on 1 day each week. The other 80% of the study time is filled with internships, whereby the students are working at a company as an employee. This study took place at level three and four courses. The Dutch VET system is divided into four levels, whereby level four is the most complex level of a Dutch VET course.

The average age of the students ($N=157$) is 18.82 years, whereby the youngest student was 16 years old, and the oldest student was 38 years old. Overall, 62% of the respondents are men, 37% of the respondents are women, and less than 1% replied “other” to the question “What is your gender?” Just over 90% of the respondents followed a BOL course. In total, 40% of the surveyed students were in year one of their study, 16% were in their second year, and 43% of the students were in their third year. None of the surveyed students was in year four of their study.

2.2.2 Materials

An online cross-sectional survey in LimeSurvey was chosen to gather data for answering research question: (1) What choices in assessment characteristics do VET students want to be offered in order to enhance their perceived autonomy? LimeSurvey is a web application for developing and conducting anonymous online surveys. The survey questions were developed by the research team. Before the students were asked to answer the survey questions, a brief explanation was given by the researcher about the study and the role of the survey in this research. The questions were divided into three sections: (1) Personal information, such as education and year of study, (2) Experience, in which students could indicate whether they already had experience in making choices regarding the particular assessment characteristic, and (3) The selection and ranking of the assessment characteristics on which they would prefer to make choices.

To determine which choices to include in the third part of the survey, we conducted a literature review that led to the extraction of 10 assessment characteristics on which choice can be provided to students. For the review, we searched EBSCO Host using “Flexible assessment* AND education” in September 2021. This yielded 523 hits. After excluding pre-2000 articles and non-peer-reviewed articles, 154 usable articles remained. After reading the abstracts and selecting articles where students could make choices in their assessments, 20 interesting articles remained. These articles provide information on the assessment characteristics that students could choose. While analysing the 20 articles, attention was paid to what choices students could make on assessments. This analysis resulted in 10 assessment characteristics on which choice could be offered to students (Table 1).

TABLE 1 Assessment characteristics on which choice can be offered to students.

Assessment characteristic on which can be offered choice	Description of choice
Assessing manner	Choice in which way your assessment will be assessed.
Assessment form	Choice in how you demonstrate that you have mastered the learning objectives.
Assessment moment	Choice in what day and what time you want to take the assessment.
Assessment version	Choice in what assessment version or version of the assessment task you are going to complete.
Assessor	Choice in by whom your assessment is assessed.
Collaboration	Choice in if, and with whom you want to collaborate on the assessment task.
How the result counts	Choice in how the assessment result counts in your final grade.
Level of difficulty	Choice in level of difficulty of the assessment or assessment task.
Number of attempts	Choice in how many times you want to make the assessment task.
Assessment location	Choice in where to take the assessment.

The survey was pre-tested with 39 automotive engineering students from Summa College. Feedback was incorporated in the definitive version of the survey, which was approved by the Research Ethics Committee of the Open University (file number: U202101536).

During the survey, respondents ($N=157$) were asked to make their ranking on which assessment characteristics they preferred to be able to make a choice on. The respondents could make their ranking of at least three characteristics, up to a ranking with all 10 assessment characteristics. Students were asked to make their ranking by selecting the assessment characteristics on which they preferred to have choice on and drag it to the corresponding rank. The assessment characteristic at the top of the ranking was the one which the student preferred to have choice on.

2.2.3 Data analysis

Descriptive statistics (Creswell, 2012) were used to describe trends of the data of the survey, where the focus was on the selection and ranking of the assessment characteristics. The ranking would provide insight into which choices students wanted to make and could serve as a source of information when teachers start redesigning standardised assessments into flexible assessments.

To come to an overall ranking of all respondents ($N=157$), we made a formula in which points are rewarded for the ranking. Rank 10 of an individual student was rewarded with one point, rank 9 with 2 points, and this continues until rank 1 which earned 10 points. This type is recommended in research on the topic of analysis of ranked data (Yu et al., 2019; Finch, 2022). A binomial test in SPSS was deployed to check if the top three of the individual respondents correspond with the overall top three of the ranking. Additionally, different formulas for

rewarding points to the students' rankings were made to check if any changes in the overall ranking would become apparent. We made an overall ranking by looking at the individual top three of the students. We also made a formula whereby the points of each ranking doubled, so rank 10 earned 1 point, rank 9 earned 2 points, rank 8 earned 4 points, and up to rank 10 which earned 512 points.

2.2.4 Results

The cross-sectional survey gave a ranking on which assessment characteristics the surveyed students preferred to have choice on. The ranking (Table 2) shows the ranking based on the formula, whereby one point was rewarded to rank 10 for each individual student who participated in the research. Overall, 2 points were rewarded to rank 9 up to 10 points for rank 1. The ranking (Table 2) is formed by 157 students who completed the survey.

The top three will remain the same when a different type of scoring was applied to the ranking. For example, looking only at the top three or giving rank 1 twice as much points as rank 2 and rank 2 twice as much points as rank 3. When the distinction is made between the technical sector ($N=99$) and the business sector ($N=58$), the top three of the ranking remains the same.

The similarity in top three assessment characteristics that the surveyed students wanted to have choice on is great. Overall, 145 out of the 157 students (92%) had at least one match with the overall top three ranking. This was tested with a binomial test in SPSS. The $p < 0.001$. A p -value of 0 means that the individual ranking of all respondents matches the overall ranking of all respondents.

2.3 Focus group study

2.3.1 Participants

The students who participated in the first part of the research, the cross-sectional survey study, were asked by their teachers to participate non-compulsory, in one of the focus groups up to a maximum of two students per class. We aimed for 24 participants. After the initial call, only eight students volunteered to participate. Based on the low response, two reminders were sent out. This led to 11 participants participating in one of four different focus

groups. The four different focus groups consisted of two up to six students from the same school. These were fewer respondents than previously intended because there was little interest among students to participate in the focus group. We had chosen not to select students to compulsorily participate in the focus groups because this could disrupt the open dynamic of the focus groups with which the return could also be disrupted. The students who were participating in one focus group were from the same course at the same school but within different years. The students in one focus group were similar to each other and were invited to actively participate and complement the dialogue during the focus group in order to gain qualitatively useful data. This choice is based on the findings of Creswell (2012) that focus groups are advantageous when the interaction among the interviewed participants will likely provide the best information when the interviewed students are similar to each other and cooperative with each other.

2.3.2 Materials

The interview guideline was developed, tested, and adjusted after two test focus groups. The guideline consisted of three parts. In the first part of the focus group interview, we reviewed the results of the cross-sectional survey study and checked if the students recognised their own answers in the results of the total ranking. The second part zoomed in on how the choice in flexible assessments should be designed according to the interviewed students. The third part of the guideline zoomed in on how the choice within assessments could contribute to the students' motivation for working on an assessment task. Each focus group had a duration of approximately 45 min and took place during school time.

2.3.3 Data analysis

The focus group interviews were audio recorded and transcribed with the use of Office365. The names and personal characteristics of students and teachers were anonymised by the researcher.

The transcriptions of the focus groups, together with the coding instructions, were handed over to two colleague researchers. Both colleague researchers have independently coded the transcriptions from each other according to a protocol that was defined in the instructions for the researchers. The researchers put the coded text in the code table. The tables of both colleague researchers are merged with the coding table of the researcher. This action has led to one transcription table. A fourth research colleague had been given an empty transcription table and the coded text of the focus group interviews. The task for the fourth researcher was to put the coded text into the empty transcription table. The transcription table of the fourth researcher was compared with the merged transcription table of the other researchers. This intervention gave us the opportunity to do a comparable validity determination of the coded text.

The data of the focus group interviews are analysed, and the interrater reliability (Cohen's kappa) was determined with SPSS (version 29.0.0.0 (241)). Kappa was 0.64 which means the interrater reliability is substantial.

Descriptive statistics were used to describe trends in the data of the coding schema of the focus group study. The focus of this part of the research was on how choice in assessment should be offered to students and how this flexible assessment could affect their motivation for working on assessment tasks.

TABLE 2 Ranking of assessment characteristics on which students wants to have choice.

Assessment characteristic on which can be offered choice	Total points (rank 10 = 1 point, rank 9 = 2 points up to rank 1 = 10 points)
Assessment moment	914
Number of attempts	859
Assessment form	813
How the result counts	732
Level of difficulty	692
Assessment location	594
Collaboration	544
Assessing manner	459
Assessment version	400
Assessor	330

2.3.4 Results

Less students participated in the focus group interviewed than anticipated on beforehand. We chose to let the students participate voluntarily in the focus groups to create a safe environment during the interviews. The consequence of this choice could be the cause for the low number of volunteers during the focus group interviews, and therefore, the outcome of this method was also lower and less reliable as planned.

Nevertheless, 10 of the 11 participants in the four focus groups could identify with the overall ranking of assessment characteristics. Overall, 57% of the respondents indicated that limitations of choice options would be ideal to support their perceived autonomy. This form of choice giving is called option choice. When an option choice is offered, students can choose from different options. Action choice is an ongoing choice (e.g., when, where, how, or with whom to work with) during the activity (Reeve et al., 2003). They found that in educational context, action choice was supporting the autonomy of the student and contributed to an increase in motivation. Option choice would not contribute to more motivation. However, 43% of the students indicated that the choice options should be unlimited. When we dived deeper into the topic of choice options, students gave some tips about adopting the principle of scaffolding in order to make their own choices. Scaffolding is an interactive process between a student and a teacher that helps students to act at a level they cannot yet handle on their own (Van de Pol et al., 2010).

The interviewed students stated that students from year 1 would benefit from more teacher guidance in the process of decision-making, and the choice options should be limited up to three or four choice options. According to the interviewed students, (e.g.) students from year 1 should be able to make a choice with help from their teacher on which part of a day they want to make the assessment, students from year 2 should be able to choose a day in a week on which they wanted to make their assessment. Moreover, students from year 3 should be able to plan their assessments over a school period of 10 weeks without help of the teacher. This suggestion is an example of scaffolding where the independence of the student will decrease as the course progresses and the coaching role of the teacher will decrease.

...But I think that you also have to be careful about how much freedom you give your student, because I know a lot of people who also try to just put everything off.

All the interviewed students in the four focus groups have indicated that the teacher plays an important role in guiding them by the decision-making process. The teacher should give students advice in the consequences of their choices. The teacher should also set requirements for preparation for the assessment when, for example, a student wants to retake an assessment.

Giving students choice in assessment will have effect on student motivation according to the interviewed students. The interviewed students stated that choices in flexible assessments will positively influence their perceived autonomy and the sense of competence. The students stated that the sense of competence will be supported because students can make a choice in assessment characteristics that matches students' preferences and skills.

We should have more choices anyway, because not everyone is the same.

3 Conclusion

In the current study, we aimed to gain more knowledge on the characteristics of assessments that students wanted to have choice in the context of enhancing student motivation. We aimed at answering the following two research questions: (1) What choices in assessment characteristics do VET students want to be offered in order to enhance their perceived autonomy? (2) How can choice within assessments be offered according to VET students and how does the choice affect their motivation for assessments? Therefore, we conducted a mixed-methods study consisting of a survey study, followed by a focus group study.

The results show that flexible assessments where students are offered choice can enhance students' perceived autonomy and can thereby contribute to their motivation for working on assessment tasks.

My motivation does go up because I feel less pressure and I have more freedom of choice.

This conclusion of the explorative research builds on previous research in the context of higher education and applies to the context of VET. The conclusion of this exploratory research seems to be generic for different subject areas and different types of education. This conclusion is plausible because the data gathered during this explorative research show many similarities between students from different courses, different levels of VET courses, and different types of learning paths (full-time and part-time).

The results of the cross-sectional survey indicated that Dutch VET students prefer to have choice on (1) assessment moment, (2) number of attempts, and (3) the assessment form in order to enhance their perceived autonomy and therefore support their motivation for working on assessment tasks. The results of the focus groups indicated that the interviewed students stated that flexible assessments could motivate them when choice options are limited, and scaffolding is applied.

There are some concerns in giving students choice on assessment characteristics. In this paragraph, the conclusion is further specified to be able to enhance student motivation for working on assessment tasks by giving students choice on assessments characteristics.

A precondition for giving students choice in assessments is that the given choice is comparable with each other (Patall et al., 2008). Students might benefit when one type of assessment is easier or takes less time than another type of assessment. The more choices they get, the less they can oversee this. Therefore, it is important that teachers make a preselection for students in which such criteria as amount of time and difficulty has taken into account. In addition to the comparability of the assessment types, it is important that the flexible assessment objectives are the same and that they connect with the learning objectives and learning methods, this principle is known as constructive alignment (Biggs and Tang, 2011).

Students also addressed that they need scaffolding when choice is offered. Students who have participated in the four focus groups indicated that the support of the teacher to make choices should decrease as they progress in their studies. VET students are generally between 16 and 20 years old so their metacognitive capabilities are still developing. Students from higher education are generally slightly older and more independent, so the need for scaffolding could also decrease somewhat. The suggestion of the students to implement a

scaffolding approach to support the students with the decision-making process matched the conclusion of the research on scaffolding that improves motivation and cognition of Belland et al. (2013). They concluded that strategies to establish task value, promote mastery goals, promote belonging, promote emotional regulation, promote expectancy for success, and promote autonomy would enhance student motivation. Three of these strategies link directly to the basic psychological needs of the SDT (Ryan and Deci, 2000b).

4 Discussion and limitations

This explorative research on flexible assessments in order to enhance student intrinsic motivation for working on an assessment task has some limitations where further research could strengthen the conclusion. The conclusion that students prefer to be able to make a choice in assessment moment can be explained by the fact that 45% of students have experience of making a choice in assessment moment. Assessment moment is the characteristic that students have the most experience of making a choice in.

Autonomy is about making your own decisions without being influenced by others. The experience students have with making a choice on different assessment characteristics will influence their autonomy. A precondition for making your own autonomous choices is that you know what the implications of the choice options are. If you have little experience with choice options, you are probably not aware of all the implications of the choice options, which makes it harder to make a well-considered choice. The form in which autonomy is at its highest form is when the student has experience with all options and knows the consequences of the choices. In this way, the student could make an informed autonomous decision. However, this is a situation that is not realistic because it is impossible to know all the options and consider all the consequences. This is why the feeling of autonomy is supported when the choice options are limited between two up to five choice options (Patall et al., 2008). More than five choice options will strengthen the choice-overload effect. It can be worthwhile to consider limiting the choice options during the redesign process from a standard assessment into a flexible assessment to enhance the perceived autonomy of the students.

Additional research in other education sectors such as higher education and secondary education may either confirm or disprove the conclusion that student motivation for working on assessment tasks increases when student autonomy in assessments is supported. This hypothesis is likely to be endorsed. The reason for this assumption is that there is little difference in results within different VET settings. Students in different subject areas, different levels, and different types of education (full-time and part-time) continue to prefer to have choice on (1) assessment moment, (2) number of attempts, and (3) assessment form.

Broader research within the VET sector is likely to further strengthen the conclusion based on the hypothesis described earlier. The number of respondents for this research ($N = 157$) is just a small and therefore a limited representation of the Dutch VET students. While broadening the study, we need to consider that students are less likely to make themselves available for a focus group interviews than we expected beforehand. Requiring students to participate in focus group interviews could have hindered the safe environment. It is conceivable that the results undergo minor changes when the group

of respondents is expanded and becomes more diverse in population, such as a higher education context. Nevertheless, this explorative study gives a clear impression on how flexible assessment can enhance student motivation for working on an assessment task. It is expected that these results also relate to other contexts such as (vocational) education in other countries and exams.

This explorative study is therefore a first step and gives us a global understanding of the assessment choice students preferred to make and how the choice could be offered in order to enhance their motivation for working on an assessment task. Above all, this study has shown that increasing student autonomy in assessments could potentially make a substantial contribution to the student motivation in VET.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Author contributions

GK: Writing – original draft. KX: Writing – original draft, Writing – review & editing. KD: Writing – original draft. RM: Writing – review & editing.

Funding

The author(s) declare financial support was received for the research, authorship, and/or publication of this article. This research is part of a PhD study. The PhD study is facilitated by Summa College.

Acknowledgments

The authors want to thank Summa College for facilitating this research. The authors also want to thank Susane Smits, Huub Tops, and Bart Bouwmans for their contribution in the coding work.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Publisher's note

All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers. Any product that may be evaluated in this article, or claim that may be made by its manufacturer, is not guaranteed or endorsed by the publisher.

References

- Belland, B., Kim, C., and Hannafin, M. (2013). A framework for designing scaffolds that improve motivation and cognition. *Educ. Psychol.* 48, 243–270. doi: 10.1080/00461520.2013.838920
- Biggs, J., and Tang, C. (2011). *Teaching for Quality Learning at University (4th)*. Maidenhead: Open university Press.
- Broekkamp, H., and van Hout-Wolters, B. (2007). The gap between educational research and practice: a literature review, symposium, and questionnaire. *Educ. Res. Eval.* 13, 203–220. doi: 10.1080/13803610701626127
- Catlin, K., Lewan, G., and Perignon, B. (1999). Increasing student engagement through goal-setting, cooperative learning and student choice. Available at: <https://eric.ed.gov/?id=ED433100>
- Chin, C., and Brown, D. (2000). Learning in science: a comparison of deep and surface approaches. *J. Res. Sci. Teach.* 37, 109–138. doi: 10.1002/(SICI)1098-2736(200002)37:2<109::AID-TEA3>3.0.CO;2-7
- Colliers, F., Schuwirth, L., Herman, N., Adendorf, H., and van der Vleuten, C. (2012). A model of the pre-assessment learning effects of summative assessment in medical education. *Adv. Health Sci. Educ.* 17, 39–53. doi: 10.1007/s10459-011-9292-5
- Cook, A. (2001). Assessing the use of flexible assessment. *Assess. Eval. High. Educ.* 26, 539–549. doi: 10.1080/02602930120093878
- Creswell, J. (2012). *Planning, Conducting, and Evaluating Quantitative and Qualitative Research*. Lincoln: University of Nebraska.
- Deci, E., and Ryan, R. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior*. New York: Plenum.
- Dochy, F., and Janssens, M. (2018). Assessment as learning: De volgende stap in de toetsrevolutie. In *Toetsrevolutie: Naar een feedbackcultuur in het hoger onderwijs*. Eds. D. Sluijsmans and M. Segers (Uitgeverij Phronese), pp. 23–34.
- Dochy, F., Segers, M., and Sluijsmans, D. (1999). The use of self-, peer and co-assessment in higher education: a review. *Stud. High. Educ.* 24, 331–350. doi: 10.1080/03075079912331379935
- Finch, H. (2022). An introduction to the analysis of ranked response data. *Pract. Assessm. Res. Eval.* 27:7. doi: 10.7275/tgkh-qk47
- Francis, R. (2008). An investigation into the receptivity of undergraduate students to assessment empowerment. *Assess. Eval. High. Educ.* 33, 547–557. doi: 10.1080/02602930701698991
- Gulikers, J., Runhaar, P., and Mulder, M. (2018). An assessment innovation as flywheel for changing teaching and learning. *J. Vocat. Educ. Train.* 70, 212–231. doi: 10.1080/13636820.2017.1394353
- Irwin, B., and Hepplestone, S. (2012). Examining increased flexibility in assessment formats. *Assess. Eval. High. Educ.* 37, 773–785. doi: 10.1080/02602938.2011.573842
- Leadbeater, C. (2005). *The Shape of Things to Come: Personalised Learning through Collaboration*. Nottingham: DfES Publications.
- Lo, K., Ngai, G., Chan, S., and Kwan, K. P. (2022). How students' motivation and learning experience affect their service-learning outcomes: a structural equation modeling analysis. *Front. Psychol.* 13:825902. doi: 10.3389/fpsyg.2022.825902
- Loon, A. V., Martens, R., and Ros, A. (2013). *Motivated Learning: Balancing between Autonomy and Structure*. Open Universiteit: [Doctoral Thesis, Open Universiteit].
- Martens, R. (2019). *We Moeten Spelen; Wat Onderwijs aan een Verkenning van Onze Natuur Heeft*. Amsterdam: Lannoo Campus.
- Martens, R., Gulikers, J., and Bastiaens, T. (2004). The impact of intrinsic motivation on e-learning in authentic computer tasks. *J. Comput. Assist. Learn.* 20, 368–376. doi: 10.1111/j.1365-2729.2004.00096.x
- McCurdy, D. (2000). *The Flexible Assessment Paradigm. Proceedings of the 13th Annualconference of National Advisory Committee on Computing Qualifications 2000* (pp. 227–234). Wellington: National Advisory Committee on Computing Qualifications.
- Meusen-Beekman, K., Desirée, J.-T., and Boshuizen, E. (2016). De retentie van zelfregulatie, motivatie en self-efficacy in het voortgezet onderwijs na formatieve assessments in het basisonderwijs. *Pedagogische Studiën* 93, 136–153.
- Organisation for Economic Co-operation and Development. (2016). *Reviews of National Policies for Education, Netherlands 2016, Foundations for the Future*. Paris: OECD Publishing.
- Pacharn, P., Felton, S., and Bay, D. (2013). The impact of a flexible assessment system on students' motivation, performance and attitude. *Account. Educ. Int. J.* 22, 147–167. doi: 10.1080/09639284.2013.765292
- Patall, E., Cooper, H., and Robinson, J. (2008). The effects of choice on intrinsic motivation and related outcomes: a meta-analysis of research findings. *Psychol. Bull.* 134, 270–300. doi: 10.1037/0033-2909.134.2.270
- Peetsma, T., Hascher, T., Van, I. V., and Roede, E. (2005). Relations between adolescents' self-evaluations, time perspectives, motivation for school and their achievement in different countries and at different ages. *Eur. J. Psychol. Educ.* 20, 209–225. doi: 10.1007/BF03173553
- Peetsma, T., and van der Veen, I. (2008). *Een Tweede Onderzoek Naar de Beïnvloeding van Motivatie Bij Vmbo-Leerlingen (SCO-rapport; Nr. 804)*. Amsterdam: SCO-Kohnstamm Instituut.
- Pintrich, P., and Schunk, D. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Columbus: Merrill.
- Reeve, J., Hamm, D., and Nix, G. (2003). Testing models of the experience of self-determination in intrinsic motivation and the conundrum of choice. *J. Educ. Psychol.* 95, 375–392. doi: 10.1037/0022-0663.95.2.375
- Rolim, C., and Isaias, P. (2019). Examining the use of e-assessment in higher education: teachers and students' viewpoints. *Br. J. Educ. Technol.* 50, 1785–1800. doi: 10.1111/bjet.12669
- Ros, A., Lieskamp, M., and Heldens, H. (2017). *Leren Voor Morgen: Uitdagingen Voor Het Onderwijs*. Huizen: Uitgeverij Pica.
- Rumsey, D. (1994). *Assessment Practical Guide*. Canberra: Australian government publishing service.
- Ryan, R., and Deci, E. (2000a). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemp. Educ. Psychol.* 25, 54–67. doi: 10.1006/ceps.1999.1020
- Ryan, R., and Deci, E. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *Am. Psychol.* 55, 68–78. doi: 10.1037/0003-066X.55.1.68
- Sambell, K. (2013). "Engaging students via assessment" in *The Student Engagement Handbook: Practice in Higher Education*. eds. E. Dunne and O. Derfel (Bingley: Emerald Group Publishing Limited), 379–396.
- Sebba, J., Brown, N., Steward, S., Galton, M., and James, M. (2007). *An Investigation of Personalised Learning Approaches Used by Schools*. Sussex: University of Sussex.
- van de Pol, J., Volman, M., and Beishuizen, J. (2010). Scaffolding in teacher–student interaction: a decade of research. *Educ. Psychol. Rev.* 22, 271–296. doi: 10.1007/s10648-010-9127-6
- van Nuland, H., Dusseldorp, E., Martens, R., and Boekaerts, M. (2010). Exploring the motivation jungle: predicting performance on a novel task by investigating constructs from different motivation perspectives in tandem. *Int. J. Psychol.* 45, 250–259. doi: 10.1080/00207591003774493
- Vansteenkiste, M., Zhou, M., Lens, W., and Soenens, B. (2005). Experiences of autonomy and control among Chinese learners: vitalizing or immobilizing? *J. Educ. Psychol.* 97, 468–483. doi: 10.1037/0022-0663.97.3.468
- Varsavsky, C., and Rayner, G. (2012). Strategies that challenge: exploring the use of differentiated assessment to challenge high-achieving students in large enrolment undergraduate cohorts. *Assess. Eval. High. Educ.* 38, 789–802. doi: 10.1080/02602938.2012.714739
- Verbeeck, K. (2010). *Op Eigen Vleugels; Autonomie Voor Kinderen in het Basisonderwijs*. Hertogenbosch: KPC Groep.
- Wood, L., and Smith, G. (1999). "Flexible assessment" in *The Challenge of Diversity: The Delta 99 Symposium on Undergraduate Mathematics*. eds. W. Spunde, P. Cretchley and R. Hubbard (Laguna Quays, Australia: University of Southern Queensland Press), 229–233.
- Yu, P., Gu, J., and Xu, H. (2019). Analysis of ranking data. *WIREs Computat. Stat.* 11:e1483. doi: 10.1002/wics.1483