



The MUSIC model of motivation: Its utilization in the e-learning context and graduate students' perceptions of its effectiveness

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Abstract

The current study aimed to evaluate an online learning experience based on the music model of motivation in an educational technology post-graduate program in Oman. In order to understand the motivational perceptions of students regarding the instruction, a two-phase, sequential explanatory mixed method research design was conducted in this study. The quantitative data was collected from 40 students who enrolled in one class in which the instructional design was implemented for 2 weeks. After collecting the quantitative data, 10 students who voluntarily participated in the study's second phase were asked to respond to open-ended questions. The quantitative and qualitative data were interpreted and reported together by researchers. In conclusion, this research revealed that instructional design based on the music model of motivation is effective in increasing the motivation of students for each component of the model. Therefore, the researchers recommended expanding the use of the music model in the context of e-learning especially with part-time postgraduate students.

Keywords: Academic achievement, E-learning activities, E-learning, Mixed-method research, Motivation, MUSIC model.

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Contribution of this paper to the literature

This study investigates the most important challenge facing students of open learning in postgraduate studies, it tries to find an appropriate framework to raise the motivation of these students throughout their learning by using the music motivational model which can lead to an improvement in intended learning outcomes.

1. Introduction

“Motivation” has long been a question of great interest in the field of psychology. Schunk, Pintrich, and Meece (2008) defined motivation as “the process whereby goal-directed activity is initiated and sustained” (p.4). Motivation is a key determinant of human behavior. In this context, academic motivation is vital for teaching and learning. Academic motivation has been studied by many theorists in the literature. Reeve (2005) mentioned 24 mini motivation theories in his book about academic motivation. Motivation lies beyond the scope of this study. Some of the major motivation theories will be explained briefly in this paper.

One of the well-known theories on motivation is the “Social Cognitive Theory” in which “self-efficacy” is defined as “an individual's belief in his or her own ability to organize and implement action to produce the desired achievements and results” (Bandura, 1997). In terms of this definition, the concept of “self-efficacy” is not about the abilities or skills a person has, it is about the beliefs that person has about these abilities and skills (Bong & Skaalvik, 2003). It has been proved that individuals with higher levels of self-efficacy beliefs, tend to be more resilient against difficulties in literature (Schunk & Usher, 2012).

Another important cognitive motivation theory is the “Expectancy-Value Theory” in which motivation depends on positive expectations and values. The components of motivation are importance, interest, usefulness and the worth of the task (Anderman, Gray, & Chang, 2013). On the other hand, “Attribution Theory” is interested in meanings attributed to reasons of success and failure by students. The main idea of this theory is that students make environmental attributions to understand their own successes and failures (Graham & Williams, 2009).

Moreover, Deci and Ryan (1985) contributed to the field by developing a comprehensive motivation theory, i.e. “Self-Determination Theory”. According to this theory, the basic psychological needs were defined as autonomy, competence and relatedness. Although, the concept of motivation has been defined by many different theories, there is still a requirement for a practical model that can guide the process of instructional design. The ARCS model developed by Keller (1987) regarding this necessity aimed to explain motivation from an instructional viewpoint. Relevance, confidence and satisfaction were determined as key factors of motivation in this model.

2. Theoretical Framework

Jones (2009) developed the music model of motivation to make a comprehensive contribution to instructional design about 30 years after the ARCS model. The name of the model MUSIC is an acronym based on the second letter of the first component (empowerment) and the first letters of the other four components (usefulness, success, interest and caring). The effects of each component have already been emphasized by different motivation theories, the requirement for a comprehensive and practical model for instructional design makes this theory important among others.

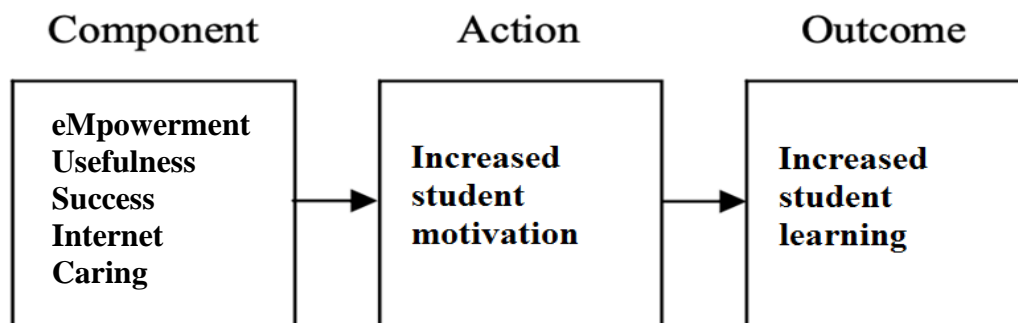


Figure 1. The MUSIC model of motivation based on a social-cognitive theoretical framework.

As can be seen from Figure 1, each component of the model is related to motivation which leads to increased student learning and it is stated that components of the model are equally important for both face-to-face and online learning environments (Jones, 2009). The first component of “empowerment” is based on self-determination theory and refers to the autonomy individuals have over their own learning. Self-determination theory (Deci & Ryan, 1985) suggests that individuals who are empowered see themselves as the source of their own behaviors and believe themselves to have made their own choices. In terms of “empowerment”, giving an optimal level of autonomy to learners for their own learning will affect their motivation positively.

The second component of the model “usefulness” depends on the perceptions of students about the utility of the instruction in the future and is based on the expectancy-value theory. In this context, it is vital to put forth the benefit of instruction for students in instructional design. The third component of the model “success” refers to the importance of students’ perceptions of being successful if they make enough effort to succeed. The fourth component, “interest” can be defined as “liking and willful engagement in a cognitive activity” (Schraw & Lehman, 2001). According to Hidi and Renninger (2006), “the potential for interest is in the person but the content and the environment define the direction of interest and contribute to its development”. The last component of the model “caring” is based on the need for relatedness as expressed by self-determination theory. This component was discussed as two-dimensional: academic caring and personal caring. Regarding academic caring, instructors should care about the students’ success and their well-being as well which is defined as personal caring (Jones, 2009).

There are many studies based on the music model of motivation in literature (Chittum, Jones, Akalin, & Schram, 2017; Parkes, Jones, & Wilkins, 2017; Wilkins, Jones, & Rakes, 2021) that point out the necessity of studying the music model of motivation in different cultural contexts. Regarding this gap in the literature, the

current study aimed to evaluate an online learning experience based on the music model of motivation in an educational technology post-graduate program in Oman. Another important point to be addressed here is the need for increasing postgraduate students' motivation in online learning settings as they usually face many challenges during their studies. According to the records of students who stopped completing their studies, most of them suffer from work pressures and family responsibilities and the teaching style and lack of interaction during lectures were major reasons for their low motivation towards learning. Thus, we believe that it is necessary to rely on a motivational approach for these students to counteract their low motivation and increase their desires towards learning and completing their studies. In this context, the main research question can be stated as follows: What are the students' perceptions about the effectiveness of their e-learning environment designed based on the music model of motivation to raise their motivation towards learning?

3. Methodology

In order to seek answers to our research questions, we employed a two-phase, sequential explanatory mixed method research design that consisted of two distinct phases: a quantitative phase followed by a qualitative phase (Creswell & Plano-Clark, 2011). In the quantitative phase, we collected and analyzed questionnaire data and in the qualitative phase, we collected and analyzed data obtained from open-ended questions.

3.1. Research Sample

The target population included students enrolled in a post-graduate program at a private university in Oman. The participants aged between 25 and 45 years. The researchers selected the research sample using the regular random sampling method. The research sample consisted of 40 students (25 females and 15 males) selected from the master program in instructional technology. Most of the participants are full-time teachers in different schools in Muscat. To collect qualitative data, 10 volunteer students who responded to the inventory were asked to reflect on open-ended questions.

3.2. Design of the Instruction

Jones (2018) prepared a flow chart for the practical use of the music model of motivation in instructional design. As shown in Figure 2, firstly, the course objectives should be determined and instructional strategies along with music strategies should be selected. Then the strategies are to be implemented and students' music perceptions should be assessed and evaluation should be done respectively.

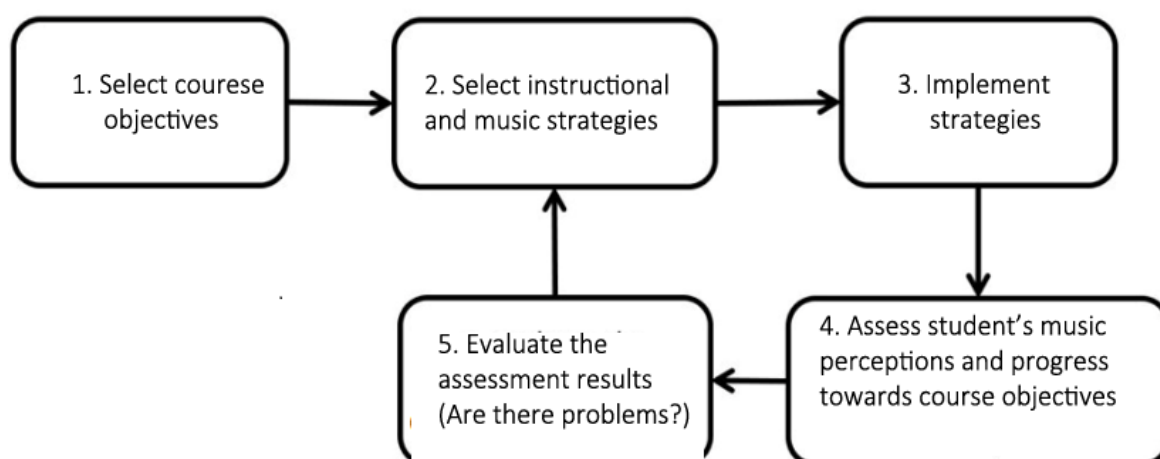


Figure 2. Process of using the MUSIC model of motivation in instructional design.

3.2.1. Selection of Course Objectives

Course title: The “open and distance learning (631)” course was chosen from the master program in instructional technology. We selected the content of weeks 8 and 9 of the study calendar for the course. The content of both weeks was about OER (open educational resources) which contained a group of similar, interrelated concepts that are often confused by students.

Course objectives: At the end of the mentioned weeks, learners will be expected to: (1) understand the concept of OER, (2) list the licenses for the availability of OER, (3) connect and link OER and Open source, (4) identify the types of OER.

3.2.2. Selection of Instructional and Music Model Strategies

Researchers agreed to use problem-based learning and project-based learning strategies to design the instruction. For the motivational strategies, the strategies that were suggested for each component of the model by Jones (2018) were integrated into instruction design as follows:

(A) Empowerment:

- Allowing students to choose the order in which they complete assignments.
- Allowing students to express their thoughts and ideas.
- Minimizing the use of controlling language with students.

(B) Usefulness:

- Relating the content to students' daily lives or issues they face.
- Conveying to students how the content can benefit them in the future.
- Giving students an assignment that asks them to make connections between the course material and their lives.

(C) Success:

- Allowing students to re-do assignments and re-take tasks.
- Showing students examples of completed assignments from former students.
- Allowing students to work.
- Using online discussions to provide students feedback related to their questions.
- Sending students short emails with feedback.
- Allowing students to provide feedback to each other during or outside of class time.

(D) Interest: The following steps have been taken into consideration:

- Using creative strategies to involve students in discussions.
- Using activities that pique students' curiosity about the content.
- Providing surprising information.
- Showing an interesting image, video or animation whenever possible.
- Creating a pleasant learning environment.

(E) Caring: The following steps have been taken into consideration:

- Friendliness and closeness to students.
- Respond to students' inquiries promptly.
- Encouraging students to communicate with and interact with the teacher.
- Incorporating activities that help students get to know one another.

3.2.3. Implementation of Strategies

At this stage, the target learners were selected while the design was finalized with all the relevant requirements for application and administration. In addition, the researchers determined the appropriate timing. The aforementioned strategies were applied for two weeks of the course in the fall semester of the academic year 2022-2023.

3.2.4. Evaluation of the Assessment Results

An achievement test prepared by researchers has been applied.

3.2.5. Assessment of Students' Perceptions and Progress towards Course Objectives

At the end of 2 weeks of implementation, students were asked to fill out the inventory to assess their perceptions about the activities. In addition to the inventory, open-ended questions were answered by volunteer students to evaluate the process.

3.3. Data Collection Tools

The "MUSIC[®] Model of Academic Motivation Inventory" (Jones, 2022) was used as a quantitative measure and open-ended questions suggested by Jones (2022) were used as a qualitative measure. On the other hand, the researchers prepared an achievement test.

3.3.1. MUSIC[®] Model of Academic Motivation Inventory

The Arabic version of the inventory was used in this study to collect data from participants. Mohamed, Soliman, and Jones (2013) provided validation evidence for the translation of the music inventory with students in Egypt and they proved the same five factors as the original inventory: empowerment, usefulness, success, interest and caring. The five components of the model were measured by a total of 26 items which were rated on a 6-point Likert type scale: empowerment (5 items), usefulness (5 items), success (4 items), interest (6 items) and caring (6 items). The inventory was conducted at the end of planned activity.

3.3.2. Open-Ended Questions for Students

Open-ended questions suggested by Jones (2022) were used in this study to obtain qualitative data from participants. Participants were asked to write answers to these questions at the end of the activity.

- What could be changed in this course to make more choices in the course?
- What aspects of this course may be improved to make it more useful to you?
- What could be changed in this course to help you be more successful?
- What could be changed in this course to make it more interesting and enjoyable?
- What could be changed in this course to make you feel that the instructor or other students care about whether you learn the course content and care about you as a person?
- What is working well in this course and what could be improved?

3.3.3. Achievement Test

The researchers prepared a post achievement test that contains 10 questions (5 multiple choice and 5 true or false). The test was presented to a group of experts in measurement, evaluation and educational technology and it was approved.

4. Data Analysis and Results

In this part of the research, quantitative and qualitative data were presented respectively.

4.1. Quantitative Data

4.1.1. The MUSIC® Model of Academic Motivation Inventory

The inventory was developed on a Google Form and distributed online to the students. The collected data were analyzed using descriptive analysis. The descriptive mean was calculated using the SPSS® software. Both the mean score and standard deviation were recorded. Reliability coefficients were estimated using Cronbach's alpha coefficient value. The quantitative data were obtained from 40 students who participated in 2 weeks of activities. The descriptive statistics of the data is given in Table 1 for each sub-scale of music model of academic motivation inventory.

Table 1. Descriptive statistics for each music model component.

MUSIC model component	Example item	N	Minimum	Maximum	Mean	Std. deviation
Empowerment	I have the freedom to complete the coursework in my own way.	40	4.60	6.00	5.55	0.33
Usefulness	I find the coursework to be relevant to my future.	40	5.60	6.00	5.90	0.13
Success	I am confident to succeed in the coursework.	40	5.00	6.00	5.66	0.31
Interest	The instructional methods used in the courses hold my attention.	40	5.50	6.00	5.82	0.15
Caring	The instructors are willing to assist me if I need help in the course.	40	5.67	6.00	5.97	0.08

According to Table 1, the means for each component are all relatively high, ranging from 5.55 to 5.97 on a 6-point Likert-type scale which means that students' perceptions of motivation are high for this course.

4.1.2. Achievement Test

The test was developed on the Quizizz® platform and distributed online to the students. The descriptive mean was calculated using the SPSS (Statistical Package for the Social Sciences) ® software. Both the mean score and standard deviation were recorded. Reliability coefficients were estimated using Cronbach's alpha coefficient value. The descriptive statistics of the data is given in Table 2.

Table 2. Descriptive statistics for the achievement test.

Achievement test	N	Minimum	Maximum	Mean	Std. deviation
Test	40	18.00	20.00	19.1	1.01

In Table 2, the mean for the test's mark is high, ranging from 18.00 to 20.00 which means that students' achievement is high for this course.

4.2. Qualitative Data

To obtain the qualitative data for our study, we asked 10 participants who volunteered to reflect on open-ended questions to write their answers at the end of 2 weeks of implementation. 10 participants reflected on their perceptions of motivation by answering 6 open-ended questions about the instruction. The following summarize the reflections of participants for each question:

- What could be changed in this course to make more choices in the course?

This question was asked to understand the students' perceptions of the "empowerment" component of the music motivation model. Five out of 10 students answered that there is nothing to change while the other half participants reflected on some aspects to be considered. Examples of reflections are given below:

"Students can choose the nature of activities and tasks" (P12).

"We can choose the type of projects we implement" (P17).

"Choice of teaching methods" (P28).

The quotations above indicate the need for more autonomy to be given to students in instructional design. Participants emphasized that they could choose the activities, projects and teaching methods through the course.

- What could be changed in this course to make it more useful to you?

This question was asked to understand the students' perceptions of the "usefulness" component of music motivation model. 6 out of 10 students answered that there is nothing to change while the others reflected on some aspects to be considered. Examples of reflections are given below:

"Reducing educational content for increasing collaborative activities." (P17).

"Flexible selection of assignment deadlines." (P33).

"The course is really useful to me and does not need any change." (P26).

The quotations above point out that most of the students could not understand the component of "usefulness" as they referred to empowerment in their answers such as the selection of assignment deadlines. One of the participants emphasized the need for increasing collaborative activities to make the course more useful for students.

- What could be changed in this course to help you more successful?

This question was asked to understand the students' perceptions of the "success" component of the music model. Most of the participants expressed that they were happy with the course and gave some suggestions. Examples of reflections are given below:

"I am happy with the course, and it motivates me to succeed in other courses." (P10).

"The course in its current form is excellent and helps me succeed." (P26).

"Maximizing work with peers in implementing activities in lectures" (P12).

The quotations above reveal that students have high perceptions regarding the “success” component of the music model of motivation. One of the participants emphasized the importance of peer-learning activities for the “success” component.

- What could be changed in this course to make it more interesting and enjoyable?

This question was asked to understand the students’ perceptions of the “interest” component of music model. Unlike the other questions, the answers to this question involved more ideas from students. Most of the students pointed out different methods that can be used in order to make the course more interesting. Examples of reflections are given below:

“We do out-of-class visits.” (P12).

“We host speakers from outside the university.” (P17).

“Increase the space for discussions between colleagues in asynchronous communication.” (P25).

“Increase games during the lecture.” (P26).

“Involve us in giving lectures.” (p36).

The quotations above suggested that several methods can be used during the course in order to increase the interest of students such as out-of-class visits, hosting speakers and social interaction, etc.

- What could be changed in this course to make you feel that the instructor or other students care about whether you learn the course content and care about you as a person?

This question was asked to understand the students’ perceptions of the “caring” component of the model. Students emphasized the concepts of peer learning, interaction and feedback. Examples of reflections are given below:

“Activate peer learning strategy.” (P10).

“Increase interaction with peers through participatory tasks.” (P33).

“I really feel cared for by the teacher and all my classmates by sharing the tasks.” (P18).

“Receive continuous feedback from the teacher for each task.” (P17).

The quotations above revealed that students need more interaction with other students. One of the participants emphasized the importance of continued feedback from the lecturer for each task while another participant reflected their positive feelings about being cared for by the teacher and classmates during the course.

- What is working well in this course and what could be improved?

This general question was asked for an overall evaluation of the course by participants. All participants responded positively to this question which brought some suggestions. Examples of reflections are given below:

“The teacher is wonderful and friendly to all of us. I can't find anything bad.” (P17).

“The activities are varied and attractive. I did not find anything bad.” (P18)

“Everything is great; just increase the number of students in cooperative groups.” (P32)

“The teacher's performance is excellent. Recording lectures for later reference.” (P12).

“Humor from the teacher throughout the lecture.” (P26).

The quotations above show that participants have positive perceptions about the course but also emphasized some aspects such as increasing the number of students in cooperative groups and recording lectures.

5. Discussion

The qualitative data supported the quantitative data. It enabled us to have a deeper insight into the situation especially in regard to the “empowerment” component; participants suggested giving students more opportunity to choose content, activities, teaching methods and assignment deadlines. Moreover, it was observed that most participants were confused about the meaning of the “usefulness” component. This point should be considered for further studies and the components should be explained clearly to the research participants during the study.

Collaborative tasks, class activities, students and lecturer were mentioned to increase the success and interest of the participants. Peer-learning emerged as a key theme both for the success, interest and caring components of the model. This result indicates that peer-learning should be considered an important aspect of instructional design. Further studies can focus on the effectiveness of peer-learning activities on student motivation and success.

Ahn, Chiu, and Patrick (2021) confirmed that the more freedom is given to learners in choosing and defining the features of e-learning environments, the more their motivation towards learning rises.

Similarly, McBreen and Savage (2021) pointed out that diversity in methods of education and teaching contribute effectively to raise the motivation of learners. This was also confirmed by Putra (2021) who mentioned that using more than one teaching method contributes to increasing their desire to participate and interact with the teacher and peers. Mbaegbu, Obibuba, and Okwuba (2022) point out that the teacher's sense of humor towards the students increases the learners' desire to complete their learning, generates renewed motives for their learning and contributes to their success and achieving the goal of learning. The researchers were keen to deal with the students in a friendly way which had a clear positive effect on their motivation. Furthermore, Affuso et al. (2022) emphasized that providing continuous and constructive assistance to learners throughout their learning mainly contributes to raising learners' motivation towards their learning and achieving mastery of targeted learning. In the same context, Herian, Madjdi, and Setiadi (2022) indicated that providing immediate and direct feedback to students will contribute to enhance their learning and encourage them to have high motivation throughout the learning period. Finally, Soysal, Bani-Yaghoub, and Riggers-Piehl (2022) point out confidence helps learners to succeed in achieving learning goals. Regarding the foregoing, using the components of the music model in e-learning environments and the activities, tasks and learning that they contain, contributed very effectively to raise learners' motivation towards their learning and that motivation resulted in a high level of cognitive achievement of the educational content. Therefore, the researchers emphasize the high added value of using the music model in e-learning environments for student motivation and achievement. Motivation is also mentioned as an important component in the context of e-learning by many researchers (Kulhanek, Butler, & Bodnar, 2021; Subramanian & Budhrani, 2020; Vaziri, Vaziri, Novoa, & Torabi, 2022; Zwanch & Cribbs, 2021).

6. Conclusion

The mixed-method study contributed to the present literature on a music model of motivation. The study was conducted for a short-term online course with limited numbers of students. Longitudinal studies can be designed to observe the effectiveness of a music model based on instructional design both for face-to-face and online learning environments. Furthermore, the relationship between different variables and music model components can be determined by quantitative research in different cultural contexts. We can mention here how to take advantage of the motivational design model ARCS which includes four categories that can be combined in a new successful practice with the music model. On the other hand, qualitative studies that enable deeper understanding should be designed to analyze the reasons behind the perceptions of students.

Considering the above findings, expanding the reliance on the music model can provide interactive e-content that is highly compatible with the characteristics of the current digital generation. It is expected to reduce cognitive load and increase academic achievement rates. An effort to integrate the music model in the e-learning environment is highly recommended because of its potential to maximize the student's motivation and desire to learn. Furthermore, teachers should be trained to use the music model. Planning and designing instructional curriculum should be urged to introduce the music model for delivering knowledge to students in all academic courses.

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