

Questionnaire for assessing education podcasts (QAEP): A cross-cultural adaptation to a Danish context

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ABSTRACT

Background: Podcasts are popular and widely used in educational settings. A nationally validated tool with which to explore students' perspectives on educational podcasts is lacking. **Aim:** We aimed to translate and cross-culturally adapt the "Questionnaire for Assessing Educational Podcasts (QAEP)". **Method:** The translation and cross-cultural adaption comprised eight stages: forward translation, synthesis, backward translation, synthesis, preliminary expert committee, pilot testing, validating and submission of the article. **Results:** Translation and cross-cultural adaption issues were resolved by rewording items and deleting a question. Two pilot tests were conducted, initially on 24 nursing students and then on another 30 nursing students. The total alpha score denoting internal consistency was 0.883. **Conclusion:** The Danish QAEP encompasses 19 items collecting nursing students' views on four dimensions of educational podcasts: access and use, design and structure, content adequacy and value as a learning aid.

Keywords

questionnaire, podcast, learning, cross-cultural adaptation, validation, translation, nursing education, nursing students

Implications for nursing

- The Questionnaire for Assessing Educational Podcasts can be used to collect nursing students' views about four dimensions of educational podcasts: access and use, design and structure, content adequacy and value as a learning aid.
- Questionnaire for Assessing Educational Podcasts is a valuable tool for improving and enhancing teaching and learning processes with nursing education.
- It is important to develop instruments that can measure nursing students' learning outcomes specifically related to educational podcasts.

Background

Podcasts are a popular technology internationally. In a Danish context, podcasts have gained a strong footing in recent decades. A *podcast* may be defined as a programme available for online downloading (1,2). The technology was introduced in the 20th

century and has developed considerably the past decade (3). The term podcast was invented in 2004 (4) and combines the words iPod and broadcasting (5,6). Podcasts today differ from their original form (7). Furthermore, podcasts cover a wide array of content, spanning news, crime, history, entertainment, educational and many other topics. McGarr (8) identified three types of use of podcasts in higher education: substitutional, supplementary and creative; enabling a spectrum from passive receivers to active constructors of knowledge. Therefore, educators must consider how to use podcasts and which purpose they have in educational frameworks. It is imperative to incorporate pedagogical considerations before using podcasts (8). Educational podcasts, lacking formal definitions, can be produced by teachers, experts, students or others. In nursing education research, several studies have found that podcasts contribute significantly to learning (9–14). They represent a new way for students to engage with the content (15) and are similar to textbooks in maintaining attention (16). Students appreciate the flexibility of podcasts (2,7,17) which are practical when preparing for exams and improving their understanding of essential topics (13,15,18). Studies also indicate that podcasts may improve students' test scores (9,17). Listening to a podcast allows students to revisit complex topics (12,19–21). Furthermore, use of podcasts enhances student self-efficacy (5). Moreover, students assess their workload to be higher when reading a book than when listening to a podcast (16).

Podcasts have been investigated extensively. Thus, an integrative review by O'Connor et al. (13) aimed to synthesise evidence on podcasting in nursing and midwifery education. Twenty-six studies were included, most of which used questionnaires, finding that psychometrically tested, valid and reliable tools were mainly not used (13). A review of the literature by Cho et al. (17) aimed to explore the efficacy of podcasts in medical education. Eighty-four studies were included and found no validated tools with which to measure learner reactions (17). In conjunction, these studies suggest a need for more studies evaluating the efficacy of podcasts (15,17). Therefore, a knowledge gap exists in this field. Moreover, to enhance generalisability, it is important to develop instruments that can measure students' learning outcomes specifically related to educational podcasts. In the preliminary phase, Questionnaire for Assessing Educational Podcasts (QAEP) by Alarcón & Blanca (22) was identified as such a potential instrument. This confirmed that a validated questionnaire was available but in a different language. Two Spanish authors within the Department of Psychobiology and Behavioural Sciences Methodology developed the questionnaire in English. Thus, a translation was needed to facilitate comparison of outcomes across populations and cultures (23). The questionnaire has not been translated into any other language; therefore, a translation of the QAEP into Danish is needed to ensure that data are collected with a validated tool in different countries and to develop a standard tool for assessing educational podcasts. The term *cross-cultural adaption* is used when translating and preparing the questionnaire for another cultural setting (24). The adaption process should ensure that the Danish version of the QAEP is equivalent in meaning to the original QAEP questionnaire when employed in a Danish linguistic and cultural setting. This study aimed to cross-culturally adapt the QAEP questionnaire for use in a Danish setting.

Methods

Translation and cross-cultural adaptation

As recommended by Tsang et al (23), we conducted a literature review to identify if a previously validated questionnaire existed. The search strategy was guided by a block search to stay focused on the research question during the database searches. In the

preliminary phase, the QAEP was identified (Figure 1). The QAEP was developed and validated to assess four areas: access and use, design and structure, content adequacy and value as a learning aid. The QAEP consists of 20 items with a four-point Likert-type response from strongly disagree to strongly agree (22); four items on access and use, five items on design and structure, four items on content adequacy and seven items on value as an aid to learning (22). After verifying that no translation of the QAEP questionnaire into Danish had been published previously, the authors of this article obtained permission to translate the QAEP into Danish. Several other studies using questionnaires were identified, but no one with adequate or accessible psychometric reliability and validity tests (12,19,25–28). Some studies had assessed content validity but no reliability tests had

Access and use		Strongly agree	Agree	Disagree	Strongly disagree
1	It was easy to access the podcasts				
2	I was able to view the podcasts on different device (smartphone, PC, etc.)				
3	I was able to view the podcasts in different places				
4	The podcasts were easy to find online				
Design and structure					
5	The length of the podcasts is appropriate for understanding their content				
6	The design of the podcasts (colours, tables, graphic, etc.) is attractive				
7	The presentation format of the podcasts is good				
8	The audio of the podcasts is clear				
9	The audio and video are properly synchronized				
Content adequacy					
10	The podcasts provide a good summary of the topic				
11	The terminology used in the podcasts is appropriate				
12	The examples used in the podcasts are appropriate				
13	The content of the podcasts is relevant to the subject				
Value as an aid for learning					
14	The podcasts were a good aid to learning about the subject				
15	The podcasts reinforced my understanding of the subject				
16	The podcasts made the subject more enjoyable				
17	The podcasts were useful for learning about the subject				
18	I'm satisfied with the podcasts as a learning tool for this subject				
19	The podcasts encourage independent learning by students				
20	The podcasts gave me a better understanding of the subject content				

Figure 1 Questionnaire for Assessing Educational Podcasts (QAEP)

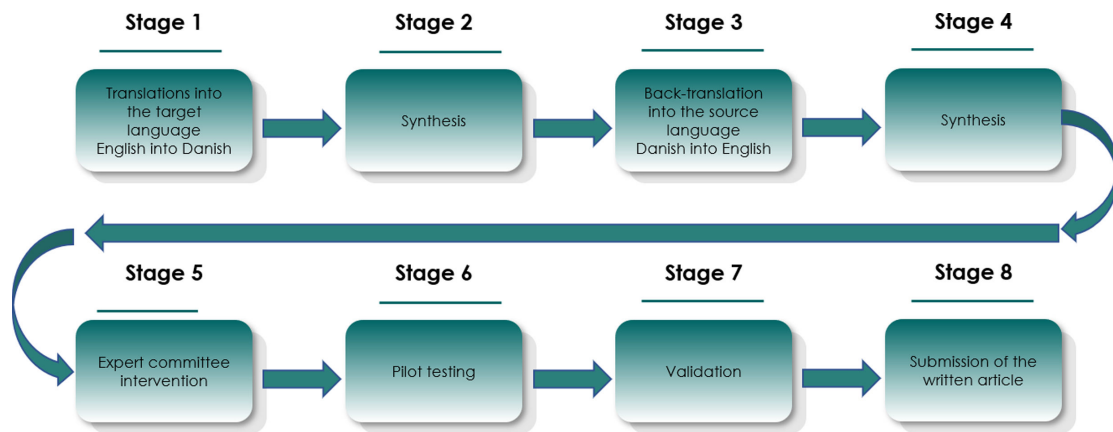


Figure 2 The Cross-Cultural adaptation process

been conducted (2,20,29,30). This is comparable to the findings by O'Connor et al. (13) who established that no quantitative studies were assessed to be of high quality and that psychometrically tested tools were generally not used (13).

The current translation and cross-cultural adaptation were inspired by the guidelines by Tsang et al. (23) and Beaton et al. (24). The results are presented in the following stages: Forward translation, Synthesis, Backward translation, Synthesis, Expert committee assessment, Preliminary pilot testing and Validating (Figure 2). A detailed description of the procedure is provided in the following sections.

Stages I and II

The essence of stage I was to translate the questionnaire into the target language (24). This process, also coined forward translation, was conducted by two specialised translators whose mother tongue was Danish. Each translator completed independent translations and combined them in a synthesis.

Stages III and IV

This stage intended to assess the validity by allowing translators with the questionnaire's source language as their mother tongue translate the questionnaire back into the source language (24). The translators again conducted independent translations and combined their translations into a synthesis. In June 2022, translators from both the forward and the backward translations held an online meeting with the authors of this article and combined the two syntheses into a final synthesis.

Stage V

This stage secured the cross-cultural equivalence through combined participation of various experts (24). In August 2022, an expert committee assembled. The role of the committee was to validate the content and to ensure the equivalence of the Danish version of the QAEP. The expert panel was multidisciplinary and consisted of experts, a methodologist, an education researcher, a learning researcher and a language professional specialising in technology research. The expert panel met for a 1.5 hour meeting to review the original and the translated questionnaire. The expert committee had received the translated questionnaire and the syntheses from the forward and backward translations before the meeting was conducted. The expert committee discussed semantic, idiomatic, experiential and conceptual equivalence. Their changes were incorporated into the translated version of the questionnaire. However, in order to maintain fidelity to the

original questionnaire, significant changes that could have had a radical impact were not incorporated.

Stage VI

In the final pre-test, the questionnaire was tested; initially on 24 nursing students and subsequently on 33 nursing students. Three pre-test participants' answers were excluded due to missing answers. Thus, the final version was tested on 30 students. According to Beaton et al. (24), 30-40 persons should participate in the prefinal test. Students completed the final questionnaire and were then asked the following questions in an interview conducted once they had finished: Did the questionnaire obtain sufficient information on the subject? Did you expect any questions in the questionnaire that were not there? Do you find that any of the questions are too emotional or that any questions may affect the response rate and should therefore be deleted? Was the questionnaire too long, too short or of adequate length? The pre-test consisted of a check for equivalence between the source and final versions.

Participants

The Danish version of the QAEP was validated in a sample of 54 students; 24 in the first and 30 in the second pre-test. The participants were all recruited from different semesters at the nursing department at the University College of Northern Jutland, Denmark. Participants who participated in the pre-test also contributed to the adaption process.

Ethical considerations

According to the Danish National Committee on Health Research Ethics, ethical approval was not required prior to the execution of this study. However, the Helsinki Declaration, Guidelines for Nursing Research in the Nordic Region and the Danish Code of Conduct for Research Integrity recommend that researchers include ethical considerations. All pre-test participants were informed of the purpose of their participation in this study. Furthermore, all participants were informed that their participation was voluntary and that all data collected would remain anonymous. Additionally, we asked the authors of the original questionnaire for permission to use their questionnaire in this research. The authors approved our request in May 2022.

Data analysis

For the descriptive analysis, means, standard deviations and percentages were calculated. The internal consistency of the QAEP was examined by calculating Cronbach's alpha coefficients and correlated item-total correlation coefficients for each item. A satisfactory Cronbach's alpha is regarded to fall in the 0.70–0.95 range (31,32). A p-value < 0.05 was used to determine statistical significance. Statistical analyses were performed using IBM SPSS Statistics software (version 27).

Results

Overall, this cross-cultural adaption of the QAEP into Danish showed that the wording had to be changed in various items, and an item in design and structure needed to be deleted. Therefore, after the cross-cultural adaption and the reliability test, the questionnaire comprised 19 items.

Translation and cross-cultural adaption

In the final synthesis and during the expert committee intervention, it became clear that some of the questions had ambiguous elements (question 2,–3, 4,–6, 7 and 16). To

resolve these ambiguities, the authors of the original questionnaire were contacted, and an elaborate answer was received and included in the final decision on the cross-cultural adaption. The first pre-test combined with the expert committee intervention illustrated that the wording of question 2, 3, 4, 9 and 11 needed to be changed to adapt to a Danish context. Question 9 had to be deleted or changed not to include video, whereas podcasts in this cultural setting do not include video. The authors of this article decided to change the wording to keep the questionnaire in line with the original questionnaire. Question 11 consisted of the word 'terminology', which can be directly translated into Danish. Nevertheless, the cross-cultural adaption showed that it is not generally used, and many participants needed help understanding the word 'terminology'. Therefore, the question was changed and adapted to the Danish culture. It was found that questions 6 or 7 had a similar meaning, and one of the questions, question 7, therefore needed to be deleted. Question 19 changed the form of inquiry and was changed.

Reliability

The initially test on 24 nursing students found the internal consistency to be 0.832. This measurement was used for comparing the internal consistency of the final questionnaire. In the second pre-test, the internal consistency for the total alpha score was 0.883, and Spearman's correlation was statistically significant ($p = < 0,001-0,006$), which is considered acceptable since it was above 0.70. In factor access and use, the alpha score was 0.907; in factor design and structure, 0.686. In factor content adequacy, the score was 0.571. The factor value as an aid to learning was 0.855. The final questionnaire produced as a result of the translation and cross-cultural adaptation into Danish is seen in Figure 3.

Discussion

This study aimed to perform a translation and cross-cultural adaptation of the QAEP in a process inspired by the guidelines provided by Beaton et al. (24) and Tsang et al. (23). Other guidelines are available (33) but were not used in the present study. Due to the time-consuming nature of translation and adaptation (24,33), the use of a guideline is essential to control the process and ensure semantic equivalence. A systematic approach ensures that the questionnaire measures remain consistent and do not deviate from those of the original QAEP due to the translation process. This method also offers the opportunity to expand and inspire others to adapt the questionnaire into different languages, thereby enhancing the potential for broader applicability in measuring students' perspectives on podcasts. This questionnaire consists of 19 items covering four dimensions of educational podcasts: access and use, design and structure, content adequacy and value as an aid to learning. Therefore, the questionnaire is short and easy to use when student's perspectives on an educational podcast are needed. However, for now, the questionnaire only consists in English and Danish.

The translators and expert committee members were carefully chosen in conformity with the cross-cultural adaptation guideline recommendations (24). As recommended by Beaton et al. (24), two translators with the target language as their native language made the forward translations and two translators with the original language as their native language completed the back-translation. Beaton et al. (24) also suggested that one of the translators should be aware of the concept being examined. In this cross-cultural adaption, none of the translators had professional experience with the podcast concept. However, this questionnaire did not comprise any complex technical language, so experience in this regard was deemed unnecessary. Moreover, translators tend to be

Adgang og brug		Meget enig	Enig	Uenig	Meget uenig
1	Det var nemt at tilgå podcasten				
2	Jeg kunne lytte til podcasten på den/de enheder som jeg normalt lytter fra (fx mobiltelefon, tablet, computer, osv.)				
3	Jeg kunne lytte til podcasten de steder som jeg ønskede det (fx i bilen, udendørs, hjemme)				
4	Det var nemt at finde podcasten der, hvor jeg normalt lytter til podcasts (fx Spotify, iTunes, Saxo, Podimo m.fl.)				
Design og struktur					
5	Længden af podcastene er passende for forståelsen af deres indhold				
6	Podcasten havde et flot design (fx farve, cover, logo og lign.)				
7	Lyden på podcasten var klar og tydelig				
8	Musik, speak og lyd var synkroniseret, så de passede sammen.				
Indholdets relevans og formidling					
9	Podcastene giver et godt overblik over emnet				
10	De ord og begreber der bruges i podcasten, var passende				
11	De eksempler, som gives i podcasten, var passende				
12	Indholdet i podcasten var relevant for emnet				
Værdi som redskab til at understøtte læring					
13	Podcasten var en god hjælp til at lære om emnet				
14	Podcasten styrkede min forståelse af emnet				
15	Podcasten gjorde emnet mere underholdende				
16	Podcasten var nyttige i forhold til at lære noget om emnet				
17	Jeg er tilfreds med podcasten som et læringsredskab om dette emne				
18	Podcasten motiverer mig til at lære på egen hånd				
19	Podcasten gav mig en bedre forståelse af emnets indhold				

Figure 3 The Danish version of the QAEP

more probing and critical when they do not know the professional aspect of an item. This is in favour of the process used in this study.

The discussions in the expert group helped to qualify the questionnaire. The expert group helped clarify verbs that had have different meaning in Danish. An example of the expert committees' work was the word terminology, which may be directly translated into Danish, but is rarely used in non-expert contexts in Danish. The Expert Committee therefore proposed an alternative wording that was more suitable for a Danish cultural setting. The first pre-test confirmed that some students did not know the meaning of the word terminology, and therefore the question was changed. The authors noted possible changes in each step to be true to the original questionnaire. It would have strengthened the validation if the expert committee had seen and reviewed the final questionnaire. During the translation process, some questions arose that required clarification from

the authors of the original questionnaire. In order to ensure semantic and conceptual equivalence between the original and the translated version, the authors were contacted to provide insights and address any concerns. The pilot study also identified a need for more clarity on some items. The majority of the students needed help to fully grasp items where words like *presentation format* or *video* were included. In our context, the podcast is audio only; therefore, the items were either deleted or changed to handle audio only. By deleting item 7, a significant alteration has been made to the questionnaire. However, this item needs to be more relevant in the Danish context of the podcast and removing the item will not affect the questionnaire scores. After altering the questionnaire, a new pilot study was performed to secure its content validity. This alteration did, however, not influence the total score of the questionnaire.

The internal consistency of the QAEP was good (Cronbach's alpha = 0.883), although two of the subscales (factor design and structure and content adequacy) recorded an alpha below 0.70. The low alpha may potentially be due to the low number of items (23,32,34).

The internal consistency denoted by the total alpha was high and therefore indicated good validity; the overall questionnaire score is considered valid. As recommended (22) this study investigated the applicability of the QAEP to a different discipline - nursing science - and a different educational level - a Bachelor of Science in Nursing. Translating the validated QAEP tool into Danish allows educators to explore students' perspectives on educational podcasts. However, as a teacher, they must consider its pedagogical use. According to McGarr (8), educational podcasts encompass diverse formats, ranging from recorded lectures where students are passive receivers to student-led podcasts where students are active participators (8). The questionnaire lacks definition or consideration regarding the specific type of educational podcast under evaluation, which is a limitation of the questionnaire. As previously underlined (22), the main advantage of the QAEP is its brevity. However, despite its brevity and simplicity, the QAEP comprises a range of aspects of student perspectives relating to educational podcasts, and on that basis it could improve the podcast as a technological tool. The feedback achieved by using the QAEP is a valuable tool for improving and enhancing teaching and learning processes and thus increase student-centred learning. The questionnaire offers a diverse perspective on the contribution of podcasts to students' learning, especially regarding factor value and aid to learning. Over time, other factors might diminish in relevance as the podcast host gathers more information about listener numbers, physical placement and the preferred podcast hosting service. The availability of questionnaires within the area may benefit data quality and facilitate inter-study comparison. This study tested the questionnaire on nursing students, whereas the original QAEP tested it on psychology students. Therefore, this cross-cultural adaption indicates the applicability of the QAEP. Testing the QAEP questionnaires in other disciplines and education is recommended.

Conclusion

This study describes the cross-cultural adaptation of the QAEP questionnaire. The results of this study showed that the QAEP was successfully translated and cross-culturally adapted for use in Denmark. Thus, the QAEP demonstrated adequate validity and reliability when used by nursing students in Denmark, and it may therefore be used to collect students' views about four dimensions of educational podcasts: access and use, design and structure, content adequacy and value as a learning aid.

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Competing interests

The authors have no potential conflicts of interest to declare.

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Author contribution

The authors contributed equally to all aspects of the study.

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