

استخدام خرائط المفاهيم في الوباء المرضي التاجي كورونا فيروس COVID-19 لتعزيز التعلم الهادف: الدليل من خلال عملية البحث الإجرائي

UTILISATION DE CARTES CONCEPTUELLES DANS LE COVID-19 DE LA MALADIE À CORONAVIRUS POUR AMÉLIORER L'APPRENTISSAGE SIGNIFICATIF: PREUVES PROVENANT D'UN PROCESSUS DE RECHERCHE-ACTION

ملخص



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بالنظر إلى خصائص تعلم المواضيع الطبية، تناقش هذه الدراسة مزايا استخدام خرائط المفاهيم (CMs) من خلال عملية البحث الإجرائي (ARP) كمكون أساسي في الطور الأول من التدرج في المناهج الطبية في المرحلة الجامعية. على وجه التحديد، يقدم دليلاً من عملية البحث الإجرائي التي تهدف إلى تقييم تأثير خرائط المفاهيم كأداة قوية لتعزيز التعلم الهادف على المتعلمين الطبيين المسجلين في وحدة مرض فيروس التاجي (COVID-2019). وهكذا، تم اختيار المتعلمين الطبيين (30) الذين درسوا في السنة الرابعة للعلوم الطبية في الجزائر العاصمة بطريقة أخذ العينات البسيطة وتم تعيينهم عشوائياً في المجموعة التجريبية (20) والمجموعة التقليدية (10). توصلت نتائج الدراسة إلى أن تنفيذ CMs من خلال ARP كان فعالاً وإيجابياً وقوياً في التعلم الهادف في مرض فيروس التاجي 2019 (COVID-19). لذا تحسن أداء المتعلمين من الاختبار المسبق إلى الاختبار اللاحق مع الربح المكتسب (g) يقدر بـ 0.30 ، يعتبر فعالاً إلى حد ما.

Résumé

Compte tenu des caractéristiques de l'apprentissage des sujets médicaux, cette étude examine les avantages de l'utilisation de cartes conceptuelles (CMs) par le biais du processus de recherche-action (ARP) en tant que composante centrale d'un programme de premier cycle en éducation médicale. Plus précisément, il présente les preuves d'un processus de recherche-action visant à évaluer l'impact des cartes conceptuelles en tant qu'outil puissant pour promouvoir un apprentissage significatif sur les étudiants en médecine inscrits au module COVID-2019. Ainsi, les étudiants en médecine (30) étudiés en quatrième année de médecine à Alger ont été sélectionnés par une méthode d'échantillonnage simple et répartis au hasard en groupe expérimental (20) et traditionnel (10). Les résultats de l'étude suggèrent qu'une mise en œuvre des CMs par le biais de l'ARP a été efficace, positive et puissante dans un apprentissage significatif sur la maladie des coronavirus 2019 (COVID-19). Ainsi, les performances des apprenants se sont améliorées du pré-test au post-test avec un gain normalisé (g) de 0,30, considéré comme modérément efficace.

1. INTRODUCTION

Learning in the medical education depends to support learners to construct on prior knowledge and then create new knowledge. In addition, learning from theoretical, practical, clinical and laboratory reasoning need the development of an interpretation of interdisciplinary learning in order to be more useful. Each step in learning involves combining what you already know with what you need to know (Novak and Cañas, 2008).

Moreover, Novak & Gowin (1984) agreed that meaningful learning involves more than rote memorization special effort to relate new knowledge to what is already known. In other words, learners must make a special effort to relate new knowledge with that they already know. In this way, concept mapping is thought to be a useful tool in reinforcing meaningful learning (Novak, 2002). Similarly, in concept mapping, in an endeavour to assist learners to reduce the gap between theoretical, practical, clinical (McGaghie, et al., 2000 and Schuster, 2003), and laboratory reasoning and also to enhance their meaningful learning.

However, Morris (2019) stated that such instructional experience may promote repetitive behavior, rather than promoting a spiral in learner growth through their life course. While, Johnson (2003) noticed that action research (AR) is also a type of investigation that is preplanned, organized, and can be shared with others. Therefore, (Novak & Cañas, 2008) showed that concept maps strategy is used to organize key concepts, main ideas and represent knowledge using keywords, tree structures and network diagrams, colors, and images. So according to (Novak and Cañas, 2008) pointed out the importance of using concept maps in learning and teaching that combines semantic understanding and creativity, and it involves thinking in terms of graphic representations. Indeed, in concept mapping, one identifies the important concepts from a subject and describes the relationship between those concepts with linking words (Novak et al., 1984). For this reason, concept maps are also used to see how broad concepts are integrated, and as a guide for deciding what is

important to understand (Novak et al., 1984). In this regard, (Harpaz et al., 2004) highlighted that linear thinkers may be disadvantaged; however concept mapping may be a strategy to push the linear thinkers to a higher level of thinking especially in the complex field as nursing. And also (Kathol et al., 1998) indicated that concept maps can be a powerful tool for identifying and clarifying misunderstandings before new learning is constructed on incorrect beliefs.

Furthermore, Schuster (2003) has studied and used concept maps extensively in the clinical setting with great success. In this opinion, CMs through ARP encourage learners to develop the ability to identify, organize, relate, construct and process knowledge in the theoretical, practical, clinical and laboratory reasoning, aiding them to learn and to think critically and meaningfully in any given situations (Novak & Gowin, 1984; Castellino and Schuster, 2002; Johnson, 2003; Harpaz et al. 2004 and Ingole et al., 2016).

Finally, this study was conducted to evaluate the effect of concept maps (CMs) through ARP on meaningful learning skills, increasing understanding of the coronavirus disease COVID-19 pandemic and to examine if there is an encouraging effect on meaningful learning in the coronavirus disease COVID-19 module at the University of medicine Algiers, Algeria and knowledge among undergraduate medicine learners.

2. APPROCHE METHODOLOGIQUE

The chosen materials in the coronavirus disease (COVID-19) were taught by CMs strategy through ARP for the experimental group while in the traditional lecturing method was used. In this view, medical learners (30) studied in fourth year of the University of Medicine Algiers were selected by simple sampling method and randomly assigned into experimental (20) and traditional group (10). In this way, the degree of meaningful learning achieved by both programmes was assessed by comparing pre- and post-test results. These pretests and protests scores were taken to control acquire in three rubrics at first constructing prior and new knowledge at second using action research process and at third using mixed method following the

CMs/ARP sessions on the topic of COVID-19. Accurately, this study displays to answer the following question: What is the effect of using concept maps through action research process on the virology of knowledge structures? So given the precondition of excellent teacher, educator, instructor and experts dependability, the study hypothesized that more complex CMs/ARP in different reasoning skills represented deeper modality of meaningful learning in COVID-19 module.

3. DESCRIPTION DE L'ECHANTILLON

The study was conducted during a 5-week period in January 2020. Learners were briefed about the purpose of the study. A pretest was conducted by giving 10 questions of general understanding about CMs and ARP and 10 questions regarding coronaviruses and COVID-19 pandemic. Two sessions each week of integrated learning and teaching was organized to teach the topic. Integrated teaching module was taken by all learners. After completion of integrated teaching that has appeared as a key pedagogical strategy to enhance learner learning and development (Kennedy et al. , 2015), a post-test was conducted using multiple choice questions (MCQs), thinking questions (TQs) and problem-based question (PBQs) related to COVID-19 module was taken to evaluate their prior and new knowledge. In this view, medical learners (30) studied in fourth year of the University of Medicine Algiers were selected by simple sampling method and randomly assigned into experimental (20) consisting of (12 females and 8 males) and traditional group (10) consists of (6females and 4 males) with an age range of 21-30 (mean, 22.5).

4. RESULTATS

Related to meaningful learning in understanding any topics for COVID-19 using CMs/ARP, 95% were opined that it was a meaningful learning pedagogy to assist learners in identifying main ideas, key and specific concepts and interconnecting with specific concepts among the interdisciplinary perspectives in COVID-19. Regarding learning activity in defining key concepts, linking them with a quick understanding for COVID-19 using CMs/ARP, more than 90% were opined that it was sufficient and good. Overall 70% learners agreed on the point that CMs/ARP pedagogy aided them to integrate

basic, key and specific prior and create new knowledge related to COVID-19 and also it is more useful, positive and meaningfully learning than traditional lecture method. 85% learners were satisfied and facilitated to determine and achieve of outcomes of objectives of learning related to COVID-19 with mixed method such as CMs/ARP. Concerning reflection of learners about mixed method CMs/ARP over traditional lecture method it was noticed that 95% learners opined that it was simpler, useful, collaborative , concise, positive and powerful mixed method and they would like to learn by it frequently in the future in their careers. As such, the result of post-test showed significant increase in marks in experimental group as compare to traditional group, suggesting CMs/ARP as a potential tool for better meaningful, resourceful and critical understanding in learning and teaching COVID-19 module (tables 3 ,5 ,7 in the appendix). The mean scores of post-test, between experimental and traditional groups, were significantly different (4.7). Accordingly, the mean of post-test scores in experimental group was higher than the mean of post-test scores in traditional group.

5. CONCLUSION

The outcomes of the study concluded that CMs through ARP is one of the successful strategies that can be used to teach and learn coronavirus disease 2019 (COVID-19) in medical education at the university of medicine Algiers, Algeria. Hence, they provided main and specific ideas for medical university staff on the application and incorporation of them in teaching and learning and as a core component of curriculum development at the department of medicine with new and complex topics such as COVID-19. Therefore, integrating CMs through ARP in undergraduate medical education at the University of medicine Algiers is the need of the day to enhance community based medical education in Algeria that may have involvements for understanding meaningfully how CMs through ARP can help them in growing and organizing theoretical ,practical clinical and laboratory reasoning processes in learners future doctors.

6. RECOMMANDATION

Consequently, this further suggests the useful ways for both the educators and the learners in concept maps application with other active learning methods such as problem-based and team-based learning and scaffolding that work in ways within medical education by boosting self-directed learning, by designing critical thinking skills and by leading assessment of learning and performance. Finally, the study considered that further research into the application and implementation of concept maps through team-based and problem-based learning and scaffolding in the theoretical, practical, clinical and laboratory setting contents, medical critical thinking skills and diagnostic errors in clinical and laboratory practice is also needed in medical education related to COVID-19 module necessary to develop their traits, talents and skills in any given situations in the future.

REFERENCE

Pour plus de détails, veuillez consulter l'article : **USING CONCEPT MAPS IN CORONAVIRUS DISEASE COVID-19 TO ENHANCE MEANINGFUL LEARNING: EVIDENCE FROM AN ACTION RESEARCH PROCESS** . *Les Cahiers du CREAD*, Volume 36, Numéro 3, Pages 449-474.

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