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Article abstract

This paper presents the seven-step approach to maximizing the evidence of validity that led to the development of the Questionnaire sur la tricherie aux examens à l'université (QTEU) [Questionnaire on Cheating in University Exams (QCUE)]. Composed of 28 items divided into 7 factors (propensity to cheat in exams, peer influence, cheating methods, institutional context, perception of control, performance goal, and commitment to one's studies), the QCUE design was based on a comprehensive conceptual analysis of the scientific literature on cheating in exams, and on the work of Frenette, Hébert, Thibodeau, and Ndinga (2018) on how to develop a questionnaire maximizing the accumulation of validity evidence. With good psychometric properties, the QCUE meets a need for a French-language questionnaire on the propensity to cheat in exams and allows to measure the scope of cheating among university students.

A Study on the Propensity to cheat in University Exams: Development and Validation Process of the Questionnaire on Cheating in University Exams (QCUE)*

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Key words: cheating on exams, higher education, scale development, validity evidence

This paper presents the seven-step approach to maximizing the evidence of validity that led to the development of the Questionnaire sur la tricherie aux examens à l'université (QTEU) [Questionnaire on Cheating in University Exams (QCUE)]. Composed of 28 items divided into 7 factors (propensity to cheat in exams, peer influence, cheating methods, institutional context, perception of control, performance goal, and commitment to one's studies), the QCUE design was based on a comprehensive conceptual analysis of the scientific literature on cheating in exams, and on the work of Frenette, Hébert, Thibodeau, and Ndinga (2018) on how to develop a questionnaire maximizing the accumulation of validity evidence. With good psychometric properties, the QCUE meets a need for a French-language questionnaire on the propensity to cheat in exams and allows to measure the scope of cheating among university students.

Mots clés : tricherie aux examens, enseignement supérieur, élaboration de questionnaires, preuves de validité

Cet article présente la démarche en sept étapes visant à maximiser l'obtention de preuves de validité qui a mené à l'élaboration du Questionnaire sur la tricherie aux examens à l'université (QTEU). Composé de 28 énoncés répartis sous 7 facteurs (propension à tricher aux examens, influence des pairs, modalités pour tricher, contexte institutionnel, perception de contrôle, but de performance et engagement dans les études), le QTEU a été conçu en prenant appui sur une analyse conceptuelle approfondie de la littérature scientifique sur la tricherie aux examens et sur les travaux de Frenette, Hébert, Thibodeau et Ndinga (2018) sur la manière d'élaborer un questionnaire présentant diverses preuves de validité. Grâce à ses qualités psychométriques acceptables, le QTEU vient combler un besoin de questionnaire de langue française sur la propension à tricher aux examens et permet de mesurer son étendue auprès des étudiants universitaires.

Palavras-chave: fraude nos exames, ensino superior, elaboração de questionários, provas de validade

Este artigo apresenta o processo em sete etapas para maximizar a obtenção de provas de validade que levou à elaboração do Questionário sobre a fraude nos exames na universidade (QTEU). Composto por 28 afirmações divididas em 7 fatores (propensão a praticar fraude nos exames, influência dos colegas, modalidades de fraude, contexto institucional, percepção do controlo, objetivo de desempenho e compromisso nos estudos), o QTEU foi concebido com base numa análise concetual aprofundada da literatura científica sobre a fraude em exames e sobre os trabalhos de Frenette, Hébert, Thibodeau e Ndinga (2018) sobre a maneira de elaborar um questionário que apresente diversas provas de validade. Graças às suas qualidades psicométricas aceitáveis, o QTEU vem colmatar a necessidade de um questionário em língua francesa sobre a propensão para praticar fraudes nos exames e permite medir sua extensão junto de estudantes universitários.

The issue

The proliferation of standardized or widely used examinations for assessment of learning in education systems gives rise to questionable practices on the part of both teachers and students (Blais, 2004; Knoester & Au, 2017). For teachers, teaching to the exam, i.e., the act of gearing teaching toward what is assessed in the exam rather than in line with the curriculum (Copp, 2016), is commonplace in schools (Au, 2007; Erskine, 2014; Nichols & Berliner, 2011). The pressure to succeed is said to be as strong on school staff as it is on students (Nichols & Berliner, 2011). In this sense, some teachers even go as far as to give their students the answers to standardized tests, since the pressure to succeed is great (Cummings, Maddux, Harlow & Dyas, 2002; Erskine, 2014; Nichols & Berliner, 2011). According to these authors, the greater the exam-related pressure, the more the educational actors perceive education as simply obtaining grades, rather than as an educational process aimed at student development.

Thus, for students, cheating becomes an option, since they perceive low test scores not as a reflection of their learning, but rather as a potential obstacle to their future plans (Crittenden, Hanna & Peterson, 2009). In this regard, Hubick (2016) uses the term 'false participation' to describe the phenomenon of lack of responsibility for learning. This downgrading of responsibility is felt by both the student and the teacher, who perceive assignments and exams as a means of getting good grades and eventually passing a course, rather than as a means of demonstrating what has been learned.

Furthermore, cheating on exams does not stop at the secondary school level: it continues into higher education. Indeed, several studies demonstrate that the phenomenon of cheating continues later on (Cronan, McHaney, Douglas & Mullins, 2017; Daniel, Blount & Ferrell, 1991) and even increases (Foudjio Tchouata, Lamago & Singo; Njabo, 2014; McCabe, Butterfield & Trevino, 2012; Michaut, 2013), and question the validity of grades and the credibility of degrees (Cizek, 1999; Fendler, Yates & Godbey, 2018).

That said, cheating is not a new phenomenon. Barnes' (1904) article reporting the theft of an exams left at the printing facility of a major American university testifies to the enduring nature of the phenomenon which, as Fishman (2016) reports, dates back to the mid-19th century. In the United States, the first major study on cheating, carried out by Bowers (1964), reported that three quarters of American students cheated during their school career. Years later, McCabe, Trevino and Butterfield (2001) reported the results of a study by McCabe and Trevino (1993), which came to similar conclusions, namely, that 64% of students admitted to cheating on exams during their school career. However, their 2001 study revealed that the presence of an honour code (a document in which the student agrees to abide by certain ethical rules) seemed to make a difference, as the percentage of cheating on exams decreased by about 15-20% with the presence of such a code (McCabe, Trevino & Butterfield, 2001).

Nevertheless, cheating is still very much present and seems to persist. Recent research (Ellahi, Mishtaq, & Khan, 2013; Fendler et al., 2018; Foudjio Tchouata et al., 2014; Ma, Wan, & Lu, 2008; McCabe et al., 2012; Stiles, Pan, LaBeff, & Wong, 2017) has identified influential factors in a student's decision regarding whether or not to cheat during their studies. Some factors relate to students themselves and to their educational experience, while others relate to the institutional context. These factors will be discussed in the conceptual framework section. Researchers have also looked at the methods employed by students who cheat (Michaut, 2013; Stephens, Young & Calabrese, 2007). These authors conclude that electronic cheating (working with others on an online test, sending emails or chatting with classmates during the exam) must now be added to traditional cheating practices (such as obtaining the questions before an exam, copying a neighbour's answers, etc.), thus diversifying and increasing the number of ways to cheat on exams.

In Canada, Christensen Hughes and McCabe (2006) conducted research with 14,913 students from 11 universities. The participants were asked to express their views on cheating during their university studies and also during their high school studies. Their results reveal, among other things, that cheating also exists in Canada albeit, to a greater extent in high schools than in universities. Also, for those students who say they cheat or have cheated in high school, there is some blurring of perceptions as to what they consider to be cheating. The researchers cite collaboration

between students as an example of a practice where there is much confusion. For example, some students consider that working together on an online test that should normally be taken individually and graded individually is not a reprehensible practice. Similar confusion about student collaboration is also supported by the research of Jurdi, Hage and Chow (2011).

The phenomenon of cheating is not limited to North America. Crittenden et al. (2009) refer, instead, to a global culture of cheating and link it to a societal phenomenon. These researchers studied cheating among undergraduate business students in 36 countries. They targeted three specific indicators for their study: gender, level of corruption in the country and adherence to a moral philosophy. Their research confirmed that women cheated less than men, but also identified social factors that influence cheating (e.g., the country's corruption index and socio-economic conditions). After determining the extraordinary scale of the global cheating phenomenon, they conclude that business students, the future leaders of the business world, seem to have learned that exam results are more important than the learning process, regardless of how ethically or unethically they obtained them (Crittenden et al., 2009).

A review of the research on the phenomenon of cheating on exams led us to make three observations. First, while research in this area is abundant overall, Canadian research on exam cheating is scant (Christensen Hughes & McCabe, 2006; Jurdi et al., 2011; Wideman, 2011) and does not clearly distinguish cheating on exams from plagiarism in assignments. Secondly, very few researchers have studied cheating on exams by targeting faculties of education specifically (Daniel et al., 1991; Foudjio Tchouata et al., 2014) and, to our knowledge, no study has been conducted in Quebec. Yet, these future education professionals will play an essential role in the training of the youth who will become the leaders of tomorrow. Future teachers are trained to develop ethical and responsible behaviour in the performance of their duties (Ministère de l'Éducation, 2001). Their teaching will have to be embedded in an ethical approach (Boon, 2011; Jeffrey, 2013; Jutras, 2013) supported by their moral reasoning when making decisions in situations involving their professional practice (Cummings, Harlow & Maddux, 2007; Ndzedi, 2016). They will assume a dual role: as leaders with professional integrity and as role models of integrity for their students (Boon, 2011; Cummings et al., 2002). Thus, taking stock of

the phenomenon of cheating on exams in Quebec's faculties of education becomes an essential step and a prerequisite to any approach seeking to ensure that future teachers are capable of assuming this dual role.

Yet, and this is our third finding, the data collection tools, usually questionnaires, used in research focusing on cheating in exams are either absent from the research papers (Do Ba et al, 2017; Olafson, Schraw, Nadelson, Nadelson & Kehrwald 2013; Trushell, Byrne & Hassan, 2013), presented in part (Babaii & Nejadghanbar, 2017; Dawson, 2016; Denisova-Schmidt, Huber & Leontyeva, 2016) or, with a few exceptions (Côté, 2014; Foudjio Tchouata et al., 2014; Guibert & Michaut, 2009; Michaut, 2013), written in a language other than French. Moreover, when questionnaires are included, either totally or in part, little information is available about their development and their psychometric properties. Our research, which aims to measure the propensity to cheat in exams in faculties of education, therefore requires the development of a French-language questionnaire and a data collection among the students at Quebec universities to collect diverse evidence of validity.

This paper presents an approach to the development of a questionnaire on the propensity to cheat in university exams and the associated validation process. The development of the questionnaire is based on the scientific literature on cheating, mainly with regard to the individual and contextual factors that have had an impact on the propensity to cheat and the methods used to cheat. The work of Frenette, Hébert, Thibodeau and Ndinga (2018) provides a framework for a methodological approach of developing the questionnaire and the associated validation process.

Conceptual framework

We now discuss the concepts that have been studied and defined by researchers interested in cheating. We first introduce the concept of cheating on exams and then present the factors that may influence students in their decision to cheat on exams.

Cheating on exams

The literature on cheating generally includes cheating in written work, also known as plagiarism, and cheating on exams. Plagiarism is the copying of an author's words or phrases, or the use of an author's text in a slightly altered form, without citing the author (Shei, 2005; Walker, 2010).

Cheating on exams, on the other hand, is a fraud committed by a student to obtain certain gains, namely an increase in his or her chances of passing an exam (Mark Chaput de Saintonge & Pavlovic, 2004; Michaut, 2013). For the purposes of our research, only the propensity to cheat in exams has been retained, in order to *facilitate* a more in-depth understanding of the phenomenon as well as measures that could be implemented to reduce cheating during exams.

Demographic factors

Gender

A student's gender is one of the most studied demographic factors. According to several authors (Cizek, 1999; Crittenden et al., 2009; Cummings et al., 2002; Daniel et al., 1991; Ellahi et al., 2013; McCabe & Trevino, 1997; Whitley, 1998; Yang, Huang & Chen, 2013), men cheat more than women. However, this gender difference is not unanimously supported by the scholarly literature. Fass-Holmes (2017), who looked specifically at international students, states that the percentage of cheating is the same for men and women. Kayisoglu and Temel (2017) come to a similar conclusion when they report that the attitude towards cheating, whether positive or negative, is the same, regardless of the student's gender.

Nevertheless, Yang et al. (2013) point out that the motivations for cheating are different. Women are more likely to cheat than men in an environment where the risk of being caught is low. The results of their study show, in fact, that the risk of being caught is the determining factor in cheating for women, while for men, lack of academic effort is the justification for their actions. The role of risk in the decision to cheat or not, regardless of gender, has also been studied in the discipline of economics. Using mathematical models, Collins, Judge and Rickman (2007) showed that when the perceived utility of cheating is greater than the possibility of being caught, students are more likely to cheat.

Age

The age of a university student is also a factor that can affect the decision to cheat. Several researchers suggest that the younger the student, the greater the likelihood that they will cheat (Kisamore, Stone, & Jawahar, 2007; Olafson et al., 2013). In fact, according to Kisamore et al. (2007), older students are not only less likely to cheat, but also more likely to report cheating.

Academic performance

A student's academic performance may also influence their decision to cheat. However, researchers differ in their findings on this issue. While some (Cummings et al., 2002; McCabe & Trevino, 1997; Olafson et al., 2013) argue that a poor grade average may influence a student's decision to cheat, others (Guibert & Michaut, 2009) argue that stronger students cheat the most.

Previous experience with cheating

Finally, a student's previous experience with cheating is thought to influence their decision to do it again. A student who cheated in primary or secondary school would be more likely to maintain this practice in their university career (Ellahi et al., 2013; Schuhmann, Burrus, Barber, Graham & Elikai, 2013). According to French researchers Guibert and Michaut (2009), prior cheating practices "alone account for more than half of the explained variance" (p. 47).

Peer influence

The influence of peers on a student's decision to cheat has been widely documented since the earliest studies on cheating (Bowers, 1964; Crittenden et al., 2009; Cummings et al., 2002; Ellahi et al., 2013; Christensen Hughes & McCabe, 2006; Kisamore et al., 2007; Ma et al., 2008; McCabe & Trevino, 1997; Meng, Othman, D'Silva & Omar, 2014; Rettinger & Kramer, 2009; Whitley, 1998). Although there is a consensus that peers have an influence, it is not clear exactly where that influence is rooted. Some authors (Crittenden et al., 2009; Rettinger & Kramer, 2009) argue that the mere knowledge that friends or relatives cheat is sufficient to motivate a student to cheat. In this regard, Meng et al. (2014) argue that the students who cheat resort to neutralization techniques to justify their action. For example, the students may convince themselves that no one is being harmed, that the victim (the teacher) deserved it, or that others are doing it too. Finally, the opinion of the student and those around them regarding cheating is believed to be related to the decision to cheat (Meng et al., 2014; Crittenden, et al., 2009).

Institutional context

Academic institutions usually have legal frameworks, policies and regulations to govern practices related to student assessment. Whether it is a policy on academic integrity or on plagiarism or an honour code, these documents are available to students and are often reproduced, in part or in full, in course outlines.

However, researchers who have looked at the impact of these legal frameworks on the phenomenon of cheating conclude that students are often either unaware of these documents or they do not understand them (Ellahi et al., 2013; Ma et al., 2008). Furthermore, they are not aware of the sanctions incurred by students who cheat and consider the risks associated with cheating to be low (Ma et al., 2008; Meng et al., 2014; Murdock & Anderman, 2006; Schuhmann et al., 2013).

Knowing more about the cheaters' attributes and environment, however, does not provide us with the full picture; we also need to understand the students' methods. Researchers have explored this aspect of cheating as well.

Cheating methods

The methods used to cheat are limited only by the imagination of the cheater (Cizek, 1999). Cizek identifies three categories of methods. First, there are methods that involve the student giving or receiving information that should not be shared. The publication on the Internet of the answer to a question on the 2016 Quebec history ministerial exam is a good example.

Second, there are methods that make use of prohibited material during exams (notes or formulas written on body parts). Finally, certain methods of circumvention are also used. For example, when a student changes his or her answers when returning the exam, and then claims that the teacher made a mistake in marking the answers. The methods used to cheat have modernized with the advancement of technology. The use of smartphones to cheat on exams is well documented (Michaut, 2013). Computerized exams are also subject to cheating and, consequently, the interest of researchers in computer security has increased (Blais, 2004; Côté, 2014; Dawson, 2016).

The educational experience

The educational experience (or 'individual influences'; Schuhmann et al., 2013) encompasses several student-related issues. For example, student motivation, the amount of time spent studying, and the propensity to procrastinate in their assignments and in studying, have been studied by researchers whose research has shown a link between lack of motivation and cheating (Ellahi et al, 2013), between frequent partying and cheating (Whitley, 1998), and between procrastination and cheating (Patrzek, Sattler, van Veen, Grunschel & Fries, 2015). According to these researchers, students who are poorly motivated to study, who devote little time to their studies and assignments, and who tend to procrastinate in their academic tasks are more likely to cheat. These three aspects (weak motivation, little time set aside for study and tendency to procrastinate) fall under the heading of 'commitment to studying'.

Other researchers (Foudjio Tchouata et al., 2014; Murdock & Anderman, 2006; Rettinger & Kramer, 2009) have focused on the specificity of the objectives that students set for themselves in their study program. In their view, when the student's academic goal is focused on grades or the diploma rather than on learning, cheating becomes an option. For Foudjio Tchouata et al. (2014), students focusing on grades and graduation have 'performance goals'. These goals are characterized as a "desire to demonstrate competence, either by trying to be better than others or by trying to avoid being worse than others" (Foudjio Tchouata et al., 2014, p. 49). They distinguish these from 'mastery goals', which refer more to a desire to learn or integrate new knowledge. Murdock and Anderman (2006) associate performance goals with extrinsic motivation, primarily influenced by the outside world (school, peers), whereas mastery goals are intrinsic and influenced by personal objectives. These researchers propose a theoretical model of cheating that positions extrinsic motivation and a performance orientation as a predictor of cheating.

Finally, some researchers have also studied students' perceptions of their degree of control over their academic activity (Rettinger & Kramer, 2009; Whitley, 1998). The degree of control perceived by the student refers to the concept of the 'locus of control' associated with causal attribution theory (Weiner, 1986). However, the influence of this perception of a student's control is not clearly delineated in the literature. While some researchers associate a feeling of poor control over one's results with

cheating (Rettinger & Kramer, 2009; Whitley, 1998), others consider that it is instead the student's academic skills that are related to the decision to cheat (Rinn, Boazman, Jackson, & Barrio, 2014).

Based on the above conceptual framework, we have developed a French-language questionnaire to measure the extent of cheating on exams in university faculties of education in Quebec. The remainder of this article describes in detail the development and validation process undertaken to develop this questionnaire.

Questionnaire development and validation process

The approach proposed by Frenette et al. (2018) has been selected for the development of the Questionnaire on Cheating in University Exams (QCUE), as it aims to maximize the accumulation of validity evidence (Downing) based on the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014) model based on the work of Messick (1995): content, response process, internal structure, relationship to other variables, and consequences This approach, inspired by Dussault, Valois and Frenette (2007), and the guidelines suggested by DeVellis (2012, 2017), is based on seven steps: 1) determining the concept to be studied; 2) determining the context for completion; 3) generating a pool of items; 4) determining the format of the response scale; 5) having experts assess the initial pool of items; 6) conducting a pretest to gather preliminary validity evidence; and 7) carrying out the data collection to gather validity evidence.

Consistent with DeVellis (2012, 2017), a social desirability scale (steps 6 and 7), the shortened version of the Balanced Inventory of Desirable Responding (BIDR; D'Amours-Raymond, 2011), is included in the research to assess its presence in the participants' responses. Social desirability occurs when respondents tend to represent themselves in an advantageous way, rather than responding accurately and truthfully to a questionnaire (Paulhus, 1991). The Impression management scale, which is the most widely used in research (D'Amours-Raymond, 2011) and which is used here, measures the tendency to present a favourable self-image to others (Paulhus, 1991).

Step 1: The concept under study

This step aims at refining the concept being assessed in order to provide evidence of content validity. An in-depth conceptual analysis of the literature related to cheating in exams inspired the development of the QCUE, which aims to measure the propensity to cheat in university exams (dependent variable) as well as four factors explaining it: peer influence, cheating methods, institutional context, and educational experience (perception of control, performance goal, and commitment to studies).

Step 2: The context for the completion process

According to Downing (2003), ensuring data integrity (response time, ethical approval, etc.) allows the presentation of the validity evidence related to the response process. It was expected that the questionnaire would be short and completed in less than 15 minutes so that it could be used in relation to other constructs (e.g., exam anxiety) in future research. For pre-testing and data collection, the questionnaire was submitted online using LimeSurvey. Approval for the research project was obtained from the ethics committees of the five participating universities.

Step 3: The item generation

This step aims to translate the key elements of the definitions into items to support content validity evidence. In order to generate statements, two approaches were used: 1) a review of questionnaires in the literature and 2) content analysis of four open-ended questions on cheating in exams (why cheat, characteristics of cheaters, ways or means of cheating) that were e-mailed to 10 education sciences graduates from three Quebec universities. These two approaches allowed the research team to generate 54 items: Propensity to cheat in exams (4), peer influence (7), institutional context (5), cheating methods (7) and educational experience (31). The selection of a large number of items for educational experience (see section above) was made in the expectation that this factor could subdivide when analyzed.

Step 4: The response scale

According to Downing (2003), ensuring the integrity of the data (response scale known by respondents) allows the presentation of validity evidence related to the response process. The QCUE is intended to

measure the propensity (or inclination, tendency, etc.) of university students to cheat on exams, rather than the frequency of a certain behaviour or knowledge of facts. As with other concepts (beliefs, attitudes, perceptions), a Likert scale ranging from "1 = strongly disagree" to "4 = strongly agree" was chosen. This type of scale is frequently used to measure attitudes, beliefs or opinions (DeVellis, 2012). Furthermore, this type of four-option scale is the one that was used for the Academic Dishonesty Student Survey developed by McCabe (1992) and has been used by several researchers interested in the phenomenon of cheating (Dusu, Gotan, Deshi, & Gambo, 2016; Lovett-Hooper, Komarraju, Weston, & Dollinger, 2007; Sohr-Preston & Boswell, 2015; Wotring & Bol, 2011). As suggested by several authors (Dalal, Carter & Lake, 2014; Garland, 1991; Nadler, Weston & Voyles, 2015), it was decided not to use the midpoint for this type of scale. The non-use of the midpoint in our research does not mean that it cannot be useful in other contexts.

Step 5: The assessment by experts

To support the content validity evidence, a group of 16 professors from various educational specialties and universities was asked to: 1) match the items to the various factors; 2) verify their clarity; 3) identify redundancies; and 4) propose new items. As a result of this consultation, 20 items were withdrawn. Their suggestions led to the proposal of eight additional items: cheating methods (5), peer influence (1) and institutional context (2).

Step 6: The pre-test: methodology

The pre-test version of the questionnaire consisted of 42 items divided into five factors: 1 dependent variable (Propensity to cheat in exams) and four independent variables (peer influence, institutional context, cheating methods and educational experience). Two professors from two universities (one in Quebec and one in Ontario) agreed to participate in the pre-test and presented the research project in their classes. The 41 students (29 males and 12 females enrolled in a Bachelor of Education program) who were interested in the research answered both the questionnaire and a Impression management scale (to assess social desirability); to do this, they accessed LimeSurvey using the link provided. DeVellis (2012) suggests that the sample reflects the target population, and that the affinity with this population can be explained by their choice of a career in education.

Four analyses were selected to provide preliminary evidence of validity related to content and internal structure (the level of internal consistency, the corrected item-total correlation and the inter-item correlations) and relationships with other variables (the correlation with Impression management). Subsequently, the descriptive analyses were presented.

It should be noted that a corrected item-total correlation is considered problematic when the value is below 0.30 (Crocker & Algina, 2006). For inter-item correlations, the correlations between items involving the same factor must be higher than correlations with items involving other factors. As for the level of internal consistency, Kline (1999) recommends a value higher than 0.70.

The shortened version of the BIDR Impression management scale (Paulhus, 1984, 1991) proposed by D'Amours-Raymond (2011) was used to test for social desirability. The 13 items were evaluated on a 7-point scale, which was then dichotomized. For this version, the level of internal consistency was considered satisfactory (KR-20 = 0.70; D'Amours-Raymond, 2011). A high correlation indicates the influence of Impression management in the participants' responses to the different factors in the QCUE.

Step 6: Pre-test: validity evidence

The level of internal consistency (Cronbach's alpha) was considered satisfactory for two factors: Propensity to cheat in exams (PCE; 3 items; $\alpha = 0.75$), Peer influence (PI; 4 items, 1 problematic; 3 items; $\alpha = 0.69$). For two other factors, the level of internal consistency was considered to be low: Cheating methods (CM; 9 items, 4 problematics; 5 items; $\alpha = 0.59$) and Institutional context (IC; 5 items, 2 problematics; 3 items; $\alpha = 0.51$). Finally, for educational experience (21 items), several items had low values for the corrected item-total correlation. It was decided, based on the inter-item correlations, to split this factor into three (see section on educational experience): two with a satisfactory level of internal consistency and one considered weak: Perception of control (PC; 9 items, 1 problematic; 8 items; $\alpha = 0.70$), Performance goal (PG; 6 items; $\alpha = 0.73$) and Commitment to studies (CS; 6 items; $\alpha = 0.57$). The inter-item correlations among items of the same factor were higher, as expected, than those among items involving the other four factors.

In order to improve the content validity, six of the eight items with problematic statistics were removed. The other two (IC) were reformulated and retained in order to ensure a sufficient number of items for this factor. The division of the educational experience factor into three factors also helped to improve content validity. All three analyses provided evidence for the validity of both the content and the internal structure.

For the Impression management (IM) scale, the level of internal consistency was low ($\alpha = 0.59$). The PCE, PI and the CMs were negatively correlated with the IM scale (see Table 1), which is evidence of relationship validity with other variables.

Table 1
Correlations between variables in the pre-test

	2	3	4	5	6	7	8
1- PCE	0.38*	0.46**	0.48**	-0.09	-0.34*	-0.06	-0.38*
2- PI		0.50**	0.21	-0.08	-0.15	-0.07	-0.23
3- CM			0.54**	-0.04	-0.29	-0.10	-0.31*
4- IC				-0.09	-0.18	0.07	-0.42**
5- PC					0.25	0.34*	0.05
6- PG						-0.19	0.10
7- CS							-0.13
8- IM							

Note. * $p < 0.05$; ** $p < 0.01$.

Step 6: Pre-test: descriptive analyses

The students disagreed on items for PCE, CM, IC and CS. However, their opinions were somewhat divided on the items about PC, PG and PI, with the mean being close to the midpoint of the scale. The mean on the Impression management scale IM) was 0.40 (see Table 2).

The analysis of the correlations (see Table 1) revealed several points. First, PCE was not correlated with PG and CS. The PI was correlated only with the PCE and the CM. PC was correlated with CS.

Table 2
Descriptive statistics of mean pre-test scores

	M	SD	Kurt.	Skew.
PCE	1.75	0.69	0.44	-0.94
PI	2.41	0.65	-0.22	0.79
CM	1.68	0.37	0.73	0.95
IC	1.97	0.54	0.13	-0.54
PC	2.59	0.40	0.20	-0.99
PG	2.70	0.48	-0.24	-0.47
CS	1.87	0.40	-0.35	-0.49
Im dich	0.40	0.19	0.48	0.37

Step 7: Data collection: methodology

The second version of the questionnaire contained 36 items distributed among seven factors. The head director of education at the five participating universities was asked to facilitate an email invitation to students to participate in the research. The 573 students (486 females; 86 males; 1 other) who participated in the research were enrolled in Bachelor of Education programs: 17.8% (aged 18-20), 48.5% (aged 21-23), 12.4% (aged 24-25), 21.3% (aged over 25); 27.9% (1st year in program), 24.3% (2nd year), 23.9% (3rd year), 18.0% (4th year), 5.9% (special cases); 47.5% (pre-school/primary); 17.5% (secondary); 19.5% (special education); 15.5% (other programs, e.g., arts, physical education).

We conducted the same analyses as in the pre-test, and following the same criteria. We added two other analyses related to the validity evidence for the internal structure (confirmatory factor analysis[1]) and the relationships with other variables (hypothesis of a gender difference).

The confirmatory factor analysis was carried out using version 6.2 of the EQS software package (Bentler & Wu, 2006). A Satorra-Bentler $SB\chi^2/dl$ value smaller than 5 indicates that the model fit well the observed data, while a value smaller than 2 indicates a fairly good fit (Jöreskog and Sörbom, 1993). For the comparative fit index (CFI) and the non-normed fit index (NNFI), a value above 0.90 is generally considered adequate (Schumacker and Lomax, 1996), while a value above 0.95 is considered

appreciable. For the root mean square error of approximation (RMSEA; Steiger, 1990), a value below 0.08 is acceptable, while a value below 0.05 is considered appreciable (Browne and Cudeck, 1993).

The estimation method of maximum likelihood with the correction of Lee, Poon and Bentler (1995), the option for categorical variables and the Robust option were used for the analysis. *The LMTest* option (Chou & Bentler, 1990) was used to identify links that could be added.

Comparisons of means were made according to the gender of the respondent (t-test). Cohen's d (1988) identifies the effect size: small (around 0.2), medium (around 0.5) and large (around 0.8).

Step 7: Data collection: validity evidence

The level of internal consistency (Cronbach's alpha) was considered satisfactory for four factors: Propensity to cheat in exams (PCE; 3 items; $\alpha = 0.77$), Peer influence (PI; 3 items; $\alpha = 0.79$), Cheating methods (CM; 5 items, 2 problematics; 3 items; $\alpha = 0.83$), and Perceived control (PC; 8 items, 1 problematic; 7 items; $\alpha = 0.72$). For the other three factors, the level of internal consistency was considered low: Institutional context (IC; 5 items, 2 problematic; 3 items; $\alpha = 0.54$), Performance goal (PG; 6 items, 2 problematics; 4 items; $\alpha = 0.64$) and Commitment to studies engage-ment (CS; 6 items, 1 problematic; 5 items; $\alpha = 0.61$). No items had a low value for the corrected item-total correlation. For all factors, the inter-item correlations between items from the same factor were, as expected, higher than those with items from other factors.

In order to improve content validity, problematic items were removed. The final version of the questionnaire (see Annex 1) contained 28 items divided into seven factors: one dependent factor (PCE) and six independ-ent factors (correlated). The adjustment of this model to the data was verified by means of a confirmatory factor analysis.

Following the addition of two correlations between error terms pro-posed by the LMTest, the results indicated an adequate fit of the model to the data for CFI and NNFI, but an appreciable fit for RMSEA and $SB\chi^2/dl$ (see Figure 1). All factor-item relationships were significant. Of the four factors predicting PCE, three showed a positive relationship (CS, PI and CM), while IC showed a negative relationship. The strongest pre-dictor of PCE was CM. Two factors (PC and PG) did not predict PCE. Six correlations were non-significant and mainly concerned PC and PG. The two correlations between error terms were high (> 0.45).

For the Impression management scale (IM), the level of internal consistency was low (α = 0.60). The mean was 0.39 (see Table 3). PI (-0.11) correlated weakly with IM, while three other factors (IC, PC and PG) did not correlate significantly with this scale. The highest correlations with IM were for PCE (-0.33), CM (0.26) and CS (-0.27). The high correlations indicated that participants' responses to the QCUE were coloured by social desirability. Thus, their responses would appear to underestimate their perception of reality with respect to the PCE, CM and CS.

Table 3
Descriptive statistics of average scores at the time of data collection

	M	SD	Kurt.	Skew.
PCE	1.82	0.79	0.84	-0.07
PI	2.61	0.74	0.03	-0.73
CM	1.19	0.42	2.88	9.81
IC	1.87	0.52	0.34	0.42
PC	2.35	0.49	-0.09	-0.17
PG	2.32	0.54	0.10	-0.25
CS	2.10	0.52	0.38	0.02
IM dich.	0.39	0.19	0.24	-0.55

As documented in the literature, gender differences were observed (effect size is weak): men had a higher mean for PI (t = 2.28; dl = 570; p = 0.02; d = 0.01) and for CS (t = 3.95; dl = 570; p < 0.01; d = 0.03), while women had a higher mean for PC (t = -3.93; dl = 570; p < 0.01; d = 0.03). The six analyses carried out provided evidence of content validity, internal structure and relationships with other variables. Inferences related to consequence validity will be presented in the discussion.

Step 7: Data collection: descriptive analyses

As in the pre-test, the students disagreed with the items on PCE, CM, IC and CS. Their opinion was quite divided, with the mean near the midpoint of the scale for PC, PG and PI.
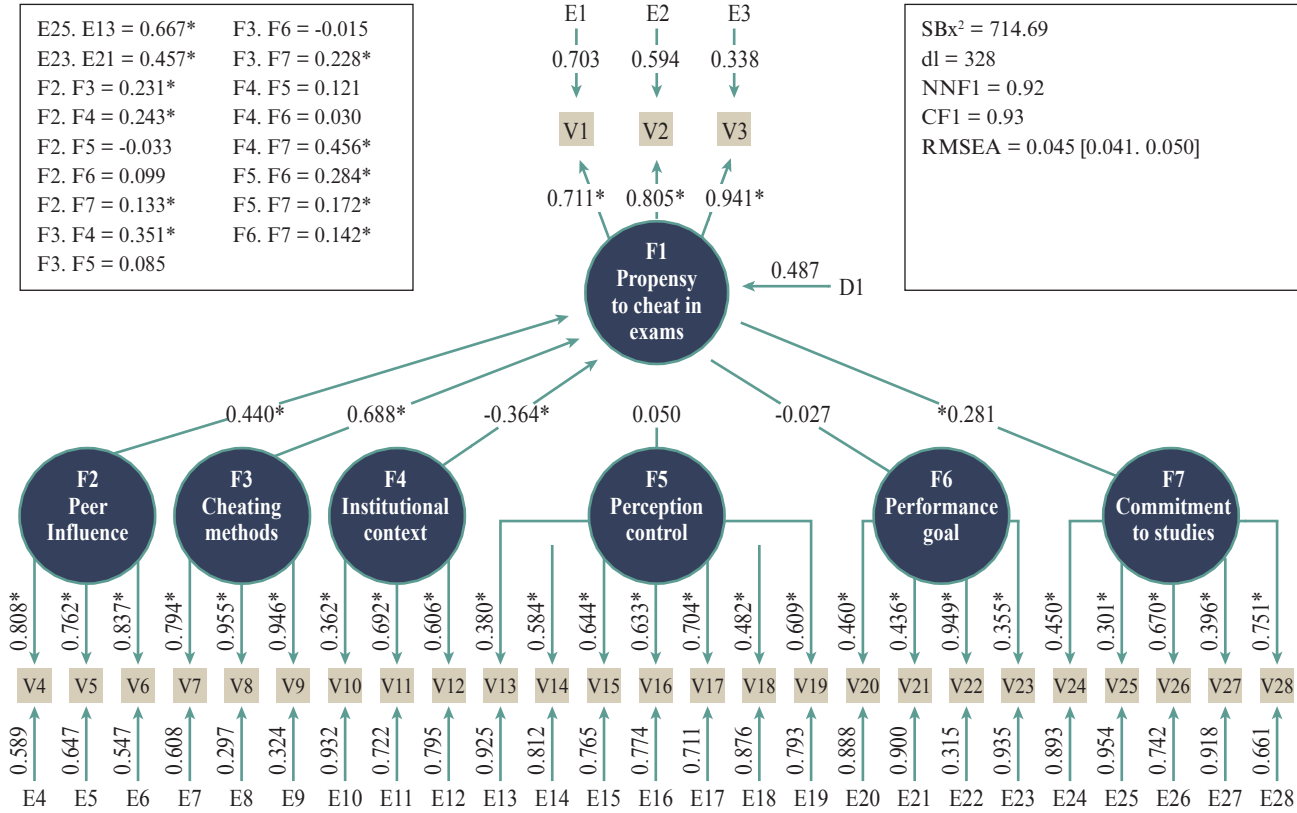
Figure 1. Fit indices of the model to the data (right box) and correlations (left box)

Propensity to cheat in exams

Table 4 presents the descriptive statistics for the three items related to PCE. If we consider that students who totally disagreed with the items (option 1 of the response scale) were those who reported not cheating, we find that the remaining students (56.5%) reported cheating (options 2-3-4 of the response scale) in high school exams. In total, 56% reported having looked at a neighbour's paper and 33.5% reported having cheated in their university career. The correlations between the three items were high, ranging from 0.50 to 0.63.

Discussion

The objective of the present research is to measure the propensity of university students in Quebec's faculties of education to cheat on exams. It required the development of a French-language questionnaire based on the work of Frenette et al. (2018) aimed at maximizing validity evidence. The questionnaire meets a need for information on cheating on exams in the Francophone community and allows us to measure its incidence among students in Francophone universities.

Steps 1, 3, 5, 6 and 7 provided evidence to support content validity. First, the development of the questionnaire was based on a thorough conceptual analysis of the literature, which identified seven factors, found commonly in the literature, that underlie the QCUE. Second, 54 items were generated from the questionnaire survey and open-ended questions. Experts then gave their opinion on the various characteristics of these items. The analyses in the pre-test and during the data collection led to the identification of problematic items. Lastly, the pre-test stage clarified the role of the educational experience factor, which was broken down into three factors (PC, PG and CS).

To ensure the integrity of the data (Downing, 2003), steps 2 and 4 provided evidence to support the validity for response process. Completion time was limited to approximately 15 minutes. The questionnaire was available online, although a paper version was also available. The selected response scale was known to the respondents. Finally, ethical approval was obtained to support the integrity of the data collection procedure.

Table 4

Descriptive statistics for items about the propensity to cheat on exams

	Response scale and %				Descriptive statistics				Correlations	
	TD	**D**	**A**	**TA**	**M**	**SD**	**Kurt.**	**Skew.**	**2**	**3**
1- Cheating in high school	249 (43.5%)	124 (21.6%)	129 (22.5%)	71 (12.4%)	2.04	1.08	-1.10	0.53	0.50	0.50
2- Looking at neighbour's copy	252 (44.0%)	164 (28.6%)	123 (21.5%)	34 (5.9%)	1.89	0.94	-0.71	0.65		0.63
3- Tricher parcours univ.	381 (66.5%)	104 (18.2%)	64 (11.2%)	23 (4.0%)	1.53	0.85	1.12	1.48		

Note. TD = Totally Disagree; D = Disagree; A = Agree; TA = Totally agree.

The analyses in steps 6 and 7 led to a variety of evidence supporting the validity of the internal structure. Although Yurdugül (2008) recommends caution in using pre-test results, the latter were of the same magnitude as those obtained in the data collection. The model with six independent factors and one dependent factor provided a good fit for the data collected. Two correlations between the error terms (systematic error) were added to the model. Excluding the variance related to the propensity to cheat in exams, the items had a common characteristic. The first addition could be explained in terms of a perspective related to the management of studying (procrastination vs. time management), while the second addition could be explained by a competition-related feature (competing with peers and doing better than others). However, research is needed to support this finding.

Three factors (IC, PG and CS) displayed a low level of internal consistency. Since these factors are well documented in the research, they merit further attention. In this way, problematic items can be revised and others can be proposed to improve the measurement of these factors. Focus groups could be conducted to increase our understanding of these three factors.

Steps 6 and 7 provided evidence of relation to other variables validity: correlation with the Impression management scale and gender differences. Two factors (CP and PG) showed little or no significant correlation with the other factors and failed to predict PCE. We suggest that these two factors be included in future studies, given their importance in the literature. Finally, the negative relationship between PCE and IC indicates that when a policy is difficult to understand or is not well known, or when the consequences for cheaters are not well known, students will have greater PCE. It is possible that this lack of knowledge of the institution's official rules leads to a process of neutralization (Meng et al., 2014) that allows the student to trivialize the cheating act.

The PCE, CM and CS were highly correlated with Impression management. These high correlations indicate that participants' responses to the QCUE were coloured by social desirability, thus requiring future research to control for its effect in the analyses.

The lack of a gender difference for the PCE supports the work of Fass-Holmes (2017) and Kayisoglu and Temel (2017). With regard to the associated factors, males had a higher mean for PI and CS, while females had a higher mean for CP. These results contribute to our knowledge of gender differences in this field.

On the whole, the students had a low PCE, made little use of CM, had poor knowledge of their institution's policies (IC) and were not very committed to their studies (CS). Their views were fairly evenly split when it came to PC, PG and PI. We believe that the lower propensity to cheat in exams among education students can be explained, at least in part, by the contextual reality of education programs. For these students, the stakes associated with their grades may be lower than for those in business, law or medical schools, who face high entrance requirements and, in some cases, need to maintain a high average to continue in their program and access certain internships. The situation is different in education, where, once enrolled in a program, students who pass their courses, whether their average is high or low, will be able to continue in their programs and complete their placements. With respect to CS, it should be noted that many education students are substitute teachers, starting in the first year of their program. This additional workload in addition to their student work may have had an impact on their CS.

The extent of cheating in high school was slightly lower than that reported by Bowers (1964) and McCabe and Trevino (1993). Nearly 60% of students reported that they had cheated in high school and had peeked at their neighbour's paper. As in the Christensen Hughes and McCabe (2006) study, the level decreased to about 36% at the university level. The relationship between cheating in high school and university was high and is supported by Ellahi et al. (2013), Schuhmann et al. (2013) and Guibert and Michaut (2009).

Lastly, the evidence of consequence validity refers to the impact of the assessment on the students, the decisions that will be made and the consequences that will follow as a result of the data collection. In the present study, we infer that no negative consequences related to the use of the questionnaire existed for the students, while the positive consequences were numerous. Accordingly, it was essential to take stock of the phenomenon of exam cheating in Quebec's faculties of education. As a result of this research, measures can be put in place to make future teachers aware

of the phenomenon of cheating in exams so that they are capable of acting ethically and responsibly in the performance of their duties (Ministère de l'Éducation, 2001).

Limitations

There are limitations to the present study. First, the population surveyed, university students in education, is not representative of all university students. Second, although the items in the questionnaire may share similarities in their wording with regard to the peer influence factor, a response to one item does not necessarily imply a response to another. Past, future or recurrent behaviour are different items assessed by the factor, though they share a common variance related to that factor. The inter-item correlations support this fact as they are less than 0.61.

Conclusion

The purpose of the present research was to develop a questionnaire and to proceed with its validation process in order to measure the propensity to cheat in exams among university students in Quebec's faculties of education. The QCUE meets a need for a questionnaire on cheating in exams and makes it possible to measure its extent among university students.

Additional studies should be carried out. First, it would be interesting to verify the extent of cheating on exams in other Francophone contexts and to verify the conclusion of Crittenden et al. (2009) that cheating is a global culture. Second, future research could look at differences, as identified in the literature, by age or academic achievement. Third, it would be interesting to test the invariance of the factor structure by gender, if the number of respondents allows, which was not the case in the present research. Finally, other characteristics (the number of behavioural patterns, facts, etc.) and contexts (primary, secondary, college, by school discipline, etc.) of cheating on exams could be explored.

The QCUE validation process continues to evolve. Although evidence of validity was obtained, analyses should be carried out to obtain additional evidence (differential item functioning, generalizability, etc.). For example, Howard, Ehrich and Watson (2014) have demonstrated the contribution of the Rasch model in their study on plagiarism. Lastly, most of the research generally focuses on only one or two items of validity evidence (Hébert, Valois and Frenette, 2008). We believe that it would be relevant to conduct a cross-cultural validation of the English questionnaire in order to meet the needs of English-speaking researchers.

NOTE

1. The choice of a formative model was considered, but failure to comply with the implementing requirements (see the three identified by Brown, 2006) did not permit its use. The second question indicates that the removal of a formative indicator changes the meaning of the construct. They are therefore not interchangeable. This was not true for the Propensity to cheat in exams (PCE) factor. Indeed, the three questions that are used to measure it could be removed and replaced by new ones, without changing the meaning of the factor (e.g., "I have cheated in labs"; "I have cheated in case studies;" etc.). These same questions could also be applied to other levels of education: primary, secondary, college and university.

REFERENCES

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education [AERA, APA, & NCME]. (2004). *Standards for educational and psychological testing*. Washington, DC: American Educational Research Association.

Au, W. (2007). High-stakes testing and curricular control: A qualitative metasynthesis. *Educational Researcher*, *36*(5), 258-267. doi: 10.3102/0013189X07306523

Babaii, E., & Nejadghanbar, H. (2017). Plagiarism among Iranian graduate students of language studies: Perspectives and causes. *Ethics & Behavior*, *27*(3), 240-258. doi: 10.1080/10508422.2016.1138864

Barnes, E. (1904). Student honor: A study in cheating. *International Journal of Ethics*, *14*(4), 481-488. Retrieved from www.jstor.org/stable/2376257

Bentler, P. M., & Wu, E. J. C. (2006). EQS Structural Equations Program (Version 6.2) [Computer software]. Encino, CA: Multivariate Software.

Blais, J.-G. (2004). L'obligation de résultats à la lumière de l'interaction entre le quantitatif et le social. Dans C. Lessard et P. Meirieu (dir.), *L'obligation de résultats en éducation* (pp. 123-144). Québec, QC: Presses de l'Université Laval.

Boon, H. (2011). Raising the bar: Ethics education for quality teachers. *Australian Journal of Teacher Education*, *36*(7), 76-93. doi: 10.14221/ajte.2011v36n7.2

Bowers, W. J. (1964). *Student dishonesty and its control in college*. New York, NY: Bureau of Applied Social Research, Columbia University.

Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: Guilford Press.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural models* (pp. 136-162). Newbury Park, CA: SAGE.

Chou, C. P., & Bentler, P. M. (1990). Model modification in covariance structure modeling: A comparison among likelihood ratio, Lagrange multiplier, and Wald tests. *Multivariate Behavioral Research*, *25*(1), 115-136. doi: 10.1207/s15327906mbr2501_13

Christensen Hughes, J. M., & McCabe, D. L. (2006). Academic misconduct within higher education in Canada. *Canadian Journal of Higher Education*, *36*(2), 1-21.

Cizek, G. J. (1999). *Cheating on tests: How to do it, detect it, and prevent it*. Mahwah, NJ: Lawrence Erlbaum.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New York, NY: Lawrence Erlbaum.

Collins, A., Judge, G., & Rickman, N. (2007). On the economics of plagiarism. *European Journal of Law and Economics*, *24*(2), 93-107. doi: 10.1007/s10657-007-9028-4

Copp, D. T. (2016). Teaching to the test: A mixed methods study of instructional change from large-scale testing in Canadian schools. *Assessment in Education: Principles, Policy & Practice*, *25*(5), 468-487. doi: 10.1080/0969594X.2016.1244042

Côté, C. (2014). *Regard sur la sécurité du processus dans les organisations utilisant ou non les TIC lors de l'évaluation* (Mémoire de maîtrise, Université de Montréal, Montréal, Canada). Repéré à http://hdl.handle.net/1866/11877

Crittenden, V. L., Hanna, R. C., & Peterson, R. A. (2009). The cheating culture: A global societal phenomenon. *Business Horizons*, *52*(4), 337-346. doi: 10.1016/j.bushor.2009.02.004

Crocker, L., & Algina, J. (2006). *Introduction to classical and modern test theory* (3rd ed.).

Belmont, CA: Wadsworth/Thomson Learning.

Cronan, T. P., McHaney, R., Douglas, D. E., & Mullins, J. K. (2017). Changing the academic integrity climate on campus using a technology-based intervention. *Ethics & Behavior*, *27*(2), 89-105. doi: 10.1080/10508422.2016.1161514

Cummings, R., Harlow, S., & Maddux, C. D. (2007). Moral reasoning of in-service and pre-service teachers: A review of the research. *Journal of Moral Education*, *36*(1), 67-78. doi: 10.1080/03057240601185471

Cummings, R., Maddux, C. D., Harlow, S., & Dyas, L. (2002). Academic misconduct in undergraduate teacher education students and its relationship to their principled moral reasoning. *Journal of Instructional Psychology*, *29*(4), 286-296.

Dalal, D. K., Carter, N. T., & Lake, C. J. (2014). Middle response scale options are inappropriate for ideal point scales. *Journal of Business and Psychology*, *29*, 463-478. doi: 10.1007/s10869-013-9326-5

D'Amours-Raymond, J. (2011). *Version abrégée du Balanced Inventory of Desirable Responding* (Mémoire de maîtrise), Université Laval, Québec, Canada.

Daniel, L. G., Blount, K. D., & Ferrell, C. M. (1991). Academic misconduct among teacher education students: A descriptive-correlational study. *Research in Higher Education*, *32*(6), 703-724. doi: 10.1007/BF00974739

Dawson, P. (2016). Five ways to hack and cheat with bring-your-own-device electronic examinations. *British Journal of Educational Technology*, *47*(4), 592-600. doi: 10.1111/bjet.12246

Denisova-Schmidt, E., Huber, M., & Leontyeva, E. (2016). On the development of students' attitudes towards corruption and cheating in Russian universities. *European Journal of Higher Education*, *6*(2), 128-143. doi: 10.1080/21568235.2016.1154477

DeVellis, R. F. (2012). *Scale development: Theory and applications* (3rd ed.). Thousand Oaks, CA: SAGE.

DeVellis, R. F. (2017). *Scale development: Theory and application*s (4th ed.). Thousand Oaks, CA: SAGE.

Do Ba, K., Lam, Q. D., Le, D. T. B. A., Nguyen, P. L., Nguyen, P. Q., & Pham, Q. L. (2017). Student plagiarism in higher education in Vietnam: An empirical study. *Higher Education Research & Development*, *36*(5), 934-946. doi: 10.1080/07294360.2016.1263829

Downing, S. M. (2003). Validity: On meaningful interpretation of assessment data. *Medical Education*, *37*(9), 830-837. doi: 10.1046/j.1365-2923.2003.01594.x

Dussault, M., Valois, P., & Frenette, E. (2007). Validation de l'échelle de leadership transformatif du directeur d'école. *Psychologie du travail et des organisations*, *13*(2), 37-52.

Dusu, P. B., Gotan, A., Deshi, J. M., & Gambo, B. (2016). Management of re-occurring cases of examination malpractice in Plateau State College of Health Technology Pankshin, Nigeria. *Journal of Education and Practice*, *7*(6), 38-43.

Ellahi, A., Mishtaq, R., & Khan, B. (2013). Multi campus investigation of academic dishonesty in higher education of Pakistan. *International Journal of Education Management*, *27*(6), 647-666. doi: 10.1108/ijem-03-2012-0039

Erskine, J. L. (2014). It changes how teachers teach: How testing is corrupting our classrooms and student learning. *Multicultural Educatio*n, *21*(2), 38-40.

Fass-Holmes, B. (2017). International students reported for academic integrity violations: Demographics, retention, and graduation. *Journal of International Students*, *7*(3), 664-669. doi: 10.4324/9781315113456-11

Fendler, R. J., Yates, M. C., & Godbey, J. M. (2018). Observing and deterring social cheating on college exams. *International Journal for the Scholarship of Teaching and Learning*, *12*(1). doi: 10.20429/ijsotl.2018.120104

Fishman, T. (2016). Academic integrity as an educational concept, concern, and movement in US institutions of higher learning. In T. Bretag (Ed.), *Handbook of academic integrity* (pp. 7-21). Singapore: Springer.

Foudjio Tchouata, C., Lamago, M. F., & Singo Njabo, C. R. (2014). Fraude aux examens et formation des enseignants: le cas de l'École normale supérieure de Yaoundé. *Formation et profession*, *22*(3), 48-62. doi: 10.18162/fp.2014.152

Frenette, E., Hébert, M., Thibodeau, S., & Ndinga, P. (2018, novembre). *L'élaboration d'un questionnaire : défi, défi et défi ?* Communication présentée à la 40ᵉ session d'étude de l'ADMEE-Canada, Montréal, Canada.

Garland, R. (1991). The mid-point on a rating scale: Is it desirable? *Marketing Bulletin*, *2*(1), 66-70.

Guibert, P., & Michaut, C. (2009). Les facteurs individuels et contextuels de la fraude aux examens universitaires. *Revue française de pédagogie*, *169*, 43-52. doi: 10.1016/j.ijme.2018.12.003

Hébert, M., Valois, P., & Frenette, E. (2008, janvier). *La validation d'outils alternatifs d'évaluation des apprentissages: progressiste ou rétrograde*. Actes du 20ᵉ Colloque de l'ADMEE-Europe, Genève, Suisse.

Howard, S. J., Ehrich, J. F., & Watson, R. (2014). Measuring students' perceptions of plagiarism: Modification and Rasch validation of a plagiarism attitude scale. *Journal of Applied Measurement*, *15*(4), 372-393.

Hubick, J. (2016). A philosophical response to plagiarism. *Teaching Philosophy*, *39*(4), 453-481. doi: 10.5840/teachphil201612158

Jeffrey, D. (2013). Profession enseignante: de la moralité exemplaire à l'éthique professionnelle. *Formation et profession*, *21*(3), 18-29. doi: 10.18162/fp.2016.351

Jöreskog, K. G., & Sörbom, D. (1993). LISREL 8: User's reference guide [computer software]. Chicago, IL: Scientific Software.

Jurdi, R., Hage, H. S., & Chow, H. P. (2011). Academic dishonesty in the Canadian classroom: Behaviours of a sample of university students. *Canadian Journal of Higher Education*, *41*(3), 1-35.

Jutras, F. (2013). La formation à l'éthique professionnelle: orientations et pratiques contemporaines. *Formation et profession*, *21*(3), 56-69. doi: 10.18162/fp.2013.234

Kayisoglu, N. B., & Temel, C. (2017). An examination of attitudes towards cheating in exams by physical education and sports high school students. *Universal Journal of Educational Researc*h, *5*(8), 1396-1402. doi: 10.13189/ujer.2017.050813

Kisamore, J. L., Stone, T. H., & Jawahar, I. M. (2007). Academic integrity: The relationship between individual and situational factors on misconduct contemplations. *Journal of Business Ethics*, *75*, 381-394. doi: 10.1007/s10551-006-9260-9

Kline, P. (1999). *The handbook of psychological testing* (2nd ed.). London, UK: Routledge.

Knoester, M., & Au, W. (2017). Standardized testing and school segregation: Like tinder for fire? *Race, Ethnicity and Education*, *20*(1), 1-14. doi: 10.1080/13613324.2015.1121474

Lee, S. Y., Poon, W. Y., & Bentler, P. M. (1995). A two-stage estimation of structural equation models with continuous and polytomous variables. *British Journal of Mathematical and Statistical Psychology*, *48*(2), 339-358. doi: 10.1111/j.2044-8317.1995.tb01067.x

Lovett-Hooper, G., Komarraju, M., Weston, R., & Dollinger, S. J. (2007). Is plagiarism a forerunner of other deviance? Imagined futures of academically dishonest students. *Ethics & Behavior*, *17*(3), 323-336. doi: 10.1080/10508420701519387

Ma, H. J., Wan, G., & Lu, E. Y. (2008). Digital cheating and plagiarism in schools. *Theory into Practice*, *47*(3), 197-203. doi: 10.1080/00405840802153809

Mark Chaput de Saintonge, D., & Pavlovic, A. (2004). Cheating. *Medical Education*, *38*(1), 8-9. doi: 10.1046/j.1365-2923.2004.01771.x

McCabe, D. L. (1992). The influence of situational ethics on cheating among college students. *Sociological Inquiry*, *62*, 365-374. doi: 10.1111/j.1475-682X.1992.tb00287.x

McCabe, D. L., Butterfield, K. D., & Trevino, L. K. (2012). *Cheating in college: Why students do it and what educators can do about it*. Baltimore, MD: JHU Press.

McCabe, D., & Trevino, L. (1993). Academic dishonesty: Honor codes and other contextual influences. *Journal of Higher Education*, *64*(5), 522-538. doi: 10.1080/00221546.1993.11778446

McCabe, D., & Trevino, L. (1997). Individual and contextual influences on academic dishonesty: A multi-campus investigation. *Research in Higher Education*, *38*(3), 379-396.

McCabe, D., Trevino, L., & Butterfield, K. (2001). Cheating in academic institutions: A decade of research. *Ethics and Behavior*, *11*(2), 219-232. doi: 10.1207/S15327019EB1103_2

Meng, C. L., Othman, J., D'Silva, J. L., & Omar, Z. (2014). Influence of neutralization attitude in academic dishonesty among undergraduates. *International Education Studies*, *7*(6), 66-73. doi: 10.5539/ies.v7n6p66

Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist*, *50*(9), 741-749. doi: 10.1037/0003-066X.50.9.741

Michaut, C. (2013). Les nouveaux outils de la tricherie scolaire au lycée. *Recherche en éducation*, *16*, 131-141.

Ministère de l'Éducation. (2001). *La formation à l'enseignement: les orientations et les compétences professionnelles*. Québec: Gouvernement du Québec. Repéré à www.education.gouv.qc.ca/fileadmin/site_web/documents/reseau/formation_titularisation/formation_enseignement_orientations_EN.pdf

Murdock, T. B., & Anderman, E. M. (2006). Motivational perspectives on student cheating: Toward an integrated model of academic dishonesty. *Educational Psychologist*, *41*(3), 129-145. doi: 10.1207/s15326985ep4103_1

Nadler, J., Weston, R., & Voyles, E. (2015). Stuck in the middle: The use and interpretation of mid-points in items on questionnaires. *Journal of General Psychology*, *142*, 71-89. doi: 10.1080/00221309.2014.994590

Ndzedi, F. (2016) L'éthique professionnelle en enseignement: raison d'être, orientation et responsabilité. *Formation et profession*, *24*(1), 66-69. doi: 10.18162/fp.2016.a86

Nichols, S., & Berliner, D. (2011). High-stakes testing and academic cheating. In

E. M. Anderman & T. B. Murdock (Eds.), *Psychological perspectives on academic cheating* (pp. 289-310). San Diego, CA: Elsevier.

Olafson, L., Schraw, G., Nadelson, L., Nadelson, S., & Kehrwald, N. (2013). Exploring the judgment-action gap: College students and academic dishonesty. *Ethics & Behavior*, *23*(2), 148-162. doi: 10.1080/10508422.2012.714247

Patrzek, J., Sattler, S., van Veen, F., Grunschel, C., & Fries, S. (2015). Investigating the effect of academic procrastination on the frequency and variety of academic misconduct: A panel study. *Studies in Higher Education*, *40*(6), 1014-1029. doi: 10.1080/03075079.2013.854765

Paulhus, D. L. (1984). Two-component models of socially desirable responding. *Journal of Personality and Social Psychology*, *46*(3), 598-609. doi: 10.1037/0022-3514.46.3.598

Paulhus, D. L. (1991). Measurement and control of response bias. In J. P. Robinson, P. S. Shaver & L. S. Wrightsman (Eds.), *Measure of personality and social psychological attitude* (pp. 17-51). New York, NY: Academic Press.

Rettinger, D. A., & Kramer, Y. (2009). Situational and personal causes of student cheating. *Research in Higher Education*, *50*(3), 293-313. doi: 10.1007/s11162-008- 9116-5

Rinn, A., Boazman, J., Jackson, A., & Barrio, B. (2014). Locus of control, academic self-concept, and academic dishonesty among high ability college students. *Journal of the Scholarship of Teaching and Learning*, *14*(4), 88-114. doi: 10.14434/v14i4.12770

Schuhmann, P. W., Burrus, R. T., Barber, P. D., Graham, J. E., & Elikai, M. F. (2013). Using the scenario method to analyze cheating behaviors. *Journal of Academic Ethics*, *11*(1), 17-33. doi: 10.1007/s10805-012-9173-4

Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum.

Shei, C. (2005). Plagiarism, Chinese learners and western convention. *Taiwan Journal of TESOL*, *2*(1), 97-113.

Sohr-Preston, S., & Boswell, S. S. (2015). Predicting academic entitlement in undergraduates. *International Journal of Teaching and Learning in Higher Education*, *27*(2), 183-193.

Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, *25*(2), 173-180. doi: 10.1207/s15327906mbr2502_4

Stephens, J. M., Young, M. F., & Calabrese, T. (2007). Does moral judgment go offline when students are online? A comparative analysis of undergraduates' beliefs and behaviors related to conventional and digital cheating. *Ethics & Behavior*, *17*(3), 233-254. doi: 10.1080/10508420701519197

Stiles, B. L., Pan, M., LaBeff, E. E., & Wong, N. (2017). The role of academic entitlement in college cheating: A comparison between China and the United States. *Research in Higher Education*, *33*.

Trushell, J., Byrne, K., & Hassan, N. (2013). ICT facilitated access to information and undergraduates: Cheating behaviours. *Computers & Education*, *63*, 151-159. doi: 10.1016/j.compedu.2012.12.006

Walker, J. (2010). Measuring plagiarism: Researching what students do, not what they say they do. *Studies in Higher Education*, *35*(1), 41-59. doi: 10.1080/03075070902912994

Weiner, B. (1986). Attribution, emotion, and action. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 281-312). New York, NY: Guilford Press.

Whitley, B. E. (1998). Factors associated with cheating among college students: A review. *Research in Higher Education*, *39*, 235-274. doi: 10.1023/A:1018724900565

Wideman, M. (2011). Caring or collusion? Academic dishonesty in a school of nursing. *Canadian Journal of Higher Education*, *41*(2), 28-43.

Wotring, K. E., & Bol, L. (2011). Generational differences among community college students in their evaluation of academic cheating. *Community College Journal of Research and Practice*, *35*(9), 724-735. doi: 10.1080/10668920802095910

Yang, S. C., Huang, C.-L., & Chen, A.-S. (2013). An investigation of college students' perceptions of academic dishonesty, reasons for dishonesty, achievement goals, and willingness to report dishonest behavior. *Ethics & Behavior*, *23*(6), 501-522. doi: 10.1080/10508422.2013.802651

Yurdugül, H. (2008). Minimum sample size for Cronbach's coefficient alpha: A Monte-Carlo study. *Hacettepe University Journal of Education*, *35*, 397-405. Retrieved from www.efdergi.hacettepe.edu.tr/yonetim/icerik/makaleler/571-published.pdf

Annex 1:   Items employed in the Questionnaire on Cheating in University Exams (QCUE)

For each of the following items, indicate your level of agreement.

Propensity to cheat in exams (PCE)

1. I have cheated in high school to improve my grades.
2. I have looked at my neighbour's paper during an exam.
3. I have cheated during my university career.

Peer influence (PI)

4. I am convinced that my peers/classmates have cheated at least once on an exam.
5. None of my peers/classmates would dare to cheat on an exam.
6. Several of my peers/classmates cheat, or have cheated, on an exam.

Cheating modalities (CM)

7. I have left the classroom during an exam to access my study notes.
8. I have used my mobile phone to cheat on an exam.
9. I have used a technological device (headset, tablet, etc.) to cheat on an exam.

Institutional Context (IC)

10. I find my institution's policy on academic cheating difficult to understand.
11. My university has a policy/regulations on academic fraud.
12. At my university, cheaters are punished.

Commitment to studies (CS)

13. I consider my university program to be a source of motivation for me.
14. I am satisfied with my educational experience at university.
15. I attend all my university classes.
16. I often procrastinate in my academic tasks.
17. I spend a lot of time on study-related activities.

Perceived control (PC)

18. Deadlines for my assignments and exams are a major source of anxiety for me.

19. When I am in an exam situation, I am confident in my ability to pass.

20. In my opinion, the workload at university is far too heavy.

21. I am very worried about failing a course in my university program.

22. I find it difficult to manage my time effectively.

23. In my opinion, passing an exam is much more a matter of luck than skill.

24. I find most of the courses in my program difficult.

Performance goal (PG)

25. The final grade I obtain in my courses is my highest priority at university.

26. I consider what I learn in class to be more important than the grade.

27. I am in competition with my classmates.

28. I am eager to do better than my classmates.